Group Package Accounts

Registration number: 03101747

Air Products Group Limited

Annual Report and Financial Statements

for the Year Ended 30 September 2021

Air Products Group Limited

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Air Products Group Limited

Strategic Report for the Year Ended 30 September 2021

The strategic report has been prepared in accordance with Companies Act 2006.

Principal activity and business review
The principal activity of the company continues to be that of an intermediate holding company for the Air Products & Chemicals, Inc. UK and Ireland Group. Its principal subsidiaries' activities are the manufacture and sale of industrial gases and related products for their production and use.

The profit for the year ended 30 September 2021 was £17,822,000 (2020: £126,340,000). Same as in the previous year the profit in the current year was a result of dividend income received of £19,000,000 (2020: £129,420,000).

Principal risks and Uncertainties
The company aims to manage financial risks to avoid potential negative impacts on results.

Cash flow risks
The company participates in a group cash pooling arrangement to minimise cashflow based risks. In addition, financial risks related to interest rate and foreign exchange fluctuations are actively managed through the use of derivate financial instruments such as forward contracts.

Credit risk
The company's principal financial assets are bank balances, cash, and investments.

The credit risk on liquid funds and derivative financial instruments is limited because the counterparties are banks with high credit-ratings assigned by international credit-ratings agencies.

The company has no significant concentration of credit risk.

Liquidity risk
In order to maintain liquidity to ensure that sufficient funds are available for ongoing operations and future developments, the company participates in a group cash pooling arrangement.

Investment risk
The company faces investment risk related to the impairment of underperforming subsidiary undertakings. This is monitored through impairment reviews to confirm the carrying value of investments.

Brexit
Consistent with the directors initial assesment the impact of the United Kingdom's (UK) exit from the European Union ("Brexit") was minumal as the majority of customers and production for its core Industrial Gas business are based in the UK.

Covid-19
The directors reviewed the effect of the Covid-19 and beleive it had no significant impact. The core business of the company's subsidiaries has continued to perform strongly during this period and continues to generate positive cashflows.

Key Performance Indicators
The company does not trade and its principal objective is to act as a holding company for the Air Products UK and Ireland group. As such, no key performance indicators are used to monitor performance.

Future developments
The main objective of the company is to continue in its capacity as a holding company for the Air Products UK and Ireland group for the foreseeable future.

Environmental matters
The company recognises the importance of its environmental responsibilities, monitors its impact on the environment, and designs and implements policies to mitigate any adverse impact that might be caused by its activities. Initiatives aimed at minimising the company's impact on the environment include safe disposal of waste, recycling and reducing energy consumption.

The company is outside of the scope of the Streamlined Energy and Carbon Reporting (SECR) requirements.

Section 172 statement
The directors are aware of their duty under section 172(1) (a) to (f) of the Companies Act 2006 to act in a manner they consider, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole and, in doing so, to have regard (amongst other matters) to:

a) the likely consequences of any decision in the long term;
The directors understand what is needed to be successful and meet the group's long term strategic goals of becoming the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to customers. Management meets on a regular basis to formulate a long-term plan in line with strategic objectives, taking into consideration impacts on stakeholders.

b) the interests of the company's employees;
The company does not have any employees.

c) the need to foster the company's business relationships with suppliers, customers and others;
The company is a holding company and does not have any customers or suppliers.

d) the impact of the company's operations on the community and the environment;
The company is a holding company. The company aims to have a positive impact on the environment and community through the operations and activities of its subsidiaries.

e) the desirability of the company maintaining a reputation for high standards of business conduct;
The directors view integrity as a core value of the group and expect all activities to be executed in an ethical manner. Commitment to this behaviour is reinforced through the company's code of conduct which identifies a clear framework. Annual trainings are completed to ensure that standards are both met and maintained on an ongoing basis; and

(f) the need to act fairly as between members of the company.
The company is a wholly owned subsidiary of Prodair Corporation.

Approved by the Board on 30 June 2022 and signed on its behalf by:

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J. Escorihuela
Director

Air Products Group Limited

Directors' Report for the Year Ended 30 September 2021

The directors present their report and the financial statements for the year ended 30 September 2021.

Directors of the company

The directors who held office during the year and up to date of this report were as follows:

R. Boocock (resigned 19 January 2021)

C. Stinner (resigned 15 December 2021)

M. Crocco (resigned 10 August 2021)

D. Leney (resigned 22 February 2022)

M. Schaeffer (appointed 10 August 2021)

The following directors were appointed after the year end:

J. Escorihuela (appointed 22 February 2022)

B. Hussa (appointed 15 December 2021)

Dividends

The company received a £19,000,000 dividend in 2021 (2020: £129,420,000). The company paid dividends in the year of £19,000,000 (2020: £129,420,000)

Policy and practice on payment

The group policy on the payment of creditors is to settle the terms of the payment with those suppliers when agreeing the terms of each transaction; ensure that those suppliers are made aware of the terms of the payment and abide by the terms of payment.

Political donations

The company made no political contributions during the year (2020: nil).

Employees

The company has no employees.

Going concern
The company currently has a net current liability position due to loans payable to other group entities. As a result, a letter of support has been provided by ultimate parent entity Air Products & Chemicals, Inc. The directors are satisfied that there are sufficient resources available under this facility to meet all financial requirements in the 12-month period from the date of signing these financial statements.

The directors reviewed the effect of the Covid-19 and beleive it had no significant impact. The core business of the company's subsidiaries has continued to perform strongly during this period and continues to generate positive cashflows.

Disclosure of information to the auditors
The directors who held office at the date of approval of this directors' report confirm that, so far as they are each aware, there is no relevant audit information of which the Company's Auditor is unaware; and each director has taken all the steps that they ought to have taken as a director to make themselves aware of any relevant audit information and to establish that the Company's Auditor is aware of that information. This confirmation is given and should be interpreted in accordance with the provisions of s418 of the Companies Act 2006.

Financial management and Future Developments
Future developments and details of the companies approach to managing financial risks are included in the strategic report, and form part of this report by cross reference.

Subsequent event
Subsequent to the balance sheet date, conflict has broken out in Ukraine following the decision by Russia to invade the country on the 24th February 2022. As a consequence, the Ukrainian government has declared martial law across the country and significant sanctions have been imposed on Russia by the international community. The current situation has potential ramifications for a subsidiary company that is currently working on a construction contract for a facility based in Ukraine and has intercompany trading with a fellow group company based in Russia. The current assessment by the directors based on the latest information available, is that the impact of the situation in Ukraine and Russia will have no impact on the carrying value of the investment in the subsidiary company. As such, no additional adjustments are deemed necessary at the date of signing the 2021 financial statements.

Auditors
Deloitte LLP have expressed their willingness to continue in office as auditor and will be proposed for reappointment at the next Annual General Meeting.

Approved by the Board on 30 June 2022 and signed on its behalf by:

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J. Escorihuela
Director

Registered office:
Hersham Place Technology Park
Molesey Road
Walton-on-Thames
Surrey
KT12 4RZ

Air Products Group Limited

Directors' responsibilities statement

The directors are responsible for preparing the Annual Report and the financial statements in accordance with applicable law and regulations.

Company law requires the directors to prepare financial statements for each financial year. Under that law the directors have elected to prepare the financial statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards and applicable law), including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland". Under company law the directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the company and of the profit or loss of the company for that period. In preparing these financial statements, the directors are required to:

• select suitable accounting policies and then apply them consistently;
• make judgements and accounting estimates that are reasonable and prudent;
• state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements; and
• prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the company's transactions and disclose with reasonable accuracy at any time the financial position of the company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The directors are responsible for the maintenance and integrity of the corporate and financial information included on the company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Independent Auditor's Report to the Members of Air Products Group Limited

Report on the audit of the financial statements

Opinion
In our opinion the financial statements of Air Products Group Limited (the 'company'):

- give a true and fair view of the state of the company's affairs as at 30 September 2021 and of its profit for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice, including Financial Reporting Standard 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland"; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements which comprise:

- the profit and loss account;
- the statement of other comprehensive income;
- the balance sheet;
- the statement of changes in equity; and
- the related notes 1 to 15.

The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" (United Kingdom Generally Accepted Accounting Practice).

Basis for opinion
We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the financial statements section of our report.

We are independent of the company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the Financial Reporting Council's (the 'FRC's') Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern
In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

Independent Auditor's Report to the Members of Air Products Group Limited

Other information
The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The directors are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Responsibilities of directors
As explained more fully in the directors' responsibilities statement, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements
Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

Independent Auditor's Report to the Members of Air Products Group Limited

Extent to which the audit was considered capable of detecting irregularities, including fraud
Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

We considered the nature of the company's industry and its control environment, and reviewed the company's documentation of their policies and procedures relating to fraud and compliance with laws and regulations. We also enquired of management about their own identification and assessment of the risks of irregularities.

We obtained an understanding of the legal and regulatory framework that the company operates in, and identified the key laws and regulations that:

• had a direct effect on the determination of material amounts and disclosures in the financial statements . These included UK Companies Act and tax legislation; and
• do not have a direct effect on the financial statements but compliance with which may be fundamental to the company's ability to operate or to avoid a material penalty.

We discussed among the audit engagement team regarding the opportunities and incentives that may exist within the organisation for fraud and how and where fraud might occur in the financial statements.

In common with all audits under ISAs (UK), we are also required to perform specific procedures to respond to the risk of management override. In addressing the risk of fraud through management override of controls, we tested the appropriateness of journal entries and other adjustments; assessed whether the judgements made in making accounting estimates are indicative of a potential bias; and evaluated the business rationale of any significant transactions that are unusual or outside the normal course of business.

In addition to the above, our procedures to respond to the risks identified included the following:

• reviewing financial statement disclosures by testing to supporting documentation to assess compliance with provisions of relevant laws and regulations described as having a direct effect on the financial statements;
• performing analytical procedures to identify any unusual or unexpected relationships that may indicate risks of material misstatement due to fraud;
• enquiring of management and in-house legal counsel concerning actual and potential litigation and claims, and instances of non-compliance with laws and regulations; and
• reading minutes of meetings of those charged with governance.

Independent Auditor's Report to the Members of Air Products Group Limited

Report on other legal and regulatory requirements

Opinion on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

• the information given in the strategic report and the directors' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and

• the strategic report and the directors' report have been prepared in accordance with applicable legal requirements.

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified any material misstatements in the strategic report or the directors' report.

Matters on which we are required to report by exception

Under the Companies Act 2006 we are required to report in respect of the following matters if, in our opinion:

• adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or

• the financial statements are not in agreement with the accounting records and returns; or

• certain disclosures of directors' remuneration specified by law are not made; or

• we have not received all the information and explanations we require for our audit.

We have nothing to report in respect of these matters.

Use of our report

This report is made solely to the company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Andrew Hornby

Andrew Hornby FCA (Senior Statutory Auditor)
For and on behalf of Deloitte LLP
Reading
United Kingdom

30 June 2022

Air Products Group Limited

Profit and Loss Account for the Year Ended 30 September 2021

	Note	2021 £ 000	2020 £ 000
Cost of sales		-	(9)
Operating loss	2, 12	-	(9)
Dividends Received	4	19,000	129,420
Released provision	12	775	-
Interest receivable and similar income	5	-	126
Interest payable and similar expenses	6	(1,807)	(3,297)
Profit before tax		17,968	126,240
Taxation	8	(146)	101
Profit for the financial year		17,822	126,341

All results derive from continued operations.

The notes on pages 15 to 25 form an integral part of these financial statements.

Air Products Group Limited

The Statement of Other Comprehensive Income for the Year Ended 30 September 2021

	Note	2021 £ 000	2020 £ 000
Profit for the year		17,822	126,341

There are no other items of comprehensive income in the current or prior year.

Air Products Group Limited

(Registration number: 03101747)
Balance Sheet as at 30 September 2021

	Note	2021 £ 000	2020 £ 000
Fixed assets			
Investments	9	653,162	653,018
Current assets			
Debtors	10	211	9,928
Cash at bank and in hand		244	407
		455	10,335
Creditors: Amounts falling due within one year	11	(2,264)	(11,789)
Net current liabilities		(1,809)	(1,454)
Total assets less current liabilities		651,353	651,564
Creditors: Amounts falling due after more than one year	11	(208,682)	(206,941)
Provisions for liabilities	12	-	(774)
Net assets		442,671	443,849
Capital and reserves			
Called up share capital	13	167,204	167,204
Other reserves		55,163	55,163
Profit and loss account		220,304	221,482
Total equity		442,671	443,849

Approved and authorised by the Board on 30 June 2022 and signed on its behalf by:

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J. Escorihuela

Director

The notes on pages 15 to 25 form an integral part of these financial statements.

Air Products Group Limited

Statement of Changes in Equity for the Year Ended 30 September 2021

	Share capital £ 000	Other reserves £ 000	Profit and loss account £ 000	Total £ 000
At 1 October 2019	167,204	55,163	224,561	446,928
Profit for the year	-	-	126,341	126,341
Total comprehensive income	-	-	126,341	126,341
Dividends	-	-	(129,420)	(129,420)
At 30 September 2020	167,204	55,163	221,482	443,849

	Share capital £ 000	Other reserves £ 000	Profit and loss account £ 000	Total £ 000
At 1 October 2020	167,204	55,163	221,482	443,849
Profit for the year	-	-	17,822	17,822
Total comprehensive income	-	-	17,822	17,822
Dividends	-	-	(19,000)	(19,000)
At 30 September 2021	167,204	55,163	220,304	442,671

1 Accounting policies

Summary of significant accounting policies and key accounting estimates
The principal accounting policies applied in the preparation of these financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

Statement of compliance
Air Products Group Limited (the 'company') is a private company limited by shares, incorporated in the United Kingdom under the Companies Act 2006 and registered in England and Wales.

These financial statements were prepared in accordance with Financial Reporting Standard (FRS 102) issued by the Financial Reporting Council. The functional and presentation currency of these financial statements is sterling as that is the currency of the primary economic environment in which the company operates. All amounts in the financial statements have been rounded to the nearest £1,000.

Basis of preparation
These financial statements are prepared on a going concern basis. The company is exempt by virtue of s400 of the Companies Act 2006 from the requirement to prepare group accounts as the company is included in the consolidated accounts of its ultimate parent undertaking. These financial statements present information about the company as an individual undertaking and not about its group. The ultimate parent undertaking and the smallest and largest group to consolidate these financial statements is Air Products and Chemicals, Inc. The address of the parent's registered office is Air Products and Chemicals, Inc, 7201 Hamilton Boulevard, Allentown, Pennsylvania 18195 - 1501.

Measurement convention
These financial statements have been prepared using the historical cost convention.

Summary of disclosure exemptions
The consolidated financial statements of Air Products and Chemicals Inc are prepared in accordance with US Generally Accepted Accounting Principles and are available to the public. In these financial statements, the company is considered to be a qualifying entity (for the purposes of this FRS) and has applied the exemptions available under FRS 102 in respect of the following disclosures.

The company has taken advantage of the exemption, under FRS 102 paragraph 1.12 (b), from preparing a statement of cash flow, on the basis that it is a qualifying entity and its parent company, Air Products and Chemicals Inc. includes the company's cash flow in its own consolidated financial statements.

The company has taken advantage of the exemption, under FRS 102 para 33.7 from disclosing total compensation of key management personnel. The company has taken advantage of the exemption for qualifying entities from certain financial instruments disclosures, on the basis that the equivalent disclosures are included in the consolidated financial statements of Air Products and Chemicals Inc., the ultimate parent company.

The company has taken advantage of the exemption, under FRS 33.1 (a), from disclosing related party transactions as they are all with other companies that are wholly owned by Air Products and Chemicals Inc.

The consolidated financial statements of the ultimate parent Air Products and Chemicals Inc., within which this company is included, can be obtained from the company's registered office (see Note 14).

1 Accounting policies (continued)

Critical accounting judgements and key sources of estimation uncertainty
In the application of the Company's accounting policies, which are described in note 1, the directors are required to make judgements, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods. No sources of estimation uncertainty have been identified.

Critical accounting policies and judgements
Accounting for the carrying value of fixed asset investments requires judgment on the underlying economic value of the respective businesses of the company's subsidiary undertakings. Where indicators of impairment are identified, impairment reviews are carried out using measures such as total net assets, EBITDA multiples and discounted cash flow models to ascertain if current carrying values are appropriate. Where the impairment assessment gives indication of an impairment, the appropriate impairment is recorded against the investment cost. The carrying value of investments was £653,162,000 at 30 September 2021 (2020: £653,162,000). No impairments were recognised during the year (2020: £nil).

Going concern
The company currently has a net current liability position due to loans payable to other group entities. As a result, a letter of support has been provided by ultimate parent entity Air Products & Chemicals, Inc. The directors are satisfied that there are sufficient resources available under this facility to meet all financial requirements in the 12-month period from the date of signing these financial statements.

In assessing going concern, the directors have considered the impact Covid-19 has had on the carrying value and liquidity of subsidiary undertakings. The core business of the company's subsidiaries has continued to perform strongly during this period and continues to generate positive cashflows. The directors do not believe that the longer term wider economic impacts will have a significant effect on future subsidiary operations. Therefore the directors continue to adopt the going concern basis in preparation of these financial statements.

Foreign currency transactions and balances
Transactions in foreign currencies are recorded using the rate of exchange ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are translated using the rate of exchange ruling at the balance sheet date, and the gains or losses on translation are included in the profit and loss account. If the transaction is hedged forward, the gains or losses arising on completion of this contract are recognised on the date of completion in the profit and loss account.

Foreign exchange gains or losses on fixed income instruments which have corresponding derivative contracts are included in the profit and loss account under other income receivable/payable and similar income/charges to enable reporting of the net effect of all contracts on the company's financial position.

1 Accounting policies (continued)

Basic Financial instruments

Other debtors / creditors
Other debtors are recognised initially at transaction price less attributable transaction costs. Other creditors are recognised initially at transaction price plus attributable transaction costs. Subsequent to initial recognition they are measured at amortised cost using the effective interest method. If the arrangement constitutes a financing transaction, for example if payment is deferred beyond normal business terms, then it is measured at the present value of future payments discounted at a market rate of instrument for a similar debt instrument.

Investments in subsidiaries, jointly controlled entities and associates
These are separate financial statements of the company. Investments in subsidiaries, jointly controlled entities and associates are carried at cost less impairment, with any impairment losses recognised in profit or loss.

Cash and cash equivalents
Cash and cash equivalents comprise cash on hand and call deposits, and other short-term highly liquid investments that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

Taxation

The charge for taxation is based on the profit for the year and takes into account taxation deferred because of timing differences between the treatment of certain items for taxation and accounting purposes.

Deferred tax is recognised, without discounting, in respect of all timing differences between the treatment of certain items for taxation and accounting purposes which have arisen but not reversed by the balance sheet date, except as otherwise required by FRS 102.

Current tax is provided at amounts expected to be paid (or recovered) using the tax rates and laws that have been enacted or substantively enacted by the balance sheet date.

Deferred tax is recognised in respect of all timing differences that have originated but not reversed at the balance sheet date where transactions or events that result in an obligation to pay more tax in the future or a right to pay less tax in the future have occurred at the balance sheet date.

Timing differences are differences between the Company's taxable profits and its results as stated in the financial statements that arise from the inclusion of gains and losses in tax assessments in periods different from those in which they are recognised in the financial statements.

Unrelieved tax losses and other deferred tax assets are recognised only to the extent that, on the basis of all available evidence, it can be regarded as more likely than not that there will be suitable taxable profits from which the future reversal of the underlying timing differences can be deducted.

Deferred tax is measured using the tax rates and laws that have been enacted or substantively enacted by the balance sheet date that are expected to apply to the reversal of the timing difference.

Current tax assets and liabilities are offset only when there is a legally enforceable right to set off the amounts and the Company intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

1 Accounting policies (continued)

Deferred tax assets and liabilities are offset only if:
a) the Company has a legally enforceable right to set off current tax assets against current tax liabilities; and
b) the deferred tax assets and deferred tax liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities which intend either to settle current tax liabilities and assets on a net basis, or to realise the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

Dividend paid
Dividends paid are recognised in equity on the date the dividend has been paid.

Provisions
Provisions are recognised when the company has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount of the obligation can be estimated reliably. Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to passage of time is recognised as a finance cost.

Dividend income
Dividend income is recognised in the profit and loss account on the date the company's right to receive payment is established.

Interest Payable
Interest payable and similar expense includes interest payable and foreign exchange losses. Interest payable is recognised in profit and loss account as it accrues using the effective interest method.

Interest Receivable
Interest receivable and similar income includes interest receivable and foreign exchange gains. Interest receivable is recognised in profit and loss account as it accrues using the effective interest method.

Impairment
The carrying amounts of the Company's assets are reviewed for impairment when events or changes in circumstances indicate that the carrying amount of the fixed asset may not be recoverable. If any such indication exists, the asset's recoverable amount is estimated.

An impairment loss is recognised whenever the carrying amount of an asset or its income-generating unit exceeds its recoverable amount. Impairment losses are recognised in the profit and loss account.

Impairment losses recognised in respect of income-generating units are allocated first to reduce the carrying amount of any goodwill allocated to income-generating units, then to any capitalised intangible asset and finally to the carrying amount of the tangible assets in the unit on a pro rata or more appropriate basis. An income generating unit is the smallest identifiable group of assets that generates income that is largely independent of the income streams from other assets or groups of assets.

Calculation of recoverable amount
The recoverable amount of fixed assets is the greater of their net realisable value and value in use. In assessing value in use, the expected future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the rate of return expected on an equally risky investment. For an asset that does not generate largely independent income streams, the recoverable amount is determined for the income-generating unit to which the asset belongs.

1 Accounting policies (continued)

Reversals of impairment
An impairment loss is reversed on intangible assets and goodwill only if subsequent external events reverse the effect of the original event which caused the recognition of the impairment or the loss arose on an intangible asset with a readily ascertainable market value and that market value has increased above the impaired carrying amount. For other fixed assets where the recoverable amount increases as a result of a change in economic conditions or in the expected use of the asset then the resultant reversal of the impairment loss should be recognised in the current period.

An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

Other reserves
Other reserve included within equity represents capital contributions received in 2001 and 2005.

2 Operating loss

Arrived at after charging

	2021 £ 000	2020 £ 000
Auditor's remuneration		
Audit of these financial statements	9	9

No non-audit services were provided by the company's auditors in the current or prior year.

3 Directors' remuneration

Directors received no emoluments in connection with their services as a director of the company during the year (2020: £nil).

4 Income from other fixed asset investments

	2021 £ 000	2020 £ 000
Dividends from fixed asset investments	19,000	129,420

5 Other interest receivable and similar incomc

	2021 £ 000	2020 £ 000
Foreign exchange gain on cash and cash equivalents	-	(9)
Foreign exchange gain on loans from foreign companies	-	135
	-	126

6 Interest payable and similar expenses

	2021 £ 000	2020 £ 000
Interest payable to group companies	1,775	3,297
Foreign exchange loss on cash and cash equivalents	11	-
Foreign exchange loss on provision	21	-
	1,807	3,297

7 Staff costs

The company has no employee costs as it relies on other group entities for the provision of administrative and management services. No salaries or wages have been paid to employees during the year as staff costs are borne by other group entities.

8 Taxation

Analysis of charge / (credit) in the year:

	2021 £ 000	2020 £ 000
UK corporation tax		
Current tax on income for the year	-	(90)
Deferred taxation		
Origination/reversal of timing differences	225	19
Effect of changes in tax rates	(84)	(30)
Arising from previously unrecognised tax loss, tax credit or temporary difference of prior periods	5	-
Total deferred taxation	146	(11)
Tax charge / (credit) in the profit and loss account	146	(101)

8 Taxation (continued)

The tax on proft before the tax for the year is lower than the standard rate of corporation tax in the UK (2020 - lower than the standard rate of corporation tax in the UK) of 19% (2020 - 19%).

The differences are reconciled below:

	2021 £ 000	2020 £ 000
Profit before tax	17,968	126,240
Corporation tax at standard rate (19%)	3,414	23,986
Effect of expense not deductible in determining taxable profit	(3,610)	(24,589)
Adjustment in respect of prior periods	5	-
Tax increase arising from group relief	363	533
Other tax effects for reconciliation between accounting loss and tax charge/(credit)	(26)	(31)
Total tax charge/(credit)	146	(101)

The standard rate of corporation tax in the UK is 19% and will remain at the same rate for the tax year beginning 1st April 2021. The changes introduced in Finance Bill 2021 to set the main rate of corporation tax at 25% for financial year 2023, which will apply to profits above £250,000; and introduce a small profits rate of 19% for profits below £50,000, were substantially enacted on the 24th of May 2021. Marginal relief provisions will be introduced so that, where a company's profits fall between the lower and upper limits, it will be able to claim an amount of marginal relief that bridges the gap between the lower and upper limits providing a gradual increase in the Corporation Tax rate.

Deferred tax balances presented in these financial statements have been measured at the rates specified above given that these were substantively enacted as of the balance sheet date.

Deferred tax

2021	Asset £ 000
At beginning of year	251
Charge to the profit and loss for the year	(219)
Adjustment in respect of prior periods	-
Effect of change in tax rate from 17% to 19%	-
Effect of change in tax rate from 19% to 25%	84
	116

8 Taxation (continued)

2020	Asset £ 000
At beginning of year	240
Charge to the profit and loss for the year	(20)
Adjustment in respect of prior periods	-
Effect of change in tax rate from 17% to 19%	31
Effect of change in tax rate from 19% to 25%	-
	251

9 Investments in subsidiaries, joint ventures and associates

Details of subsidiary undertakings

Cost and carrying value	2021 £ 000
At 1 October 2020	629,222
At 30 September 2021	629,222

Details of associates undertakings

Cost and carrying value	2021 £ 000
At 1 October 2020	23,940
At 30 September 2021	23,940

Total insvestments

Cost and carrying value	2021 £ 000
At 1 October 2020	653,162
At 30 September 2021	653,162

Details of the investments (including principal place of business of unincorporated entities) in which the company holds 20% or more of the nominal value of any class of share capital are as follows:

9 Investments in subsidiaries, joint ventures and associates (continued)

Undertaking	Registered office	Holding	Proportion of voting rights and shares held 2021	2020
Subsidiary undertakings				
Air Products (BR) limited	Hersham Place Technology Park, Molesey Road, Walton-on-Themes, Surrey, KT12 4RZ, Great Britain	Directly	100%	100%
Air Products PLC	Hersham Place Technology Park, Molesey Road, Walton-on-Themes, Surrey, KT12 4RZ, Great Britain	Directly	100%	100%
Air Products Ireland Limited	Air Products Ireland Limited, Unit 950, Western Industrial Estate, Killeen Road, Dublin 12, Ireland	Indirectly	100%	100%
Air Products Renewable Energy Limited	Hersham Place Technology Park, Molesey Road, Walton-on-Themes, Surrey, KT12 4RZ, Great Britain	Indirectly	100%	100%
Air Products Yanbu Limited	Hersham Place Technology Park, Molesey Road, Walton-on-Themes, Surrey, KT12 4RZ, Great Britain	Indirectly	100%	100%
Dixons of Westerhope	Westfield, Newbiggin Lane, Westerhope, Newcastle Upon Tyne, NE5 1LX, Great Britain	Indirectly	100%	100%
Cryoservice Limited	Hersham Place Technology Park, Molesey, Road, Walton On Thames, Surrey, KT12, 4RZ, Great Britain	Indirectly	100%	100%
Gas Direct Ltd	White House Farm, Valley Lane Long, Bennington, Newark, Nottinghamshire, NG23 5EE, Great Britain	Indirectly	100%	100%
Joint ventures				
Air Products Llanwern Limited	Hersham Place Technology Park, Molesey Road, Walton-on-Themes, Surrey, KT12 4RZ, Great Britain	Indirectly	50%	50%
Associates				

9 Investments in subsidiaries, joint ventures and associates (continued)

Undertaking	Registered office	Holding	Proportion of voting rights and shares held	
Inversiones Air Products Holdings Limitada	Miraflores 222, Santiago, Región Metropolitana, Chile	Directly	11.5%	11.5%
Air Products and Chemicals de Mexico, S.A. de C.V.	Pasaje Interlomas n.16, Interlomas, Huixquilucan, CP 52760, Mexico	Directly	21%	21%

The principal activity of all undertakings is industrial gases. The class of shares held for all investments is Ordinary.

10 Debtors

	Note	2021 £ 000	2020 £ 000
Amounts owed by group undertakings		10	9,582
Other debtors		2	-
Deferred tax assets	8	104	251
Income tax asset		95	95
		211	9,928

Related party transactions are at arm's length at interest rates equivalent to market rate.

11 Creditors

	2021 £ 000	2020 £ 000
Due within one year		
Amounts owed to group undertakings	2,253	11,780
Accruals and deferred income	11	9
	2,264	11,789
Due after one year		
Amounts owed to group undertakings	208,682	206,941

Intercompany loan transactions are at arm's length at interest rates equivalent to market rate.

12 Provisions

	Business Sale Provision £ 000	Total £ 000
At 1 October 2020	774	774
Released provision	(774)	(774)
At 30 September 2021	-	-

12 Provisions (continued)

Business Sale Provision
The company has recognised a provision in relation to legal obligations arising on the sale of a business.

13 Share capital

Authorised, allotted, called up and fully paid shares

	2021		2020	
	No. 000	**£ 000**	**No. 000**	**£ 000**
Ordinary shares A of £1 each	167,204	167,204	167,204	167,204

The Company has one class of ordinary shares which carry no right to fixed income.

14 Parent and ultimate parent undertaking

The company's immediate parent company is Prodair Corporation, a company incorporated in Great Britain The company is a subsidiary undertaking of Air Products and Chemicals Inc, which is its ultimate parent and controlling party. Air Products and Chemicals Inc is incorporated in Delaware, USA.

The largest and the smallest group in which the results of the company are consolidated is that headed by Air Products and Chemicals, Inc., the ultimate controlling party and a company incorporated in the State of Delaware, USA. The address of the smallest and largest undertaking is the same and is mentioned bellow. The consolidated financial statements of this group are available to the public and may be obtained from its registered office:

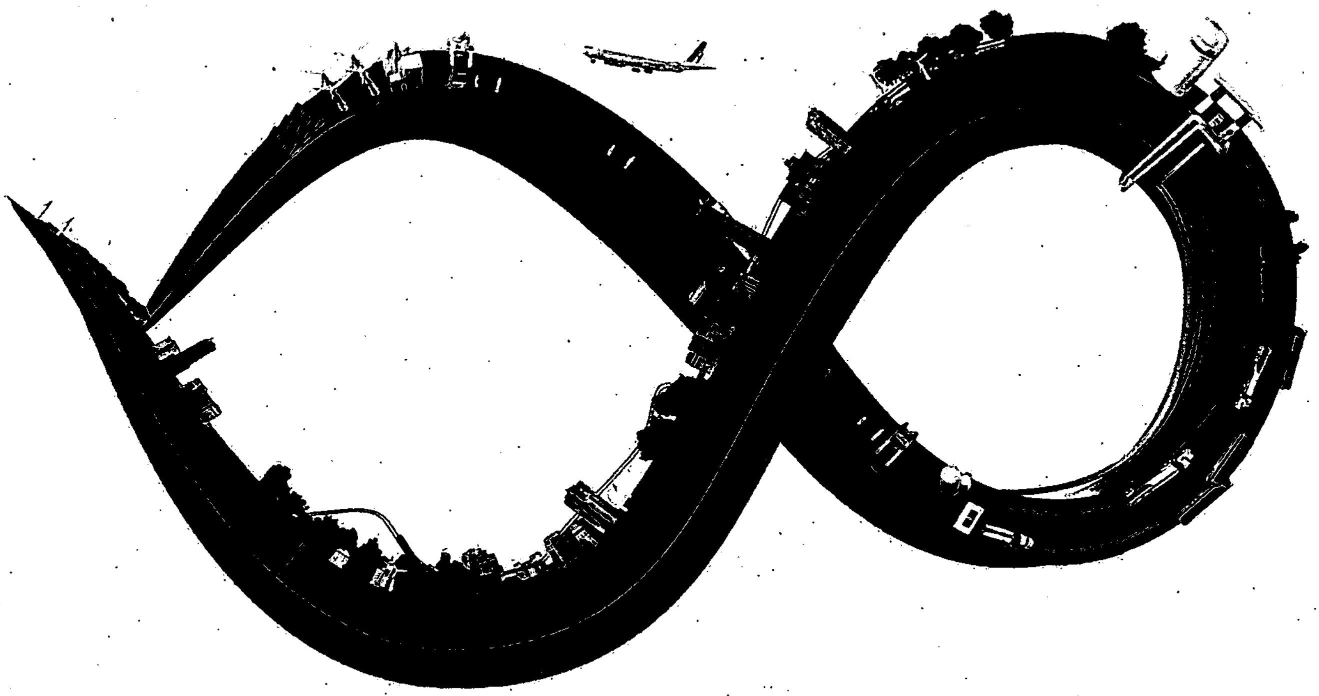
Corporate Secretary
Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown
Pennsylvania 18195 - 1501

15 Subsequent events

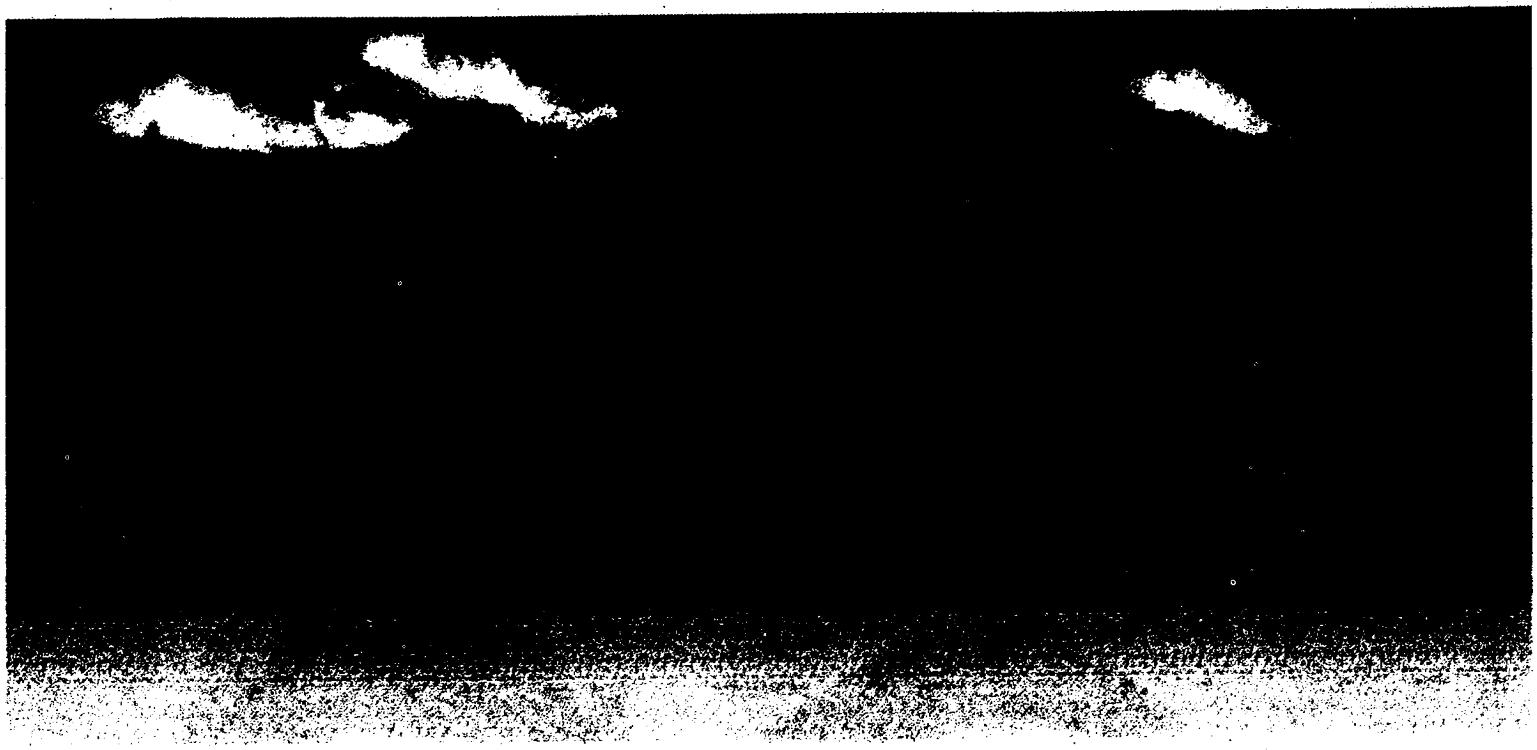
Subsequent to the balance sheet date, conflict has broken out in Ukraine following the decision by Russia to invade the country on the 24th February 2022. As a consequence, the Ukrainian government has declared martial law across the country and significant sanctions have been imposed on Russia by the international community. The current situation has potential ramifications for a subsidiary company that is currently working on a construction contract for a facility based in Ukraine and has intercompany trading with a fellow group company based in Russia. The current assessment by the directors based on the latest information available, is that the impact of the situation in Ukraine and Russia will have no impact on the carrying value of the investment in the subsidiary company. As such, no additional adjustments are deemed necessary at the date of signing the 2021 financial statements.

AIR PRODUCTS

2021 | Annual Report



Generating a Cleaner Future

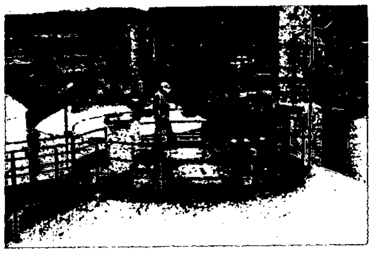


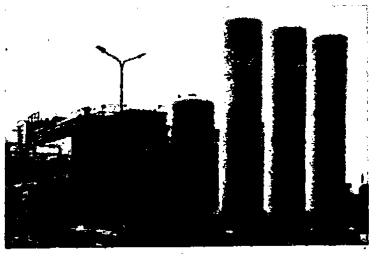
Air Products is the global hydrogen leader, with expertise and investment spanning the full supply chain—from production to transportation to consumer use at the final destination—and is a first mover in large-scale low-carbon and carbon-free hydrogen. Partnering with customers on their sustainability journey, we want to be the provider of choice for hydrogen solutions to address significant energy and environmental challenges in our world . . . moving us all toward a cleaner future.

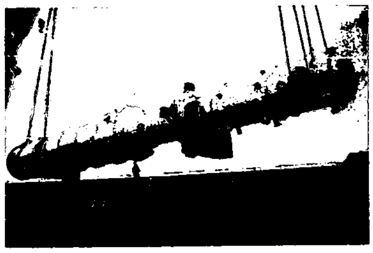
Our Businesses

Air Products reported fiscal year 2021 results under five segments:

- Industrial Gases – Americas
- Industrial Gases – EMEA (Europe, Middle East, and Africa)
- Industrial Gases – Asia
- Industrial Gases – Global
- Corporate and other







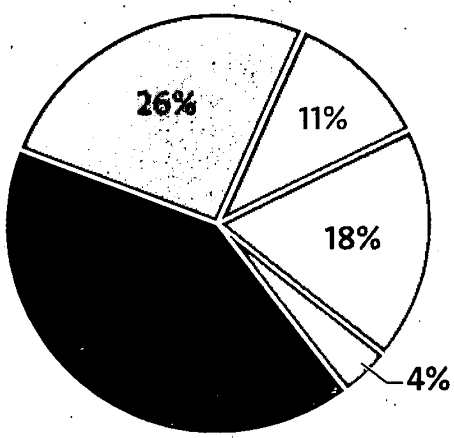
The **regional Industrial Gases segments** (Americas, EMEA, and Asia) produce and sell atmospheric gases, such as oxygen, nitrogen and argon; process gases, such as hydrogen, helium, carbon dioxide, carbon monoxide, and syngas (a mixture of hydrogen and carbon monoxide); and specialty gases. We serve customers in many industries, including refining, chemical, gasification, metals, electronics, manufacturing, and food and beverage. We distribute gases to customers through a variety of supply modes, including liquid or gaseous bulk supply delivered by tanker or tube trailer and, for smaller customers, packaged gases delivered in cylinders and dewars or small on-sites (cryogenic or non-cryogenic generators). For large-volume customers, we produce and supply gases via on-site plants on or near the customer's facility or deliver product from one of our pipelines.

The **Industrial Gases – Global** segment includes activity related to the sale of cryogenic and gas processing equipment for air separation. The equipment is sold worldwide to customers in a variety of industries, including chemical and petrochemical manufacturing, oil and gas recovery and processing, and steel and primary metals processing. The Industrial Gases – Global segment also includes centralized global costs associated with management of all the Industrial Gases segments.

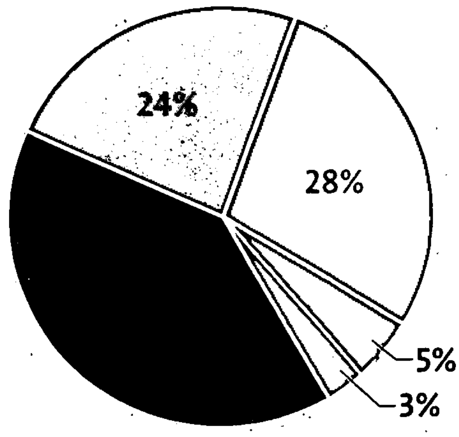
The **Corporate and other** segment includes our liquefied natural gas process technology and equipment, turbo machinery equipment and services, and distribution sale of equipment businesses, as well as corporate support functions that benefit all segments.

Financial Highlights

Consolidated sales by region



Consolidated sales by business segment



Millions of dollars, except for per share data	2021	2020	Change
FOR THE YEAR (all from continuing operations, unless otherwise indicated)			
GAAP			
Sales	**$10,323**	$8,856	17%
Net income margin(A)	**20.5%**	21.8%	(130) bp
Operating margin	**22.1%**	25.3%	(320) bp
Return on capital employed ("ROCE") (GAAP Basis)	**8.1%**	8.9%	(80) bp
Cash used for investing activities	**$2,733**	$3,560	(23)%
NON-GAAP			
Adjusted EBITDA margin(B)	**37.6%**	40.9%	(330) bp
Adjusted operating margin(B)	**22.0%**	24.9%	(290) bp
ROCE (Non-GAAP Basis)(B)	**10.1%**	11.7%	(160) bp
Capital expenditures(C)	**$2,551**	$2,717	(6)%
PER SHARE			
GAAP diluted earnings per share ("EPS")	**$9.12**	$8.55	7%
Adjusted diluted EPS(B)	**9.02**	8.38	8%
Dividends declared per common share	**5.84**	5.18	13%

(A) Includes the impact from discontinued operations.
(B) Amounts are non-GAAP financial measures. See pages III-VII for reconciliation to the comparable GAAP measures.
(C) Amounts are non-GAAP financial measures. See reconciliation to the comparable GAAP measure within Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations*, of the accompanying Annual Report on Form 10-K.

Reconciliations of Non-GAAP Financial Measures

(Millions of dollars unless otherwise indicated, except for per share data)

Adjusted EBITDA

We define adjusted EBITDA as net income less income (loss) from discontinued operations, net of tax, and excluding non-GAAP adjustments, which we do not believe to be indicative of underlying business trends, before interest expense, other non-operating income (expense), net, income tax provision, and depreciation and amortization expense. Adjusted EBITDA and adjusted EBITDA margin provide useful metrics for management to assess operating performance. Net income margin and adjusted EBITDA margin are calculated by dividing net income and adjusted EBITDA, respectively, by consolidated sales for each period. The tables below present consolidated sales and a reconciliation of net income on a GAAP basis to adjusted EBITDA and net income margin on a GAAP basis to adjusted EBITDA margin:

2021	Q1	Q2	Q3	Q4	Total
Sales	$2,375.2	$2,502.0	$2,604.7	$2,841.1	$10,323.0
Net income	486.7	477.1	532.3	618.8	2,114.9
Net income margin	20.5%	19.1%	20.4%	21.8%	20.5%
Reconciliation of GAAP to Non-GAAP:					
Net income	$486.7	$477.1	$532.3	$618.8	$2,114.9
Less: Income from discontinued operations, net of tax	10.3	—	8.2	51.8	70.3
Add: Interest expense	36.7	36.1	35.6	33.4	141.8
Less: Other non-operating income (expense), net	18.6	16.8	21.1	17.2	73.7
Add: Income tax provision	113.9	121.9	101.7	125.3	462.8
Add: Depreciation and amortization	323.7	329.3	335.7	332.6	1,321.3
Add: Facility closure	—	23.2	—	—	23.2
Less: Gain on exchange with joint venture partner	—	36.8	—	—	36.8
Adjusted EBITDA	$932.1	$934.0	$976.0	$1,041.1	$3,883.2
Adjusted EBITDA margin	39.2%	37.3%	37.5%	36.6%	37.6%

2020	Q1	Q2	Q3	Q4	Total
Sales	$2,254.7	$2,216.3	$2,065.2	$2,320.1	$8,856.3
Net income	488.9	490.4	457.1	494.7	1,931.1
Net income margin	21.7%	22.1%	22.1%	21.3%	21.8%
Reconciliation of GAAP to Non-GAAP:					
Net income	$488.9	$490.4	$457.1	$494.7	$1,931.1
Less: Loss from discontinued operations, net of tax	—	(14.3)	—	—	(14.3)
Add: Interest expense	18.7	19.3	32.1	39.2	109.3
Less: Other non-operating income (expense), net	9.1	7.1	8.1	6.4	30.7
Add: Income tax provision	120.7	148.5	109.3	99.9	478.4
Add: Depreciation and amortization	289.2	294.7	290.6	310.5	1,185.0
Less: Company headquarters relocation income (expense)	—	33.8	—	—	33.8
Less: India Finance Act 2020 – equity affiliate income impact	—	33.8	—	—	33.8
Adjusted EBITDA	$908.4	$892.5	$881.0	$937.9	$3,619.8
Adjusted EBITDA margin	40.3%	40.3%	42.7%	40.4%	40.9%

2019	Q1	Q2	Q3	Q4
Sales	$2,224.0	$2,187.7	$2,224.0	$2,283.2
Net income	357.0	433.5	500.2	518.7
Net income margin	16.0%	19.8%	22.5%	22.7%
Reconciliation of GAAP to Non-GAAP:				
Net income	$357.0	$433.5	$500.2	$518.7
Less: Income from discontinued operations, net of tax	—	—	—	—
Add: Interest expense	37.3	35.4	34.2	30.1
Less: Other non-operating income (expense), net	18.5	13.7	17.6	16.9
Add: Income tax provision	132.1	107.5	109.3	131.2
Add: Depreciation and amortization	258.0	262.1	269.1	293.6
Add: Facility closure	29.0	—	—	—
Add: Cost reduction actions	—	—	25.5	—
Less: Gain on exchange with joint venture partner	—	—	29.1	—
Adjusted EBITDA	$794.9	$824.8	$891.6	$956.7
Adjusted EBITDA margin	35.7%	37.7%	40.1%	41.9%

2018	Q1	Q2	Q3	Q4
Sales	$2,216.6	$2,155.7	$2,259.0	$2,298.9
Net income	161.7	423.6	487.9	459.7
Net income margin	7.3%	19.7%	21.6%	20.0%
Reconciliation of GAAP to Non-GAAP:				
Net income	$161.7	$423.6	$487.9	$459.7
Less: Income (loss) from discontinued operations, net of tax*	(1.0)	—	43.2	—
Add: Interest expense	29.8	30.4	34.9	35.4
Less: Other non-operating income (expense), net	9.8	11.1	12.8	(28.6)
Add: Income tax provision	291.8	56.2	107.1	69.2
Add: Depreciation and amortization	227.9	240.0	245.6	257.2
Less: Change in inventory valuation method	—	—	—	24.1
Add: Tax reform repatriation - equity method investment	32.5	—	—	(4.0)
Adjusted EBITDA	$734.9	$739.1	$819.5	$822.0
Adjusted EBITDA margin	33.2%	34.3%	36.3%	35.8%

2017	Q1	Q2	Q3	Q4
Sales	$1,882.5	$1,980.1	$2,121.9	$2,203.1
Net income	306.4	2,135.7	104.1	475.0
Net income margin	16.3%	107.9%	4.9%	21.6%
Reconciliation of GAAP to Non-GAAP:				
Net income	$306.4	$2,135.7	$104.1	$475.0
Less: Income (loss) from discontinued operations, net of tax	48.2	1,825.6	(2.3)	(5.5)
Add: Interest expense	29.5	30.5	29.8	30.8
Less: Other non-operating income (expense), net	(0.2)	5.3	3.7	7.8
Add: Income tax provision (benefit)	78.4	94.5	89.3	(1.3)
Add: Depreciation and amortization	206.1	211.8	216.9	231.0
Add: Business separation costs	32.5	—	—	—
Add: Cost reduction and asset actions	50.0	10.3	42.7	48.4
Add: Goodwill and intangible asset impairment charge	—	—	162.1	—
Less: Gain on land sale	—	—	—	12.2
Add: Equity method investment impairment charge	—	—	79.5	—
Adjusted EBITDA	$654.9	$651.9	$723.0	$769.4
Adjusted EBITDA margin	34.8%	32.9%	34.1%	34.9%

2016	Q1	Q2	Q3	Q4
Sales	$1,866.3	$1,777.4	$1,914.5	$1,945.5
Net income	372.0	(465.5)	354.1	400.9
Net income margin	19.9%	(26.2)%	18.5%	20.6%
Reconciliation of GAAP to Non-GAAP:				
Net income	$372.0	($465.5)	$354.1	$400.9
Less: Income (loss) from discontinued operations, net of tax	84.8	(750.2)	98.4	106.5
Add: Interest expense	22.2	25.7	35.1	32.2
Add: Income tax provision	96.4	93.5	145.9	96.8
Add: Depreciation and amortization	214.7	213.9	213.5	212.5
Add: Business separation costs	12.0	7.4	9.5	21.7
Add: Cost reduction and asset actions	—	10.7	13.2	10.6
Add: Pension settlement loss	—	2.0	1.0	2.1
Add: Loss on extinguishment of debt	—	—	—	6.9
Adjusted EBITDA	$632.5	$637.9	$673.9	$677.2
Adjusted EBITDA margin	33.9%	35.9%	35.2%	34.8%

2015	Q1	Q2	Q3	Q4
Sales	$2,041.0	$1,885.3	$1,934.4	$1,963.6
Net income	337.5	296.9	333.2	350.0
Net income margin	16.5%	15.7%	17.2%	17.8%
Reconciliation of GAAP to Non-GAAP:				
Net income	$337.5	$296.9	$333.2	$350.0
Less: Income from discontinued operations, net of tax	76.7	103.4	99.4	72.2
Add: Interest expense	28.8	23.2	28.1	22.7
Add: Income tax provision	76.8	63.0	74.7	85.7
Add: Depreciation and amortization	215.3	213.9	214.2	215.1
Add: Business separation costs	—	—	—	7.5
Add: Business restructuring and cost reduction actions	24.3	52.9	49.6	53.3
Less: Gain on previously held equity interest	17.9	—	—	—
Less: Gain on land sales	—	—	—	33.6
Add: Pension settlement loss	—	11.9	1.4	6.0
Add: Loss on extinguishment of debt	—	—	—	16.6
Adjusted EBITDA	$588.1	$558.4	$601.8	$651.1
Adjusted EBITDA margin	28.8%	29.6%	31.1%	33.2%

2014[(A)]	Q1	Q2	Q3	Q4
Sales	$2,545.5	$2,581.9	$2,634.6	$2,677.0
Net income	299.0	291.6	323.4	79.1
Net income margin	11.7%	11.3%	12.3%	3.0%
Reconciliation of GAAP to Non-GAAP:				
Net income	$299.0	$291.6	$323.4	$79.1
Less: Income (loss) from discontinued operations, net of tax	1.3	(2.1)	(2.0)	(0.1)
Add: Interest expense	33.3	31.5	31.3	29.0
Add: Income tax provision	95.3	93.0	103.0	78.1
Add: Depreciation and amortization	234.2	229.1	239.0	254.6
Add: Business restructuring and cost reduction actions	—	—	—	12.7
Add: Goodwill and intangible asset impairment charge	—	—	—	310.1
Add: Pension settlement loss	—	—	—	5.5
Adjusted EBITDA	$660.5	$647.3	$698.7	$769.2
Adjusted EBITDA margin	25.9%	25.1%	26.5%	28.7%

(A) Fiscal year 2014 is presented as previously reported in our Annual Report on Form 10-K for the fiscal year ended September 30, 2016, which included the results of the former Materials Technologies segment.

Adjusted Operating Margin

The table below reconciles operating margin on a GAAP basis to adjusted operating margin. Operating margin and adjusted operating margin are calculated by dividing operating income and adjusted operating income, respectively, by consolidated sales for each period. The adjusted measures exclude the impact of certain disclosed items that we believe are not representative of underlying business performance.

Fiscal Year Ended 30 September	2021	2020	Change
Sales	**$10,323.0**	$8,856.3	
Operating income	**2,281.4**	2,237.6	
Operating margin	**22.1%**	25.3%	(320) bp
Reconciliation of GAAP to Non-GAAP:			
Operating income	**$2,281.4**	$2,237.6	
Facility closure	**23.2**	—	
Gain on exchange with joint venture partner	**(36.8)**	—	
Company headquarters relocation (income) expense	**—**	(33.8)	
Adjusted operating income	**$2,267.8**	$2,203.8	
Adjusted operating margin	**22.0%**	24.9%	(290) bp

Adjusted Diluted Earnings Per Share ("EPS")

Adjusted diluted EPS is calculated as net income from continuing operations attributable to Air Products, excluding the impact of certain disclosed items that we believe are not representative of underlying business performance, divided by the weighted average common shares reflecting the potential dilution that could occur if stock options or other share-based awards were exercised or converted into common stock. We believe it is important for the reader to understand the per share impact of our non-GAAP adjustments as management does not consider these impacts when evaluating underlying business performance. The per share impact of each non-GAAP adjustment was calculated independently and may not sum to total adjusted diluted EPS due to rounding.

Fiscal Year Ended 30 September	2021	2020	2019	2018	2017	2016	2015	2014
Diluted EPS	**$9.12**	$8.55	$7.94	$6.59	$5.16	$5.04	$4.29	$3.24
Change in inventory valuation method	**—**	—	—	(0.08)	—	—	—	—
Facility closure	**0.08**	—	0.10	—	—	—	—	—
Business separation costs	**—**	—	—	—	0.12	0.21	0.03	—
Tax (benefit) costs associated with business separation	**—**	—	—	—	(0.02)	0.24	—	—
Business restructuring, cost reduction, and asset actions	**—**	—	0.08	—	0.49	0.11	0.61	0.03
Goodwill and intangible asset impairment charge	**—**	—	—	—	0.70	—	—	1.27
Gain on exchange with joint venture partner	**(0.12)**	—	(0.13)	—	—	—	—	—
Gain on previously held equity interest	**—**	—	—	—	—	—	(0.05)	—
Company headquarters relocation (income) expense	**—**	(0.12)	—	—	—	—	—	—
Gain on land sales	**—**	—	—	—	(0.03)	—	(0.13)	—
India Finance Act 2020	**—**	(0.06)	—	—	—	—	—	—
Equity method investment impairment charge	**—**	—	—	—	0.36	—	—	—
Pension settlement loss	**—**	—	0.02	0.15	0.03	0.02	0.06	0.02
Loss on extinguishment of debt	**—**	—	—	—	—	0.02	0.07	—
Tax reform repatriation	**—**	—	(0.06)	2.16	—	—	—	—
Tax reform adjustment related to deemed foreign dividends	**—**	—	0.26	(0.25)	—	—	—	—
Tax reform rate change and other	**—**	—	—	(0.96)	—	—	—	—
Tax restructuring	**—**	—	—	(0.16)	—	—	—	—
Tax election benefit and other	**(0.05)**	—	—	—	(0.50)	—	—	(0.14)
Adjusted Diluted EPS	**$9.02**	$8.38	$8.21	$7.45	$6.31	$5.64	$4.88	$4.42
Change GAAP								
Diluted EPS $ change	**$0.57**	$0.61	$1.35	$1.43	$0.12	$0.75	$1.05	
Diluted EPS % change	**7%**	8%	20%	28%	2%	17%	32%	
Change Non-GAAP								
Adjusted diluted EPS $ change	**$0.64**	$0.17	$0.76	$1.14	$0.67	$0.76	$0.46	
Adjusted diluted EPS % change	**8%**	2%	10%	18%	12%	16%	10%	

Return on Capital Employed ("ROCE") (Non-GAAP Basis)

Return on capital employed ("ROCE") is calculated on a continuing operations basis. Management considers this measure to be useful in evaluating the Company's returns on capital.

	2021				2020				2019
ROCE (GAAP Basis):	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4
Net income	$618.8	$532.3	$477.1	$486.7	$494.7	$457.1	$490.4	$488.9	
Total liabilities and equity	26,859.2	26,252.1	26,158.9	26,088.1	25,168.5	24,782.1	19,501.2	19,651.6	18,942.8
Four-Quarter Trailing Net Income	$2,114.9				$1,931.1				
÷ Five-Quarter Average Total Liabilities and Equity	26,105.4				21,609.2				
ROCE (GAAP Basis)	8.1%				8.9%				
Change vs. prior year	(80) bp								

	2021 Q4	2021 Q3	2021 Q2	2021 Q1	2020 Q4	2020 Q3	2020 Q2	2020 Q1	2019 Q4
ROCE (Non-GAAP Basis):									
Net income	$618.8	$532.3	$477.1	$486.7	$494.7	$457.1	$490.4	$488.9	
(Income) Loss from discontinued operations, net of tax	(51.8)	(8.2)	—	(10.3)	—	—	14.3	—	
Interest expense	33.4	35.6	36.1	36.7	39.2	32.1	19.3	18.7	
Facility closure	—	—	23.2	—	—	—	—	—	
Gain on exchange with joint venture partner	—	—	(36.8)	—	—	—	—	—	
Company headquarters relocation (income) expense	—	—	—	—	—	—	(33.8)	—	
India Finance Act 2020	—	—	—	—	—	—	(33.8)	—	
Tax election benefit and other	—	(12.2)	—	—	—	—	—	—	
Tax other[(A)]	(6.0)	(5.8)	(3.7)	(7.1)	(6.6)	(6.2)	24.1	(3.7)	
Return After-Tax (Non-GAAP Basis)	$594.4	$541.7	$495.9	$506.0	$527.3	$483.0	$480.5	$503.9	
Total liabilities and equity	$26,859.2	$26,252.1	$26,158.9	$26,088.1	$25,168.5	$24,782.1	$19,501.2	$19,651.6	$18,942.8
Less: Payables and accrued liabilities	2,218.3	2,118.4	2,042.2	1,962.2	1,833.2	1,668.5	1,649.1	1,630.0	1,635.7
Less: Accrued income taxes	93.9	78.8	86.7	108.4	105.8	83.6	90.4	113.4	86.6
Less: Other noncurrent liabilities	1,640.9	1,819.0	1,840.0	1,935.7	1,916.0	1,866.9	1,881.0	1,826.7	1,712.4
Less: Deferred income taxes	1,180.9	1,078.2	1,050.8	1,003.0	962.6	942.0	844.4	810.5	793.8
Capital Employed (Non-GAAP Basis)	$21,725.2	$21,157.7	$21,139.2	$21,078.8	$20,350.9	$20,221.1	$15,036.3	$15,271.0	$14,714.3
Four-Quarter Trailing Return After-Tax—Non-GAAP	$2,138.0				$1,994.7				
÷ Five-Quarter Average Capital Employed—Non-GAAP	21,090.4				17,118.7				
ROCE (Non-GAAP Basis)	10.1%				11.7%				
Change vs. prior year	(160) bp								

(A) Represents the tax impact on interest expense and our pre-tax non-GAAP adjustments.

To Our Shareholders

Seifi Ghasemi, Air Products' Chairman, President and Chief Executive Officer (left), addresses **Louisiana Governor John Bel Edwards** (far right) and attendees of the October 2021 press conference announcing Air Products' $4.5 billion investment in Ascension Parish, Louisiana. When operational in 2026, Air Products' world-scale clean energy complex will produce over 750 million standard cubic feet per day of blue hydrogen and capture and permanently sequester over five million metric tons of carbon dioxide (CO_2) annually.

My fellow shareholders:

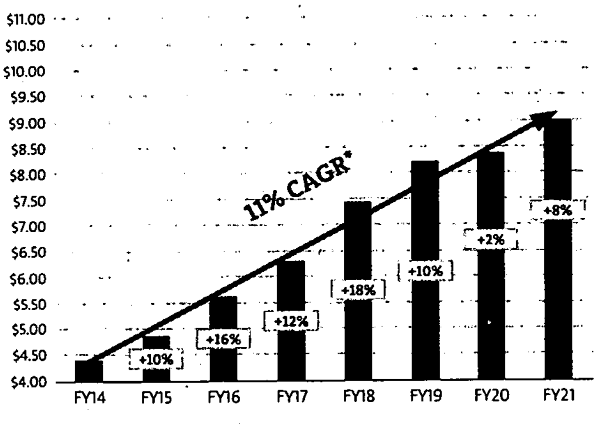
Despite the well-known global challenges in 2021, the talented, committed, and motivated people of Air Products demonstrated resilience and resolve, delivered excellent results, and continued to execute our growth strategy. I want to thank every one of our more than 20,000 employees for standing together, working hard, and delivering for our customers and shareholders.

In following Air Products, you know that our growth and sustainability strategy are one in the same, and we are investing significantly in products and projects that support cleaner energy and a cleaner environment.

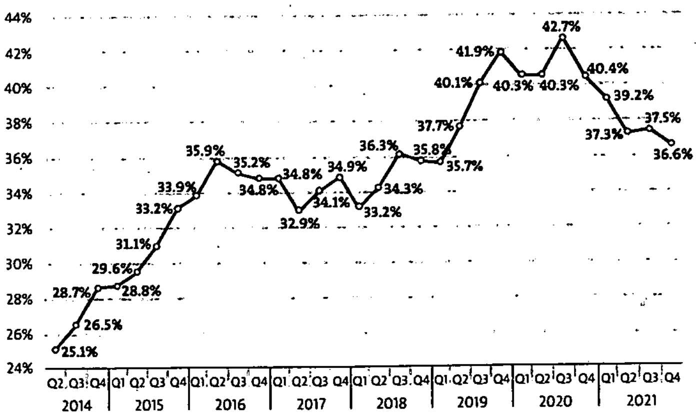
Through our base industrial gas business, customers are improving their efficiency and productivity and reducing emissions. Through our megaprojects in gasification, carbon capture and hydrogen, we are helping to address significant energy and environmental needs in our world. At the same time, we are also very focused on the social aspects of sustainability, driving our culture of diversity, inclusion and belonging. Finally, we devote substantial time and attention to our corporate governance to ensure we have sound practices in place to support our growth.

The people of Air Products are doing this while continuing to deliver strong financial results, as you can see below. Air Products realized strong adjusted earnings per share* ("EPS") this year, achieving 11 percent compounded annual growth since fiscal year 2014. Meanwhile, we returned more than $1.2 billion to our shareholders through our dividend, which we increased for the 39th consecutive year.

Adjusted EPS trend*



Adjusted EBITDA margin trend*
Up over 1,100 basis points



* Amounts are non-GAAP financial measures. See reconciliation to GAAP results on pages III-VII.

Fiscal 2021 Performance

Our fiscal year 2021 financial performance is detailed in the accompanying Annual Report on Form 10-K, and I would encourage you to also review the investor slides on our website, which highlight our achievements and plans for the future.

In particular, I want to comment on our highest priority, which is Safety. Overall, our safety performance improved in fiscal year 2021 versus last year, and notably, we have seen a 75 percent improvement in the employee lost-time injury rate and a 33 percent improvement in the employee recordable injury rate since fiscal year 2014. However, our goal, as always, remains zero accidents and zero incidents.

As our employees around the world continue to navigate COVID-19, they know it is vital to focus on the task at hand, work safely and follow our health and safety procedures and protocols. We have a moral responsibility to keep each other safe and to protect our environment and our hundreds of operating communities around the world.

Driving the Energy Transition

Creating a cleaner future requires experience, investment and innovation on a world-scale. At Air Products, we have the technology, the track record, the capital and the ambition and are acting as a first-mover. In keeping with our strategic Five-Point Plan, we are taking real action through real projects to accelerate the energy transition, making our dream a reality.

Making Our Dream a Reality

Air Products' goal is to be the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to our customers.

Our **dream of the future** is for Air Products to be the **leader** in providing solutions to the world's environmental challenges through:

- Gasification of hydrocarbons;
- Implementing solutions to capture CO_2 from gasifiers and hydrogen plants; and
- Further developing technologies and making Air Products the leader in providing hydrogen for transportation around the world.

Our **dream of the future** is to be a company that has a **higher purpose** beyond just creating value for shareholders through improved financial performance . . .

a company where people from all walks of life and nationalities come together, work together, and feel that they **belong and** that their contributions **matter** and are appreciated . . .

a company that is **focused on innovation** to solve the substantial environmental issues facing all humanity . . .

a company that is **compassionate and contributes** to the well-being of all the communities in which we operate around the globe . . .

a global company that **brings people from all over the world together**, to collaborate, improve understanding and prevent conflicts that arise from misunderstanding.

> "I am proud to say that we have continued to create and win projects that help customers and countries meet their growing needs for cleaner energy and environmental solutions. In doing so, **we are making our dream a reality.**"

Making Our Dream a Reality in Fiscal 2021

We continued to serve dozens of industries and enhance our customers' sustainability while developing and executing projects that meet growing needs for cleaner energy and environmental solutions:

We proudly completed the first phase of the asset acquisition and project financing transactions for the **$12 billion Jazan gasification and power joint venture** with Aramco, ACWA Power and Air Products Qudra.

In conjunction with the Government of Canada and the province of Alberta, we announced a new, **net-zero hydrogen energy complex in Edmonton**. This world-scale energy complex will begin with a transformative, $1.3 billion (Canadian) net-zero hydrogen production and liquefaction facility expected to be onstream in 2024.

Higher Purpose

Our higher purpose at Air Products is to bring people around the world together, so that they can, in an open environment, collaborate and innovate solutions to some of the most significant energy and environmental challenges we all face. Our growth strategy, which is focused on gasification, carbon capture and hydrogen, is designed to address these critical needs.

We know that our continued success depends on the expertise, dedication and commitment of our talented people around the world, and we have been adding resources to help us accelerate our progress in developing and executing these projects.

We announced the **$4.5 billion world-scale clean energy complex in Louisiana**. Air Products will build, own and operate this megaproject, which will produce over 750 million standard cubic feet per day of blue hydrogen for local and global markets in 2026. We will also capture and permanently sequester over 5 million metric tons per year of CO_2, making it the largest carbon capture for sequestration facility in the world.

In addition to our major projects, we continued to **make significant investments in small and mid-size on-site generators** in our regional industrial gases businesses, with fiscal year 2021 being a record year for investments in this category.

Air Products was again **recognized by prestigious raters and organizations for outstanding sustainability performance**, including EcoVadis, Barron's 100 Most Sustainable Companies, 100 Best Corporate Citizens, the Human Rights Campaign Foundation's 2021 Corporate Equality Index, and the Dow Jones Sustainability Index North America, among others. In addition, as a signatory to the CEO Action for Diversity & Inclusion™ and in keeping with Air Products goal to be the most diverse industrial gas company in the world, we hosted a Day of Understanding/Week of Inclusion, further demonstrating our culture of diversity, inclusion and belonging.

Our Higher Purpose

Bringing people together to collaborate and innovate solutions to the world's most significant energy and environmental sustainability challenges.

Acknowledgments

As I do each year, in closing, I want to sincerely thank those who have supported us and helped us achieve our success.

To our customers . . . In innovating alongside you, we serve our higher purpose – supplying products that benefit the environment and help you be more efficient and sustainable. Thank you for your continued confidence and trust in us.

To our employees . . . Through your dedication and commitment, you continue to play a critical role and make a difference to the world every day, and especially during these challenging times.

To our shareholders . . . As always, thank you for your confidence and trust in Air Products. Our priority remains creating superior value for you.

I believe Air Products is uniquely positioned to help the world transition to a cleaner and better future. It is a better future we believe in, and in which we are totally vested.

Seifi Ghasemi
Chairman, President and
Chief Executive Officer of Air Products

Board of Directors

Charles I. Cogut
Retired Partner, Simpson Thacher & Bartlett LLP.
Director of the Company since 2015.

Lisa A. Davis
Former Member of the Managing Board and CEO of Gas and Power for Siemens AG.
Director of the Company since 2020.

Chadwick C. (Chad) Deaton
Retired Chairman and Chief Executive Officer of Baker Hughes Incorporated.
Director of the Company since 2010.

Seifi Ghasemi
Chairman, President and Chief Executive Officer of Air Products.
Director of the Company since 2013.

David H. Y. Ho
Chairman and Founder of Kiina Investment Ltd.
Director of the Company since 2013.

Edward L. Monser
(Lead Director)
Retired President and Chief Operating Officer of Emerson Electric Co.
Director of the Company since 2013.

Matthew H. Paull
Retired Senior Executive Vice President and Chief Financial Officer of McDonald's Corporation.
Director of the Company since 2013.

Wayne T. Smith
Retired Chairman and Chief Executive Officer of BASF Corporation.
Director of the Company since 2021.

Executive Officers

Seifi Ghasemi
Chairman, President and Chief Executive Officer

Sean D. Major
Executive Vice President, General Counsel and Secretary

Melissa Schaeffer
Senior Vice President and Chief Financial Officer

Dr. Samir J. Serhan
Chief Operating Officer

For more information about corporate governance practices at Air Products, visit our Governance website at airproducts.com/company/governance.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended 30 September 2021

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from ____________________ to ____________________

Commission file number **001-04534**

AIR PRODUCTS AND CHEMICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**23-1274455**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

1940 Air Products Boulevard
Allentown, Pennsylvania 18106-5500
(Address of principal executive offices) (Zip Code)
610-481-4911
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $1.00 per share	APD	New York Stock Exchange
1.000% Euro Notes due 2025	APD25	New York Stock Exchange
0.500% Euro Notes due 2028	APD28	New York Stock Exchange
0.800% Euro Notes due 2032	APD32	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C.7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting stock held by non-affiliates of the registrant on 31 March 2021 was approximately $62.1 billion. For purposes of the foregoing calculations, all directors and/or executive officers have been deemed to be affiliates, but the registrant disclaims that any such director and/or executive officer is an affiliate.

The number of shares of common stock outstanding as of 31 October 2021 was 221,460,382.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022 are incorporated by reference into Part III.

AIR PRODUCTS AND CHEMICALS, INC.
ANNUAL REPORT ON FORM 10-K
For the fiscal year ended 30 September 2021

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains "forward-looking statements" within the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include all statements that do not relate solely to historical or current facts and can generally be identified by words such as "anticipate," "believe," "could," "estimate," "expect," "forecast," "future," "goal," "intend," "may," "outlook," "plan," "positioned," "possible," "potential," "project," "should," "target," "will," "would," and similar expressions or variations thereof, or the negative thereof, but these terms are not the exclusive means of identifying such statements. Forward-looking statements are based on management's expectations and assumptions as of the date of this report and are not guarantees of future performance. You are cautioned not to place undue reliance on our forward-looking statements.

Forward-looking statements may relate to a number of matters, including expectations regarding revenue, margins, expenses, earnings, tax provisions, cash flows, pension obligations, share repurchases or other statements regarding economic conditions or our business outlook; statements regarding plans, projects, strategies and objectives for our future operations, including our ability to win new projects and execute the projects in our backlog; and statements regarding our expectations with respect to pending legal claims or disputes. While forward-looking statements are made in good faith and based on assumptions, expectations and projections that management believes are reasonable based on currently available information, actual performance and financial results may differ materially from projections and estimates expressed in the forward-looking statements because of many factors, including, without limitation:

- the duration and impacts of the ongoing COVID-19 global pandemic and efforts to contain its transmission, including the effect of these factors on our business, our customers, economic conditions and markets generally;
- changes in global or regional economic conditions, inflation, and supply and demand dynamics in the market segments we serve, or in the financial markets that may affect the availability and terms on which we may obtain financing;
- the ability to implement price increases to offset cost increases;
- disruptions to our supply chain and related distribution delays and cost increases;
- risks associated with having extensive international operations, including political risks, risks associated with unanticipated government actions and risks of investing in developing markets;
- project delays, contract terminations, customer cancellations, or postponement of projects and sales;
- our ability to develop, operate, and manage costs of large-scale and technically complex projects, including gasification and hydrogen projects;
- the future financial and operating performance of major customers, joint ventures, and equity affiliates;
- our ability to develop, implement, and operate new technologies;
- our ability to execute the projects in our backlog and refresh our pipeline of new projects;
- tariffs, economic sanctions and regulatory activities in jurisdictions in which we and our affiliates and joint ventures operate;
- the impact of environmental, tax, or other legislation, as well as regulations and other public policy initiatives affecting our business and the business of our affiliates and related compliance requirements, including legislation, regulations, or policies intended to address global climate change;
- changes in tax rates and other changes in tax law;
- the timing, impact, and other uncertainties relating to acquisitions and divestitures, including our ability to integrate acquisitions and separate divested businesses, respectively;
- risks relating to cybersecurity incidents, including risks from the interruption, failure or compromise of our information systems;

- catastrophic events, such as natural disasters and extreme weather events, public health crises, acts of war, or terrorism;
- the impact on our business and customers of price fluctuations in oil and natural gas and disruptions in markets and the economy due to oil and natural gas price volatility;
- costs and outcomes of legal or regulatory proceedings and investigations;
- asset impairments due to economic conditions or specific events;
- significant fluctuations in inflation, interest rates and foreign currency exchange rates from those currently anticipated;
- damage to facilities, pipelines or delivery systems, including those we own or operate for third parties;
- availability and cost of electric power, natural gas, and other raw materials; and
- the success of productivity and operational improvement programs.

In addition to the foregoing factors, forward-looking statements contained herein are qualified with respect to the risks disclosed elsewhere in this document, including in Item 1A, *Risk Factors*, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations*, and Item 7A, *Quantitative and Qualitative Disclosures About Market Risk*. Any of these factors, as well as those not currently anticipated by management, could cause our results of operations, financial condition or liquidity to differ materially from what is expressed or implied by any forward-looking statement. Except as required by law, we disclaim any obligation or undertaking to update or revise any forward-looking statements contained herein to reflect any change in assumptions, beliefs, or expectations or any change in events, conditions, or circumstances upon which any such forward-looking statements are based.

PART I

Item 1. Business.

Air Products and Chemicals, Inc., a Delaware corporation originally founded in 1940, serves customers globally with a unique portfolio of products, services, and solutions that include atmospheric gases, process and specialty gases, equipment, and services. Focused on serving energy, environment and emerging markets, we provide essential industrial gases, related equipment, and applications expertise to customers in dozens of industries, including refining, chemicals, metals, electronics, manufacturing, and food and beverage. We are the world's largest supplier of hydrogen and have built leading positions in growth markets such as helium and liquefied natural gas ("LNG") process technology and equipment. We develop, engineer, build, own, and operate some of the world's largest industrial gas projects, including gasification projects that sustainably convert abundant natural resources into syngas for the production of high-value power, fuels, and chemicals and are developing carbon capture projects and world-scale low carbon and carbon-free hydrogen projects that will support global transportation and energy transition away from fossil fuels.

As used in this report, unless the context indicates otherwise, the terms "we," "our," "us," the "Company," "Air Products," or "registrant" include controlled subsidiaries, affiliates, and predecessors of Air Products and our controlled subsidiaries and affiliates.

Except as otherwise noted, the description of our business below reflects our continuing operations. Refer to Note 5, *Discontinued Operations*, to the consolidated financial statements for activity associated with discontinued operations.

During the fiscal year ended 30 September 2021 ("fiscal year 2021"), we reported our continuing operations in five reporting segments under which we managed our operations, assessed performance, and reported earnings: Industrial Gases – Americas; Industrial Gases – EMEA (Europe, Middle East, and Africa); Industrial Gases – Asia; Industrial Gases – Global; and Corporate and other. The discussion that follows is based on those operations. Refer to Note 23, *Business Segment and Geographic Information*, to the consolidated financial statements for additional details on our reportable business segments.

On 4 November 2021, we announced the reorganization of our industrial gases segments effective 1 October 2021. Refer to Note 24, *Subsequent Events*, for additional information.

<u>Industrial Gases Business</u>

Our Industrial Gases business produces atmospheric gases, such as oxygen, nitrogen, and argon; process gases, such as hydrogen, helium, carbon dioxide (CO_2), carbon monoxide, and syngas; and specialty gases. Atmospheric gases are produced through various air separation processes, of which cryogenic is the most prevalent. Process gases are produced by methods other than air separation. For example, hydrogen, carbon monoxide, and syngas are produced by steam methane reforming of natural gas and by the gasification of liquid and solid hydrocarbons. Hydrogen is produced by purifying byproduct sources obtained from the chemical and petrochemical industries. Helium is produced as a byproduct of gases extracted from underground reservoirs, primarily natural gas, but also CO_2 purified before resale. The Industrial Gases business also develops, builds, and operates equipment for the production or processing of gases, such as air separation units and non-cryogenic generators.

Our Industrial Gases business is organized and operated regionally. The regional Industrial Gases segments supply gases, related equipment, and applications in the relevant region to diversified customers in many industries, including those in refining, chemicals, metals, electronics, manufacturing, and food and beverage. Hydrogen is used by refiners to facilitate the conversion of heavy crude feedstock and lower the sulfur content of gasoline and diesel fuels, as well as in the developing hydrogen-for-mobility markets. We have hydrogen fueling stations that support commercial markets in California and Japan as well as demonstration projects in Europe, Saudi Arabia, and other parts of Asia. The chemicals industry uses hydrogen, oxygen, nitrogen, carbon monoxide, and syngas as feedstocks in the production of many basic chemicals. The energy production industry uses nitrogen injection for enhanced recovery of oil and natural gas and oxygen for gasification. Oxygen is used in combustion and industrial heating applications, including in the steel, certain nonferrous metals, glass, and cement industries. Nitrogen applications are used in food processing for freezing and preserving flavor, and nitrogen is used for inerting in various fields, including the metals, chemical, and semiconductor industries. Helium is used in laboratories and healthcare for cooling and in other industries for pressurizing, purging, and lifting. Argon is used in the metals and other industries for its unique inerting, thermal conductivity, and other properties. Industrial gases are also used in welding and providing healthcare and are utilized in various manufacturing processes to make them more efficient and to optimize performance.

Industrial gases are generally produced at or near the point of use given the complexity and inefficiency with storing molecules at low temperatures. Helium, however, is generally sourced globally, at long distances from point of sale. As a result, we maintain an inventory of helium stored in our fleet of ISO containers as well as at the U.S. Bureau of Land Management underground storage facility in Amarillo, Texas.

We distribute gases to our sale of gas customers through different supply modes depending on various factors including the customer's volume requirements and location. Our supply modes are as follows:

- *Liquid Bulk*—Product is delivered in bulk (in liquid or gaseous form) by tanker or tube trailer and stored, usually in its liquid state, in equipment that we typically design and install at the customer's site for vaporizing into a gaseous state as needed. Liquid bulk sales are usually governed by three- to five-year contracts.

- *Packaged Gases*—Small quantities of product are delivered in either cylinders or dewars. We operate packaged gas businesses in Europe, Asia, and Latin America. In the United States, our packaged gas business sells products (principally helium) only for the electronics and magnetic resonance imaging industries.

- *On-Site Gases*—Large quantities of hydrogen, nitrogen, oxygen, carbon monoxide, and syngas (a mixture of hydrogen and carbon monoxide) are provided to customers, principally in the energy production and refining, chemical, and metals industries worldwide, that require large volumes of gases and have relatively constant demand. Gases are produced and supplied by large facilities we construct or acquire on or near the customers' facilities or by pipeline systems from centrally located production facilities. These sale of gas contracts are generally governed by 15- to 20-year contracts. We also deliver smaller quantities of product through small on-site plants (cryogenic or non-cryogenic generators), typically via a 10- to 15-year sale of gas contract.

Electricity is the largest cost component in the production of atmospheric gases. Steam methane reformers utilize natural gas as the primary raw material and gasifiers use liquid and solid hydrocarbons as the principal raw material for the production of hydrogen, carbon monoxide, and syngas. We mitigate electricity, natural gas, and hydrocarbon price fluctuations contractually through pricing formulas, surcharges, and cost pass-through and tolling arrangements. During fiscal year 2021, no significant difficulties were encountered in obtaining adequate supplies of power and natural gas.

We obtain helium from a number of sources globally, including crude helium for purification from the U.S. Bureau of Land Management's helium reserve.

The regional Industrial Gases segments also include our share of the results of several joint ventures accounted for by the equity method, which we report in our financial statements as income from equity affiliates. The largest of these joint ventures operate in China, India, Italy, Mexico, Saudi Arabia, South Africa, and Thailand.

Each of the regional Industrial Gases segments competes against three global industrial gas companies: Air Liquide S.A., Messer, and Linde plc, as well as regional competitors. Competition in Industrial Gases is based primarily on price, reliability of supply, and the development of industrial gas applications. We derive a competitive advantage in locations where we have pipeline networks, which enable us to provide reliable and economic supply of products to our larger customers.

Overall regional industrial gases sales constituted approximately 92%, 94%, and 96% of consolidated sales in fiscal years 2021, 2020, and 2019, respectively. Sales of atmospheric gases constituted approximately 47%, 47%, and 46% of consolidated sales in fiscal years 2021, 2020, and 2019, respectively, while sales of tonnage hydrogen, syngas, and related products constituted approximately 22%, 22%, and 26% of consolidated sales in fiscal years 2021, 2020, and 2019, respectively.

Industrial Gases Equipment

We design and manufacture equipment for air separation, hydrocarbon recovery and purification, natural gas liquefaction, and liquid helium and liquid hydrogen transport and storage. The Industrial Gases – Global segment includes activity primarily related to the sale of cryogenic and gas processing equipment for air separation. The equipment is sold worldwide to customers in a variety of industries, including chemical and petrochemical manufacturing, oil and gas recovery and processing, and steel and primary metals processing. The Corporate and other segment includes: our LNG equipment business, our Gardner Cryogenics business fabricating helium and hydrogen transport and storage containers, and our Rotoflow business, which manufactures turboexpanders and other precision rotating equipment. Steel, aluminum, and capital equipment subcomponents (compressors, etc.) are the principal raw materials in the manufacturing of equipment. Raw materials for individual projects typically are acquired under firm purchase agreements. Equipment is produced at our manufacturing sites with certain components being procured from subcontractors and vendors. Competition in the equipment business is based primarily on plant efficiency, service, technical know-how and price, as well as schedule and plant performance guarantees. Sale of equipment constituted approximately 8%, 6%, and 4% of consolidated sales in fiscal years 2021, 2020, and 2019, respectively.

Our backlog of equipment orders was approximately $1.3 billion on 30 September 2021 (as compared to a total backlog of approximately $1.6 billion on 30 September 2020). We estimate that approximately half of the total equipment sales backlog as of 30 September 2021 will be recognized as revenue during fiscal year 2022, dependent on execution schedules of the relevant projects.

International Operations

Through our subsidiaries, affiliates, and joint ventures accounted for using the equity method, we conduct business in 53 countries outside the United States. Our international businesses are subject to risks customarily encountered in foreign operations, including fluctuations in foreign currency exchange rates and controls, tariffs, trade sanctions, and import and export controls, and other economic, political, and regulatory policies of local governments described in Item 1A, *Risk Factors*, below.

We have majority or wholly owned foreign subsidiaries that operate in Canada; 18 European countries (including the Netherlands, Spain, and the United Kingdom); 11 Asian countries (including China, South Korea, and Taiwan); seven Latin American countries (including Brazil and Chile); six countries in the Middle East (including Saudi Arabia), and three African countries. We also own less-than-controlling interests in entities operating in Europe, Asia, Latin America, the Middle East, and Africa (including China, India, Italy, Mexico, Oman, Saudi Arabia, South Africa, and Thailand).

Financial information about our foreign operations and investments is included in Note 7, *Summarized Financial Information of Equity Affiliates*; Note 21, *Income Taxes*; and Note 23, *Business Segment and Geographic Information*, to the consolidated financial statements included under Item 8, below. Information about foreign currency translation is included under "Foreign Currency" in Note 1, *Major Accounting Policies*, and information on our exposure to currency fluctuations is included in Note 12, *Financial Instruments*, to the consolidated financial statements, included under Item 8, below, and in "Foreign Currency Exchange Rate Risk," included under Item 7A, below.

Technology Development

We pursue a market-oriented approach to technology development through research and development, engineering, and commercial development processes. We conduct research and development principally in our laboratories located in the United States (Trexlertown, Pennsylvania), the United Kingdom (Basingstoke and Carrington), Spain (Barcelona), China (Shanghai), and Saudi Arabia (Dhahran). We also fund and cooperate in research and development programs conducted by a number of major universities and undertake research work funded by others, including the United States government.

Development of technology for use within the Industrial Gases business focuses primarily on new and improved processes and equipment for the production and delivery of industrial gases and new or improved applications for industrial gas products.

During fiscal year 2021, we owned approximately 780 United States patents, approximately 3,480 foreign patents, and were a licensee under certain patents owned by others. While the patents and licenses are considered important, we do not consider our business as a whole to be materially dependent upon any particular patent, patent license, or group of patents or licenses.

Environmental Regulation

We are subject to various environmental laws, regulations, and public policies in the countries in which we have operations. Compliance with these measures often results in higher capital expenditures and costs. In the normal course of business, we are involved in legal proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA," the federal Superfund law); Resource Conservation and Recovery Act ("RCRA"); and similar state and foreign environmental laws relating to the designation of certain sites for investigation or remediation. Our accounting policy for environmental expenditures is discussed in Note 1, *Major Accounting Policies*, and environmental loss contingencies are discussed in Note 16, *Commitments and Contingencies*, to the consolidated financial statements, included under Item 8, below.

Some of our operations are within jurisdictions that have or are developing regulatory regimes governing emissions of greenhouse gases ("GHG"), including CO_2. These include existing coverage under the European Union Emission Trading System, the California Cap-and-Trade Program, China's Emission Trading Scheme and its nation-wide expansion, and South Korea's Emission Trading Scheme. In the Netherlands, a CO_2 emissions tax was enacted on 1 January 2021. In Canada, Alberta's Technology Innovation and Emission Reduction System went into effect 1 January 2020. In Ontario, Environment & Climate Change Canada's Output Based Pricing System ("OBPS") is currently in effect, however, effective 1 January 2022, Ontario's GHG Emissions Performance Standards program will be used in lieu of adherence to the OBPS. In addition, the U.S. Environmental Protection Agency ("EPA") requires mandatory reporting of GHG emissions and is regulating GHG emissions for new construction and major modifications to existing facilities. Some jurisdictions have various mechanisms to target the power sector to achieve emission reductions, which often result in higher power costs.

Increased public concern may result in more international, U.S. federal, and/or regional requirements to reduce or mitigate the effects of GHG emissions. Although uncertain, these developments could increase our costs related to consumption of electric power, hydrogen production and application of our gasification technology. We believe we will be able to mitigate some of the increased costs through contractual terms, but the lack of definitive legislation or regulatory requirements prevents an accurate estimate of the long-term impact these measures will have on our operations. Any legislation that limits or taxes GHG emissions could negatively impact our growth, increase our operating costs, or reduce demand for certain of our products.

Regulation of GHG may also produce new opportunities for us. We continue to develop technologies to help our facilities and our customers lower energy consumption, improve efficiency and lower emissions. We see significant opportunities for gasification, carbon capture technologies and hydrogen for mobility and energy transition.

We estimate that we spent approximately $8 million, $4 million, and $5 million in fiscal years 2021, 2020, and 2019, respectively, on capital projects reflected in continuing operations to control pollution. Capital expenditures to control pollution are estimated to be approximately $8 million in both fiscal years 2022 and 2023.

For additional information regarding environmental matters, refer to Note 16, *Commitments and Contingencies*, to the consolidated financial statements.

Employees

We believe our employees are our most valuable asset and are critical to our success as an organization. Our goal is to be the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to our customers. Integral to our success is the continued development of our 4S culture (Safety, Speed, Simplicity and Self-Confidence) and creating a work environment where our employees feel that they belong and matter. Our talent related initiatives, including employee recruitment and development, diversity and inclusion and compensation and benefit programs, are focused on building and retaining the world-class and talented staff that is needed to meet our goals.

On 30 September 2021, we had approximately 20,875 employees, of whom approximately 20,625 were full-time and approximately 15,575 were located outside the United States. We have collective bargaining agreements with unions and works councils at certain locations that expire on various dates over the next four years. We consider relations with our employees to be good.

Our 2021 Sustainability Report details our growth strategy and the role our most valuable asset and our competitive advantage, our employees, play in achieving our goals. Rooted in our framework of Grow- Conserve- Care, our higher purpose is to bring people together to collaborate and innovate solutions to the world's most significant energy and environmental sustainability challenges. Our 2021 Sustainability Report details how we care for our employees.

Safety

Safety is fundamental to who we are as a company. Safety is a shared value, and our employees' commitment to safety is demonstrated in many ways every day. Safety is a critical component of everything we do, everywhere in the world. Our goal is to be the safest industrial gas company in the world.

Diversity, Inclusion, and Belonging

Our 2021 Sustainability Report sets forth our announced goals to further increase the percentage of women and U.S. minorities in professional and managerial roles and the recruitment and talent development strategies we have in place to ensure we meet these goals. Since the publication of our 2021 Sustainability Report, we have announced goals to further increase the percentage of women and U.S. minorities in professional and managerial roles. By 2025, we aim to achieve at least 28 percent female representation in the professional and managerial population globally. Due to significant increase of our U.S. minority representation, our new 2025 diversity goal is to achieve at least 30 percent U.S. minority representation in professional and managerial roles. We established these targets following analysis of our global employee representation metrics and future talent needs, as well as assessing industry benchmarks and peer companies.

Compensation

As detailed in our 2021 Sustainability Report, in order to create a diverse workplace, individuals must be compensated fairly and equitably. A work environment where employees know they belong and matter includes fair and equitable pay. Our pay practices apply equally to all employees irrespective of gender, race, religion, disability, age, or any other form of personal difference. We strive to pay competitively in local markets where we do business and compete for talent. We benchmark our compensation to ensure that we are keeping pace with the market to provide competitive pay and benefits. A gender pay equity analysis completed by a third-party in 2020 resulted in no significant adverse findings for minorities in the U.S. and for females globally.

We value the contributions of our employees, particularly in the face of the challenges posed by the COVID-19 pandemic. Many of our employees are on the front line during the pandemic, keeping our plants running and delivering to our customers the products they need. When possible, employees have been working from home to help maintain their health and safety as well as business continuity. We have not laid off any of our employees or reduced their salaries due to COVID-19.

Seasonality

Our businesses are not subject to seasonal fluctuations to any material extent.

Inventories

We maintain limited inventory where required to facilitate the supply of products to customers on a reasonable delivery schedule. Inventory consists primarily of crude helium, industrial gas, and specialty gas inventories supplied to customers through liquid bulk and packaged gases supply modes.

Customers

We do not have a homogeneous customer base or end market, and no single customer accounts for more than 10% of our consolidated revenues. We do have concentrations of customers in specific industries, primarily refining, chemicals, and electronics. Within each of these industries, we have several large-volume customers with long-term contracts. A negative trend affecting one of these industries, or the loss of one of these major customers, although not material to our consolidated revenue, could have an adverse impact on our financial results.

Governmental Contracts

Our business is not subject to a government entity's renegotiation of profits or termination of contracts that would be material to our business as a whole.

Available Information

All periodic and current reports, registration statements, proxy statements, and other filings that we are required to file with the Securities and Exchange Commission ("SEC"), including our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) of the Securities Exchange Act of 1934 (the "Exchange Act"), are available free of charge through our website at www.airproducts.com. Such documents are available as soon as reasonably practicable after electronic filing of the material with the SEC. All such reports filed during the period covered by this report were available on our website on the same day as filing. In addition, our filings with the SEC are available free of charge on the SEC's website, www.sec.gov.

Our Executive Officers

Our executive officers and their respective positions and ages on 18 November 2021 follow. Information with respect to offices held is stated in fiscal years.

Name	Age	Office
Seifi Ghasemi	77	Chairman, President, and Chief Executive Officer (became Chairman, President and Chief Executive Officer in 2014 and previously served as Chairman and Chief Executive Officer of Rockwood Holdings, Inc. from 2001 to 2014). Mr. Ghasemi is a member and Chairman of the Board of Directors and the Chairman of the Executive Committee of the Board of Directors.
Sean D. Major	57	Executive Vice President, General Counsel and Secretary (Executive Vice President and General Counsel since May 2017 and Secretary since December 2017). Previously, Mr. Major served as Executive Vice President, General Counsel and Secretary for Joy Global Inc. from 2007 to 2017.
Melissa N. Schaeffer	42	Senior Vice President and Chief Financial Officer (became Senior Vice President and Chief Financial Officer in August 2021). Ms. Schaeffer joined the Company in 2016 and most recently served as Vice President, Finance – GEMTE, Americas, Middle East, and India from 2020 to 2021 and previously served as Vice President, Chief Audit Executive from 2016 to 2020.
Dr. Samir J. Serhan	60	Chief Operating Officer (Executive Vice President since December 2016 and Chief Operating Officer since May 2020). Dr. Serhan served as President, Global HyCO, from 2014 to 2016 for Praxair Inc. From 2000-2014, he worked in leadership positions in the U.S. and Germany for The Linde Group, including as Managing Director of Linde Engineering from 2008-2014.

Item 1A. Risk Factors.

Our operations are affected by various risks, many of which are beyond our control. In evaluating investment in the Company and the forward-looking information contained in this Annual Report on Form 10-K or presented elsewhere from time to time, you should carefully consider the risk factors discussed below. Any of these risks could have a material adverse effect on our business, operating results, financial condition, and the actual outcome of matters as to which forward-looking statements are made and could adversely affect the value of an investment in our securities. The risks described below are not all inclusive but are designed to highlight what we believe are important factors to consider when evaluating our expectations. In addition to such risks, there may be additional risks and uncertainties that adversely affect our business, performance, or financial condition in the future that are not presently known, are not currently believed to be significant, or are not identified below because they are common to all businesses.

Risks Related to Economic Conditions

The COVID-19 global pandemic may materially and adversely impact our business, financial condition and results of operations.

The COVID-19 global pandemic, including resurgences and variants of the virus that causes COVID-19, and efforts to reduce its spread have led, and may continue to lead to, significant changes in levels of economic activity and significant disruption and volatility in global markets. These factors have led, and may continue to lead, to reduced demand for industrial gas products, particularly in our merchant business. In addition, COVID-19 may result in reduced sales in our other businesses, lower returns for certain of our projects, and the potential delay or cancellation of certain projects in our pipeline.

In addition, we are monitoring the health of our employees and many of our employees, including those based at our headquarters, are working remotely in accordance with health safety guidance and applicable governmental orders. Action by health or other governmental authorities requiring the closure of our facilities, recommending other physical distancing measures, or mandating vaccination against COVID-19 could negatively impact our business and those of our service providers and customers. Although we have business continuity and other safeguards in place, we cannot be certain that they will be fully effective for extended periods of time.

As the pandemic and responses to it continue to evolve we may experience further adverse impacts on our operations, and our ability to access capital on favorable terms, or at all, may be impaired. In addition, we may face unpredictable increases in demand for certain of our products when restrictions on business and travel end. If demand for our products exceeds our capacity, it could adversely affect our financial results and customer relationships. Although the duration and ultimate impact of these factors is unknown at this time, the decline in economic conditions due to COVID-19, or another disease-causing similar impacts, may adversely affect our business, financial condition and results of operations and such impact may be material.

Further, to the extent COVID-19 adversely affects our business, financial condition, and results of operations and global economic conditions more generally, it may also have the effect of heightening many of the other risks described herein.

<u>Changes in global and regional economic conditions, the markets we serve, or the financial markets may adversely affect our results of operations and cash flows.</u>

Unfavorable conditions in the global economy or regional economies, the markets we serve or financial markets may decrease the demand for our goods and services and adversely impact our revenues, operating results, and cash flows.

Demand for our products and services depends in part on the general economic conditions affecting the countries and markets in which we do business. Weak economic conditions in certain geographies and changing supply and demand balances in the markets we serve have negatively impacted demand for our products and services in the past, including most recently due to COVID-19, and may do so in the future. Reduced demand for our products and services would have a negative impact on our revenues and earnings. In addition, reduced demand could depress sales, reduce our margins, constrain our operating flexibility or reduce efficient utilization of our manufacturing capacity, or result in charges which are unusual or nonrecurring. Excess capacity in our manufacturing facilities or those of our competitors could decrease our ability to maintain pricing and generate profits.

In addition, our operating results in one or more segments may be affected by uncertain or deteriorating economic conditions for particular customer markets within a segment. A decline in the industries served by our customers or adverse events or circumstances affecting individual customers can reduce demand for our products and services and impair the ability of such customers to satisfy their obligations to us, resulting in uncollected receivables, unanticipated contract terminations, project delays or the inability to recover plant investments, any of which may negatively impact our financial results.

Weak overall demand or specific customer conditions may also cause customer shutdowns or defaults or otherwise make us unable to operate facilities profitably and may force sale or abandonment of facilities and equipment or prevent projects from coming on-stream when expected. These or other events associated with weak economic conditions or specific market, product, or customer events may require us to record an impairment on tangible assets, such as facilities and equipment, or intangible assets, such as intellectual property or goodwill, which would have a negative impact on our financial results.

<u>Our extensive international operations can be adversely impacted by operational, economic, political, security, legal, and currency translation risks that could decrease profitability.</u>

In fiscal year 2021, over 60% of our sales were derived from customers outside the United States and many of our operations, suppliers, and employees are located outside the United States. Our operations in foreign jurisdictions may be subject to risks including exchange control regulations, import and trade restrictions, trade policy and other potentially detrimental domestic and foreign governmental practices or policies affecting U.S. companies doing business abroad. Changing economic and political conditions within foreign jurisdictions, strained relations between countries, or the imposition of tariffs or international sanctions can cause fluctuations in demand, price volatility, supply disruptions, or loss of property. The occurrence of any of these risks could have a material adverse impact on our financial condition, results of operation, and cash flows.

Our growth strategies depend in part on our ability to further penetrate markets outside the United States, particularly in markets such as China, India, Indonesia, and the Middle East, and involve significantly larger and more complex projects, including gasification and large-scale hydrogen projects, some in regions where there is the potential for significant economic and political disruptions. We are actively investing large amounts of capital and other resources, in some cases through joint ventures, in developing markets, which we believe to have high growth potential. Our operations in these markets may be subject to greater risks than those faced by our operations in mature economies, including political and economic instability, project delay or abandonment due to unanticipated government actions, inadequate investment in infrastructure, undeveloped property rights and legal systems, unfamiliar regulatory environments, relationships with local partners, language and cultural differences and increased difficulty recruiting, training and retaining qualified employees. In addition, our properties and contracts in these locations may be subject to seizure and cancellation, respectively, without full compensation for loss. Successful operation of particular facilities or execution of projects may be disrupted by civil unrest, acts of war, sabotage or terrorism, and other local security concerns. Such concerns may require us to incur greater costs for security or require us to shut down operations for a period of time.

Furthermore, because the majority of our revenue is generated from sales outside the United States, we are exposed to fluctuations in foreign currency exchange rates. Our business is primarily exposed to translational currency risk as the results of our foreign operations are translated into U.S. dollars at current exchange rates throughout the fiscal period. Our policy is to minimize cash flow volatility from changes in currency exchange rates. We choose not to hedge the translation of our foreign subsidiaries' earnings into dollars. Accordingly, reported sales, net earnings, cash flows, and fair values have been, and in the future will be, affected by changes in foreign exchange rates. For a more detailed discussion of currency exposure, see Item 7A, *Quantitative and Qualitative Disclosures About Market Risk*, below.

Risks Related to Our Business

<u>Operational and project execution risks, particularly with respect to our largest projects, may adversely affect our operations or financial results.</u>

A significant and growing portion of our business involves gasification and other large-scale projects that involve challenging engineering, procurement and construction phases that may last up to several years and involve the investment of billions of dollars. These projects are technically complex, often reliant on significant interaction with government authorities and face significant financing, development, operational and reputational risks. We may encounter difficulties in engineering, delays in designs or materials provided by the customer or a third party, equipment and materials delivery delays, schedule changes, customer scope changes, delays related to obtaining regulatory permits and rights-of-way, inability to find adequate sources of labor in the locations where we are building new plants, weather-related delays, delays by customers' contractors in completing their portion of a project, technical or transportation difficulties, cost overruns, supply difficulties, geopolitical risks and other factors, many of which are beyond our control, that may impact our ability to complete a project within the original delivery schedule. In some cases, delays and additional costs may be substantial, and we may be required to cancel a project and/or compensate the customer for the delay. We may not be able to recover any of these costs. In addition, in some cases we seek financing for large projects and face market risk associated with the availability and terms of such financing. These financing arrangements may require that we comply with certain performance requirements which, if not met, could result in default and restructuring costs or other losses. All of these factors could also negatively impact our reputation or relationships with our customers, suppliers and other third parties, any of which could adversely affect our ability to secure new projects in the future.

The operation of our facilities, pipelines, and delivery systems inherently entails hazards that require continuous oversight and control, such as pipeline leaks and ruptures, fire, explosions, toxic releases, mechanical failures, vehicle accidents, or cyber incidents. If operational risks materialize, they could result in loss of life, damage to the environment, or loss of production, all of which could negatively impact our ongoing operations, reputation, financial results, and cash flows. In addition, our operating results are dependent on the continued operation of our production facilities and our ability to meet customer requirements, which depend, in part, on our ability to properly maintain and replace aging assets.

We are subject to extensive government regulation in the jurisdictions in which we do business. Regulations addressing, among other things, import/export restrictions, anti-bribery and corruption, and taxes, can negatively impact our financial condition, results of operation, and cash flows.

We are subject to government regulation in the United States and in the foreign jurisdictions where we conduct business. The application of laws and regulations to our business is sometimes unclear. Compliance with laws and regulations may involve significant costs or require changes in business practices that could result in reduced profitability. If there is a determination that we have failed to comply with applicable laws or regulations, we may be subject to penalties or sanctions that could adversely impact our reputation and financial results. Compliance with changes in laws or regulations can result in increased operating costs and require additional, unplanned capital expenditures. Export controls or other regulatory restrictions could prevent us from shipping our products to and from some markets or increase the cost of doing so. Changes in tax laws and regulations and international tax treaties could affect the financial results of our businesses. Increasingly aggressive enforcement of anti-bribery and anti-corruption requirements, including the U.S. Foreign Corrupt Practices Act, the United Kingdom Bribery Act and the China Anti-Unfair Competition Law, could subject us to criminal or civil sanctions if a violation is deemed to have occurred. In addition, we are subject to laws and sanctions imposed by the U.S. and other jurisdictions where we do business that may prohibit us, or certain of our affiliates, from doing business in certain countries, or restricting the kind of business that we may conduct. Such restrictions may provide a competitive advantage to competitors who are not subject to comparable restrictions or prevent us from taking advantage of growth opportunities.

Further, we cannot guarantee that our internal controls and compliance systems will always protect us from acts committed by employees, agents, business partners or that businesses that we acquire would not violate U.S. and/ or non-U.S. laws, including the laws governing payments to government officials, bribery, fraud, kickbacks and false claims, pricing, sales and marketing practices, conflicts of interest, competition, export and import compliance, money laundering, and data privacy. Any such improper actions or allegations of such acts could damage our reputation and subject us to civil or criminal investigations in the U.S. and in other jurisdictions and related shareholder lawsuits, could lead to substantial civil and criminal, monetary and non-monetary penalties, and could cause us to incur significant legal and investigatory fees. In addition, the government may seek to hold us liable as a successor for violations committed by companies in which we invest or that we acquire.

We may be unable to successfully identify, execute or effectively integrate acquisitions, or effectively disentangle divested businesses.

Our ability to grow revenue, earnings, and cash flow at anticipated rates depends in part on our ability to identify, successfully acquire and integrate businesses and assets at appropriate prices, and realize expected growth, synergies, and operating efficiencies. We may not be able to complete transactions on favorable terms, on a timely basis or at all. In addition, our results of operations and cash flows may be adversely impacted by the failure of acquired businesses or assets to meet expected returns, the failure to integrate acquired businesses, the inability to dispose of non-core assets and businesses on satisfactory terms and conditions, and the discovery of unanticipated liabilities or other problems in acquired businesses or assets for which we lack adequate contractual protections or insurance. In addition, we may incur asset impairment charges related to acquisitions that do not meet expectations.

We continually assess the strategic fit of our existing businesses and may divest businesses that are deemed not to fit with our strategic plan or are not achieving the desired return on investment. These transactions pose risks and challenges that could negatively impact our business and financial statements. For example, when we decide to sell or otherwise dispose of a business or assets, we may be unable to do so on satisfactory terms within our anticipated time frame or at all. In addition, divestitures or other dispositions may dilute our earnings per share, have other adverse financial and accounting impacts, distract management, and give rise to disputes with buyers. In addition, we have agreed, and may in the future agree, to indemnify buyers against known and unknown contingent liabilities. Our financial results could be impacted adversely by claims under these indemnification provisions.

The security of our information technology systems could be compromised, which could adversely affect our ability to operate.

We depend on information technology to enable us to operate safely and efficiently and interface with our customers as well as to maintain our internal control environment and financial reporting accuracy and efficiency. Our information technology capabilities are delivered through a combination of internal and external services and service providers. If we do not allocate and effectively manage the resources necessary to build and sustain the proper technology infrastructure, we could be subject to transaction errors, processing inefficiencies, the loss of customers, business disruptions, property damage, or the loss of or damage to our confidential business information due to a security breach. In addition, our information technology systems may be damaged, disrupted or shut down due to attacks by computer hackers, computer viruses, employee error or malfeasance, power outages, hardware failures, telecommunication or utility failures, catastrophes or other unforeseen events, and in any such circumstances our system redundancy and other disaster recovery planning may be ineffective or inadequate. Security breaches of our systems (or the systems of our customers, suppliers or other business partners) could result in the misappropriation, destruction or unauthorized disclosure of confidential information or personal data belonging to us or to our employees, partners, customers or suppliers, and may subject us to legal liability.

As with most large systems, our information technology systems have in the past been, and in the future likely will be subject to computer viruses, malicious codes, unauthorized access and other cyber-attacks, and we expect the sophistication and frequency of such attacks to continue to increase. To date, we are not aware of any significant impact on our operations or financial results from such attempts; however, unauthorized access could disrupt our business operations, result in the loss of assets, and have a material adverse effect on our business, financial condition, or results of operations. Any of the attacks, breaches or other disruptions or damage described above could: interrupt our operations at one or more sites; delay production and shipments; result in the theft of our and our customers' intellectual property and trade secrets; damage customer and business partner relationships and our reputation; result in defective products or services, physical damage to facilities, pipelines or delivery systems, including those we own or operate for third parties, legal claims and proceedings, liability and penalties under privacy laws, or increased costs for security and remediation; or raise concerns regarding our internal control environment and internal control over financial reporting. Each of these consequences could adversely affect our business, reputation and our financial statements.

Our business involves the use, storage, and transmission of information about our employees, vendors, and customers. The protection of such information, as well as our proprietary information, is critical to us. The regulatory environment surrounding information security and privacy is increasingly demanding, with the frequent imposition of new and constantly changing requirements. We have established policies and procedures to help protect the security and privacy of this information. We also, from time to time, export sensitive customer data and technical information to recipients outside the United States. Breaches of our security measures or the accidental loss, inadvertent disclosure, or unapproved dissemination of proprietary information or sensitive or confidential data about us or our customers, including the potential loss or disclosure of such information or data as a result of fraud, trickery, or other forms of deception, could expose us, our customers, or the individuals affected to a risk of loss or misuse of this information, which could ultimately result in litigation and potential legal and financial liability. These events could also damage our reputation or otherwise harm our business.

Interruption in ordinary sources of raw material or energy supply or an inability to recover increases in energy and raw material costs from customers could result in lost sales or reduced profitability.

Hydrocarbons, including natural gas, are the primary feedstock for the production of hydrogen, carbon monoxide, and syngas. Energy, including electricity, natural gas, and diesel fuel for delivery trucks, is the largest cost component of our business. Because our industrial gas facilities use substantial amounts of electricity, inflation and energy price fluctuations could materially impact our revenues and earnings. A disruption in the supply of energy, components, or raw materials, whether due to market conditions, legislative or regulatory actions, the COVID-19 pandemic, natural events, or other disruption, could prevent us from meeting our contractual commitments and harm our business and financial results.

Our supply of crude helium for purification and resale is largely dependent upon natural gas production by crude helium suppliers. Lower natural gas production resulting from natural gas pricing dynamics, supplier operating or transportation issues, or other interruptions in sales from crude helium suppliers, can reduce our supplies of crude helium available for processing and resale to customers.

We typically contract to pass-through cost increases in energy and raw materials to customers, but such cost pass-through results in declining margins, and cost variability can negatively impact our other operating results. For example, we may be unable to raise prices as quickly as costs rise, or competitive pressures may prevent full recovery of such costs. In addition, increases in energy or raw material costs that cannot be passed on to customers for competitive or other reasons may negatively impact our revenues and earnings. Even where costs are passed through, price increases can cause lower sales volume.

New technologies create performance risks that could impact our financial results or reputation.

We are continually developing and implementing new technologies and product offerings. Existing technologies are being implemented in products and designs or at scales beyond our experience base. These technological expansions can create nontraditional performance risks to our operations. Failure of the technologies to work as predicted, or unintended consequences of new designs or uses, could lead to cost overruns, project delays, financial penalties, or damage to our reputation. In addition, gasification and other large-scale projects may contain processes or technologies that we have not operated at the same scale or in the same combination, and although such projects generally include technologies and processes that have been demonstrated previously by others, such technologies or processes may be new to us and may introduce new risks to our operations. Additionally, there is also a risk that our new technologies may become obsolete and replaced by other market alternatives. Performance difficulties on these larger projects may have a material adverse effect on our operations and financial results. In addition, performance challenges may adversely affect our reputation and our ability to obtain future contracts for gasification projects.

Protecting our intellectual property is critical to our technological development and we may suffer competitive harm from infringement on such rights.

As we develop new technologies, it is critical that we protect our intellectual property assets against third-party infringement. We own a number of patents and other forms of intellectual property related to our products and services. As we develop new technologies there is a risk that our patent applications may not be granted, or we may not receive sufficient protection of our proprietary interests. We may also expend considerable resources in defending our patents against third-party infringement. It is critical that we protect our proprietary interests to prevent competitive harm.

Legal and Regulatory Risks

Legislative, regulatory, and societal responses to global climate change create financial risk.

We are the world's leading supplier of hydrogen, the primary use of which is the production of ultra-low sulfur transportation fuels that have significantly reduced transportation emissions and helped improve human health. To make the high volumes of hydrogen needed by our customers, we use steam methane reforming, which produces carbon dioxide. In addition, gasification enables the conversion of lower value feedstocks into cleaner energy and value-added products; however, our gasification projects also produce carbon dioxide. Some of our operations are within jurisdictions that have or are developing regulatory regimes governing GHG emissions, including CO_2, which may lead to direct and indirect costs on our operations. Furthermore, some jurisdictions have various mechanisms to target the power sector to achieve emission reductions, which often result in higher power costs.

Increased public concern and governmental action may result in more international, U.S. federal and/or regional requirements to reduce or mitigate the effects of GHG emissions. Although uncertain, these developments could increase our costs related to consumption of electric power, hydrogen production and application of our gasification technology. We believe we will be able to mitigate some of the increased costs through contractual terms, but the lack of definitive legislation or regulatory requirements prevents an accurate estimate of the long-term impact these measures will have on our operations. Any legislation or governmental action that limits or taxes GHG emissions could negatively impact our growth, increase our operating costs, or reduce demand for certain of our products.

Our financial results may be affected by various legal and regulatory proceedings, including antitrust, tax, environmental, or other matters.

We are subject to litigation and regulatory investigations and proceedings in the normal course of business and could become subject to additional claims in the future, some of which could be material. While we seek to limit our liability in our commercial contractual arrangements, there are no guarantees that each contract will contain suitable limitations of liability or that limitations of liability will be enforceable. Also, the outcome of existing legal proceedings may differ from our expectations because the outcomes of litigation, including regulatory matters, are often difficult to predict reliably. Various factors or developments can lead us to change current estimates of liabilities and related insurance receivables, where applicable, or make such estimates for matters previously not susceptible to reasonable estimates, such as a significant judicial ruling or judgment, a significant settlement, significant regulatory developments, or changes in applicable law. A future adverse ruling, settlement, or unfavorable development could result in charges that could have a material adverse effect on our financial condition, results of operations, and cash flows in any particular period.

Costs and expenses resulting from compliance with environmental regulations may negatively impact our operations and financial results.

We are subject to extensive federal, state, local, and foreign environmental and safety laws and regulations concerning, among other things, emissions in the air; discharges to land and water; and the generation, handling, treatment, and disposal of hazardous waste and other materials. We take our environmental responsibilities very seriously, but there is a risk of adverse environmental impact inherent in our manufacturing operations and in the transportation of our products. Future developments and more stringent environmental regulations may require us to make additional unforeseen environmental expenditures. In addition, laws and regulations may require significant expenditures for environmental protection equipment, compliance, and remediation. These additional costs may adversely affect our financial results. For a more detailed description of these matters, see Item 1, *Business–Environmental Regulation*, above.

A change of tax law in key jurisdictions could result in a material increase in our tax expense.

The multinational nature of our business subjects us to taxation in the United States and numerous foreign jurisdictions. Due to economic and political conditions, tax rates in various jurisdictions may be subject to significant change. Our future effective tax rates could be affected by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities, or changes in tax laws or their interpretation.

Changes to income tax laws and regulations in any of the jurisdictions in which we operate, or in the interpretation of such laws, could significantly increase our effective tax rate and adversely impact our financial condition, results of operations, or cash flows. Various levels of government, including the U.S. federal government, are increasingly focused on tax reform and other legislative action to increase tax revenue. Further changes in tax laws in the U.S. or foreign jurisdictions where we operate could have a material adverse effect on our business, results of operations, or financial condition.

General Risk Factors

Catastrophic events could disrupt our operations or the operations of our suppliers or customers, having a negative impact on our business, financial results, and cash flows.

Our operations could be impacted by catastrophic events outside our control, including severe weather conditions such as hurricanes, floods, earthquakes, storms, epidemics, pandemics, acts of war, and terrorism. Any such event could cause a serious business disruption that could affect our ability to produce and distribute products and possibly expose us to third-party liability claims. Additionally, such events could impact our suppliers, customers, and partners, which could cause energy and raw materials to be unavailable to us, or our customers to be unable to purchase or accept our products and services. Any such occurrence could have a negative impact on our operations and financial results.

The United Kingdom's ("UK") exit from European Union ("EU") membership could adversely affect our European Operations.

Although the UK's exit from EU membership on 31 January 2021 ("Brexit") did not result in material disruptions to customer demand, our relationships with customers and suppliers, or our European business, the ultimate effects of Brexit on us are still difficult to predict. Adverse consequences from Brexit may include greater restrictions on imports and exports between the UK and EU members and increased regulatory complexities. Any of these factors could adversely affect customer demand, our relationships with customers and suppliers, and our European business overall.

Inability to compete effectively in a segment could adversely impact sales and financial performance.

We face strong competition from large global competitors and many smaller regional competitors in many of our business segments. Introduction by competitors of new technologies, competing products, or additional capacity could weaken demand for, or impact pricing of our products, negatively impacting financial results. In addition, competitors' pricing policies could affect our profitability or market share.

Item 1B. Unresolved Staff Comments.

We have not received any written comments from the Commission staff that remain unresolved.

Item 2. Properties.

Air Products and Chemicals, Inc. owns its principal administrative offices in Trexlertown, Pennsylvania, and the Company's new global headquarters and co-located research and development facility in Allentown, Pennsylvania, as well as regional offices in Hersham, England; Medellin, Colombia; and Santiago, Chile. We lease the principal administrative offices in Shanghai, China; Pune, India; Vadodara, India; and Dhahran, Saudi Arabia. We lease administrative offices in the United States, Canada, Spain, Malaysia, and China for our Global Business Support organization.

Descriptions of the properties used by our five business segments are provided below. We believe that our facilities are suitable and adequate for our current and anticipated future levels of operation.

Industrial Gases – Americas

This business segment currently operates from over 425 production and distribution facilities in North and South America. Approximately 25% of these facilities are located on owned property and 10% are integrated sites that serve dedicated customers as well as merchant customers. We have sufficient property rights and permits for the ongoing operation of our pipeline systems in the Gulf Coast, California, and Arizona in the United States and Alberta and Ontario in Canada. Management and sales support is based in our Trexlertown, Medellin, and Santiago offices referred to above, and at 12 leased properties located throughout North and South America.

Industrial Gases – EMEA

This business segment currently operates from over 200 production and distribution facilities in Europe, the Middle East, India, and Africa, approximately one-third of which are on owned property. We have sufficient property rights and permits for the ongoing operation of our pipeline systems in the Netherlands, the United Kingdom, Belgium, France, and Germany. Management and sales support for this business segment is based in Hersham, England, referred to above; Barcelona, Spain; and at 16 leased regional office sites and 15 leased local office sites, located throughout the region.

Industrial Gases – Asia

This business segment currently operates from over 200 production and distribution facilities within Asia, approximately 25% of which are on owned property or long-duration term grants. We have sufficient property rights and permits for the ongoing operation of our pipeline systems in China, South Korea, Taiwan, Malaysia, Singapore, and Indonesia. Management and sales support for this business segment is based in Shanghai, China, and Kuala Lumpur, Malaysia, and in 30 leased office locations throughout the region.

Industrial Gases – Global
Management, sales, and engineering support for this business segment is based in our principal administrative offices noted above.

Equipment is manufactured in Missouri in the United States and Shanghai, China.

Research and development activities are primarily conducted at owned locations in the United States, the United Kingdom, and Saudi Arabia.

Helium is processed at multiple sites in the United States and then distributed to and from transfill sites globally.

Corporate and other
Corporate administrative functions are based in our administrative offices referred to above.

The LNG business operates a manufacturing facility in Florida in the United States with management, engineering, and sales support based in the Trexlertown offices referred to above.

The Gardner Cryogenic business operates at facilities in Pennsylvania and Kansas in the United States.

The Rotoflow business operates manufacturing and service facilities in Texas and Pennsylvania in the United States with management, engineering, and sales support based in the Trexlertown offices referred to above and a nearby leased office.

Item 3. Legal Proceedings.

In the normal course of business, we and our subsidiaries are involved in various legal proceedings, including commercial, competition, environmental, intellectual property, regulatory, product liability, and insurance matters. Although litigation with respect to these matters is routine and incidental to the conduct of our business, such litigation could result in large monetary awards, especially if compensatory and/or punitive damages are awarded. However, we believe that litigation currently pending to which we are a party will be resolved without any material adverse effect on our financial position, earnings, or cash flows.

From time to time, we are also involved in proceedings, investigations, and audits involving governmental authorities in connection with environmental, health, safety, competition, and tax matters.

We are a party to proceedings under CERCLA, RCRA, and similar state and foreign environmental laws relating to the designation of certain sites for investigation or remediation. Presently there are 31 sites on which a final settlement has not been reached where we, along with others, have been designated a potentially responsible party by the Environmental Protection Agency or is otherwise engaged in investigation or remediation, including cleanup activity at certain of its current and former manufacturing sites. We do not expect that any sums we may have to pay in connection with these environmental matters would have a material adverse impact on our consolidated financial position. Additional information on our environmental exposure is included under Item 1, Business–Environmental Regulation, and Note 16, Commitments and Contingencies, to the consolidated financial statements.

In September 2010, the Brazilian Administrative Council for Economic Defense ("CADE") issued a decision against our Brazilian subsidiary, Air Products Brasil Ltda., and several other Brazilian industrial gas companies for alleged anticompetitive activities. CADE imposed a civil fine of R$179.2 million (approximately $33 million at 30 September 2021) on Air Products Brasil Ltda. This fine was based on a recommendation by a unit of the Brazilian Ministry of Justice, following an investigation beginning in 2003, which alleged violation of competition laws with respect to the sale of industrial and medical gases. The fines are based on a percentage of our total revenue in Brazil in 2003.

We have denied the allegations made by the authorities and filed an appeal in October 2010 with the Brazilian courts. On 6 May 2014, our appeal was granted and the fine against Air Products Brasil Ltda. was dismissed. CADE has appealed that ruling and the matter remains pending. We, with advice of our outside legal counsel, have assessed the status of this matter and have concluded that, although an adverse final judgment after exhausting all appeals is possible, such a judgment is not probable. As a result, no provision has been made in the consolidated financial statements. In the event of an adverse final judgment, we estimate the maximum possible loss to be the full amount of the fine of R$179.2 million (approximately $33 million at 30 September 2021) plus interest accrued thereon until final disposition of the proceedings.

Additionally, Winter Storm Uri, a severe winter weather storm in the U.S. Gulf Coast in February 2021, disrupted our operations and caused power and natural gas prices to spike significantly in Texas. We are currently in the early stages of litigation of a dispute regarding energy management services related to the impact of this unusual event, and other disputes may arise from such power price increases. In addition, legislative action may affect power supply and energy management charges. While it is reasonably possible that we could incur additional costs related to power supply and energy management services in Texas related to the winter storm, it is too early to estimate potential losses, if any, given significant unknowns resulting from the unusual nature of this event.

Other than the matters discussed above, we do not currently believe there are any legal proceedings, individually or in the aggregate, that are reasonably possible to have a material impact on our financial condition, results of operations, or cash flows. However, a future charge for regulatory fines or damage awards could have a significant impact on our net income in the period in which it is recorded.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities.

Our common stock is listed on the New York Stock Exchange under the symbol "APD." As of 31 October 2021, there were 4,722 record holders of our common stock.

Cash dividends on our common stock are paid quarterly. It is our expectation that we will continue to pay cash dividends in the future at comparable or increased levels. The Board of Directors determines whether to declare dividends and the timing and amount based on financial condition and other factors it deems relevant. Dividend information for each quarter of fiscal years 2021 and 2020 is summarized below:

	2021	2020
Fourth quarter	**$1.50**	$1.34
Third quarter	**$1.50**	$1.34
Second quarter	**$1.50**	$1.34
First quarter	**$1.34**	$1.16
Total	**$5.84**	$5.18

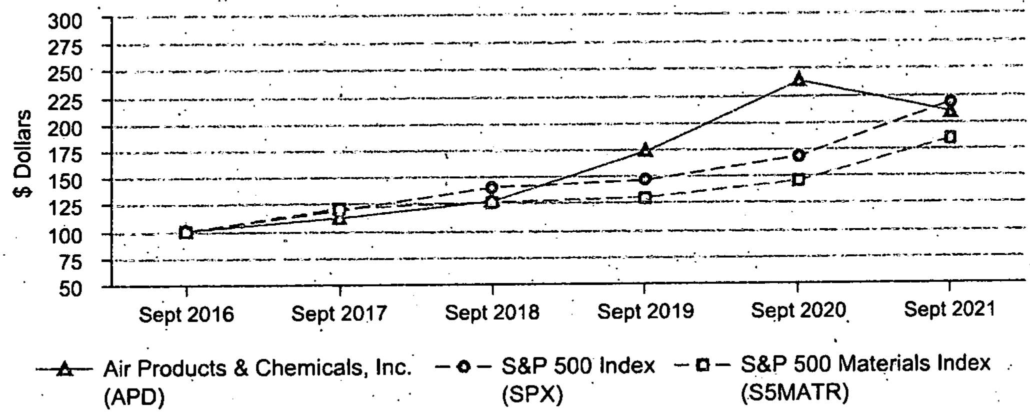
Purchases of Equity Securities by the Issuer

On 15 September 2011, the Board of Directors authorized the repurchase of up to $1.0 billion of our outstanding common stock. This program does not have a stated expiration date. We repurchase shares pursuant to Rules 10b5-1 and 10b-18 under the Exchange Act through repurchase agreements established with one or more brokers. There were no purchases of stock during fiscal year 2021. At 30 September 2021, $485.3 million in share repurchase authorization remained. Additional purchases will be completed at our discretion while maintaining sufficient funds for investing in our business and pursuing growth opportunities.

Performance Graph

The performance graph below compares the five-year cumulative returns of our common stock with those of the Standard & Poor's 500 Index ("S&P 500 Index") and the Standard & Poor's 500 Materials Index ("S&P 500 Materials Index"). The figures assume an initial investment of $100 and the reinvestment of all dividends.

COMPARISON OF FIVE YEAR CUMULATIVE SHAREHOLDER RETURN
Air Products & Chemicals, Inc., S&P 500 Index, and S&P 500 Materials Index
Comparative Growth of a $100 Investment
(Assumes Reinvestment of All Dividends)



	Sept 2016	Sept 2017	Sept 2018	Sept 2019	Sept 2020	Sept 2021
Air Products & Chemicals, Inc.	100	112	127	173	238	209
S&P 500 Index	100	119	140	146	168	218
S&P 500 Materials Index	100	121	126	130	145	184

Item 6. [Reserved]

Not applicable.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

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This Management's Discussion and Analysis contains "forward-looking statements" within the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including statements about business outlook. These forward-looking statements are based on management's expectations and assumptions as of the date of this Annual Report on Form 10-K and are not guarantees of future performance. Actual performance and financial results may differ materially from projections and estimates expressed in the forward-looking statements because of many factors not anticipated by management, including, without limitation, those described in *Forward-Looking Statements* and Item 1A, *Risk Factors*, of this Annual Report.

The following discussion should be read in conjunction with the consolidated financial statements and the accompanying notes contained in this Annual Report. Unless otherwise stated, financial information is presented in millions of dollars, except for per share data. Except for net income, which includes the results of discontinued operations, financial information is presented on a continuing operations basis.

The content of our Management's Discussion and Analysis has been updated pursuant to SEC disclosure modernization rules that are effective as of the date of this Annual Report. Comparisons of our results of operations and liquidity and capital resources are for fiscal years 2021 and 2020. For a discussion of changes from fiscal year 2019 to fiscal year 2020 and other financial information related to fiscal year 2019, refer to Part II, *Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations*, of our Annual Report on Form 10-K for the fiscal year ended 30 September 2020. This document was filed with the SEC on 19 November 2020.

The financial measures discussed below are presented in accordance with U.S. generally accepted accounting principles ("GAAP"), except as noted. We present certain financial measures on an "adjusted," or "non-GAAP," basis because we believe such measures, when viewed together with financial results computed in accordance with GAAP, provide a more complete understanding of the factors and trends affecting our historical financial performance. For each non-GAAP financial measure, including adjusted diluted earnings per share ("EPS"), adjusted EBITDA, adjusted EBITDA margin, adjusted effective tax rate, and capital expenditures, we present a reconciliation to the most directly comparable financial measure calculated in accordance with GAAP. These reconciliations and explanations regarding the use of non-GAAP measures are presented under "Reconciliations of Non-GAAP Financial Measures" beginning on page 31.

For information concerning activity with our related parties, refer to Note 22, *Supplemental Information*, to the consolidated financial statements.

BUSINESS OVERVIEW

Air Products and Chemicals, Inc., a Delaware corporation originally founded in 1940, serves customers globally with a unique portfolio of products, services, and solutions that include atmospheric gases, process and specialty gases, equipment, and services. Focused on serving energy, environment and emerging markets, we provide essential industrial gases, related equipment, and applications expertise to customers in dozens of industries, including refining, chemicals, metals, electronics, manufacturing, and food and beverage. We are the world's largest supplier of hydrogen and have built leading positions in growth markets such as helium and liquefied natural gas ("LNG") process technology and equipment. We develop, engineer, build, own, and operate some of the world's largest industrial gas projects, including gasification projects that sustainably convert abundant natural resources into syngas for the production of high-value power, fuels, and chemicals and are developing carbon capture projects and world-scale low carbon and carbon-free hydrogen projects that will support global transportation and the energy transition away from fossil fuels.

With operations in over 50 countries, in fiscal year 2021 we had sales of $10.3 billion and assets of $26.9 billion. Approximately 20,875 passionate, talented, and committed employees from diverse backgrounds are driven by our higher purpose to create innovative solutions that benefit the environment, enhance sustainability, and address the challenges facing customers, communities, and the world.

As of 30 September 2021, our operations were organized into five reportable business segments under which we managed our operations, assessed performance, and reported earnings:

- Industrial Gases – Americas;
- Industrial Gases – EMEA (Europe, Middle East, and Africa);
- Industrial Gases – Asia;
- Industrial Gases – Global; and
- Corporate and other

This Management's Discussion and Analysis discusses our results based on these operations. Refer to Note 23, *Business Segment and Geographic Information*, to the consolidated financial statements for additional details on our reportable business segments.

On 4 November 2021, we announced the reorganization of our industrial gases segments effective 1 October 2021. Refer to Note 24, *Subsequent Events*, for additional information.

2021 IN SUMMARY

In fiscal year 2021, we continued to execute our growth strategy, including announcement of several new gasification, carbon capture, and hydrogen projects that will drive the world's energy transition from fossil fuels. At the same time, we remained focused on our base business, delivering consistent results despite external challenges globally and absorbing costs for additional resources needed to support growth. In the second half of the year, demand for most merchant products returned to pre-pandemic levels. Additionally, we continued to create shareholder value by increasing the quarterly dividend on our common stock to $1.50 per share, representing a 12% increase from the previous dividend. This is the 39th consecutive year that we have increased our quarterly dividend payment.

Fiscal year 2021 results are summarized below:

- Sales of $10.3 billion increased 17%, or $1.5 billion, due to higher energy and natural gas cost pass-through to customers, higher volumes, favorable currency impacts, and positive pricing that more than offset power cost increases in the second half of the year.
- Operating income of $2,281.4 increased 2%, or $43.8, and operating margin of 22.1% decreased 320 basis points ("bp").
- Net income of $2,114.9 increased 10%, or $183.8, and net income margin of 20.5% decreased 130 bp.
- Adjusted EBITDA of $3,883.2 increased 7%, or $263.4, and adjusted EBITDA margin of 37.6% decreased 330 bp.
- Diluted EPS of $9.12 increased 7%, or $0.57 per share, and adjusted diluted EPS of $9.02 increased 8%, or $0.64 per share. A summary table of changes in diluted EPS is presented below.

Changes in Diluted EPS Attributable to Air Products

The per share impacts presented in the table below were calculated independently and may not sum to the total change in diluted EPS due to rounding.

Fiscal Year Ended 30 September	2021	2020	Increase (Decrease)
Total Diluted EPS	**$9.43**	$8.49	$0.94
Less: Diluted EPS from income (loss) from discontinued operations	**0.32**	(0.06)	0.38
Diluted EPS From Continuing Operations	**$9.12**	$8.55	$0.57
Operating Impacts			
Underlying business			
Volume[A]			$—
Price, net of variable costs			0.34
Other costs			(0.46)
Currency			0.35
Facility closure			(0.08)
Company headquarters relocation income			(0.12)
Gain on exchange with joint venture partner			0.12
Total Operating Impacts			$0.15
Other Impacts			
Equity affiliates' income			$0.23
Interest expense			(0.12)
Other non-operating income (expense), net			0.16
Change in effective tax rate, excluding discrete items below			0.02
India Finance Act 2020			(0.06)
Tax election benefit and other			0.05
Noncontrolling interests[A]			0.13
Weighted average diluted shares			(0.01)
Total Other Impacts			$0.40
Total Change in Diluted EPS From Continuing Operations			$0.57

(A) Despite higher sales volumes, the volume impact on diluted EPS was flat due to reduced contributions from our 60%-owned joint venture with Lu'An Clean Energy Company that we consolidate within our Industrial Gases – Asia segment. Refer to the sales discussion below for additional detail. The volume impact from the Lu'An facility is partially offset by the positive impact of lower net income being attributed to our joint venture partner within "Noncontrolling interests."

Fiscal Year Ended 30 September	2021	2020	Increase (Decrease)
Diluted EPS From Continuing Operations	**$9.12**	$8.55	$0.57
Facility closure	**0.08**	—	0.08
Gain on exchange with joint venture partner	**(0.12)**	—	(0.12)
Company headquarters relocation income	**—**	(0.12)	0.12
India Finance Act 2020	**—**	(0.06)	0.06
Tax election benefit and other	**(0.05)**	—	(0.05)
Adjusted Diluted EPS From Continuing Operations	**$9.02**	$8.38	$0.64

2022 OUTLOOK

The guidance below should be read in conjunction with the *Forward-Looking Statements* of this Annual Report on Form 10-K.

We believe our achievements in 2021 are just the beginning of our journey providing gasification, carbon capture, and hydrogen for mobility solutions to address the world's most significant energy and environmental sustainability challenges. For example, we expect our world-scale Jazan gasification project with Aramco, ACWA Power, and Air Products Qudra to begin contributing to our results in the first quarter of fiscal year 2022. We expect to continue to pursue new, high-return opportunities that are aligned with our growth strategy and to add the resources necessary for project development and execution. We remain committed to creating shareholder value through capital deployment and delivering increased dividends, as we have done for the past 39 consecutive years.

The duration and extent of ongoing global challenges, such as rising energy costs, energy consumption curtailment, and supply chain disruptions, remain uncertain. For our merchant business, we plan to continue pricing actions to recover higher energy costs. We expect to add new projects to our onsite business model, which has contractual protection from energy cost fluctuations and generates stable cash flow. We expect higher costs from planned maintenance activities on our facilities in fiscal year 2022 and higher pension expense resulting from lower expected returns on assets.

Additionally, we expect the Lu'An facility to continue operating under the interim agreement discussed below through fiscal year 2022.

In fiscal year 2022, we will also continue to focus on our other sustainability goals, including our commitment to reduce our carbon dioxide emissions intensity and advance diversity and inclusion.

On 4 November 2021, we announced the reorganization of our industrial gases segments, including the separation of our Industrial Gases – EMEA segment into two separate reporting segments: Industrial Gases – Europe and Industrial Gases – Middle East. The results of an affiliate formerly reflected in the Industrial Gases – Asia segment will now be reported in the Industrial Gases – Middle East segment. Additionally, the results of our Industrial Gases – Global operating segment will be reflected in the Corporate and other segment. Beginning with our Quarterly Report on Form 10-Q for the first quarter of fiscal year 2022, segment results will be presented on a retrospective basis to reflect the reorganization.

RESULTS OF OPERATIONS

Discussion of Consolidated Results

Fiscal Year Ended 30 September	2021	2020	$ Change	Change
GAAP Measures				
Sales	**$10,323.0**	$8,856.3	$1,466.7	17%
Operating income	**2,281.4**	2,237.6	43.8	2%
Operating margin	**22.1%**	25.3%		(320) bp
Equity affiliates' income	**$294.1**	$264.8	29.3	11%
Net income	**2,114.9**	1,931.1	183.8	10%
Net income margin	**20.5%**	21.8%		(130) bp
Non-GAAP Measures				
Adjusted EBITDA	**$3,883.2**	$3,619.8	263.4	7%
Adjusted EBITDA margin	**37.6%**	40.9%		(330) bp

Sales % Change from Prior Year	
Volume	5%
Price	2%
Energy and natural gas cost pass-through	6%
Currency	4%
Total Consolidated Sales Change	**17%**

Sales of $10,323.0 increased 17%, or $1,466.7, due to higher energy and natural gas cost pass-through to customers of 6%, higher volumes of 5%, favorable currency impacts of 4%, and positive pricing of 2%. We experienced significantly higher energy and natural gas costs in the second half of fiscal year 2021, particularly in North America and Europe. Contractual provisions associated with our on-site business, which represents approximately half our total company sales, allow us to pass these costs to our customers. Positive volumes from new assets, our sale of equipment businesses, and merchant demand recovery from COVID-19 were partially offset by reduced contributions from the Lu'An gasification project discussed below. Favorable currency was primarily driven by the appreciation of the British Pound Sterling, Chinese Renminbi, Euro, and South Korean Won against the U.S. Dollar. Continued focus on pricing actions, including energy cost recovery, in our merchant businesses resulted in price improvement in each of our three regional segments.

Lu'An Clean Energy Company ("Lu'An"), a long-term onsite customer in Asia with which we have a consolidated joint venture, restarted its facility in the third quarter of fiscal year 2021 following successful completion of major maintenance work in September 2020. Our facility resumed operations, and the joint venture is supplying product at reduced charges as agreed upon with Lu'An under a short-term agreement reached in the first quarter of fiscal year 2021. As a result of this agreement, we recognized lower revenue in our Industrial Gases – Asia segment in each quarter of fiscal year 2021. We expect this short-term reduction in charges to extend through fiscal year 2022.

Cost of Sales and Gross Margin

Total cost of sales of $7,209.3, including the facility closure discussed below, increased 23%, or $1,351.2. The increase from the prior year was primarily due to higher energy and natural gas cost pass-through to customers of $479, higher costs associated with sales volumes of $433, unfavorable currency impacts of $233, and higher costs, including power and other cost inflation, of $183. Gross margin of 30.2% decreased 370 bp from 33.9% in the prior year, primarily due to higher energy and natural gas cost pass-through to customers, higher costs, and the reduced Lu'An contribution, partially offset by the positive impact of our pricing actions.

Facility Closure

In the second quarter of fiscal year 2021, we recorded a charge of $23.2 ($17.4 after-tax, or $0.08 per share) primarily for a noncash write-down of assets associated with a contract termination in the Industrial Gases – Americas segment. This charge is reflected as "Facility closure" on our consolidated income statements for the fiscal year ended 30 September 2021 and was not recorded in segment results.

Selling and Administrative

Selling and administrative expense of $828.4 increased 7%, or $52.5, primarily driven by higher spending for business development resources to support our growth strategy and unfavorable currency impacts. Selling and administrative expense as a percentage of sales decreased to 8.0% from 8.8% in the prior year.

Research and Development

Research and development expense of $93.5 increased 11%, or $9.6, primarily due to higher product development costs in our Industrial Gases – Global segment. Research and development expense as a percentage of sales of 0.9% was flat versus the prior year.

Gain on Exchange with Joint Venture Partner

In the second quarter of fiscal year 2021, we recognized a gain of $36.8 ($27.3 after-tax, or $0.12 per share) on an exchange with the Tyczka Group, a former joint venture partner in our Industrial Gases – EMEA segment. As part of the exchange, we separated our 50/50 joint venture in Germany into two separate businesses so each party could acquire a portion of the business on a 100% basis. The gain included $12.7 from the revaluation of our previously held equity interest in the portion of the business that we retained and $24.1 from the sale of our equity interest in the remaining business. The gain is reflected as "Gain on exchange with joint venture partner" on our consolidated income statements for the fiscal year ended 30 September 2021 and was not recorded in segment results. Refer to Note 3, *Acquisitions*, to the consolidated financial statements for additional information.

Company Headquarters Relocation Income (Expense)

In anticipation of relocating our U.S. headquarters, we sold property at our corporate headquarters located in Trexlertown, Pennsylvania, in the second quarter of fiscal year 2020. We received net proceeds of $44.1 and recorded a gain of $33.8 ($25.6 after-tax, or $0.12 per share), which is reflected on our consolidated income statements as "Company headquarters relocation income (expense)" for the fiscal year ended 30 September 2020. The gain was not recorded in the results of the Corporate and other segment.

Other Income (Expense), Net

Other income of $52.8 decreased 19%, or $12.6. The prior year was favorably impacted by an adjustment for a benefit plan liability due to a change in plan terms. This impact was partially offset by the settlement of a supply contract in the current year.

Operating Income and Margin

Operating income of $2,281.4 increased 2%, or $43.8, as favorable currency of $96, positive pricing, net of power and fuel costs, of $95, and a gain on an exchange with a joint venture partner of $37 were partially offset by higher operating costs of $127, prior year income associated with the company headquarters relocation of $34, and a facility closure of $23. Despite higher sales volumes, the volume impact on operating income was minimal due to reduced contributions from Lu'An. Unfavorable operating costs were driven by the addition of resources to support our growth strategy and higher planned maintenance activities.

Operating margin of 22.1% decreased 320 bp from 25.3% in the prior year, primarily due to the higher operating costs, higher energy and natural gas cost pass-through to customers, which contributed to sales but not operating income, and reduced contributions from Lu'An, partially offset by positive pricing. The positive impact from a gain on an exchange with a joint venture partner in the current year was offset by prior year income associated with the company headquarters relocation.

Equity Affiliates' Income

Equity affiliates' income of $294.1 increased 11%, or $29.3. Higher income from affiliates in the regional segments was partially offset by a prior year benefit of $33.8 from the enactment of the India Finance Act 2020. Refer to Note 21, *Income Taxes*, to the consolidated financial statements for additional information.

We expect our equity affiliates' income to grow in future periods due to our investment in the Jazan Integrated Gasification and Power Company joint venture.

Interest Expense

Fiscal Year Ended 30 September	**2021**	2020
Interest incurred	**$170.1**	$125.2
Less: Capitalized interest	**28.3**	15.9
Interest expense	**$141.8**	$109.3

Interest incurred increased 36%, or $44.9, primarily driven by a higher debt balance due to the issuance of U.S. Dollar- and Euro-denominated fixed-rate notes in the third quarter of fiscal year 2020. Capitalized interest increased $12.4 due to a higher carrying value of projects under construction.

Other Non-Operating Income (Expense), Net

Other non-operating income of $73.7 increased $43.0. We recorded higher non-service pension income in 2021 due to lower interest costs and higher total assets, primarily for our U.S. pension plans. The current year also included favorable currency impacts. These factors were partially offset by lower interest income on cash and cash items due to lower interest rates.

Discontinued Operations

Income from discontinued operations, net of tax, was $70.3 ($0.32 per share) for the fiscal year ended 30 September 2021. This included net tax benefits of $60.0 recorded for the release of tax reserves for uncertain tax positions, of which $51.8 ($0.23 per share) was recorded in the fourth quarter for liabilities associated with the 2017 sale of our former Performance Materials Division ("PMD") and $8.2 was recorded in the third quarter for liabilities associated with our former Energy-from-Waste business. Additionally, we recorded a tax benefit from discontinued operations of $10.3 in the first quarter, primarily from the settlement of a state tax appeal related to the gain on the sale of PMD.

In fiscal year 2020, loss from discontinued operations, net of tax, was $14.3 ($0.06 per share). This resulted from a pre-tax loss of $19.0 recorded in the second quarter to increase our existing liability for retained environmental obligations associated with the sale of our former Amines business in September 2006. Refer to the Pace discussion within Note 16, *Commitments and Contingencies*, for additional information.

Net Income and Net Income Margin

Net income of $2,114.9, including income from discontinued operations discussed above, increased 10%, or $183.8. On a continuing operations basis, the increase was primarily driven by positive pricing, net of power and fuel costs, favorable currency impacts, higher equity affiliates' income, and a gain on an exchange with a joint venture partner, partially offset by unfavorable operating costs and a loss from a facility closure. In addition, less net income was attributable to noncontrolling interests, including our Lu'An joint venture partner, in the current year. The prior year included income associated with the company headquarters relocation and a net benefit from the India Finance Act 2020.

Net income margin of 20.5% decreased 130 bp from 21.8% in the prior year, primarily due to higher energy and natural gas cost pass-through to customers, which decreased margin by approximately 100 bp, and unfavorable net operating costs, partially offset by the impact from our pricing actions.

Adjusted EBITDA and Adjusted EBITDA Margin

Adjusted EBITDA of $3,883.2 increased 7%, or $263.4, primarily due to favorable currency impacts, positive pricing, net of power and fuel costs, and higher equity affiliates' income, partially offset by unfavorable operating costs. Adjusted EBITDA margin of 37.6% decreased 330 bp from 40.9% in the prior year, primarily due to higher energy and natural gas cost pass-through to customers, which decreased margin by approximately 200 bp, and the unfavorable net operating costs.

Effective Tax Rate

Our effective tax rate was 18.5% and 19.7% for the fiscal years ended 30 September 2021 and 2020, respectively. The current year rate was lower primarily due to income tax benefits of $21.5 recorded upon expiration of the statute of limitations for tax reserves previously established for uncertain tax positions taken in prior years. This included a benefit of $12.2 ($0.05 per share) for release of reserves established in 2017 for a tax election related to a non-U.S. subsidiary and other previously disclosed items ("tax election benefit and other"). Refer to Note 21 *Income Taxes*, to the consolidated financial statements for additional information.

Additionally, the fiscal year 2020 effective tax rate reflected the unfavorable impact of India Finance Act 2020, which resulted in additional net income of $13.5 ($0.06 per share). This included an increase to equity affiliates' income of $33.8, partially offset by an increase to our income tax provision of $20.3 for changes in the future tax costs of repatriated earnings.

The adjusted effective tax rate was 18.9% and 19.1% for the fiscal years ended 30 September 2021 and 2020, respectively.

Segment Analysis

Industrial Gases – Americas

Fiscal Year Ended 30 September	**2021**	2020	$ Change	Change
Sales	**$4,167.6**	$3,630.7	$536.9	15%
Operating income	**1,065.5**	1,012.4	53.1	5%
Operating margin	**25.6%**	27.9%		(230) bp
Equity affiliates' income	**$112.5**	$84.3	28.2	33%
Adjusted EBITDA	**1,789.9**	1,656.2	133.7	8%
Adjusted EBITDA margin	**42.9%**	45.6%		(270) bp

Sales % Change from Prior Year	
Volume	—%
Price	4%
Energy and natural gas cost pass-through	11%
Currency	—%
Total Industrial Gases – Americas Sales Change	**15%**

Sales of $4,167.6 increased 15%, or $536.9, due to higher energy and natural gas cost pass-through to customers of 11% and positive pricing of 4%, as volumes and currency were flat versus the prior year. Energy and natural gas cost pass through to customers was higher in fiscal year 2021 primarily due to natural gas prices, which rose significantly in the second quarter and remained elevated throughout the year. The pricing improvement was attributable to continued focus on pricing actions in our merchant business. Volumes were flat as positive contributions from new assets, including hydrogen assets we acquired in April 2020, were offset by lower hydrogen and merchant demand. Demand for most merchant products returned to pre-pandemic levels in the second half of 2021.

Operating income of $1,065.5 increased 5%, or $53.1, due to higher pricing, net of power and fuel costs, of $79 and favorable currency of $10, partially offset by higher operating costs, including planned maintenance, of $36. Operating margin of 25.6% decreased 230 bp from 27.9% in the prior year primarily due to higher energy and natural gas cost pass-through to customers, which negatively impacted margin by approximately 250 bp, and higher operating costs, partially offset by the impact of our pricing actions.

Equity affiliates' income of $112.5 increased 33%, or $28.2, primarily driven by higher income from affiliates in Mexico.

Industrial Gases – EMEA

Fiscal Year Ended 30 September	2021	2020	$ Change	Change
Sales	**$2,444.9**	$1,926.3	$518.6	27%
Operating income	**557.4**	473.3	84.1	18%
Operating margin	**22.8%**	24.6%		(180) bp
Equity affiliates' income	**$93.7**	$74.8	18.9	25%
Adjusted EBITDA	**880.9**	744.0	136.9	18%
Adjusted EBITDA margin	**36.0%**	38.6%		(260) bp

Sales % Change from Prior Year	
Volume	12%
Price	3%
Energy and natural gas cost pass-through	5%
Currency	7%
Total Industrial Gases – EMEA Sales Change	**27%**

Sales of $2,444.9 increased 27%, or $518.6, due to higher volumes of 12%, favorable currency impacts of 7%, higher energy and natural gas cost pass-through to customers of 5%, and positive pricing of 3%. The volume improvement was primarily driven by our base merchant business and new assets, including those from a business in Israel that we acquired in the fourth quarter of 2020. While our liquid bulk business has largely recovered from COVID-19, demand for packaged gases and hydrogen continues to be lower than pre-pandemic levels. Favorable currency impacts were primarily driven by the appreciation of the British Pound Sterling and Euro against the U.S. Dollar. Energy and natural gas cost pass-through to customers was higher primarily in the second half of the year as we experienced significantly higher natural gas and electricity costs in Europe. The pricing improvement was primarily attributable to our merchant business.

Operating income of $557.4 increased 18%, or $84.1, due to higher volumes of $59, favorable currency impacts of $31, and positive pricing, net of power and fuel costs, of $11, partially offset by unfavorable costs of $17. Operating margin of 22.8% decreased 180 bp from 24.6% in the prior year, primarily due to impacts from higher energy and natural gas cost pass-through to customers, which negatively impacted margin by approximately 100 bp, and unfavorable operating costs.

Equity affiliates' income of $93.7 increased 25%, or $18.9, primarily due to higher income from affiliates in Italy, Saudi Arabia, and South Africa.

Industrial Gases – Asia

Fiscal Year Ended 30 September	2021	2020	$ Change	Change
Sales	**$2,920.8**	$2,716.5	$204.3	8%
Operating income	**838.3**	870.3	(32.0)	(4%)
Operating margin	**28.7%**	32.0%		(330) bp
Equity affiliates' income	**$81.4**	$61.0	20.4	33%
Adjusted EBITDA	**1,364.1**	1,330.7	33.4	3%
Adjusted EBITDA margin	**46.7%**	49.0%		(230) bp

Sales % Change from Prior Year	
Volume	—%
Price	1%
Energy and natural gas cost pass-through	—%
Currency	7%
Total Industrial Gases – Asia Sales Change	**8%**

Sales of $2,920.8 increased 8%, or $204.3, due to favorable currency of 7% and positive pricing of 1%, as both volumes and energy and natural gas cost pass-through to customers were flat. Positive volume contributions from our base merchant business and new plants were offset by reduced contributions from Lu'An. The favorable currency impact was primarily attributable to the appreciation of the Chinese Renminbi and South Korean Won against the U.S. Dollar.

Operating income of $838.3 decreased 4%, or $32.0, primarily due to unfavorable volume mix of $62 and higher operating costs, including inflation and product sourcing costs, of $32, partially offset by favorable currency of $59. Operating margin of 28.7% decreased 330 bp from 32.0% in the prior year primarily due to reduced contributions from Lu'An.

Equity affiliates' income of $81.4 increased 33%, or $20.4, primarily due to higher income from an affiliate in India.

Industrial Gases – Global

The Industrial Gases – Global segment includes sales of cryogenic and gas processing equipment for air separation and centralized global costs associated with management of all the Industrial Gases segments.

Fiscal Year Ended 30 September	2021	2020	$ Change	% Change
Sales	**$511.0**	$364.9	$146.1	40%
Operating loss	**(60.6)**	(40.0)	(20.6)	(52%)
Adjusted EBITDA	**(43.2)**	(19.5)	(23.7)	(122%)

Sales of $511.0 increased 40%, or $146.1, due to higher sale of equipment project activity. Despite higher sales, operating loss of $60.6 increased 52%, or $20.6, as higher project costs and product development spending were partially offset by income from the settlement of a supply contract.

Corporate and other

The Corporate and other segment includes our LNG, turbo machinery equipment and services, and distribution sale of equipment businesses as well as corporate support functions that benefit all segments. The results of the Corporate and other segment also include income and expense that is not directly associated with the other segments, such as foreign exchange gains and losses.

Fiscal Year Ended 30 September	**2021**	2020	$ Change	% Change
Sales	**$278.7**	$217.9	$60.8	28%
Operating loss	**(132.8)**	(112.2)	(20.6)	(18%)
Adjusted EBITDA	**(108.5)**	(91.6)	(16.9)	(18%)

Sales of $278.7 increased 28%, or $60.8, primarily due to higher project activity in our distribution sale of equipment and turbo machinery equipment and services businesses. Despite higher sales, operating loss of $132.8 increased 18%, or $20.6, as higher business development and corporate support costs were only partially offset by higher sale of equipment activity.

RECONCILIATIONS OF NON-GAAP FINANCIAL MEASURES

(Millions of dollars unless otherwise indicated, except for per share data)

We present certain financial measures, other than in accordance with U.S. generally accepted accounting principles ("GAAP"), on an "adjusted" or "non-GAAP" basis. On a consolidated basis, these measures include adjusted diluted earnings per share ("EPS"), adjusted EBITDA, adjusted EBITDA margin, adjusted effective tax rate, and capital expenditures. On a segment basis, these measures include adjusted EBITDA and adjusted EBITDA margin. In addition to these measures, we also present certain supplemental non-GAAP financial measures to help the reader understand the impact that certain disclosed items, or "non-GAAP adjustments," have on the calculation of our adjusted diluted EPS. For each non-GAAP financial measure, we present a reconciliation to the most directly comparable financial measure calculated in accordance with GAAP.

Our non-GAAP financial measures are not meant to be considered in isolation or as a substitute for the most directly comparable measure calculated in accordance with GAAP. We believe these non-GAAP financial measures provide investors, potential investors, securities analysts, and others with useful information to evaluate the performance of our business because such measures, when viewed together with financial results computed in accordance with GAAP, provide a more complete understanding of the factors and trends affecting our historical financial performance and projected future results.

In many cases, non-GAAP financial measures are determined by adjusting the most directly comparable GAAP measure to exclude non-GAAP adjustments that we believe are not representative of our underlying business performance. For example, we previously excluded certain expenses associated with cost reduction actions, impairment charges, and gains on disclosed transactions. The reader should be aware that we may recognize similar losses or gains in the future. Readers should also consider the limitations associated with these non-GAAP financial measures, including the potential lack of comparability of these measures from one company to another.

When applicable, the tax impact of our pre-tax non-GAAP adjustments reflects the expected current and deferred income tax impact of our non-GAAP adjustments. These tax impacts are primarily driven by the statutory tax rate of the various relevant jurisdictions and the taxability of the adjustments in those jurisdictions.

Adjusted Diluted EPS

The table below provides a reconciliation to the most directly comparable GAAP measure for each of the major components used to calculate adjusted diluted EPS from continuing operations, which we view as a key performance metric. In periods that we have non-GAAP adjustments, we believe it is important for the reader to understand the per share impact of each such adjustment because management does not consider these impacts when evaluating underlying business performance. The per share impact for each non-GAAP adjustment was calculated independently and may not sum to total adjusted diluted EPS due to rounding.

Fiscal Year Ended 30 September	Operating Income	Equity Affiliates' Income	Income Tax Provision	Net Income Attributable to Air Products	Diluted EPS
2021 GAAP	**$2,281.4**	**$294.1**	**$462.8**	**$2,028.8**	**$9.12**
2020 GAAP	**2,237.6**	**264.8**	**478.4**	**1,901.0**	**8.55**
Change GAAP					$0.57
% Change GAAP					7%
2021 GAAP	$2,281.4	$294.1	$462.8	$2,028.8	$9.12
Facility closure	23.2	—	5.8	17.4	0.08
Gain on exchange with joint venture partner	(36.8)	—	(9.5)	(27.3)	(0.12)
Tax election benefit and other	—	—	12.2	(12.2)	(0.05)
2021 Non-GAAP ("Adjusted")	**$2,267.8**	**$294.1**	**$471.3**	**$2,006.7**	**$9.02**
2020 GAAP	$2,237.6	$264.8	$478.4	$1,901.0	$8.55
Company headquarters relocation (income) expense	(33.8)	—	(8.2)	(25.6)	(0.12)
India Finance Act 2020	—	(33.8)	(20.3)	(13.5)	(0.06)
2020 Non-GAAP ("Adjusted")	**$2,203.8**	**$231.0**	**$449.9**	**$1,861.9**	**$8.38**
Change Non-GAAP ("Adjusted")					$0.64
% Change Non-GAAP ("Adjusted")					8%

Adjusted EBITDA and Adjusted EBITDA Margin

We define adjusted EBITDA as net income less income (loss) from discontinued operations, net of tax, and excluding non-GAAP adjustments, which we do not believe to be indicative of underlying business trends, before interest expense, other non-operating income (expense), net, income tax provision, and depreciation and amortization expense. Adjusted EBITDA and adjusted EBITDA margin provide useful metrics for management to assess operating performance. Margins are calculated independently for each period by dividing each line item by consolidated sales for the respective period and may not sum to total margin due to rounding.

The tables below present consolidated sales and a reconciliation of net income on a GAAP basis to adjusted EBITDA and net income margin on a GAAP basis to adjusted EBITDA margin:

Fiscal Year Ended 30 September	**2021**		2020	
	$	**Margin**	$	Margin
Sales	**$10,323.0**		$8,856.3	
Net income and net income margin	**$2,114.9**	**20.5%**	$1,931.1	21.8%
Less: Income (Loss) from discontinued operations, net of tax	**70.3**	**0.7%**	(14.3)	(0.2%)
Add: Interest expense	**141.8**	**1.4%**	109.3	1.2%
Less: Other non-operating income (expense), net	**73.7**	**0.7%**	30.7	0.3%
Add: Income tax provision	**462.8**	**4.5%**	478.4	5.4%
Add: Depreciation and amortization	**1,321.3**	**12.8%**	1,185.0	13.4%
Add: Facility closure	**23.2**	**0.2%**	—	—%
Less: Gain on exchange with joint venture partner	**36.8**	**0.4%**	—	—%
Less: Company headquarters relocation income (expense)	**—**	**—%**	33.8	0.4%
Less: India Finance Act 2020 – equity affiliate income impact	**—**	**—%**	33.8	0.4%
Adjusted EBITDA and adjusted EBITDA margin	**$3,883.2**	**37.6%**	$3,619.8	40.9%

Fiscal Year Ended 30 September	**2021 vs. 2020**
Change GAAP	
Net income $ change	**$183.8**
Net income % change	**10%**
Net income margin change	**(130) bp**
Change Non-GAAP	
Adjusted EBITDA $ change	**$263.4**
Adjusted EBITDA % change	**7%**
Adjusted EBITDA margin change	**(330) bp**

The tables below present sales and a reconciliation of operating income and operating margin to adjusted EBITDA and adjusted EBITDA margin for each of our reporting segments for the fiscal years ended 30 September:

Sales	Industrial Gases–Americas	Industrial Gases–EMEA	Industrial Gases–Asia	Industrial Gases–Global	Corporate and other	Total
2021	$4,167.6	$2,444.9	$2,920.8	$511.0	$278.7	$10,323.0
2020	3,630.7	1,926.3	2,716.5	364.9	217.9	8,856.3

	Industrial Gases–Americas	Industrial Gases–EMEA	Industrial Gases–Asia	Industrial Gases–Global	Corporate and other	Total
2021 GAAP						
Operating income (loss)	$1,065.5	$557.4	$838.3	($60.6)	($132.8)	$2,267.8 [(A)]
Operating margin	25.6%	22.8%	28.7%			
2020 GAAP						
Operating income (loss)	$1,012.4	$473.3	$870.3	($40.0)	($112.2)	$2,203.8 [(A)]
Operating margin	27.9%	24.6%	32.0%			
2021 vs. 2020 Change GAAP						
Operating income/loss $ change	$53.1	$84.1	($32.0)	($20.6)	($20.6)	
Operating income/loss % change	5%	18%	(4%)	(52%)	(18%)	
Operating margin change	(230) bp	(180) bp	(330) bp			
2021 Non-GAAP						
Operating income (loss)	$1,065.5	$557.4	$838.3	($60.6)	($132.8)	$2,267.8 [(A)]
Add: Depreciation and amortization	611.9	229.8	444.4	10.9	24.3	1,321.3
Add: Equity affiliates' income	112.5	93.7	81.4	6.5	—	294.1 [(A)]
Adjusted EBITDA	$1,789.9	$880.9	$1,364.1	($43.2)	($108.5)	$3,883.2
Adjusted EBITDA margin	42.9%	36.0%	46.7%			
2020 Non-GAAP						
Operating income (loss)	$1,012.4	$473.3	$870.3	($40.0)	($112.2)	$2,203.8 [(A)]
Add: Depreciation and amortization	559.5	195.9	399.4	9.6	20.6	1,185.0
Add: Equity affiliates' income	84.3	74.8	61.0	10.9	—	231.0 [(A)]
Adjusted EBITDA	$1,656.2	$744.0	$1,330.7	($19.5)	($91.6)	$3,619.8
Adjusted EBITDA margin	45.6%	38.6%	49.0%			
2021 vs. 2020 Change Non-GAAP						
Adjusted EBITDA $ change	$133.7	$136.9	$33.4	($23.7)	($16.9)	
Adjusted EBITDA % change	8%	18%	3%	(122%)	(18%)	
Adjusted EBITDA margin change	(270) bp	(260) bp	(230) bp			

[(A)] Refer to the *Reconciliations to Consolidated Results* section below.

Reconciliations to Consolidated Results

The table below reconciles consolidated operating income as reflected on our consolidated income statements to total operating income in the table above for the fiscal years ended 30 September:

Operating Income	**2021**	2020
Consolidated operating income	**$2,281.4**	$2,237.6
Facility closure	**23.2**	—
Gain on exchange with joint venture partner	**(36.8)**	—
Company headquarters relocation (income) expense	**—**	(33.8)
Total	**$2,267.8**	$2,203.8

The table below reconciles consolidated equity affiliates' income as reflected on our consolidated income statements to total equity affiliates' income in the table above for the fiscal years ended 30 September:

Equity Affiliates' Income	**2021**	2020
Consolidated equity affiliates' income	**$294.1**	$264.8
India Finance Act 2020	**—**	(33.8)
Total	**$294.1**	$231.0

Adjusted Effective Tax Rate

The effective tax rate equals the income tax provision divided by income from continuing operations before taxes.

When applicable, the tax impact of our pre-tax non-GAAP adjustments reflects the expected current and deferred income tax impact of our non-GAAP adjustments. These tax impacts are primarily driven by the statutory tax rate of the various relevant jurisdictions and the taxability of the adjustments in those jurisdictions.

Fiscal Year Ended 30 September	**2021**	2020
Income tax provision	**$462.8**	**$478.4**
Income from continuing operations before taxes	**$2,507.4**	**$2,423.8**
Effective tax rate	**18.5%**	**19.7%**
Income tax provision	$462.8	$478.4
Facility closure	5.8	—
Gain on exchange with joint venture partner	(9.5)	—
Company headquarters relocation	—	(8.2)
India Finance Act 2020	—	(20.3)
Tax election benefit and other	12.2	—
Adjusted income tax provision	**$471.3**	**$449.9**
Income from continuing operations before taxes	$2,507.4	$2,423.8
Facility closure	23.2	—
Gain on exchange with joint venture partner	(36.8)	—
Company headquarters relocation (income) expense	—	(33.8)
India Finance Act 2020 – equity affiliate income impact	—	(33.8)
Adjusted income from continuing operations before taxes	**$2,493.8**	**$2,356.2**
Adjusted effective tax rate	**18.9%**	**19.1%**

Capital Expenditures

We define capital expenditures as cash flows for additions to plant and equipment, acquisitions (less cash acquired), and investment in and advances to unconsolidated affiliates. A reconciliation of cash used for investing activities to our reported capital expenditures is provided below:

Fiscal Year Ended 30 September	2021	2020
Cash used for investing activities	**$2,732.9**	$3,560.0
Proceeds from sale of assets and investments	**37.5**	80.3
Purchases of investments	**(2,100.7)**	(2,865.5)
Proceeds from investments	**1,875.2**	1,938.0
Other investing activities	**5.8**	3.9
Capital expenditures	**$2,550.7**	$2,716.7

LIQUIDITY AND CAPITAL RESOURCES

Our cash balance and cash flows from operations are our primary sources of liquidity and are generally sufficient to meet our liquidity needs. In addition, we have the flexibility to access capital through a variety of financing activities, including accessing the capital markets, drawing upon our credit facility, or alternatively, accessing the commercial paper markets. At this time, we have not utilized, nor do we expect to access, our credit facility for additional liquidity. In addition, we have considered the impacts of COVID-19 on our liquidity and capital resources and do not expect it to impact our ability to meet future liquidity needs.

As of 30 September 2021, we had $1,590.4 of foreign cash and cash items compared to total cash and cash items of $4,468.9. We do not expect that a significant portion of the earnings of our foreign subsidiaries and affiliates will be subject to U.S. income tax upon repatriation to the U.S. Depending on the country in which the subsidiaries and affiliates reside, the repatriation of these earnings may be subject to foreign withholding and other taxes. However, since we have significant current investment plans outside the U.S., it is our intent to permanently reinvest the majority of our foreign cash and cash items that would be subject to additional taxes outside the U.S.

Cash Flows From Operations

Fiscal Year Ended 30 September	2021	2020
Income from continuing operations attributable to Air Products	**$2,028.8**	$1,901.0
Adjustments to reconcile income to cash provided by operating activities:		
Depreciation and amortization	**1,321.3**	1,185.0
Deferred income taxes	**94.0**	165.0
Facility closure	**23.2**	—
Undistributed earnings of equity method investments	**(138.2)**	(161.9)
Gain on sale of assets and investments	**(37.2)**	(45.8)
Share-based compensation	**44.5**	53.5
Noncurrent lease receivables	**98.8**	91.6
Other adjustments	**(116.7)**	116.4
Changes in working capital accounts	**16.7**	(40.1)
Cash Provided by Operating Activities	**$3,335.2**	$3,264.7

For the fiscal year ended 30 September 2021, cash provided by operating activities was $3,335.2. Other adjustments of $116.7 included pension plan contributions of $44.6 and pension income of $38.9 that did not have a cash impact. The working capital accounts were a source of cash of $16.7, primarily driven by a $187.9 source of cash from payables and accrued liabilities, partially offset by a $130.5 use of cash from trade receivables, less allowances. The source of cash within payables and accrued liabilities primarily resulted from higher natural gas costs, which also drove the use of cash within trade receivables as we contractually passed through these higher costs to customers.

For the fiscal year ended 30 September 2020, cash provided by operating activities was $3,264.7. We recorded a net benefit of $13.5 on our consolidated income statements related to a recently enacted tax law in India during the second quarter. This net benefit, which is further discussed in Note 21, *Income Taxes*, to the consolidated financial statements, increased "Undistributed earnings of unconsolidated affiliates" by $33.8 and increased "Deferred income taxes" by $20.3. The "Gain on sale of assets and investments" of $45.8 includes a gain of $33.8 related to the sale of property at our current corporate headquarters. Refer to Note 22, *Supplemental Information*, to the consolidated financial statements for additional information. The working capital accounts were a use of cash of $40.1, primarily driven by other working capital uses of $130.6, partially offset by a source of $84.4 from other receivables. The use of cash within "Other working capital" was primarily due to timing of tax payments and a tax benefit as a result of the assets acquired in April 2020 from PBF Energy Inc. The source of cash within "Other receivables" was primarily driven by maturities of forward exchange contracts.

Cash Flows From Investing Activities

Fiscal Year Ended 30 September	**2021**	2020
Additions to plant and equipment, including long-term deposits	**($2,464.2)**	($2,509.0)
Acquisitions, less cash acquired	**(10.5)**	(183.3)
Investment in and advances to unconsolidated affiliates	**(76.0)**	(24.4)
Proceeds from sale of assets and investments	**37.5**	80.3
Purchases of investments	**(2,100.7)**	(2,865.5)
Proceeds from investments	**1,875.2**	1,938.0
Other investing activities	**5.8**	3.9
Cash Used for Investing Activities	**($2,732.9)**	($3,560.0)

For the fiscal year ended 30 September 2021, cash used for investing activities was $2,732.9. Capital expenditures for plant and equipment, including long-term deposits, were $2,464.2. Purchases of investments with terms greater than three months but less than one year of $2,100.7 exceeded proceeds from investments of $1,875.2, which resulted from maturities of time deposits and treasury securities.

For the fiscal year ended 30 September 2020, cash used for investing activities was $3,560.0. Payments for additions to plant and equipment, including long-term deposits, were $2,509.0. This includes the acquisition of five operating hydrogen production plants from PBF Energy Inc. in Delaware and California for approximately $580. Additionally, acquisitions, less cash acquired, includes $183.3 for three businesses we acquired on 1 July 2020, the largest of which was a business in Israel that primarily offers merchant gas products. Refer to Note 3, *Acquisitions*, to the consolidated financial statements for additional information. Purchases of investments of $2,865.5 related to time deposits and treasury securities with terms greater than three months and less than one year and exceeded proceeds from investments of $1,938.0. Proceeds from sale of assets and investments of $80.3 included net proceeds of $44.1 related to the sale of property at our current corporate headquarters.

Capital Expenditures

Capital expenditures is a non-GAAP financial measure that we define as cash flows for additions to plant and equipment, including long-term deposits, acquisitions (less cash acquired), and investment in and advances to unconsolidated affiliates. The components of our capital expenditures are detailed in the table below. We present a reconciliation of our capital expenditures to cash used for investing activities on page 36.

Fiscal Year Ended 30 September	**2021**	2020
Additions to plant and equipment, including long-term deposits	**$2,464.2**	$2,509.0
Acquisitions, less cash acquired	**10.5**	183.3
Investment in and advances to unconsolidated affiliates	**76.0**	24.4
Capital Expenditures	**$2,550.7**	$2,716.7

Capital expenditures in fiscal year 2021 totaled $2,550.7 compared to $2,716.7 in fiscal year 2020. The decrease of $166.0 was primarily driven by the prior year acquisition of five operating hydrogen production plants from PBF, partially offset by lower spending for acquisitions. Additions to plant and equipment also included support capital of a routine, ongoing nature, including expenditures for distribution equipment and facility improvements.

Outlook for Investing Activities

We expect capital expenditures for fiscal year 2022 to be approximately $4.5 to $5 billion. In the first quarter of fiscal year 2022, we paid $1.6 billion, including approximately $130 from a non-controlling partner in one of our subsidiaries, for the initial investment in the Jazan gasification and power project. We expect to make an additional investment of approximately $1 billion, which includes contribution from our non-controlling partner, for phase II of the project in 2023. Refer to Note 24, *Subsequent Events*, to the consolidated financial statements for additional information.

It is not possible, without unreasonable efforts, to reconcile our forecasted capital expenditures to future cash used for investing activities because we are unable to identify the timing or occurrence of our future investment activity, which is driven by our assessment of competing opportunities at the time we enter into transactions. These decisions, either individually or in the aggregate, could have a significant effect on our cash used for investing activities.

We anticipate capital expenditures to be funded principally with our current cash balance and cash generated from continuing operations. In addition, we intend to continue to evaluate (1) acquisitions of small- and medium-sized industrial gas companies or assets from other industrial gas companies; (2) purchases of existing industrial gas facilities from our customers to create long-term contracts under which we own and operate the plant and sell industrial gases to the customer based on a fixed fee; and (3) investment in large industrial gas projects driven by demand for more energy, cleaner energy, and emerging market growth.

Cash Flows From Financing Activities

Fiscal Year Ended 30 September	**2021**	2020
Long-term debt proceeds	**$178.9**	$4,895.8
Payments on long-term debt	**(462.9)**	(406.6)
Net increase (decrease) in commercial paper and short-term borrowings	**1.0**	(54.9)
Dividends paid to shareholders	**(1,256.7)**	(1,103.6)
Proceeds from stock option exercises	**10.6**	34.1
Investments by noncontrolling interests	**136.6**	17.1
Other financing activities	**(28.4)**	(97.2)
Cash (Used for) Provided by Financing Activities	**($1,420.9)**	$3,284.7

In fiscal year 2021, cash used for financing activities was $1,420.9 and primarily included dividend payments to shareholders of $1,256.7 and payments on long-term debt of $462.9, partially offset by long-term debt proceeds of $178.9 and investments by noncontrolling interests of $136.6. The payments on long-term debt included the repayment of a €350.0 million Eurobond ($428) in June 2021.

In November 2021, we repaid our 3.0% Senior Note of $400, plus interest, on its maturity date.

In fiscal year 2020, cash provided by financing activities was $3,284.7 as we successfully accessed the debt markets in April 2020 to support opportunities for growth projects and repay upcoming debt maturities. Long-term debt proceeds of $4,895.8 were partially offset by dividend payments to shareholders of $1,103.6 and payments on long-term debt of $406.6 primarily related to the repayment of a 2.0% Eurobond of €300.0 million ($353.9) that matured on 7 August 2020. Other financing activities were a use of cash of $97.2 and included financing charges associated with the third quarter debt issuance.

Financing and Capital Structure

Capital needs in fiscal year 2021 were satisfied with cash from operations. Total debt decreased from $7,907.8 as of 30 September 2020 to $7,637.2 as of 30 September 2021, primarily due to repayment of the €350 million Eurobond, partially offset by proceeds from long-term borrowings on our foreign commitments. Total debt includes related party debt of $358.4 and $338.5 as of 30 September 2021 and 30 September 2020, respectively, primarily associated with the Lu'An joint venture. For additional detail, refer to Note 14, *Debt*, to the consolidated financial statements.

On 31 March 2021, we entered into a five-year $2,500 revolving credit agreement with a syndicate of banks (the "2021 Credit Agreement"), under which senior unsecured debt is available to us and certain of our subsidiaries. The 2021 Credit Agreement provides a source of liquidity and supports our commercial paper program. The only financial covenant in the 2021 Credit Agreement is a maximum ratio of total debt to capitalization (equal to total debt plus total equity) not to exceed 70%. Total debt as of 30 September 2021 and 30 September 2020, expressed as a percentage of total capitalization, was 35.2% and 38.9%, respectively. No borrowings were outstanding under the 2021 Credit Agreement as of 30 September 2021.

The 2021 Credit Agreement replaced our previous five-year $2,300.0 revolving credit agreement, which was to have matured on 31 March 2022. No borrowings were outstanding under the previous agreement as of 30 September 2020 or at the time of its termination. No early termination penalties were incurred.

Commitments of $296.7 are maintained by our foreign subsidiaries, $176.2 of which was borrowed and outstanding as of 30 September 2021.

As of 30 September 2021, we are in compliance with all of the financial and other covenants under our debt agreements.

On 15 September 2011, the Board of Directors authorized the repurchase of up to $1,000 of our outstanding common stock. We did not purchase any of our outstanding shares in fiscal years 2021 or 2020. As of 30 September 2021, $485.3 in share repurchase authorization remains.

Dividends

Cash dividends on our common stock are paid quarterly, usually during the sixth week after the close of the fiscal quarter. We expect to continue to pay cash dividends in the future at comparable or increased levels.

The Board of Directors determines whether to declare dividends and the timing and amount based on financial condition and other factors it deems relevant. In 2021, the Board of Directors increased the quarterly dividend on our common stock to $1.50 per share, representing a 12% increase from the previous dividend of $1.34 per share. This is the 39th consecutive year that we have increased our quarterly dividend payment.

On 18 November 2021, the Board of Directors declared the first quarter 2022 dividend of $1.50 per share. The dividend is payable on 14 February 2022 to shareholders of record as of 3 January 2022.

Discontinued Operations

In fiscal year 2021, cash provided by operating activities of discontinued operations of $6.7 resulted from cash received as part of a state tax settlement related to the sale of PMD in fiscal year 2017.

PENSION BENEFITS

We and certain of our subsidiaries sponsor defined benefit pension plans and defined contribution plans that cover a substantial portion of our worldwide employees. The principal defined benefit pension plans are the U.S. salaried pension plan and the U.K. pension plan. These plans were closed to new participants in 2005, after which defined contribution plans were offered to new employees. The shift to defined contribution plans is expected to continue to reduce volatility of both plan expense and contributions.

The fair market value of plan assets for our defined benefit pension plans as of the 30 September 2021 measurement date increased to $5,248.7 from $4,775.1 at the end of fiscal year 2020. The projected benefit obligation for these plans was $5,304.9 and $5,373.5 at the end of fiscal years 2021 and 2020, respectively. The net unfunded liability decreased $542.2 from $598.4 to $56.2, primarily due to favorable asset experience. Refer to Note 15, *Retirement Benefits*, to the consolidated financial statements for additional disclosures on our postretirement benefits.

Pension Expense

	2021	2020
Pension (income)/expense, including special items noted below	**($37.3)**	$7.0
Settlements, termination benefits, and curtailments ("special items")	**1.8**	5.2
Weighted average discount rate – Service cost	**2.3%**	2.4%
Weighted average discount rate – Interest cost	**1.8%**	2.3%
Weighted average expected rate of return on plan assets	**6.0%**	6.3%
Weighted average expected rate of compensation increase	**3.4%**	3.4%

We recognized pension income of $37.3 in fiscal year 2021 versus expense of $7.0 in fiscal year 2020, primarily due to lower interest cost and higher total assets. Special items decreased from the prior year primarily due to lower pension settlement losses.

2022 Outlook

In fiscal year 2022, we expect pension impacts to range from $5 million of income to $5 million of expense, which includes potential settlement losses of $5 to $10 million, depending on the timing of retirements. This forecast reflects a lower expected estimated return on assets due to the increased percentage of fixed income investments within the plan asset portfolios and higher interest cost, partially offset by lower forecasted actuarial loss amortization. In fiscal year 2022, our expected range of pension impacts includes approximately $80 for amortization of actuarial losses.

In fiscal year 2021, pension expense included amortization of actuarial losses of $97.8. Net actuarial gains of $360.8 were recognized in accumulated other comprehensive income in fiscal year 2021. Actuarial gains and losses are amortized into pension expense over prospective periods to the extent they are not offset by future gains or losses. Future changes in the discount rate and actual returns on plan assets could impact the actuarial gain or loss and resulting amortization in years beyond fiscal year 2022.

Pension Funding

Pension funding includes both contributions to funded plans and benefit payments for unfunded plans, which are primarily non-qualified plans. With respect to funded plans, our funding policy is that contributions, combined with appreciation and earnings, will be sufficient to pay benefits without creating unnecessary surpluses.

In addition, we make contributions to satisfy all legal funding requirements while managing our capacity to benefit from tax deductions attributable to plan contributions. With the assistance of third-party actuaries, we analyze the liabilities and demographics of each plan, which help guide the level of contributions. During 2021 and 2020, our cash contributions to funded plans and benefit payments for unfunded plans were $44.6 and $37.5, respectively.

For fiscal year 2022, cash contributions to defined benefit plans are estimated to be $40 to $50. The estimate is based on expected contributions to certain international plans and anticipated benefit payments for unfunded plans, which are dependent upon the timing of retirements. Actual future contributions will depend on future funding legislation, discount rates, investment performance, plan design, and various other factors. We do not expect COVID-19 to impact our contribution forecast for fiscal year 2022.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Refer to Note 1, *Major Accounting Policies*, and Note 2, *New Accounting Guidance*, to the consolidated financial statements for a description of our major accounting policies and information concerning implementation and impact of new accounting guidance.

The accounting policies discussed below are those policies that we consider to be the most critical to understanding our financial statements because they require management's most difficult, subjective, or complex judgments, often as the result of the need to make estimates about the effects of matters that are inherently uncertain. These estimates reflect our best judgment about current and/or future economic and market conditions and their effect based on information available as of the date of our consolidated financial statements. If conditions change, actual results may differ materially from these estimates. Our management has reviewed these critical accounting policies and estimates and related disclosures with the Audit and Finance Committee of our Board of Directors.

Depreciable Lives of Plant and Equipment

Plant and equipment, net at 30 September 2021 totaled $13,254.6, and depreciation expense totaled $1,284.1 during fiscal year 2021. Plant and equipment is recorded at cost and depreciated using the straight-line method, which deducts equal amounts of the cost of each asset from earnings every year over its estimated economic useful life.

Economic useful life is the duration of time an asset is expected to be productively employed by us, which may be less than its physical life. Assumptions on the following factors, among others, affect the determination of estimated economic useful life: wear and tear, obsolescence, technical standards, contract life, market demand, competitive position, raw material availability, and geographic location.

The estimated economic useful life of an asset is monitored to determine its appropriateness, especially when business circumstances change. For example, changes in technology, changes in the estimated future demand for products, excessive wear and tear, or unanticipated government actions may result in a shorter estimated useful life than originally anticipated. In these cases, we would depreciate the remaining net book value over the new estimated remaining life, thereby increasing depreciation expense per year on a prospective basis. Likewise, if the estimated useful life is increased, the adjustment to the useful life decreases depreciation expense per year on a prospective basis.

The regional Industrial Gases segments have numerous long-term customer supply contracts for which we construct an on-site plant adjacent to or near the customer's facility. These contracts typically have initial contract terms of 10 to 20 years. Depreciable lives of the production assets related to long-term supply contracts are generally matched to the contract lives. Extensions to the contract term of supply frequently occur prior to the expiration of the initial term. As contract terms are extended, the depreciable life of the associated production assets is adjusted to match the new contract term, as long as it does not exceed the remaining physical life of the asset.

Our regional Industrial Gases segments also have contracts for liquid or gaseous bulk supply and, for smaller customers, packaged gases. The depreciable lives of production facilities associated with these contracts are generally 15 years. These depreciable lives have been determined based on historical experience combined with judgment on future assumptions such as technological advances, potential obsolescence, competitors' actions, etc.

In addition, we may purchase assets through transactions accounted for as either an asset acquisition or a business combination. Depreciable lives are assigned to acquired assets based on the age and condition of the assets, the remaining duration of long-term supply contracts served by the assets, and our historical experience with similar assets. Management monitors its assumptions and may potentially need to adjust depreciable life as circumstances change.

Impairment of Assets

As discussed below, there were no triggering events in fiscal year 2021 that would require impairment testing for any of our asset groups, reporting units that contain goodwill, indefinite-lived intangibles assets, or equity method investments. We completed our annual impairment tests for goodwill and other indefinite-lived intangible assets and concluded there were no indications of impairment.

Impairment of Assets – Plant and Equipment

Plant and equipment meeting the held for sale criteria are reported at the lower of carrying amount or fair value less cost to sell. Plant and equipment to be disposed of other than by sale may be reviewed for impairment upon the occurrence of certain triggering events, such as unexpected contract terminations or unexpected foreign government-imposed restrictions or expropriations. Plant and equipment held for use is grouped for impairment testing at the lowest level for which there is identifiable cash flows. Impairment testing of the asset group occurs whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. Such circumstances would include: (1) a significant decrease in the market value of a long-lived asset grouping; (2) a significant adverse change in the manner in which the asset grouping is being used or in its physical condition; (3) an accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the long-lived asset; (4) a reduction in revenues that is other than temporary; (5) a history of operating or cash flow losses associated with the use of the asset grouping; or (6) changes in the expected useful life of the long-lived assets.

If such circumstances are determined to exist, an estimate of undiscounted future cash flows produced by that asset group is compared to the carrying value to determine whether impairment exists. If an asset group is determined to be impaired, the loss is measured based on the difference between the asset group's fair value and its carrying value. An estimate of the asset group's fair value is based on the discounted value of its estimated cash flows.

The assumptions underlying the undiscounted future cash flow projections require significant management judgment. Factors that management must estimate include industry and market conditions, sales volume and prices, costs to produce, inflation, etc. The assumptions underlying the cash flow projections represent management's best estimates at the time of the impairment review and could include probability weighting of cash flow projections associated with multiple potential future scenarios. Changes in key assumptions or actual conditions that differ from estimates could result in an impairment charge. We use reasonable and supportable assumptions when performing impairment reviews and cannot predict the occurrence of future events and circumstances that could result in impairment charges.

In fiscal year 2021, there was no need to test for impairment on any of our asset groupings as no events or changes in circumstances indicated that the carrying amount of our asset groupings may not be recoverable.

Impairment of Assets – Goodwill

The acquisition method of accounting for business combinations requires us to make use of estimates and judgments to allocate the purchase price paid for acquisitions to the fair value of the net tangible and identifiable intangible assets. Goodwill represents the excess of the aggregate purchase price (plus the fair value of any noncontrolling interest and previously held equity interest in the acquiree) over the fair value of identifiable net assets of an acquired entity. Goodwill was $911.5 as of 30 September 2021. Disclosures related to goodwill are included in Note 9, *Goodwill*, to the consolidated financial statements.

We review goodwill for impairment annually in the fourth quarter of the fiscal year and whenever events or changes in circumstances indicate that the carrying value of goodwill might not be recoverable. The tests are done at the reporting unit level, which is defined as being equal to or one level below the operating segment for which discrete financial information is available and whose operating results are reviewed by segment managers regularly. We have five reportable business segments, seven operating segments and ten reporting units, seven of which include a goodwill balance. Refer to Note 23, *Business Segment and Geographic Information*, for additional information. Reporting units are primarily based on products and subregions within each reportable segment. The majority of our goodwill is assigned to reporting units within our regional Industrial Gases segments.

As part of the goodwill impairment testing, we have the option to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. However, we choose to bypass the qualitative assessment and conduct quantitative testing to determine if the carrying value of the reporting unit exceeds its fair value. An impairment loss will be recognized for the amount by which the carrying value of the reporting unit exceeds its fair value, not to exceed the total amount of goodwill allocated to that reporting unit.

To determine the fair value of a reporting unit, we initially use an income approach valuation model, representing the present value of estimated future cash flows. Our valuation model uses a discrete growth period and an estimated exit trading multiple. The income approach is an appropriate valuation method due to our capital-intensive nature, the long-term contractual nature of our business, and the relatively consistent cash flows generated by our reporting units. The principal assumptions utilized in our income approach valuation model include revenue growth rates, operating profit and/or adjusted EBITDA margins, discount rate, and exit multiple. Projected revenue growth rates and operating profit and/or adjusted EBITDA assumptions are consistent with those utilized in our operating plan and/or revised forecasts and long-term financial planning process. The discount rate assumption is calculated based on an estimated market-participant risk-adjusted weighted-average cost of capital, which includes factors such as the risk-free rate of return, cost of debt, and expected equity premiums. The exit multiple is determined from comparable industry transactions and where appropriate, reflects expected long-term growth rates.

If our initial review under the income approach indicates there may be impairment, we incorporate results under the market approach to further evaluate the existence of impairment. When the market approach is utilized, fair value is estimated based on market multiples of revenue and earnings derived from comparable publicly-traded industrial gases companies and/or regional manufacturing companies engaged in the same or similar lines of business as the reporting unit, adjusted to reflect differences in size and growth prospects. When both the income and market approach are utilized, we review relevant facts and circumstances and make a qualitative assessment to determine the proper weighting. Management judgment is required in the determination of each assumption utilized in the valuation model, and actual results could differ from the estimates.

During the fourth quarter of fiscal year 2021, we conducted our annual goodwill impairment test, noting no indications of impairment. The fair value of all of our reporting units substantially exceeded their carrying value.

Due to the reorganization of our business effective as of 1 October 2021, we conducted an additional impairment test on our existing reporting units as of 30 September 2021. The fair value of all of our reporting units substantially exceeded their carrying value at 30 September 2021.

Future events that could have a negative impact on the level of excess fair value over carrying value of the reporting units include, but are not limited to: long-term economic weakness, decline in market share, pricing pressures, inability to successfully implement cost improvement measures, increases to our cost of capital, changes in the strategy of the reporting unit, and changes to the structure of our business as a result of future reorganizations or divestitures of assets or businesses. Negative changes in one or more of these factors, among others, could result in impairment charges.

Impairment of Assets – Intangible Assets

Intangible assets, net with determinable lives at 30 September 2021 totaled $380.4 and consisted primarily of customer relationships, purchased patents and technology, and land use rights. These intangible assets are tested for impairment as part of the long-lived asset grouping impairment tests. Impairment testing of the asset group occurs whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. See the impairment discussion above under "*Impairment of Assets – Plant and Equipment*" for a description of how impairment losses are determined.

Indefinite-lived intangible assets at 30 September 2021 totaled $40.3 and consisted of trade names and trademarks. Indefinite-lived intangibles are subject to impairment testing at least annually or more frequently if events or changes in circumstances indicate that potential impairment exists. The impairment test for indefinite-lived intangible assets involves calculating the fair value of the indefinite-lived intangible assets and comparing the fair value to their carrying value. If the fair value is less than the carrying value, the difference is recorded as an impairment loss. To determine fair value, we utilize the royalty savings method, a form of the income approach. This method values an intangible asset by estimating the royalties avoided through ownership of the asset.

Disclosures related to intangible assets other than goodwill are included in Note 10, *Intangible Assets*, to the consolidated financial statements.

In the fourth quarter of 2021, we conducted our annual impairment test of indefinite-lived intangibles which resulted in no impairment.

Impairment of Assets – Equity Method Investments

Investments in and advances to equity affiliates totaled $1,649.3 at 30 September 2021. The majority of our investments are non-publicly traded ventures with other companies in the industrial gas business. Summarized financial information of equity affiliates is included in Note 7, *Summarized Financial Information of Equity Affiliates*, to the consolidated financial statements. Equity investments are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the investment may not be recoverable.

An impairment loss is recognized in the event that an other-than-temporary decline in fair value below the carrying value of an investment occurs. Management's estimate of fair value of an investment is based on the income approach and/or market approach. We utilize estimated discounted future cash flows expected to be generated by the investee under the income approach. For the market approach, we utilize market multiples of revenue and earnings derived from comparable publicly-traded industrial gases companies. Changes in key assumptions about the financial condition of an investee or actual conditions that differ from estimates could result in an impairment charge.

In fiscal year 2021, there was no need to test any of our equity affiliate investments for impairment, as no events or changes in circumstances indicated that the carrying amount of the investments may not be recoverable.

Revenue Recognition – Cost Incurred Input Method

Revenue from equipment sale contracts is generally recognized over time as we have an enforceable right to payment for performance completed to date and our performance under the contract terms does not create an asset with alternative use. We use a cost incurred input method to recognize revenue by which costs incurred to date relative to total estimated costs at completion are used to measure progress toward satisfying performance obligations. Costs incurred include material, labor, and overhead costs and represent work contributing and proportionate to the transfer of control to the customer.

Accounting for contracts using the cost incurred input method requires management judgment relative to assessing risks and their impact on the estimates of revenues and costs. Our estimates are impacted by factors such as the potential for incentives or penalties on performance, schedule delays, technical issues, labor productivity, the complexity of work performed, the cost and availability of materials, and performance of subcontractors. When adjustments in estimated total contract revenues or estimated total costs are required, any changes in the estimated profit from prior estimates are recognized in the current period for the inception-to-date effect of such change. When estimates of total costs to be incurred on a contract exceed estimates of total revenues to be earned, a provision for the entire estimated loss on the contract is recorded in the period in which the loss is determined.

In addition to the typical risks associated with underlying performance of project procurement and construction activities, our sale of equipment projects within our Industrial Gases – Global segment require monitoring of risks associated with schedule, geography, and other aspects of the contract and their effects on our estimates of total revenues and total costs to complete the contract.

Changes in estimates on projects accounted for under the cost incurred input method unfavorably impacted operating income by approximately $19 in fiscal year 2021 as compared to a favorable impact of $7 in fiscal year 2020. Our changes in estimates would not have significantly impacted amounts recorded in prior years.

We assess the performance of our sale of equipment projects as they progress. Our earnings could be positively or negatively impacted by changes to our forecast of revenues and costs on these projects.

Revenue Recognition – *On-site Customer Contracts*

For customers who require large volumes of gases on a long-term basis, we produce and supply gases under long-term contracts from large facilities that we build, own and operate on or near the customer's facilities. Certain of these on-site contracts contain complex terms and provisions such as tolling arrangements, minimum payment requirements, variable components and pricing provisions that require significant judgment to determine the amount and timing of revenue recognition.

Income Taxes

We account for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the tax effects of temporary differences between the financial reporting and tax bases of assets and liabilities measured using enacted tax rates in effect for the year in which the differences are expected to be recovered or settled. As of 30 September 2021, accrued income taxes, including the amount recorded as noncurrent, was $251.0, and net deferred tax liabilities were $1,080.7. Tax liabilities related to uncertain tax positions as of 30 September 2021 were $140.3, excluding interest and penalties. Income tax expense for the fiscal year ended 30 September 2021 was $462.8. Disclosures related to income taxes are included in Note 21, *Income Taxes*, to the consolidated financial statements.

Management judgment is required concerning the ultimate outcome of tax contingencies and the realization of deferred tax assets.

Actual income taxes paid may vary from estimates, depending upon changes in income tax laws, actual results of operations, and the final audit of tax returns by taxing authorities. Tax assessments may arise several years after tax returns have been filed. We believe that our recorded tax liabilities adequately provide for these assessments.

Deferred tax assets are recorded for operating losses and tax credit carryforwards. However, when we do not expect sufficient sources of future taxable income to realize the benefit of the operating losses or tax credit carryforwards, these deferred tax assets are reduced by a valuation allowance. A valuation allowance is recognized if, based on the weight of available evidence, it is considered more likely than not that some portion or all of the deferred tax asset will not be realized. The factors used to assess the likelihood of realization include forecasted future taxable income and available tax planning strategies that could be implemented to realize or renew net deferred tax assets in order to avoid the potential loss of future tax benefits. The effect of a change in the valuation allowance is reported in the income tax expense.

A 1% increase or decrease in our effective tax rate may result in a decrease or increase to net income, respectively, of approximately $25.

Pension and Other Postretirement Benefits

The amounts recognized in the consolidated financial statements for pension and other postretirement benefits are determined on an actuarial basis utilizing numerous assumptions. The discussion that follows provides information on the significant assumptions, expense, and obligations associated with the defined benefit plans.

Actuarial models are used in calculating the expense and liability related to the various defined benefit plans. These models have an underlying assumption that the employees render service over their service lives on a relatively consistent basis; therefore, the expense of benefits earned should follow a similar pattern.

Several assumptions and statistical variables are used in the models to calculate the expense and liability related to the plans. We determine assumptions about the discount rate, the expected rate of return on plan assets, and the rate of compensation increase. Note 15, *Retirement Benefits*, to the consolidated financial statements includes disclosure of these rates on a weighted-average basis for both the U.S. and international plans. The actuarial models also use assumptions about demographic factors such as retirement age, mortality, and turnover rates. Mortality rates are based on the most recent U.S. and international mortality tables. We believe the actuarial assumptions are reasonable. However, actual results could vary materially from these actuarial assumptions due to economic events and differences in rates of retirement, mortality, and turnover.

One of the assumptions used in the actuarial models is the discount rate used to measure benefit obligations. This rate reflects the prevailing market rate for high-quality, fixed-income debt instruments with maturities corresponding to the expected timing of benefit payments as of the annual measurement date for each of the various plans. We measure the service cost and interest cost components of pension expense by applying spot rates along the yield curve to the relevant projected cash flows. The rates along the yield curve are used to discount the future cash flows of benefit obligations back to the measurement date. These rates change from year to year based on market conditions that affect corporate bond yields. A higher discount rate decreases the present value of the benefit obligations and results in lower pension expense. A 50 bp increase or decrease in the discount rate may result in a decrease or increase to pension expense, respectively, of approximately $20 per year.

The expected rate of return on plan assets represents an estimate of the long-term average rate of return to be earned by plan assets reflecting current asset allocations. In determining estimated asset class returns, we take into account historical and future expected long-term returns and the value of active management, as well as the interest rate environment. Asset allocation is determined based on long-term return, volatility and correlation characteristics of the asset classes, the profiles of the plans' liabilities, and acceptable levels of risk. Lower returns on the plan assets result in higher pension expense. A 50 bp increase or decrease in the estimated rate of return on plan assets may result in a decrease or increase to pension expense, respectively, of approximately $23 per year.

We use a market-related valuation method for recognizing certain investment gains or losses for our significant pension plans. Investment gains or losses are the difference between the expected return and actual return on plan assets. The expected return on plan assets is determined based on a market-related value of plan assets. This is a calculated value that recognizes investment gains and losses on equities over a five-year period from the year in which they occur and reduces year-to-year volatility. The market-related value for non-equity investments equals the actual fair value. Expense in future periods will be impacted as gains or losses are recognized in the market-related value of assets.

The expected rate of compensation increase is another key assumption. We determine this rate based on review of the underlying long-term salary increase trend characteristic of labor markets and historical experience, as well as comparison to peer companies. A 50 bp increase or decrease in the expected rate of compensation may result in an increase or decrease to pension expense, respectively, of approximately $7 per year.

Loss Contingencies

In the normal course of business, we encounter contingencies, or situations involving varying degrees of uncertainty as to the outcome and effect on our company. We accrue a liability for loss contingencies when it is considered probable that a liability has been incurred and the amount of loss can be reasonably estimated. When only a range of possible loss can be established, the most probable amount in the range is accrued. If no amount within this range is a better estimate than any other amount within the range, the minimum amount in the range is accrued.

Contingencies include those associated with litigation and environmental matters, for which our accounting policy is discussed in Note 1, *Major Accounting Policies*, to the consolidated financial statements, and details are provided in Note 16, *Commitments and Contingencies*, to the consolidated financial statements. Significant judgment is required to determine both the probability and whether the amount of loss associated with a contingency can be reasonably estimated. These determinations are made based on the best available information at the time. As additional information becomes available, we reassess probability and estimates of loss contingencies. Revisions to the estimates associated with loss contingencies could have a significant impact on our results of operations in the period in which an accrual for loss contingencies is recorded or adjusted. For example, due to the inherent uncertainties related to environmental exposures, a significant increase to environmental liabilities could occur if a new site is designated, the scope of remediation is increased, a different remediation alternative is identified, or our proportionate share of the liability increases. Similarly, a future charge for regulatory fines or damage awards associated with litigation could have a significant impact on our net income in the period in which it is recorded.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Our earnings, cash flows, and financial position are exposed to market risks arising from fluctuations in interest rates and foreign currency exchange rates. It is our policy to minimize our cash flow exposure to adverse changes in currency exchange rates and to manage the financial risks inherent in funding with debt capital.

We address these financial exposures through a controlled program of risk management that includes the use of derivative financial instruments. We have established counterparty credit guidelines and generally enter into transactions with financial institutions of investment grade or better, thereby minimizing the risk of credit loss. All instruments are entered into for other than trading purposes. For details on the types and use of these derivative instruments and related major accounting policies, refer to Note 1, *Major Accounting Policies*, and Note 12, *Financial Instruments*, to the consolidated financial statements. Additionally, we mitigate adverse energy price impacts through our cost pass-through contracts with customers and price increases.

Our derivative and other financial instruments consist of long-term debt, including the current portion and amounts owed to related parties; interest rate swaps; cross currency interest rate swaps; and foreign exchange-forward contracts. The net market value of these financial instruments combined is referred to below as the "net financial instrument position" and is disclosed in Note 13, *Fair Value Measurements*, to the consolidated financial statements.

Our net financial instrument position decreased from a liability of $8,220.7 at 30 September 2020 to a liability of $7,850.3 at 30 September 2021. The decrease was primarily due to the repayment of a €350.0 million Eurobond ($428) on its maturity date in June 2021.

The analysis below presents the sensitivity of the market value of our financial instruments to selected changes in market rates and prices. Market values are the present values of projected future cash flows based on the market rates and prices chosen. The market values for interest rate risk and foreign currency risk are calculated by us using a third-party software model that utilizes standard pricing models to determine the present value of the instruments based on market conditions as of the valuation date, such as interest rates, spot and forward exchange rates, and implied volatilities.

Interest Rate Risk

Our debt portfolio as of 30 September 2021 and 2020, including the effect of currency and interest rate swap agreements, was composed of 89% fixed-rate debt and 11% variable-rate debt.

The sensitivity analysis related to the interest rate risk on the fixed portion of our debt portfolio assumes an instantaneous 100 bp parallel move in interest rates from the level at 30 September 2021, with all other variables held constant. A 100 bp increase in market interest rates would result in a decrease of $587 and $711 in the net liability position of financial instruments at 30 September 2021 and 2020, respectively. A 100 bp decrease in market interest rates would result in an increase of $692 and $846 in the net liability position of financial instruments at 30 September 2021 and 2020, respectively.

Based on the variable-rate debt included in our debt portfolio, including the interest rate swap agreements, a 100 bp increase in interest rates would result in an additional $8 of interest incurred per year at 30 September 2021 and 2020. A 100 bp decline in interest rates would lower interest incurred by $8 per year at 30 September 2021 and 2020.

Foreign Currency Exchange Rate Risk

The sensitivity analysis related to foreign currency exchange rates assumes an instantaneous 10% change in the foreign currency exchange rates from their levels at 30 September 2021 and 2020, with all other variables held constant. A 10% strengthening or weakening of the functional currency of an entity versus all other currencies would result in a decrease or increase, respectively, of $343 and $360 in the net liability position of financial instruments at 30 September 2021 and 2020, respectively.

The primary currency pairs for which we have exchange rate exposure are the Euro and U.S. Dollar and Chinese Renminbi and U.S. Dollar. Foreign currency debt, cross currency interest rate swaps, and foreign exchange-forward contracts are used in countries where we do business, thereby reducing our net asset exposure. Foreign exchange-forward contracts and cross currency interest rate swaps are also used to hedge our firm and highly anticipated foreign currency cash flows. Thus, there is either an asset or liability or cash flow exposure related to all of the financial instruments in the above sensitivity analysis for which the impact of a movement in exchange rates would be in the opposite direction and materially equal to the impact on the instruments in the analysis.

The majority of our sales are denominated in foreign currencies as they are derived outside the United States. Therefore, financial results will be affected by changes in foreign currency rates. The Chinese Renminbi and the Euro represent the largest exposures in terms of our foreign earnings. We estimate that a 10% reduction in either the Chinese Renminbi or the Euro versus the U.S. Dollar would lower our annual operating income by approximately $45 and $25, respectively.

Item 8. Financial Statements and Supplementary Data.

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MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Air Products' management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting, which is defined in the following sentences, is a process designed to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles and includes those policies and procedures that:

(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company;

(ii) provide reasonable assurance that the transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Because of inherent limitations, internal control over financial reporting can only provide reasonable assurance and may not prevent or detect misstatements. Further, because of changes in conditions, the effectiveness of our internal control over financial reporting may vary over time. Our processes contain self-monitoring mechanisms, and actions are taken to correct deficiencies as they are identified.

Management has evaluated the effectiveness of its internal control over financial reporting based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, management concluded that, as of 30 September 2021, the Company's internal control over financial reporting was effective.

Deloitte & Touche LLP, an independent registered public accounting firm, has issued its opinion on the Company's internal control over financial reporting as of 30 September 2021 as stated in its report which appears herein.

/s/ Seifi Ghasemi
Seifi Ghasemi
Chairman, President, and
Chief Executive Officer
18 November 2021

/s/ Melissa N. Schaeffer
Melissa N. Schaeffer
Senior Vice President and
Chief Financial Officer
18 November 2021

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Air Products and Chemicals, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Air Products and Chemicals, Inc. and subsidiaries (the "Company") as of September 30, 2021 and 2020, the related consolidated income statements, comprehensive income statements, statements of equity, and statements of cash flows, for each of the three years in the period ended September 30, 2021, and the related notes (collectively referred to as the "financial statements"). We also have audited the Company's internal control over financial reporting as of September 30, 2021, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of September 30, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended September 30, 2021, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2021, based on criteria established in Internal Control — Integrated Framework (2013) issued by COSO.

Basis for Opinions

The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on these financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing a separate opinion on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition – On-site Customer Contracts – Refer to Notes 1 and 4 to the Financial Statements

Critical Audit Matter Description

On-site industrial gas customer contracts involve large capital investments to serve customers who require large volumes of gases and have relatively constant demand. The Company builds, owns and operates facilities on or near the customer's facilities to produce and supply the customer with gases under a long-term arrangement. Typically, these contracts have 15- to 20-year terms and contain fixed monthly charges and/or minimum purchase requirements. Revenue associated with these contracts is generally recognized over time during the period in which the Company delivers or makes available the agreed upon quantity of gases. In addition, certain on-site industrial gas contracts contain complex terms and provisions such as tolling arrangements, minimum payment requirements, pricing provisions, and variable components that are specific to a customer arrangement, including certain contracts with related parties. These arrangements may require greater judgment in determining when contractual requirements have been met, impacting the timing and amount of revenue to be recorded.

We identified revenue recognition for certain on-site industrial gas customer contracts with complex terms and provisions as a critical audit matter because of the judgments necessary for management to evaluate these contract terms, including amendments, when determining the amount of revenue to be recognized. This required a high degree of auditor judgment when performing procedures to audit management's identification and assessment of contract terms when determining the amount and timing of revenue recognition and evaluating the results of those procedures.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to revenue recognition for certain on-site industrial gas customer contracts with complex terms and provisions included the following procedures, among others:

- We tested the effectiveness of the Company's controls related to the amount and timing of revenue recognition, including controls over the evaluation of complex terms and provisions in certain on-site industrial gas customer contracts.
- We evaluated the terms included within original customer contracts and related amendments to assess the accounting for provisions such as minimum payment requirements, pricing provisions, settlement terms, and variable components that require management to apply judgment in determining revenue recognition associated with the contract.
- We tested the probability of collection of variable components, including penalties, which impacts the amount and timing of revenue which the Company expects to collect.
- We inquired of personnel who oversee operations, customer relations, and revenue recognition as to the presence of contract amendments, and interpretation of contract terms.
- We considered the nature of transactions with related parties and any potential impact on revenue recognition.
- We evaluated customer transactions and agreed the amount of revenue recognized to underlying contracts, customer invoices, and cash receipts.
- We considered customer payment history, subsequent events, write-offs of customer receivables, collectability, modification of contract terms, and other factors that could impact the amount and timing of revenue recognition.

Revenue Recognition – Cost Incurred Input Method – Refer to Notes 1 and 4 to the Financial Statements

Critical Audit Matter Description

The Company enters into sale of equipment contracts with customers for which the promised goods or services contained within the contracts are integrated with or dependent upon other goods or services for a single output to the customer. Revenue from the sale of equipment contracts is generally recognized over time as the Company has an enforceable right to payment for performance, as completed, and performance under the contract terms does not create an asset with an alternative use. The Company uses a cost incurred input method to recognize revenue by which costs incurred to date relative to total estimated costs at completion are used to measure progress toward satisfying performance obligations.

Accounting for contracts using the cost incurred input method requires a high degree of judgment to estimate total costs used to recognize revenue. Changes in estimated costs could have a significant impact on the timing of revenue recognition. Auditing these estimates requires extensive audit effort due to the complexity around the cost estimation process which involves multiple inputs and variables for sale of equipment contracts and a high degree of auditor judgment when evaluating the results of those procedures.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to complex contracts with customers for sales of equipment included the following, among others:

- We tested the effectiveness of the Company's controls related to the amount and timing of revenue recognition for sale of equipment contracts, including controls over developing the estimated costs at completion and the evaluation of changes in estimated total costs for sale of equipment contracts.
- We evaluated the appropriateness and consistency of the methods and assumptions used by management to evaluate estimated total costs and changes in estimated costs to determine if the estimated total costs at completion for sale of equipment contracts were reasonable.
- With the assistance of our professionals having expertise in accounting for sale of equipment contracts, we performed the following:
    - Evaluated management's ability to estimate total costs at completion for each selected contract by performing corroborating inquiries with the Company's project managers and personnel involved with the selected contracts, including inquiries related to the timeline for completion and estimates of future costs to complete the contract.
    - Selected a sample of estimates of future costs to complete and evaluated management's estimates of total costs at completion by performing one of the following:
        - Comparing management's estimates to documents such as work plans, customer purchase orders, third-party supplier invoices, and subcontractor agreements, or
        - Developing independent estimates of total costs to completion and comparing our estimates to management's estimates. Our independent estimates were based on information such as work plans, customer purchase orders, third-party supplier invoices, subcontractor agreements, and similar historical project experience.
    - We compared the gross margin on sale of equipment contracts to that of historical periods in order to evaluate the Company's ability to accurately estimate costs at completion.

/s/ Deloitte & Touche LLP
Philadelphia, Pennsylvania
November 18, 2021

We have served as the Company's auditor since 2018.

Air Products and Chemicals, Inc. and Subsidiaries
CONSOLIDATED INCOME STATEMENTS
(Millions of dollars, except for share and per share data)

Fiscal Year Ended 30 September	2021	2020	2019
Sales	**$10,323.0**	$8,856.3	$8,918.9
Cost of sales	**7,186.1**	5,858.1	5,975.5
Facility closure	**23.2**	—	29.0
Selling and administrative	**828.4**	775.9	750.0
Research and development	**93.5**	83.9	72.9
Cost reduction actions	**—**	—	25.5
Gain on exchange with joint venture partner	**36.8**	—	29.1
Company headquarters relocation income (expense)	**—**	33.8	—
Other income (expense), net	**52.8**	65.4	49.3
Operating Income	**2,281.4**	2,237.6	2,144.4
Equity affiliates' income	**294.1**	264.8	215.4
Interest expense	**141.8**	109.3	137.0
Other non-operating income (expense), net	**73.7**	30.7	66.7
Income From Continuing Operations Before Taxes	**2,507.4**	2,423.8	2,289.5
Income tax provision	**462.8**	478.4	480.1
Income From Continuing Operations	**2,044.6**	1,945.4	1,809.4
Income (Loss) from discontinued operations, net of tax	**70.3**	(14.3)	—
Net Income	**2,114.9**	1,931.1	1,809.4
Net income attributable to noncontrolling interests of continuing operations	**15.8**	44.4	49.4
Net Income Attributable to Air Products	**$2,099.1**	$1,886.7	$1,760.0
Net Income Attributable to Air Products			
Net income from continuing operations	**$2,028.8**	$1,901.0	$1,760.0
Net income (loss) from discontinued operations	**70.3**	(14.3)	—
Net Income Attributable to Air Products	**$2,099.1**	$1,886.7	$1,760.0
Per Share Data*			
Basic EPS from continuing operations	**$9.16**	$8.59	$7.99
Basic EPS from discontinued operations	**0.32**	(0.06)	—
Basic EPS Attributable to Air Products	**$9.47**	$8.53	$7.99
Diluted EPS from continuing operations	**$9.12**	$8.55	$7.94
Diluted EPS from discontinued operations	**0.32**	(0.06)	—
Diluted EPS Attributable to Air Products	**$9.43**	$8.49	$7.94
Weighted Average Common Shares (in millions)			
Basic	**221.6**	221.2	220.3
Diluted	**222.5**	222.3	221.6

*Earnings per share ("EPS") is calculated independently for each component and may not sum to total EPS due to rounding.

The accompanying notes are an integral part of these statements.

Air Products and Chemicals, Inc. and Subsidiaries
CONSOLIDATED COMPREHENSIVE INCOME STATEMENTS
(Millions of dollars)

Fiscal Year Ended 30 September	2021	2020	2019
Net Income	**$2,114.9**	$1,931.1	$1,809.4
Other Comprehensive Income (Loss), net of tax:			
Translation adjustments, net of tax of $2.8, ($29.4), and $25.1	**267.3**	233.4	(356.2)
Net gain (loss) on derivatives, net of tax of ($9.0), $23.7, and ($1.5)	**3.3**	43.5	(44.1)
Pension and postretirement benefits, net of tax of $91.4, ($15.6), and ($97.9)	**274.3**	(68.2)	(326.2)
Reclassification adjustments:			
Currency translation adjustment	**—**	—	(2.6)
Derivatives, net of tax of $13.9, ($17.7), and $4.5	**43.5**	(57.7)	12.3
Pension and postretirement benefits, net of tax of $24.4, $27.1, and $20.5	**74.6**	82.5	63.2
Total Other Comprehensive Income (Loss)	**663.0**	233.5	(653.6)
Comprehensive Income	**2,777.9**	2,164.6	1,155.8
Net Income Attributable to Noncontrolling Interests	**15.8**	44.4	49.4
Other Comprehensive Income (Loss) Attributable to Noncontrolling Interests	**38.8**	(2.0)	(19.9)
Comprehensive Income Attributable to Air Products	**$2,723.3**	$2,122.2	$1,126.3

The accompanying notes are an integral part of these statements.

Air Products and Chemicals, Inc. and Subsidiaries
CONSOLIDATED BALANCE SHEETS
(Millions of dollars, except for share and per share data)

30 September	2021	2020
Assets		
Current Assets		
Cash and cash items	**$4,468.9**	$5,253.0
Short-term investments	**1,331.9**	1,104.9
Trade receivables, net	**1,451.3**	1,274.8
Inventories	**453.9**	404.8
Prepaid expenses	**119.4**	164.5
Other receivables and current assets	**550.9**	482.9
Total Current Assets	**8,376.3**	8,684.9
Investment in net assets of and advances to equity affiliates	**1,649.3**	1,432.2
Plant and equipment, net	**13,254.6**	11,964.7
Goodwill, net	**911.5**	891.5
Intangible assets, net	**420.7**	435.8
Noncurrent lease receivables	**740.3**	816.3
Other noncurrent assets	**1,506.5**	943.1
Total Noncurrent Assets	**18,482.9**	16,483.6
Total Assets	**$26,859.2**	$25,168.5
Liabilities and Equity		
Current Liabilities		
Payables and accrued liabilities	**$2,218.3**	$1,833.2
Accrued income taxes	**93.9**	105.8
Short-term borrowings	**2.4**	7.7
Current portion of long-term debt	**484.5**	470.0
Total Current Liabilities	**2,799.1**	2,416.7
Long-term debt	**6,875.7**	7,132.9
Long-term debt – related party	**274.6**	297.2
Other noncurrent liabilities	**1,640.9**	1,916.0
Deferred income taxes	**1,180.9**	962.6
Total Noncurrent Liabilities	**9,972.1**	10,308.7
Total Liabilities	**12,771.2**	12,725.4
Commitments and Contingencies - See Note 16		
Air Products Shareholders' Equity		
Common stock (par value $1 per share; issued 2021 and 2020 - 249,455,584 shares)	**249.4**	249.4
Capital in excess of par value	**1,115.8**	1,094.8
Retained earnings	**15,678.3**	14,875.7
Accumulated other comprehensive loss	**(1,515.9)**	(2,140.1)
Treasury stock, at cost (2021 - 28,058,829 shares; 2020 - 28,438,125 shares)	**(1,987.9)**	(2,000.0)
Total Air Products Shareholders' Equity	**13,539.7**	12,079.8
Noncontrolling Interests	**548.3**	363.3
Total Equity	**14,088.0**	12,443.1
Total Liabilities and Equity	**$26,859.2**	$25,168.5

The accompanying notes are an integral part of these statements.

Air Products and Chemicals, Inc. and Subsidiaries
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Millions of dollars)

Fiscal Year Ended 30 September	2021	2020	2019
Operating Activities			
Net income	**$2,114.9**	$1,931.1	$1,809.4
Less: Net income attributable to noncontrolling interests of continuing operations	**15.8**	44.4	49.4
Net income attributable to Air Products	**2,099.1**	1,886.7	1,760.0
(Income) Loss from discontinued operations	**(70.3)**	14.3	—
Income from continuing operations attributable to Air Products	**2,028.8**	1,901.0	1,760.0
Adjustments to reconcile income to cash provided by operating activities:			
Depreciation and amortization	**1,321.3**	1,185.0	1,082.8
Deferred income taxes	**94.0**	165.0	57.6
Tax reform repatriation	**—**	—	49.4
Facility closure	**23.2**	—	29.0
Undistributed earnings of equity method investments	**(138.2)**	(161.9)	(75.8)
Gain on sale of assets and investments	**(37.2)**	(45.8)	(24.2)
Share-based compensation	**44.5**	53.5	41.2
Noncurrent lease receivables	**98.8**	91.6	94.6
Other adjustments	**(116.7)**	116.4	(19.4)
Working capital changes that provided (used) cash, excluding effects of acquisitions:			
Trade receivables	**(130.5)**	43.2	(69.0)
Inventories	**(47.2)**	(5.2)	(3.0)
Other receivables	**75.5**	84.4	79.8
Payables and accrued liabilities	**187.9**	(31.9)	(41.8)
Other working capital	**(69.0)**	(130.6)	8.7
Cash Provided by Operating Activities	**3,335.2**	3,264.7	2,969.9
Investing Activities			
Additions to plant and equipment, including long-term deposits	**(2,464.2)**	(2,509.0)	(1,989.7)
Acquisitions, less cash acquired	**(10.5)**	(183.3)	(123.2)
Investment in and advances to unconsolidated affiliates	**(76.0)**	(24.4)	(15.7)
Proceeds from sale of assets and investments	**37.5**	80.3	11.1
Purchases of investments	**(2,100.7)**	(2,865.5)	(172.1)
Proceeds from investments	**1,875.2**	1,938.0	190.5
Other investing activities	**5.8**	3.9	(14.3)
Cash Used for Investing Activities	**(2,732.9)**	(3,560.0)	(2,113.4)
Financing Activities			
Long-term debt proceeds	**178.9**	4,895.8	—
Payments on long-term debt	**(462.9)**	(406.6)	(428.6)
Net increase (decrease) in commercial paper and short-term borrowings	**1.0**	(54.9)	3.9
Dividends paid to shareholders	**(1,256.7)**	(1,103.6)	(994.0)
Proceeds from stock option exercises	**10.6**	34.1	68.1
Investments by noncontrolling interests	**136.6**	17.1	—
Other financing activities	**(28.4)**	(97.2)	(19.9)
Cash Provided by (Used for) Financing Activities	**(1,420.9)**	3,284.7	(1,370.5)
Discontinued Operations			
Cash provided by operating activities	6.7	—	—
Cash provided by investing activities	—	—	—
Cash provided by financing activities	—	—	—
Cash Provided by Discontinued Operations	6.7	—	—
Effect of Exchange Rate Changes on Cash	**27.8**	14.9	(28.6)
Increase (Decrease) in cash and cash items	**(784.1)**	3,004.3	(542.6)
Cash and Cash items – Beginning of Year	**5,253.0**	2,248.7	2,791.3
Cash and Cash Items – End of Period	**$4,468.9**	$5,253.0	$2,248.7

The accompanying notes are an integral part of these statements.

Air Products and Chemicals, Inc. and Subsidiaries
CONSOLIDATED STATEMENTS OF EQUITY
(Millions of dollars, except for per share data)

Fiscal Year Ended 30 September	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Air Products Shareholders' Equity	Non-controlling Interests	Total Equity
Balance 30 September 2018	**$249.4**	**$1,029.3**	**$13,409.9**	**($1,741.9)**	**($2,089.2)**	**$10,857.5**	**$318.8**	**$11,176.3**
Net income	—	—	1,760.0	—	—	1,760.0	49.4	1,809.4
Other comprehensive income (loss)	—	—	—	(633.7)	—	(633.7)	(19.9)	(653.6)
Dividends on common stock (per share $4.58)	—	—	(1,008.3)	—	—	(1,008.3)	—	(1,008.3)
Dividends to noncontrolling interests	—	—	—	—	—	—	(12.2)	(12.2)
Share-based compensation	—	40.7	—	—	—	40.7	—	40.7
Issuance of treasury shares for stock option and award plans	—	2.2	—	—	59.7	61.9	—	61.9
Cumulative change in accounting principle	—	—	(17.1)	—	—	(17.1)	—	(17.1)
Other equity transactions	—	(1.3)	(6.1)	—	—	(7.4)	(1.4)	(8.8)
Balance 30 September 2019	**$249.4**	**$1,070.9**	**$14,138.4**	**($2,375.6)**	**($2,029.5)**	**$11,053.6**	**$334.7**	**$11,388.3**
Net income	—	—	1,886.7	—	—	1,886.7	44.4	1,931.1
Other comprehensive income (loss)	—	—	—	235.5	—	235.5	(2.0)	233.5
Dividends on common stock (per share $5.18)	—	—	(1,144.1)	—	—	(1,144.1)	—	(1,144.1)
Dividends to noncontrolling interests	—	—	—	—	—	—	(31.8)	(31.8)
Share-based compensation	—	44.2	—	—	—	44.2	—	44.2
Issuance of treasury shares for stock option and award plans	—	(14.1)	—	—	29.5	15.4	—	15.4
Investments by noncontrolling interests	—	—	—	—	—	—	17.1	17.1
Other equity transactions	—	(6.2)	(5.3)	—	—	(11.5)	0.9	(10.6)
Balance 30 September 2020	**$249.4**	**$1,094.8**	**$14,875.7**	**($2,140.1)**	**($2,000.0)**	**$12,079.8**	**$363.3**	**$12,443.1**
Net income	—	—	2,099.1	—	—	2,099.1	15.8	2,114.9
Other comprehensive income (loss)	—	—	—	624.2	—	624.2	38.8	663.0
Dividends on common stock (per share $5.84)	—	—	(1,292.6)	—	—	(1,292.6)	—	(1,292.6)
Dividends to noncontrolling interests	—	—	—	—	—	—	(5.3)	(5.3)
Share-based compensation	—	43.5	—	—	—	43.5	—	43.5
Issuance of treasury shares for stock option and award plans	—	(21.5)	—	—	12.1	(9.4)	—	(9.4)
Investments by noncontrolling interests	—	—	—	—	—	—	139.8	139.8
Purchase of noncontrolling interests	—	(1.2)	—	—	—	(1.2)	(4.1)	(5.3)
Other equity transactions	—	0.2	(3.9)	—	—	(3.7)	—	(3.7)
Balance 30 September 2021	**$249.4**	**$1,115.8**	**$15,678.3**	**($1,515.9)**	**($1,987.9)**	**$13,539.7**	**$548.3**	**$14,088.0**

The accompanying notes are an integral part of these statements.

Air Products and Chemicals, Inc. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Millions of dollars unless otherwise indicated, except for share and per share data)

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1. MAJOR ACCOUNTING POLICIES

Basis of Presentation and Consolidation Principles

The accompanying consolidated financial statements of Air Products and Chemicals, Inc. were prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") and include the accounts of Air Products and Chemicals, Inc. and those of its controlled subsidiaries ("we," "our," "us," the "Company," "Air Products," or "registrant"), which are generally majority owned. Intercompany transactions and balances are eliminated in consolidation.

We consolidate all entities that we control. The general condition for control is ownership of a majority of the voting interests of an entity. Control may also exist in arrangements where we are the primary beneficiary of a variable interest entity ("VIE"). An entity that has both the power to direct the activities that most significantly impact the economic performance of a VIE and the obligation to absorb losses or receive benefits significant to the VIE is considered the primary beneficiary of that entity. We have determined that we are not a primary beneficiary of any material VIE.

The notes to the consolidated financial statements, unless otherwise indicated, are on a continuing operations basis. The results of operations and cash flows for our discontinued operations have been segregated from the results of continuing operations and segment results. The comprehensive income related to discontinued operations has not been segregated and is included in the consolidated comprehensive income statements. There were no assets and liabilities presented as discontinued operations on the consolidated balance sheets. Refer to Note 5, *Discontinued Operations*, for additional information.

Certain prior year information has been reclassified to conform to the fiscal year 2021 presentation.

Estimates and Assumptions

The preparation of the financial statements in conformity with GAAP requires management to make estimates and assumptions that affect amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

COVID-19 Risks and Uncertainties

COVID-19, which was declared a global pandemic by the World Health Organization in March 2020, continues to impact our business operations and results. There continue to be many unknowns regarding the pandemic, including the ongoing spread and severity of the virus and the pace of vaccine rollouts globally. Given the dynamic nature of these circumstances, uncertainty remains related to how the pandemic may affect our business, results of operations, and overall financial performance.

Revenue Recognition

We recognize revenue when or as performance obligations are satisfied, which occurs when control is transferred to the customer.

We determine the transaction price of our contracts based on the amount of consideration to which we expect to be entitled to receive in exchange for the goods or services provided. Our contracts within the scope of revenue guidance do not contain payment terms that include a significant financing component.

Sales returns and allowances are not a business practice in the industry.

Our sale of gas contracts are either accounted for over time during the period in which we deliver or make available the agreed upon quantity of goods or at a point in time when the customer receives and obtains control of the product, which generally occurs upon delivery. We generally recognize revenue from our sale of gas contracts based on the right to invoice practical expedient.

Our sale of equipment contracts are generally comprised of a single performance obligation as the individual promised goods or services contained within the contracts are integrated with or dependent upon other goods or services in the contract for a single output to the customer. Revenue from our sale of equipment contracts is generally recognized over time as we have an enforceable right to payment for performance completed to date and our performance under the contract terms does not create an asset with alternative use. We recognize these contracts using a cost incurred input method by which costs incurred to date relative to total estimated costs at completion are used to measure progress toward satisfying performance obligations.

Amounts billed for shipping and handling fees are classified as sales in the consolidated income statements. Shipping and handling activities for our sale of equipment contracts may be performed after the customer obtains control of the promised goods. In these cases, we have elected to apply the practical expedient to account for shipping and handling as activities to fulfill the promise to transfer the goods. For our sale of gas contracts, control generally transfers to the customer upon delivery.

Amounts billed for sales and use taxes, value-added taxes, and certain excise and other specific transactional taxes imposed on revenue-producing transactions are presented on a net basis and excluded from sales in the consolidated income statements.

For additional information, refer to Note 4, *Revenue Recognition*.

Cost of Sales

Cost of sales predominantly represents the cost of tangible products sold. These costs include labor, raw materials, plant engineering, power, depreciation, production supplies and materials packaging costs, and maintenance costs. Costs incurred for shipping and handling are also included in cost of sales.

Depreciation

Depreciation is recorded using the straight-line method, which deducts equal amounts of the cost of each asset from earnings every year over its expected economic useful life. The principal lives for major classes of plant and equipment are summarized in Note 8, *Plant and Equipment, net*.

Selling and Administrative

The principal components of selling and administrative expenses are compensation, advertising, and promotional costs.

Postemployment Benefits

We provide termination benefits to employees as part of ongoing benefit arrangements and record a liability for termination benefits when probable and estimable. These criteria are met when management, with the appropriate level of authority, approves and commits to its plan of action for termination; the plan identifies the employees to be terminated and their related benefits; and the plan is to be completed within one year. We do not provide material one-time benefit arrangements.

Fair Value Measurements

We are required to measure certain assets and liabilities at fair value, either upon initial measurement or for subsequent accounting or reporting. For example, fair value is used in the initial measurement of assets and liabilities acquired in a business combination; on a recurring basis in the measurement of derivative financial instruments; and on a nonrecurring basis when long-lived assets are written down to fair value when held for sale or determined to be impaired. Refer to Note 13, *Fair Value Measurements*, and Note 15, *Retirement Benefits*, for information on the methods and assumptions used in our fair value measurements.

Financial Instruments

We address certain financial exposures through a controlled program of risk management that includes the use of derivative financial instruments. The types of derivative financial instruments permitted for such risk management programs are specified in policies set by management. Refer to Note 12, *Financial Instruments*, for further detail on the types and use of derivative instruments into which we enter.

Major financial institutions are counterparties to all of these derivative contracts. We have established counterparty credit guidelines and generally enter into transactions with financial institutions of investment grade or better. Management believes the risk of incurring losses related to credit risk is remote, and any losses would be immaterial to the consolidated financial results, financial condition, or liquidity.

We recognize derivatives on the balance sheet at fair value. On the date the derivative instrument is entered into, we generally designate the derivative as either (1) a hedge of a forecasted transaction or of the variability of cash flows to be received or paid related to a recognized asset or liability (cash flow hedge), (2) a hedge of a net investment in a foreign operation (net investment hedge), or (3) a hedge of the fair value of a recognized asset or liability (fair value hedge).

The following details the accounting treatment of our cash flow, fair value, net investment, and non-designated hedges:

- Changes in the fair value of a derivative that is designated as and meets the cash flow hedge criteria are recorded in accumulated other comprehensive loss ("AOCL") to the extent effective and then recognized in earnings when the hedged items affect earnings.
- Changes in the fair value of a derivative that is designated as and meets all the required criteria for a fair value hedge, along with the gain or loss on the hedged asset or liability that is attributable to the hedged risk, are recorded in current period earnings.
- Changes in the fair value of a derivative and foreign currency debt that are designated as and meet all the required criteria for a hedge of a net investment are recorded as translation adjustments in AOCL.
- Changes in the fair value of a derivative that is not designated as a hedge are recorded immediately in earnings.

We formally document the relationships between hedging instruments and hedged items, as well as our risk management objective and strategy for undertaking various hedge transactions. This process includes relating derivatives that are designated as fair value or cash flow hedges to specific assets and liabilities on the balance sheet or to specific firm commitments or forecasted transactions. We also formally assess, at the inception of the hedge and on an ongoing basis, whether derivatives are highly effective in offsetting changes in fair values or cash flows of the hedged item. If it is determined that a derivative is not highly effective as a hedge, or if a derivative ceases to be a highly effective hedge, we will discontinue hedge accounting with respect to that derivative prospectively.

Foreign Currency

Since we do business in many foreign countries, fluctuations in currency exchange rates affect our financial position and results of operations.

In most of our foreign operations, the local currency is considered the functional currency. Foreign subsidiaries translate their assets and liabilities into U.S. dollars at current exchange rates in effect as of the balance sheet date. The gains or losses that result from this process are shown as translation adjustments in AOCL in the equity section of the balance sheet.

The revenue and expense accounts of foreign subsidiaries are translated into U.S. dollars at the average exchange rates that prevail during the period. Therefore, the U.S. dollar value of these items on the consolidated income statements fluctuates from period to period, depending on the value of the U.S. dollar against foreign currencies. Some transactions are made in currencies different from an entity's functional currency. Gains and losses from these foreign currency transactions, and the impact of related hedges, are generally reflected in "Other income (expense), net" on our consolidated income statements as they occur and were not material for the periods presented.

Foreign exchange gains and losses from the foreign currency remeasurement of balances associated with intercompany and third-party financing transactions, related income tax assets and liabilities, and the impact of related hedges are reflected within "Other non-operating income (expense), net" and were not material for the periods presented.

In addition, foreign currency forward points and currency swap basis differences that are excluded from the assessment of hedge effectiveness of our cash flow hedges of intercompany loans ("excluded components") are recorded within "Other non-operating income (expense), net" on a straight-line basis. Excluded components were expenses of $31.0, $33.5, and $33.3 in fiscal years 2021, 2020, and 2019, respectively. In 2019, excluded components were recorded in "Interest expense" and were not restated upon adoption of accounting guidance in fiscal year 2020 on hedging activities.

Environmental Expenditures

Accruals for environmental loss contingencies are recorded when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Remediation costs are capitalized if the costs improve our property as compared with the condition of the property when originally constructed or acquired, or if the costs prevent environmental contamination from future operations. We expense environmental costs related to existing conditions resulting from past or current operations and from which no current or future benefit is discernible. The amounts charged to income from continuing operations related to environmental matters totaled $18.6, $18.3, and $14.2 in fiscal years 2021, 2020, and 2019, respectively. In addition, we recorded a pre-tax expense of $19.0 in results from discontinued operations to increase our environmental accrual for the Pace facility in the second quarter of fiscal year 2020. Refer to the Pace discussion within Note 16, *Commitments and Contingencies*, for additional information.

The measurement of environmental liabilities is based on an evaluation of currently available information with respect to each individual site and considers factors such as existing technology, presently enacted laws and regulations, and prior experience in remediation of contaminated sites. An environmental liability related to cleanup of a contaminated site might include, for example, a provision for one or more of the following types of costs: site investigation and testing costs, remediation costs, post-remediation monitoring costs, natural resource damages, and outside legal fees. These liabilities include costs related to other potentially responsible parties to the extent that we have reason to believe such parties will not fully pay their proportionate share. They do not consider any claims for recoveries from insurance or other parties and are not discounted.

As assessments and remediation progress at individual sites, the amount of projected cost is reviewed and the liability is adjusted to reflect additional technical and legal information that becomes available. Management has an established process in place to identify and monitor our environmental exposures. An environmental accrual analysis is prepared and maintained that lists all environmental loss contingencies, even where an accrual has not been established. This analysis assists in monitoring our overall environmental exposure and serves as a tool to facilitate ongoing communication among our technical experts, environmental managers, environmental lawyers, and financial management to ensure that required accruals are recorded and potential exposures disclosed.

Given inherent uncertainties in evaluating environmental exposures, actual costs to be incurred at identified sites in future periods may vary from the estimates. Refer to Note 16, *Commitments and Contingencies*, for additional information on our environmental loss contingencies.

The accruals for environmental liabilities are reflected in the consolidated balance sheets, primarily as part of other noncurrent liabilities.

Litigation

In the normal course of business, we are involved in legal proceedings. We accrue a liability for such matters when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. When only a range of possible loss can be established, the most probable amount in the range is accrued. If no amount within this range is a better estimate than any other amount within the range, the minimum amount in the range is accrued. The accrual for a litigation loss contingency includes estimates of potential damages and other directly related costs expected to be incurred. Refer to Note 16, *Commitments and Contingencies*, for additional information on our current legal proceedings.

Share-Based Compensation

We expense the grant-date fair value of our share-based awards over the vesting period during which employees perform related services. Expense recognition is accelerated for retirement-eligible individuals who would meet the requirements for vesting of awards upon their retirement. Refer to Note 18, *Share-Based Compensation*, for additional information regarding these awards and the models and assumptions used to determine the grant-date fair value of our awards.

Income Taxes

We account for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the tax effects of temporary differences between the financial reporting and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to be recovered or settled. A principal temporary difference results from the excess of tax depreciation over book depreciation because accelerated methods of depreciation and shorter useful lives are used for income tax purposes. The cumulative impact of a change in tax rates or regulations is included in income tax expense in the period that includes the enactment date. We recognize deferred tax assets net of existing valuation allowances to the extent we believe that these assets are more likely than not to be realized considering all available evidence.

A tax benefit for an uncertain tax position is recognized when it is more likely than not that the position will be sustained upon examination based on its technical merits. This position is measured as the largest amount of tax benefit that is greater than 50% likely of being realized. Interest and penalties related to unrecognized tax benefits are recognized as a component of income tax expense. For additional information regarding our income taxes, refer to Note 21, *Income Taxes*.

Other Non-Operating Income (Expense), net

Other non-operating income (expense), net includes interest income associated with our cash and cash items and short-term investments, certain foreign currency remeasurements and impacts from the related hedging activities discussed in the *Foreign Currency* section above, and non-service cost components of net periodic pension and postretirement benefit cost. Our non-service costs primarily include interest cost, expected return on plan assets, amortization of actuarial gains and losses, and settlements.

Cash and Cash Items

Cash and cash items include cash, time deposits, and treasury securities acquired with an original maturity of three months or less.

Short-term Investments

Short-term investments include time deposits and treasury securities with original maturities greater than three months and less than one year.

Credit Losses

We are exposed to credit losses through sales of products and services. When extending credit, we evaluate customer creditworthiness based on a combination of qualitative and quantitative factors that include, but are not limited to, the customer's credit score from external providers, financial condition, and past payment experience.

We assess allowances for credit losses on our trade receivables and lease receivable portfolios. Allowances are evaluated by portfolio on a collective basis where similar characteristics exist. A provision for customer defaults is made on a general formula basis as the risk of some default is expected but cannot yet be associated with specific customers. The assessment of the likelihood of default is based on various factors, including the length of time the receivables are past due, historical experience, existing economic conditions, and forward-looking information. When we identify specific customers with known collectability issues, the assessment for credit losses is performed on an individual basis, considering current and forward-looking information of the customer.

The use of forward-looking information considers economic conditions that may affect the customers' ability to pay. Although we historically have not experienced significant credit losses, our exposure to credit losses may increase if our customers are adversely affected by economic pressures or uncertainty associated with local or global economic recessions, disruption associated with the ongoing COVID-19 pandemic, or other customer-specific factors. We review our reserves for credit losses on a quarterly basis.

Trade receivables comprise amounts owed to us through our operating activities and are presented net of allowances for credit losses. Changes to the carrying amount of the allowance for credit losses on trade receivables are summarized below:

Balance at 30 September 2018	$26.4
Provision for credit losses	7.7
Write-offs charged against the allowance	(6.8)
Currency translation and other	(2.5)
Balance at 30 September 2019	$24.8
Provision for credit losses	7.7
Write-offs charged against the allowance	(8.3)
Currency translation and other	(0.3)
Balance at 30 September 2020	$23.9
Adoption of new credit losses standard	0.5
Provision for credit losses	2.7
Write-offs charged against the allowance	(3.8)
Currency translation and other	1.8
Balance at 30 September 2021	**$25.1**

In addition, our lease receivables are presented net of allowances for credit losses. As of 30 September 2021 and 2020, the credit quality of lease receivables did not require a material allowance for credit losses. For additional information on our lease arrangements, refer to Note 11, *Leases*.

Inventories

We carry inventory that is comprised of finished goods, work-in-process, raw materials and supplies. Refer to Note 6, *Inventories*, for further detail.

Inventories on our consolidated balance sheets are stated at the lower of cost or net realizable value. We determine the cost of all our inventories on a first-in, first-out basis ("FIFO"). We write down our inventories for estimated obsolescence or unmarketable inventory based upon assumptions about future demand and market conditions.

Equity Method Investments

The equity method of accounting is used when we exercise significant influence but do not have operating control, generally assumed to be 20% – 50% ownership. Under the equity method, original investments are recorded at cost and adjusted by our share of undistributed earnings or losses of these companies. We use the cumulative earnings approach for determining cash flow presentation of cash distributions received from equity method investees. Equity investments are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the investment may not be recoverable.

Plant and Equipment, net

Plant and equipment, net is stated at cost less accumulated depreciation. Construction costs, labor, and applicable overhead related to installations are capitalized. Expenditures for additions and improvements that extend the lives or increase the capacity of plant assets are capitalized. The costs of maintenance and repairs of plant and equipment are charged to expense as incurred.

Fully depreciated assets are retained in the gross plant and equipment and accumulated depreciation accounts until they are removed from service. In the case of disposals, assets and related depreciation are removed from the accounts, and the net amounts, less proceeds from disposal, are included in income. Refer to Note 8, *Plant and Equipment, net*, for further detail.

Computer Software

We capitalize costs incurred to purchase or develop software for internal use. Capitalized costs include purchased computer software packages, payments to vendors/consultants for development and implementation or modification to a purchased package to meet our requirements, payroll and related costs for employees directly involved in development, and interest incurred while software is being developed. Capitalized costs are reflected in "Plant and equipment, net" on the consolidated balance sheets and are depreciated over the estimated useful life of the software, generally a period of three to five years.

We capitalize costs incurred with the implementation of a cloud computing arrangement that is a service contract, consistent with our policy for software developed or obtained for internal use. However, the capitalized costs are reflected in "Other noncurrent assets" on our consolidated balance sheets and expensed over the term of the related hosting arrangement.

Capitalized Interest

As we build new plant and equipment, we include in the cost of these assets a portion of the interest payments we make during the year. The amount of capitalized interest was $28.3, $15.9, and $13.5 in fiscal years 2021, 2020, and 2019, respectively.

Leases

As lessee, we recognize a right-of-use ("ROU") asset and lease liability on the balance sheet for all leases with a term in excess of 12 months. We determine if an arrangement contains a lease at inception. The arrangement contains a lease when there is an identifiable asset, we obtain substantially all of the economic benefits from that asset, and we direct how and for what purpose the asset is used during the term of the arrangement. If the initial term of an arrangement is 12 months or less, we have made an accounting election to not assess if these arrangements contain a lease for inclusion on our balance sheet.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. ROU assets and lease liabilities are recognized at the commencement date based on the present value of lease payments over the lease term. Since our leases generally do not provide an implicit discount rate, we use our incremental borrowing rates based on the information available at the commencement date in determining the present value of lease payments. To determine the incremental borrowing rate, we consider our unsecured borrowings and published market rates, and then adjust those rates to assume full collateralization and to factor in the individual lease term, geography, and payment structure.

Our lease term includes periods covered by options to extend or terminate the lease when it is reasonably certain that we will exercise an option to extend or not exercise an option to terminate. Lease payments consider our practical expedient to combine amounts for lease and related non-lease components for all classes of underlying assets in which we are lessee. Fixed payments and payments associated with escalation clauses based on an index are included in the ROU asset and lease liability at commencement. Variable lease payments are excluded from the ROU assets and lease liabilities and are recognized in the period in which the obligation for those payments is incurred. Our variable lease payments primarily include the impact from escalation clauses that are not fixed or based on an index. Prepaid lease payments are included in the recognition of ROU assets. Our lease agreements do not contain any material lease incentives, residual value guarantees or restrictions or covenants.

Impairment of Long-Lived Assets

Long-lived assets are grouped for impairment testing at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other assets and liabilities and are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. We assess recoverability by comparing the carrying amount of the asset group to estimated undiscounted future cash flows expected to be generated by the asset group. If an asset group is considered impaired, the impairment loss to be recognized is measured as the amount by which the asset group's carrying amount exceeds its fair value. Long-lived assets meeting the held for sale criteria are reported at the lower of carrying amount or fair value less cost to sell.

Asset Retirement Obligations

The fair value of a liability for an asset retirement obligation is recognized in the period in which it is incurred. The fair value of the liability is measured using discounted estimated cash flows and is adjusted to its present value in subsequent periods as accretion expense is recorded. The corresponding asset retirement costs are capitalized as part of the carrying amount of the related long-lived asset and depreciated over the asset's useful life. Our asset retirement obligations are primarily associated with on-site long-term supply contracts under which we have built a facility on land owned by the customer and are obligated to remove the facility at the end of the contract term. Our asset retirement obligations totaled $269.6 and $241.4 at 30 September 2021 and 2020, respectively. Refer to Note 16, *Commitments and Contingencies*, for further detail.

Goodwill

Business combinations are accounted for using the acquisition method. The purchase price is allocated to the assets acquired and liabilities assumed based on their estimated fair values. Any excess purchase price (plus the fair value of any noncontrolling interest and previously held equity interest in the acquiree) over the fair market value of the net assets acquired, including identified intangibles, is recorded as goodwill. Preliminary purchase price allocations are made at the date of acquisition and finalized when information about facts and circumstances that existed as of the acquisition date needed to finalize underlying estimates is obtained or when we determine that such information is not obtainable, within a maximum measurement period of one year.

Goodwill is subject to impairment testing at least annually. In addition, goodwill is tested more frequently if a change in circumstances or the occurrence of events indicates that potential impairment exists. Refer to Note 9, *Goodwill*, for further detail.

Intangible Assets

Intangible assets with determinable lives primarily consist of customer relationships, purchased patents and technology, and certain land use rights. The cost of intangible assets with determinable lives is amortized on a straight-line basis over the estimated period of economic benefit. No residual value is estimated for these intangible assets. Indefinite-lived intangible assets consist of trade names and trademarks. Indefinite-lived intangibles are subject to impairment testing at least annually. In addition, intangible assets are tested more frequently if a change in circumstances or the occurrence of events indicates that potential impairment exists.

Customer relationships are generally amortized over periods of five to twenty-five years. Purchased patents and technology and other finite-lived intangibles are generally amortized over periods of five to fifteen years. Other intangibles includes certain land use rights, which are generally amortized over a period of fifty years. Amortizable lives are adjusted whenever there is a change in the estimated period of economic benefit. Refer to Note 10, *Intangible Assets*, for further detail.

Retirement Benefits

Our retirement benefit plans are discussed in Note 15, *Retirement Benefits*. The cost of benefits we contribute to defined contribution plans is recognized in the year earned. The cost of benefits under our defined benefit and other post-retirement plans is generally recognized over the employees' service period. We use actuarial methods and assumptions in the valuation of defined benefit obligations and the determination of expense. Differences between actual and expected results or changes in the value of obligations and plan assets are recognized systematically over subsequent periods.

2. NEW ACCOUNTING GUIDANCE

Accounting Guidance Implemented in Fiscal Year 2021

Credit Losses on Financial Instruments

In June 2016, the FASB issued guidance on the measurement of credit losses, which requires measurement and recognition of expected credit losses for financial assets, including trade receivables and lease receivables, held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. The method to determine a loss is different from the previous guidance, which delayed recognition of a credit loss until it was probable that a loss had been incurred. We adopted this guidance on 1 October 2020 using a modified retrospective approach with an after-tax cumulative-effect adjustment of $1.3 to retained earnings. Refer to the "Major Accounting Polices – Credit Losses" section of Note 1, *Major Accounting Policies*, for a description of our accounting policy on credit losses.

Cloud Computing Implementation Costs

In August 2018, the FASB issued guidance which aligns the capitalization requirements for implementation costs incurred in a hosting arrangement that is a service contract with the existing capitalization requirements for implementation costs incurred to develop or obtain internal-use software. We adopted this guidance prospectively at the beginning of fiscal year 2021. Eligible implementation costs previously capitalized in "Plant and equipment, net" were reclassified to "Other noncurrent assets" on our consolidated balance sheets beginning in fiscal year 2021. This guidance did not have a material impact on our consolidated financial statements upon adoption.

Simplifying the Accounting for Income Taxes

In December 2019, the FASB issued an update to simplify the accounting for income taxes and improve consistent application by clarifying or amending existing guidance. We adopted this guidance at the beginning of fiscal year 2021. This guidance did not have a material impact on our consolidated financial statements upon adoption.

New Accounting Guidance to be Implemented

Reference Rate Reform

In March 2020, the FASB issued an update to provide practical expedients and exceptions for applying GAAP to contracts, hedging relationships and other transactions affected by reference rate reform if certain criteria are met. This update is primarily applicable to our contracts and hedging relationships that reference LIBOR. The amendments may be applied to impacted contracts and hedges prospectively through 31 December 2022. We had no impacts on our hedging relationships related to reference rate reform in fiscal year 2021. We will continue to evaluate the impact this guidance could have on our consolidated financial statements.

3. ACQUISITIONS

Fiscal Year 2021

Gain on Exchange With Joint Venture Partner

As of 30 September 2020, we held a 50% ownership interest in Tyczka Industrie-Gases GmbH ("TIG"), a joint venture in Germany with the Tyczka Group that is primarily a merchant gases business. We accounted for this arrangement as an equity method investment in our Industrial Gases – EMEA segment.

Effective 23 February 2021 (the "acquisition date"), we agreed with our joint venture partner to separate TIG into two separate businesses. On the acquisition date, we acquired a portion of the business on a 100% basis, and our partner paid us $10.8 to acquire the rest of the business. The exchange resulted in a gain of $36.8 ($27.3 after-tax), which is reflected as "Gain on exchange with joint venture partner" on our consolidated income statements for the fiscal year ended 30 September 2021. The gain included $12.7 from the revaluation of our previously held equity interest in the portion of the business that we retained and $24.1 from the sale of our equity interest in the remaining business. The gain was not recorded in segment results.

We estimated an acquisition date fair value of $15.4 for our previously held equity interest in the acquired portion of the business using a market approach, which considered historical earnings and the application of a market-based multiple derived from comparable transactions.

We accounted for the acquisition as a business combination within our Industrial Gases – EMEA segment. As a result of the acquisition, we recognized intangible assets of $16.7 for customer relationships, goodwill of $14.5, and plant and equipment of $10.3. The customer relationships have a weighted-average useful life of approximately 15 years.

The acquired assets were recorded at their estimated fair values based primarily on a preliminary purchase price allocation. We may record adjustments to these assets during the preliminary purchase price allocation period, which could be up to one year from the acquisition date.

We expect the acquisition to allow us to have more control over the business we retained and to serve customers more effectively. The results of this business did not materially impact our consolidated income statements for the periods presented.

Fiscal Year 2020

Asset Acquisition

On 17 April 2020, we acquired five operating hydrogen production plants from PBF Energy Inc. ("PBF") and commenced contractual long-term supply of hydrogen from those plants to PBF's refineries. We accounted for the transaction as an asset acquisition and recorded the aggregate purchase price of $580 to plant and equipment on our consolidated balance sheets.

Business Combinations

We completed three acquisitions on 1 July 2020 that were accounted for as business combinations. These acquisitions had an aggregate purchase price, net of cash acquired, of $185.4. The largest of these acquisitions was the purchase of Oxygen & Argon Works Ltd., the leading manufacturer and marketer of industrial gases in Israel, primarily offering merchant gas products. The results of this business are consolidated within our Industrial Gases – EMEA segment.

Fiscal Year 2019

As further discussed below, we completed three business combinations in fiscal year 2019.

Exchange of Equity Affiliate Investments

We previously held 50% ownership interests in High-Tech Gases (Beijing) Co., Ltd. ("High-Tech Gases") and WuXi Hi-Tech Gas Co., Ltd. ("WuXi"), both of which were joint ventures with another industrial gas company in China. We accounted for these arrangements as equity method investments in our Industrial Gases – Asia segment through 30 April 2019.

On 1 May 2019, we acquired our partner's 50% interest in WuXi in exchange for our 50% interest in High-Tech Gases. The exchange resulted in a net gain of $29.1, of which $15.0 resulted from the revaluation of our previously held equity interest in WuXi to its acquisition date fair value and $14.1 resulted from the disposition of our interest in High-Tech Gases. The net gain is reflected as "Gain on exchange with joint venture partner" on our consolidated income statements in fiscal year 2019 and was not recorded in results of the Industrial Gases – Asia segment.

We revalued our previously held 50% equity interest in WuXi based on an estimated acquisition date fair value of $27.0. We calculated this fair value using a discounted cash flow analysis under the income approach, which required estimates and assumptions regarding projected revenue growth, customer attrition rates, profit margin, and discount rate.

The acquisition of the remaining interest in WuXi was accounted for as a business combination. The results of this business are consolidated within our Industrial Gases – Asia segment.

Other Fiscal Year 2019 Business Combinations

The remaining business combinations completed in fiscal year 2019 had total consideration, net of cash acquired, of $126.6. The largest of these business combinations was the acquisition of ACP Europe SA ("ACP"), the largest independent carbon dioxide business in Continental Europe. The results of this business are consolidated within our Industrial Gases – EMEA segment.

4. REVENUE RECOGNITION

Nature of Goods and Services

The principal activities from which we generate sales from our contracts with customers, separated between our regional industrial gases businesses and industrial gases equipment businesses, are described below with their respective revenue recognition policies. For an overall summary of these policies and discussion on payment terms and presentation, refer to Note 1, *Major Accounting Policies*.

Industrial Gases – Regional

Our regional industrial gases businesses produce and sell atmospheric gases such as oxygen, nitrogen, and argon (primarily recovered by the cryogenic distillation of air) and process gases such as hydrogen, helium, carbon dioxide, carbon monoxide, syngas, and specialty gases. We distribute gases to our sale of gas customers through different supply modes depending on various factors including the customer's volume requirements and location. Our supply modes are as follows:

- *On-site Gases*—Supply mode associated with customers who require large volumes of gases and have relatively constant demand. Gases are produced and supplied by large facilities on or near the customers' facilities or by pipeline systems from centrally located production facilities. These sale of gas contracts generally have 15- to 20- year terms. We also deliver smaller quantities of product through small on-site plants (cryogenic or non-cryogenic generators), typically via 10- to 15- year sale of gas contracts. The contracts within this supply mode generally contain fixed monthly charges and/or minimum purchase requirements with price escalation provisions that are generally based on external indices. Revenue associated with this supply mode is generally recognized over time during the period in which we deliver or make available the agreed upon quantity of goods.
- *Merchant Gases*—Supply mode associated with liquid bulk and packaged gases customers. Liquid bulk customers receive delivery of product in liquid or gaseous form by tanker or tube trailer. The product is stored, usually in its liquid state, in equipment we typically design and install at the customer's site for vaporizing into a gaseous state as needed. Packaged gases customers receive small quantities of product delivered in either cylinders or dewars. Both liquid bulk and packaged gases sales do not contain minimum purchase requirements as they are governed by contracts and/or purchase orders based on the customer's requirements. These contracts contain stated terms that are generally 5 years or less. Performance obligations associated with this supply mode are satisfied at a point in time when the customer receives and obtains control of the product, which generally occurs upon delivery.

The timing of revenue recognition for our regional industrial gases businesses is generally consistent with our right to invoice the customer. Variable components of consideration that may not be resolved within the month, such as the ability to earn an annual bonus or incur a penalty, are more relevant to on-site contracts and are considered constrained as they can be impacted by a single significant event such as a plant outage, which could occur at the end of a contract period. We consider contract modifications on an individual basis to determine appropriate accounting treatment. However, contract modifications are generally accounted for prospectively as they relate to distinct goods or services associated with future periods of performance.

We mitigate energy and natural gas price risk contractually through pricing formulas, surcharges, and cost pass-through arrangements.

Industrial Gases – Equipment

We design and manufacture equipment for air separation, hydrocarbon recovery and purification, natural gas liquefaction, and liquid helium and liquid hydrogen transport and storage. The Industrial Gases – Global and the Corporate and other segments serve our sale of equipment customers.

Our sale of equipment contracts are generally comprised of a single performance obligation as the individual promised goods or services contained within the contracts are integrated with or dependent upon other goods or services in the contract for a single output to the customer.

Revenue from our sale of equipment contracts is generally recognized over time as we have an enforceable right to payment for performance completed to date and our performance under the contract terms does not create an asset with alternative use. Otherwise, sale of equipment contracts are satisfied at the point in time the customer obtains control of the equipment, which is generally determined based on the shipping terms of the contract. For contracts recognized over time, we primarily recognize revenue using a cost incurred input method by which costs incurred to date relative to total estimated costs at completion are used to measure progress toward satisfying performance obligations. Costs incurred include material, labor, and overhead costs and represent work contributing and proportionate to the transfer of control to the customer.

Since our contracts are generally comprised of a single performance obligation, contract modifications are typically accounted for as part of the existing contract and are recognized as a cumulative adjustment for the inception-to-date effect of such change. In addition, changes in estimates on projects accounted for under the cost incurred input method are recognized as a cumulative adjustment for the inception-to-date effect of such change. Changes in estimates unfavorably impacted operating income by approximately $19 in fiscal year 2021. Changes in estimates favorably impacted operating income by approximately $7 and $37 in fiscal years 2020 and 2019, respectively. Our changes in estimates would not have significantly impacted amounts recorded in prior years.

Disaggregation of Revenue

The table below presents our consolidated sales disaggregated by supply mode for each of our reporting segments. We believe this presentation best depicts the nature, timing, type of customer, and contract terms for our sales.

	Industrial Gases–Americas	Industrial Gases–EMEA	Industrial Gases–Asia	Industrial Gases–Global	Corporate and other	Total	%
2021							
On-site	$2,469.5	$873.1	$1,718.8	$—	$—	$5,061.4	49%
Merchant	1,698.1	1,571.8	1,202.0	—	—	4,471.9	43%
Sale of Equipment	—	—	—	511.0	278.7	789.7	8%
Total	**$4,167.6**	**$2,444.9**	**$2,920.8**	**$511.0**	**$278.7**	**$10,323.0**	**100%**
2020							
On-site	$2,040.2	$629.3	$1,652.8	$—	$—	$4,322.3	49%
Merchant	1,590.5	1,297.0	1,063.7	—	—	3,951.2	45%
Sale of Equipment	—	—	—	364.9	217.9	582.8	6%
Total	**$3,630.7**	**$1,926.3**	**$2,716.5**	**$364.9**	**$217.9**	**$8,856.3**	**100%**
2019							
On-site	$2,230.6	$728.4	$1,622.6	$—	$—	$4,581.6	52%
Merchant	1,642.9	1,274.1	1,041.0	—	—	3,958.0	44%
Sale of Equipment	—	—	—	261.0	118.3	379.3	4%
Total	**$3,873.5**	**$2,002.5**	**$2,663.6**	**$261.0**	**$118.3**	**$8,918.9**	**100%**

Remaining Performance Obligations

As of 30 September 2021, the transaction price allocated to remaining performance obligations is estimated to be approximately $24 billion. This amount includes fixed-charge contract provisions associated with our on-site and sale of equipment supply modes. We estimate that approximately half of this revenue will be recognized over approximately the next five years and the balance thereafter.

Expected revenue associated with new on-site plants that are not yet on stream is excluded from this amount. In addition, this amount excludes consideration associated with contracts having an expected duration of less than one year, and variable consideration for which we recognize revenue at the amount to which we have the right to invoice, including pass-through costs related to energy and natural gas.

In the future, actual amounts will differ due to events outside of our control, including, but not limited to, inflationary price escalations; currency exchange rates; and amended, terminated, or renewed contracts.

Contract Balances

The table below details balances arising from contracts with customers:

30 September	Balance Sheet Location	2021	2020
Assets			
Contract assets – current	Other receivables and current assets	**$119.4**	$55.9
Contract fulfillment costs – current	Other receivables and current assets	**125.5**	109.9
Liabilities			
Contract liabilities – current	Payables and accrued liabilities	**366.8**	313.8
Contract liabilities – noncurrent	Other noncurrent liabilities	**58.4**	57.9

Contract assets and liabilities result from differences in timing of revenue recognition and customer invoicing. These balances are reported on the consolidated balance sheets on a contract-by-contract basis at the end of each reporting period.

Contract assets primarily relate to our sale of equipment contracts for which revenue is recognized over time. These balances represent unbilled revenue, which occurs when revenue recognized under the measure of progress exceeds the amount invoiced to our customers. Our ability to invoice the customer for contract asset balances is not only based on the passage of time, but also the achievement of certain contractual milestones.

Contract fulfillment costs primarily include deferred costs related to sale of equipment projects that cannot be inventoried and for which we expect to recognize revenue upon transfer of control at project completion or costs related to fulfilling a specific anticipated contract.

Costs to obtain a contract, or contract acquisition costs, are capitalized only after we have established a contract with the customer. We elected to apply the practical expedient to expense these costs as they are incurred if the amortization period of the asset that would have otherwise been recognized is one year or less. Our contract acquisition costs capitalized as of 30 September 2021 and 2020 were not material.

Contract liabilities include advance payments or right to consideration prior to performance under the contract. Contract liabilities are recognized as revenue when or as we perform under the contract. The increase in our contract liabilities – current balance primarily relates to new sale of equipment projects as balances associated with our sale of gas contracts are generally related to fixed charges and are relatively consistent period over period. During the fiscal year ended 30 September 2021, we recognized approximately $240 in revenue associated with sale of equipment contracts that was included within our contract liabilities as of 30 September 2020. Advanced payments from our customers do not represent a significant financing component as these payments are intended for purposes other than financing, such as to meet working capital demands or to protect us from our customer failing to meet its obligations under the terms of the contract.

Changes in contract asset and liability balances during the fiscal year ended 30 September 2021 were not materially impacted by any other factors.

5. DISCONTINUED OPERATIONS

In fiscal year 2021, income from discontinued operations, net of tax, was $70.3. This included net tax benefits of $60.0 recorded upon release of tax liabilities related to uncertain tax positions for which the statute of limitations expired. Of this benefit, we recorded $51.8 in the fourth quarter for liabilities associated with our former Performance Materials Division ("PMD") and $8.2 in the third quarter for liabilities associated with our former Energy-from-Waste ("EfW") business. Additionally, we recorded a tax benefit of $10.3 in the first quarter of fiscal year 2021 primarily from the settlement of a state tax appeal related to the gain on the sale of PMD in fiscal year 2017. Our consolidated statement of cash flows for the fiscal year ended 30 September 2021 includes $6.7 received as part of the settlement.

In fiscal year 2020, loss from discontinued operations, net of tax, was $14.3. This resulted from a pre-tax loss of $19.0 recorded in the second quarter to increase our existing liability for retained environmental obligations associated with the sale of our former Amines business in September 2006. Refer to the Pace discussion within Note 16, *Commitments and Contingencies*, for additional information. The loss did not have an impact on our cash flows for the fiscal year ended 30 September 2020.

6. INVENTORIES

The components of inventories are as follows:

30 September	**2021**	2020
Finished goods	**$150.7**	$134.5
Work in process	**24.0**	21.3
Raw materials, supplies and other	**279.2**	249.0
Inventories	**$453.9**	$404.8

7. SUMMARIZED FINANCIAL INFORMATION OF EQUITY AFFILIATES

The summarized financial information below is on a combined 100% basis and has been compiled based on financial statements of the companies accounted for by the equity method. The amounts presented include the accounts of the following equity affiliates:

Abdullah Hashim Industrial Gases & Equipment Co., Ltd. (25%);
Air Products South Africa (Proprietary) Limited (50%);
Bangkok Cogeneration Company Limited (49%);
Bangkok Industrial Gases Co., Ltd. (49%);
Chengdu Air & Gas Products Ltd. (50%);
Helios S.p.A. (49%);
INFRA Group (40%);
INOX Air Products Private Limited (50%);
Jazan Gas Projects Company (26%);
Kulim Industrial Gases Sdn. Bhd. (50%);
Sapio Produzione Idrogeno Ossigeno S.r.l. (49%);
and principally, other industrial gas producers.

30 September	**2021**	2020
Current assets	**$2,244.6**	$1,943.5
Noncurrent assets	**4,630.7**	4,529.2
Current liabilities	**774.0**	765.3
Noncurrent liabilities	**2,852.5**	2,958.8

Fiscal Year Ended 30 September	**2021**	2020	2019
Net sales	**$3,338.1**	$2,809.1	$2,885.6
Gross profit	**1,492.9**	1,212.5	1,193.4
Operating income	**962.2**	748.6	763.4
Net income	**646.0**	567.8	492.4

Dividends received from equity affiliates were $157.3, $107.0, and $144.3 in fiscal years 2021, 2020, and 2019, respectively.

The investment in net assets of and advances to equity affiliates as of 30 September 2021 and 2020 included investment in foreign affiliates of $1,648.0 and $1,431.3, respectively.

As of 30 September 2021 and 2020, the amount of investment in companies accounted for by the equity method included equity method goodwill of $55.3 and $50.0, respectively.

India Finance Act 2020

Our consolidated income statements in fiscal year 2020 include a benefit of $33.8 reflected in equity affiliates' income for our share of accumulated dividend distribution taxes released with respect to INOX Air Products Private Limited, an equity affiliate investment in our Industrial Gases – Asia segment. This benefit, which related to tax legislation passed by the Indian government, was not recorded in segment results. Refer to Note 21, *Income Taxes*, for additional information. The benefit is included in fiscal year 2020 net income in the table above on a 100% basis.

Jazan Gas Project Company

On 19 April 2015, Jazan Gas Project Company, a joint venture between Air Products and ACWA Holding, entered into a 20-year oxygen and nitrogen supply agreement to supply Aramco's oil refinery and power plant being built in Jazan, Saudi Arabia. We own 26% of the joint venture and guarantee repayment of our share of an equity bridge loan. ACWA also guarantees their share of the loan. We determined that the joint venture is a variable interest entity for which we are not the primary beneficiary. As of 30 September 2021, our consolidated balance sheets included $94.4 reflected within "Payables and accrued liabilities" for our obligation to make equity contributions based on our proportionate share of the advances received by the joint venture under the loan.

Subsequent Event

As part of the Jazan Integrated Gasification and Power Company transaction discussed in Note 24, *Subsequent Events*, Jazan Gas Project Company sold its air separation units to Aramco in October 2021 and repaid its outstanding debt, including the equity bridge loan.

8. PLANT AND EQUIPMENT, NET

The major classes of plant and equipment are as follows:

30 September	Useful Life in years	2021	2020
Land		**$312.1**	$296.8
Buildings	30	**1,083.1**	997.8
Production facilities[(A)]	10 to 20	**18,236.9**	17,289.7
Distribution and other machinery and equipment[(B)]	5 to 25	**5,111.6**	4,807.7
Construction in progress		**2,745.1**	1,784.2
Plant and equipment, at cost		**27,488.8**	25,176.2
Less: Accumulated depreciation		**14,234.2**	13,211.5
Plant and equipment, net		**$13,254.6**	$11,964.7

(A) Depreciable lives of production facilities related to long-term customer supply contracts are generally matched to the contract lives.

(B) The depreciable lives for various types of distribution equipment are: 10 to 25 years for cylinders, depending on the nature and properties of the product; 20 years for tanks; generally 7.5 years for customer stations; and 5 to 15 years for tractors and trailers.

Depreciation expense was $1,284.1, $1,150.5, and $1,049.7 in fiscal years 2021, 2020, and 2019, respectively.

9. GOODWILL

Changes to the carrying amount of consolidated goodwill by segment are as follows:

	Industrial Gases–Americas	Industrial Gases–EMEA	Industrial Gases–Asia	Industrial Gases–Global	Corporate and other	Total
Goodwill, net at 30 September 2019	$156.3	$432.3	$178.5	$19.6	$10.4	$797.1
Acquisitions	—	66.6	—	—	4.5	71.1
Currency translation and other	(3.7)	25.2	1.9	(0.1)	—	23.3
Goodwill, net at 30 September 2020	$152.6	$524.1	$180.4	$19.5	$14.9	$891.5
Acquisitions	—	21.0	—	—	—	21.0
Currency translation and other	(1.6)	(3.6)	3.9	0.3	—	(1.0)
Goodwill, net at 30 September 2021	**$151.0**	**$541.5**	**$184.3**	**$19.8**	**$14.9**	**$911.5**

In fiscal year 2021, goodwill acquired is primarily attributable to expected cost synergies and growth opportunities related to a business combination completed in the second quarter. This goodwill is not deductible for tax purposes. Refer to Note 3, *Acquisitions*, for additional information.

30 September	2021	2020	2019
Goodwill, gross	**$1,239.2**	$1,230.2	$1,162.2
Accumulated impairment losses[(A)]	**(327.7)**	(338.7)	(365.1)
Goodwill, net	**$911.5**	$891.5	$797.1

(A) Accumulated impairment losses include the impacts of currency translation. These losses are attributable to our Latin America reporting unit ("LASA") within the Industrial Gases – Americas segment.

We review goodwill for impairment annually in the fourth quarter of the fiscal year and whenever events or changes in circumstances indicate that the carrying value of goodwill might not be recoverable. The impairment test for goodwill involves calculating the fair value of each reporting unit and comparing that value to the carrying value. If the fair value of the reporting unit is less than its carrying value, the difference is recorded as a goodwill impairment charge, not to exceed the total amount of goodwill allocated to that reporting unit. During the fourth quarter of fiscal year 2021, we conducted our annual goodwill impairment test and determined that the fair value of all our reporting units exceeded their carrying value.

10. INTANGIBLE ASSETS

The table below summarizes the major classes of our intangible assets:

	2021			2020		
30 September	**Gross**	**Accumulated Amortization/ Impairment**	**Net**	Gross	Accumulated Amortization/ Impairment	Net
Finite-lived:						
Customer relationships	**$552.0**	**($234.7)**	**$317.3**	$538.0	($209.9)	$328.1
Patents and technology	**36.8**	**(16.9)**	**19.9**	39.1	(16.3)	22.8
Other	**80.5**	**(37.3)**	**43.2**	77.6	(33.7)	43.9
Total finite-lived intangible assets	**669.3**	**(288.9)**	**380.4**	654.7	(259.9)	394.8
Indefinite-lived:						
Trade names and trademarks	**51.2**	**(10.9)**	**40.3**	52.2	(11.2)	41.0
Total Intangible Assets	**$720.5**	**($299.8)**	**$420.7**	$706.9	($271.1)	$435.8

The decrease in net intangible assets in fiscal year 2021 was primarily attributable to amortization, partially offset by intangible assets acquired through business combinations.

Amortization expense for intangible assets was $37.2, $34.5, and $33.1 in fiscal years 2021, 2020, and 2019, respectively. Refer to Note 1, *Major Accounting Policies*, for the amortization periods for each major class of intangible assets.

The table below details the amount of amortization expense expected to be recorded for our finite-lived intangible assets in each of the next five years and thereafter:

2022	$34.7
2023	33.2
2024	32.1
2025	30.8
2026	29.2
Thereafter	220.4
Total	$380.4

Indefinite-lived intangible assets are subject to impairment testing at least annually or more frequently if events or changes in circumstances indicate that potential impairment exists. The impairment test for indefinite-lived intangible assets involves calculating the fair value of the indefinite-lived intangible assets and comparing the fair value to their carrying value. If the fair value is less than the carrying value, the difference is recorded as an impairment loss. During the fourth quarter of fiscal year 2021, we conducted our annual impairment test of indefinite-lived intangible assets and determined that the fair value of all our intangible assets exceeded their carrying value.

11. LEASES

Lessee Accounting

We are the lessee under various agreements for real estate, vehicles, aircraft, and other equipment that are accounted for as operating leases. Our finance leases principally relate to the right to use machinery and equipment and are not material.

Operating lease expense was $89.5 and $80.1 for fiscal years 2021 and 2020, respectively. These amounts exclude short-term and variable lease expenses, which were not material.

Amounts associated with operating leases and their presentation on our consolidated balance sheets are as follows:

30 September	**2021**	2020
Operating lease right-of-use assets		
Other noncurrent assets	**$566.2**	$376.8
Operating lease liabilities		
Payables and accrued liabilities	**78.6**	70.7
Other noncurrent liabilities	**503.4**	335.8
Total operating lease liabilities	**$582.0**	$406.5

30 September	**2021**	2020
Weighted-average remaining lease term in years[A]	**17.2**	15.7
Weighted-average discount rate[B]	**1.9%**	2.1%

(A) Calculated on the basis of the remaining lease term and the lease liability balance for each lease as of the reporting date.

(B) Calculated on the basis of the discount rate used to calculate the lease liability for each lease and the remaining balance of the lease payments for each lease as of the reporting date.

The following maturity analysis of our operating lease liabilities as of 30 September 2021 presents the undiscounted cash flows for each of the next five years and thereafter with a reconciliation to the lease liability recognized on our balance sheet:

	Operating Leases
2022	$88.4
2023	71.3
2024	60.4
2025	51.1
2026	40.4
Thereafter	361.5
Total undiscounted lease payments	673.1
Imputed interest	(91.1)
Present value of lease liability recognized on balance sheet	$582.0

The impacts associated with our operating leases on the consolidated statements of cash flows are reflected within "Other adjustments" within operating activities. This includes non-cash operating lease expense of $89.5 and $80.1, as well as a use of cash of $98.8 and $90.0 for payments on amounts included in the measurement of the lease liability for fiscal years 2021 and 2020, respectively.

We recorded $259 and $442 of noncash right-of-use asset additions during fiscal years 2021 and 2020, respectively.

We have additional operating leases that have not yet commenced as of 30 September 2021 having lease payments totaling approximately $195.

Lessor Accounting

Certain contracts associated with facilities that are built to provide product to a specific customer have been accounted for as leases. As we generally control the operations and maintenance of the assets that provide the supply of gas to our customers, there have been no new arrangements that qualified as a lease in fiscal year 2021.

In cases where operating lease treatment is appropriate, there is no difference in revenue recognition over the life of the contract as compared to accounting for the contract under a sale of gas agreement. These contracts qualify for a practical expedient available to lessors to combine the lease and non-lease components and account for the combined component in accordance with the accounting treatment for the predominant component. We elected to apply this practical expedient and have accounted for the combined component as product sales under the revenue standard as we control the operations and maintenance of the assets that provide the supply of gas to our customers.

In cases where sales-type lease treatment is appropriate, revenue and expense are recognized up front for the sale of equipment component of the contract as compared to revenue recognition over the life of the arrangement under contracts not qualifying as sales-type leases. Additionally, a portion of the revenue representing interest income from the financing component of the lease receivable is reflected as sales over the life of the contract. During fiscal years 2021 and 2020, we recognized interest income of $67.4 and $71.2 on our lease receivables, respectively.

Our contracts generally do not have the option to extend or terminate the lease or provide the customer the right to purchase the asset at the end of the contract term. Instead, renewal of such contracts requires negotiation of mutually agreed terms by both parties. Unless the customer terminates within the required notice period, the contract will go into evergreen. Given the long-term duration of our contracts, there is no assumed residual value for the assets at the end of the lease term.

Lease receivables, net, primarily relate to sales-type leases on certain on-site assets which are collected over the contract term. As of 30 September 2021 and 2020, our lease receivables, net were $824.7 and $903.0, respectively. Lease receivables, net are primarily included within "Noncurrent lease receivables" on our consolidated balance sheets, with the remaining balance in "Other receivables and current assets." The majority of our leases are of high credit quality and were originated prior to fiscal year 2017. As of 30 September 2021 and 2020, the credit quality of lease receivables did not require a material allowance for credit losses.

Lease payments collected in fiscal years 2021, 2020, and 2019 were $166.2, $162.8, and $171.6, respectively. These payments reduced the lease receivable balance by $98.8, $91.6, and $94.6 in fiscal years 2021, 2020, and 2019, respectively.

As of 30 September 2021, minimum lease payments expected to be collected, which reconciles to lease receivables, net, were as follows:

2022	$146.8
2023	143.1
2024	137.0
2025	131.4
2026	120.6
Thereafter	508.7
Total	1,187.6
Unearned interest income	(362.9)
Lease Receivables, net	$824.7

12. FINANCIAL INSTRUMENTS

Currency Price Risk Management

Our earnings, cash flows, and financial position are exposed to foreign currency risk from foreign currency-denominated transactions and net investments in foreign operations. It is our policy to seek to minimize our cash flow volatility from changes in currency exchange rates. This is accomplished by identifying and evaluating the risk that our cash flows will change in value due to changes in exchange rates and by executing strategies necessary to manage such exposures. Our objective is to maintain economically balanced currency risk management strategies that provide adequate downside protection.

Forward Exchange Contracts

We enter into forward exchange contracts to reduce the cash flow exposure to foreign currency fluctuations associated with highly anticipated cash flows and certain firm commitments, such as the purchase of plant and equipment. We also enter into forward exchange contracts to hedge the cash flow exposure on intercompany loans and third-party debt. This portfolio of forward exchange contracts consists primarily of Euros and U.S. Dollars. The maximum remaining term of any forward exchange contract currently outstanding and designated as a cash flow hedge at 30 September 2021 is 3.2 years.

Forward exchange contracts are also used to hedge the value of investments in certain foreign subsidiaries and affiliates by creating a liability in a currency in which we have a net equity position. The primary currency pair in this portfolio of forward exchange contracts is Euros and U.S. Dollars.

We also utilize forward exchange contracts that are not designated as hedges. These contracts are used to economically hedge foreign currency-denominated monetary assets and liabilities, primarily working capital. The primary objective of these forward exchange contracts is to protect the value of foreign currency-denominated monetary assets and liabilities from the effects of volatility in foreign exchange rates that might occur prior to their receipt or settlement. This portfolio of forward exchange contracts consists of many different foreign currency pairs, with a profile that changes from time to time depending on our business activity and sourcing decisions.

The table below summarizes our outstanding currency price risk management instruments:

	2021		2020	
30 September	**US$ Notional**	**Years Average Maturity**	US$ Notional	Years Average Maturity
Forward Exchange Contracts				
Cash flow hedges	**$3,465.2**	**0.6**	$2,842.1	0.5
Net investment hedges	**638.0**	**3.0**	636.6	3.8
Not designated	**692.6**	**0.1**	1,685.2	0.3
Total Forward Exchange Contracts	**$4,795.8**	**0.8**	$5,163.9	0.8

The decrease in the notional value of forward exchange contracts that are not designated is primarily due to maturities.

We also use foreign currency-denominated debt to hedge the foreign currency exposures of our net investment in certain foreign subsidiaries. The designated foreign currency-denominated debt and related accrued interest was €1,297.5 million ($1,502.6) at 30 September 2021 and €1,288.7 million ($1,510.8) at 30 September 2020. The designated foreign currency-denominated debt is presented within "Long-term debt" on the consolidated balance sheets.

Debt Portfolio Management

It is our policy to identify, on a continuing basis, the need for debt capital and to evaluate the financial risks inherent in funding the Company with debt capital. Reflecting the result of this ongoing review, our debt portfolio and hedging program are managed with the intent to (1) reduce funding risk with respect to borrowings made by us to preserve our access to debt capital and provide debt capital as required for funding and liquidity purposes, and (2) manage the aggregate interest rate risk and the debt portfolio in accordance with certain debt management parameters.

Interest Rate Management Contracts

We enter into interest rate swaps to change the fixed/variable interest rate mix of our debt portfolio in order to maintain the percentage of fixed- and variable-rate debt within the parameters set by management. In accordance with these parameters, the agreements are used to manage interest rate risks and costs inherent in our debt portfolio. Our interest rate management portfolio generally consists of fixed-to-floating interest rate swaps (which are designated as fair value hedges), pre-issuance interest rate swaps and treasury locks (which hedge the interest rate risk associated with anticipated fixed-rate debt issuances and are designated as cash flow hedges), and floating-to-fixed interest rate swaps (which are designated as cash flow hedges). As of 30 September 2021, the outstanding interest rate swaps were denominated in U.S. Dollars. The notional amount of the interest rate swap agreements is equal to or less than the designated debt being hedged. When interest rate swaps are used to hedge variable-rate debt, the indices of the swaps and the debt to which they are designated are the same. It is our policy not to enter into any interest rate management contracts which lever a move in interest rates on a greater than one-to-one basis.

Cross Currency Interest Rate Swap Contracts

We enter into cross currency interest rate swap contracts when our risk management function deems necessary. These contracts may entail both the exchange of fixed- and floating-rate interest payments periodically over the life of the agreement and the exchange of one currency for another currency at inception and at a specified future date. The contracts are used to hedge either certain net investments in foreign operations or non-functional currency cash flows related to intercompany loans. The current cross currency interest rate swap portfolio consists of fixed-to-fixed swaps primarily between U.S. Dollars and Chinese Renminbi, U.S. Dollars and Indian Rupee, and U.S. Dollars and Chilean Pesos.

The table below summarizes our outstanding interest rate management contracts and cross currency interest rate swaps:

	2021				2020			
30 September	**US$ Notional**	**Average Pay %**	**Average Receive %**	**Years Average Maturity**	US$ Notional	Average Pay %	Average Receive %	Years Average Maturity
Interest rate swaps (fair value hedge)	**$200.0**	**LIBOR**	**2.76%**	**0.1**	$200.0	LIBOR	2.76%	1.1
Cross currency interest rate swaps (net investment hedge)	**$210.2**	**4.32%**	**3.14%**	**2.2**	$201.6	4.27%	3.12%	3.2
Cross currency interest rate swaps (cash flow hedge)	**$1,005.7**	**4.98%**	**2.93%**	**2.7**	$1,057.9	4.83%	2.98%	2.5
Cross currency interest rate swaps (not designated)	**$4.2**	**5.39%**	**3.54%**	**2.2**	$12.8	5.39%	3.54%	3.2

The table below provides the amounts recorded on the consolidated balance sheet related to cumulative basis adjustments for fair value hedges:

	Carrying amounts of hedged item		Cumulative hedging adjustment, included in carrying amount	
30 September	**2021**	2020	**2021**	2020
Current portion of long-term debt	**$400.5**	$—	**$0.5**	$—
Long-term debt	**—**	405.4	**—**	5.7

The table below summarizes the fair value and balance sheet location of our outstanding derivatives. Refer to Note 13, *Fair Value Measurements*, which defines fair value, describes the method for measuring fair value, and provides additional disclosures regarding fair value measurements.

30 September	Balance Sheet Location	2021	2020	Balance Sheet Location	2021	2020
Derivatives Designated as Hedging Instruments:						
Forward exchange contracts	Other receivables and current assets	**$35.1**	$51.1	Payables and accrued liabilities	**$57.2**	$22.5
Interest rate management contracts	Other receivables and current assets	**16.0**	14.7	Payables and accrued liabilities	**5.2**	0.4
Forward exchange contracts	Other noncurrent assets	**5.5**	0.8	Other noncurrent liabilities	**25.2**	33.0
Interest rate management contracts	Other noncurrent assets	**18.1**	44.3	Other noncurrent liabilities	**27.5**	1.7
Total Derivatives Designated as Hedging Instruments		**$74.7**	$110.9		**$115.1**	$57.6
Derivatives Not Designated as Hedging Instruments:						
Forward exchange contracts	Other receivables and current assets	**$8.7**	$31.7	Payables and accrued liabilities	**$6.4**	$28.0
Interest rate management contracts	Other noncurrent assets	**—**	0.7	Other noncurrent liabilities	**—**	—
Total Derivatives Not Designated as Hedging Instruments		**$8.7**	$32.4		**$6.4**	$28.0
Total Derivatives		**$83.4**	$143.3		**$121.5**	$85.6

The table below summarizes gains (losses) recognized in other comprehensive income during the period related to our net investment and cash flow hedging relationships:

	2021	2020
Net Investment Hedging Relationships		
Forward exchange contracts	**$11.4**	($15.9)
Foreign currency debt	**18.1**	(100.2)
Cross currency interest rate swaps	**(7.9)**	1.9
Total Amount Recognized in OCI	**21.6**	(114.2)
Tax effects	**(5.5)**	28.2
Net Amount Recognized in OCI	**$16.1**	($86.0)
Derivatives in Cash Flow Hedging Relationships		
Forward exchange contracts	**$12.7**	$116.6
Forward exchange contracts, excluded components	**(11.7)**	(15.2)
Other[(A)]	**(6.7)**	(34.2)
Total Amount Recognized in OCI	**(5.7)**	67.2
Tax effects	**9.0**	(23.7)
Net Amount Recognized in OCI	**$3.3**	$43.5

(A) Other primarily includes interest rate and cross currency interest rate swaps for which excluded components are recognized in "Payables and accrued liabilities" and "Other receivables and current assets" as a component of accrued interest payable and accrued interest receivable, respectively. These excluded components are recorded in "Other non-operating income (expense), net" over the life of the cross currency interest rate swap. Other also includes the recognition of our share of gains and losses, net of tax, related to interest rate swaps held by our equity affiliates.

The table below summarizes the location and amounts recognized in income related to our cash flow and fair value hedging relationships by contract type:

	Sales		Cost of Sales		Interest Expense		Other Non-Operating Income (Expense), Net	
	2021	2020	**2021**	2020	**2021**	2020	**2021**	2020
Total presented in consolidated income statements that includes effects of hedging below	**$10,323.0**	$8,856.3	**$7,186.1**	$5,858.1	**$141.8**	$109.3	**$73.7**	$30.7
(Gain) Loss Effects of Cash Flow Hedging:								
Forward Exchange Contracts:								
Amount reclassified from OCI into income	**($0.8)**	($0.2)	**($0.8)**	($1.0)	**$—**	$—	**$5.2**	($117.9)
Amount excluded from effectiveness testing recognized in earnings based on amortization approach	**—**	—	**—**	—	**—**	—	**9.1**	17.0
Other:								
Amount reclassified from OCI into income	**—**	—	**—**	—	**5.6**	4.2	**39.1**	22.5
Total (Gain) Loss Reclassified from OCI to Income	**(0.8)**	(0.2)	**(0.8)**	(1.0)	**5.6**	4.2	**53.4**	(78.4)
Tax effects	**0.2**	—	**0.5**	0.2	**(2.1)**	(1.4)	**(12.5)**	18.9
Net (Gain) Loss Reclassified from OCI to Income	**($0.6)**	($0.2)	**($0.3)**	($0.8)	**$3.5**	$2.8	**$40.9**	($59.5)
(Gain) Loss Effects of Fair Value Hedging:								
Other:								
Hedged items	**$—**	$—	**$—**	$—	**($5.2)**	$0.5	**$—**	$—
Derivatives designated as hedging instruments	**—**	—	**—**	—	**5.2**	(0.5)	**—**	—
Total (Gain) Loss Recognized in Income	**$—**	$—	**$—**	$—	**$—**	$—	**$—**	$—

The table below summarizes the location and amounts recognized in income related to our derivatives not designated as hedging instruments by contract type:

	Other Income (Expense), Net		Other Non-Operating Income (Expense), Net	
	2021	2020	**2021**	2020
The Effects of Derivatives Not Designated as Hedging Instruments:				
Forward Exchange Contracts	**$2.8**	($1.5)	**($2.7)**	$1.1
Other	**—**	—	**0.5**	0.7
Total (Gain) Loss Recognized in Income	**$2.8**	($1.5)	**($2.2)**	$1.8

The amount of unrealized gains and losses related to cash flow hedges as of 30 September 2021 that are expected to be reclassified to earnings in the next twelve months is not material.

The cash flows related to all derivative contracts are reported in the operating activities section of the consolidated statements of cash flows.

Credit Risk-Related Contingent Features

Certain derivative instruments are executed under agreements that require us to maintain a minimum credit rating with both Standard & Poor's and Moody's. If our credit rating falls below this threshold, the counterparty to the derivative instruments has the right to request full collateralization on the derivatives' net liability position. The net liability position of derivatives with credit risk-related contingent features was $53.4 and $30.0 as of 30 September 2021 and 2020, respectively. Because our current credit rating is above the various pre-established thresholds, no collateral has been posted on these liability positions.

Counterparty Credit Risk Management

We execute financial derivative transactions with counterparties that are highly rated financial institutions, all of which are investment grade at this time. Some of our underlying derivative agreements give us the right to require the institution to post collateral if its credit rating falls below the pre-established thresholds with Standard & Poor's or Moody's. The collateral that the counterparties would be required to post was $38.1 and $76.5 as of 30 September 2021 and 2020, respectively. No financial institution is required to post collateral at this time, as all have credit ratings at or above threshold.

13. FAIR VALUE MEASUREMENTS

Fair value is defined as an exit price, or the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as follows:

- *Level 1*—Quoted prices (unadjusted) in active markets for identical assets or liabilities.
- *Level 2*—Inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the asset or liability.
- *Level 3*—Inputs that are unobservable for the asset or liability based on our own assumptions about the assumptions market participants would use in pricing the asset or liability.

The methods and assumptions used to measure the fair value of financial instruments are as follows:

Short-term Investments

Short-term investments primarily include time deposits with original maturities greater than three months and less than one year. We estimated the fair value of our short-term investments, which approximates carrying value as of the balance sheet date, using Level 2 inputs within the fair value hierarchy. Level 2 measurements were based on current interest rates for similar investments with comparable credit risk and time to maturity.

Derivatives

The fair value of our interest rate management contracts and forward exchange contracts are quantified using the income approach and are based on estimates using standard pricing models. These models consider the value of future cash flows as of the balance sheet date, discounted to a present value using discount factors that match both the time to maturity and currency of the underlying instruments. These standard pricing models utilize inputs that are derived from or corroborated by observable market data such as interest rate yield curves as well as currency spot and forward rates; therefore, the fair value of our derivatives is classified as a Level 2 measurement. On an ongoing basis, we randomly test a subset of our valuations against valuations received from the transaction's counterparty to validate the accuracy of our standard pricing models. Counterparties to these derivative contracts are highly rated financial institutions.

Refer to Note 12, *Financial Instruments*, for a description of derivative instruments, including details related to the balance sheet line classifications.

Long-term Debt, Including Related Party

The fair value of our debt is based on estimates using standard pricing models that consider the value of future cash flows as of the balance sheet date, discounted to a present value using discount factors that match both the time to maturity and currency of the underlying instruments. These standard valuation models utilize observable market data such as interest rate yield curves and currency spot rates; therefore, the fair value of our debt is classified as a Level 2 measurement. We generally perform the computation of the fair value of these instruments.

The carrying values and fair values of financial instruments were as follows:

30 September	2021 Carrying Value	2021 Fair Value	2020 Carrying Value	2020 Fair Value
Assets				
Derivatives				
Forward exchange contracts	**$49.3**	**$49.3**	$83.6	$83.6
Interest rate management contracts	**34.1**	**34.1**	59.7	59.7
Liabilities				
Derivatives				
Forward exchange contracts	**$88.8**	**$88.8**	$83.5	$83.5
Interest rate management contracts	**32.7**	**32.7**	2.1	2.1
Long-term debt, including current portion and related party	**7,634.8**	**7,812.2**	7,900.1	8,278.4

The carrying amounts reported on the consolidated balance sheets for cash and cash items, short-term investments, trade receivables, payables and accrued liabilities, accrued income taxes, and short-term borrowings approximate fair value due to the short-term nature of these instruments. Accordingly, these items have been excluded from the above table.

The following table summarizes assets and liabilities on the consolidated balance sheets that are measured at fair value on a recurring basis:

30 September	2021 Total	2021 Level 1	2021 Level 2	2021 Level 3	2020 Total	2020 Level 1	2020 Level 2	2020 Level 3
Assets at Fair Value								
Derivatives								
Forward exchange contracts	**$49.3**	**$—**	**$49.3**	**$—**	$83.6	$—	$83.6	$—
Interest rate management contracts	**34.1**	**—**	**34.1**	**—**	59.7	—	59.7	—
Total Assets at Fair Value	**$83.4**	**$—**	**$83.4**	**$—**	$143.3	$—	$143.3	$—
Liabilities at Fair Value								
Derivatives								
Forward exchange contracts	**$88.8**	**$—**	**$88.8**	**$—**	$83.5	$—	$83.5	$—
Interest rate management contracts	**32.7**	**—**	**32.7**	**—**	2.1	—	2.1	—
Total Liabilities at Fair Value	**$121.5**	**$—**	**$121.5**	**$—**	$85.6	$—	$85.6	$—

14. DEBT

The table below summarizes our total outstanding debt as reflected on our consolidated balance sheets:

30 September	2021	2020
Short-term borrowings[A]	**$2.4**	$7.7
Current portion of long-term debt[B]	**484.5**	470.0
Long-term debt	**6,875.7**	7,132.9
Long-term debt – related party	**274.6**	297.2
Total Debt	**$7,637.2**	$7,907.8

(A) Includes bank obligations with weighted average interest rates of 0.6% and 1.6% as of 30 September 2021 and 2020, respectively.

(B) Includes current portion of long-term debt owed to a related party of $83.8 and $41.3 as of 30 September 2021 and 2020, respectively.

Total related party debt, including the current portion, was $358.4 and $338.5 as of 30 September 2021 and 30 September 2020, respectively. This debt primarily relates to a loan with our joint venture partner, Lu'An Clean Energy Company, which partially funded the acquisition of their assets by a consolidated joint venture in 2018.

The table below summarizes the coupon interest rates, fiscal year maturities, and carrying amounts of our long-term debt, including current portion and amounts owed to related parties:

30 September	Maturities	2021	2020
Payable in U.S. Dollars			
Debentures			
8.75%	2021	**$—**	$18.4
Medium-term Notes (weighted average rate)			
Series E 7.6%	2026	**17.2**	17.2
Senior Notes			
Note 3.0%	2022	**400.0**	400.0
Note 2.75%	2023	**400.0**	400.0
Note 3.35%	2024	**400.0**	400.0
Note 1.50%	2026	**550.0**	550.0
Note 1.85%	2027	**650.0**	650.0
Note 2.05%	2030	**900.0**	900.0
Note 2.70%	2040	**750.0**	750.0
Note 2.80%	2050	**950.0**	950.0
Other (weighted average rate)			
Variable-rate industrial revenue bonds 0.02%	2035 to 2050	**618.9**	631.9
Other 1.57%	2024 to 2032	**14.4**	—
Payable in Other Currencies			
Eurobonds 0.375%	2021	**—**	410.3
Eurobonds 1.0%	2025	**347.4**	351.7
Eurobonds 0.50%	2028	**579.1**	586.2
Eurobonds 0.80%	2032	**579.1**	586.2
New Taiwan Dollar 1.86%	2023 to 2028	**161.8**	—
Other	2023	**0.3**	0.6
Related Party			
Chinese Renminbi 5.5%	2022 to 2027	**355.0**	338.5
Chinese Renminbi 5.7%	2033	**3.4**	—
Capital Lease Obligations *(weighted average rate)*			
Foreign 11.6%	2022 to 2036	**8.1**	9.2
Total Principal Amount		**7,684.7**	7,950.2
Less: Unamortized discount and debt issuance costs		**(50.4)**	(55.8)
Less: Fair value hedge accounting adjustments[A]		**0.5**	5.7
Total Long-term Debt		**7,634.8**	7,900.1
Less: Current portion of long-term debt		**(484.5)**	(470.0)
Less: Long-term debt – related party		**(274.6)**	(297.2)
Long-term Debt		**$6,875.7**	$7,132.9

(A) We entered into LIBOR-based interest rate swaps with various financial institutions to hedge a portion of the 3.0% Senior Note maturing in fiscal year 2022. These interest rate swaps have been designated as fair value hedges of the Note. Refer to Note 12, *Financial Instruments*, for additional information.

Principal maturities of long-term debt, including current portion and amounts owed to related parties, in each of the next five years and thereafter are as follows:

2022	$484.0
2023	475.8
2024	492.5
2025	449.2
2026	662.7
Thereafter	5,120.5
Total	**$7,684.7**

Cash paid for interest, net of amounts capitalized, was $150.4, $67.2, and $155.9 in fiscal years 2021, 2020, and 2019, respectively.

Subsequent Event

In November 2021, we repaid the 3.0% Senior Note of $400, plus interest, on its maturity date.

Debt Covenants

Various debt agreements to which we are a party include financial covenants and other restrictions, including restrictions pertaining to the ability to create property liens and enter into certain sale and leaseback transactions. As of 30 September 2021, we are in compliance with all the financial and other covenants under our debt agreements.

Credit Facilities

On 31 March 2021, we entered into a five-year $2,500 revolving credit agreement with a syndicate of banks (the "2021 Credit Agreement"), under which senior unsecured debt is available to us and certain of our subsidiaries. The 2021 Credit Agreement provides a source of liquidity and supports our commercial paper program. The only financial covenant in the 2021 Credit Agreement is a maximum ratio of total debt to capitalization (equal to total debt plus total equity) not to exceed 70%. No borrowings were outstanding under the 2021 Credit Agreement as of 30 September 2021.

The 2021 Credit Agreement replaced our previous five-year $2,300 revolving credit agreement, which was to have matured on 31 March 2022. No borrowings were outstanding under the previous agreement as of 30 September 2020 or at the time of its termination. No early termination penalties were incurred.

We have credit facilities available to certain of our foreign subsidiaries totaling $296.7, of which $176.2 was borrowed and outstanding as of 30 September 2021.

2020 Debt Issuance

In fiscal year 2020, we issued U.S. Dollar- and Euro-denominated fixed-rate notes with aggregate principal amounts of $3.8 billion and €1.0 billion, respectively. Our consolidated statement of cash flows for the fiscal year ended 30 September 2020 includes long-term debt proceeds of $4,895.8 from these issuances.

15. RETIREMENT BENEFITS

We and certain of our subsidiaries sponsor defined benefit pension plans and defined contribution plans that cover a substantial portion of our worldwide employees. The principal defined benefit pension plans are the U.S. salaried pension plan and the U.K. pension plan. These plans were closed to new participants in 2005, after which defined contribution plans were offered to new employees. The principal defined contribution plan is the Retirement Savings Plan, in which a substantial portion of the U.S. employees participate. A similar plan is offered to U.K. employees. We also provide other postretirement benefits consisting primarily of healthcare benefits to U.S. retirees who meet age and service requirements.

Defined Benefit Pension Plans

Pension benefits earned are generally based on years of service and compensation during active employment. The components of net periodic (benefit) cost for our defined benefit pension plans for fiscal years 2021, 2020, and 2019 were as follows:

	2021		2020		2019	
Fiscal Year Ended 30 September	**U.S.**	**International**	U.S.	International	U.S.	International
Service cost	**$21.3**	**$23.4**	$23.4	$23.3	$21.4	$19.3
Interest cost	**68.9**	**25.2**	91.2	24.8	113.4	35.8
Expected return on plan assets	**(194.5)**	**(83.4)**	(188.7)	(77.4)	(172.5)	(75.1)
Prior service cost amortization	**1.2**	**—**	1.2	—	1.1	—
Actuarial loss amortization	**78.5**	**19.3**	83.7	19.5	65.3	10.9
Settlements	**1.3**	**0.5**	5.0	0.2	6.2	0.2
Special termination benefits	**—**	**—**	—	—	0.7	0.1
Other	**—**	**1.0**	—	0.8	—	0.8
Net Periodic (Benefit) Cost	**($23.3)**	**($14.0)**	$15.8	($8.8)	$35.6	($8.0)

Our service costs are primarily included within "Cost of sales" and "Selling and administrative" on our consolidated income statements. The amount of service costs capitalized in fiscal years 2021, 2020 and 2019 were not material. The non-service related costs, including pension settlement losses, are presented outside operating income within "Other non-operating income (expense), net."

Certain of our pension plans provide for a lump sum benefit payment option at the time of retirement, or for corporate officers, six months after their retirement date. A participant's vested benefit is considered settled upon cash payment of the lump sum. We recognize pension settlement losses when cash payments exceed the sum of the service and interest cost components of net periodic benefit cost of the plan for the fiscal year. We recognized pension settlement losses of $1.3, $5.0 and $6.2 in fiscal years 2021, 2020 and 2019, respectively, to accelerate recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss associated with the U.S. supplementary pension plan.

We calculate net periodic benefit cost for a given fiscal year based on assumptions developed at the end of the previous fiscal year. The following table sets forth the weighted average assumptions used in the calculation of net periodic benefit cost:

	2021		2020		2019	
	U.S.	**International**	U.S.	International	U.S.	International
Discount rate – Service cost	**3.0%**	**1.6%**	3.3%	1.5%	4.3%	2.5%
Discount rate – Interest cost	**2.1%**	**1.2%**	2.9%	1.3%	4.0%	2.2%
Expected return on plan assets	**6.8%**	**4.7%**	7.0%	5.0%	7.0%	5.3%
Rate of compensation increase	**3.5%**	**3.3%**	3.5%	3.3%	3.5%	3.5%

The projected benefit obligation ("PBO") is the actuarial present value of benefits attributable to employee service rendered to date, including the effects of estimated future salary increases. The following table sets forth the weighted average assumptions used in the calculation of the PBO:

	2021		2020	
	U.S.	**International**	U.S.	International
Discount rate	**2.9%**	**1.8%**	2.7%	1.5%
Rate of compensation increase	**3.5%**	**3.3%**	3.5%	3.3%

The following tables reflect the change in the PBO and the change in the fair value of plan assets based on the plan year measurement date, as well as the amounts recognized in the consolidated balance sheets:

	2021		2020	
	U.S.	**International**	U.S.	International
Change in Projected Benefit Obligation				
Obligation at beginning of year	**$3,423.8**	**$1,949.7**	$3,281.6	$1,864.0
Service cost	**21.3**	**23.4**	23.4	23.3
Interest cost	**68.9**	**25.2**	91.2	24.8
Amendments	**0.5**	**—**	1.6	—
Actuarial (gain) loss	**(17.7)**	**(30.9)**	190.5	(11.6)
Settlements	**(3.0)**	**(1.8)**	(11.7)	(0.9)
Special termination benefits	**—**	**—**	—	—
Participant contributions	**—**	**1.3**	—	1.2
Benefits paid	**(158.5)**	**(52.8)**	(152.5)	(49.8)
Currency translation and other	**—**	**55.5**	(0.3)	98.7
Obligation at End of Year	**$3,335.3**	**$1,969.6**	$3,423.8	$1,949.7

	2021		2020	
	U.S.	**International**	U.S.	International
Change in Plan Assets				
Fair value at beginning of year	**$3,048.3**	**$1,726.8**	$2,832.4	$1,672.4
Actual return on plan assets	**450.0**	**140.1**	364.6	(3.1)
Company contributions	**6.9**	**37.7**	15.5	22.0
Participant contributions	**—**	**1.3**	—	1.2
Benefits paid	**(158.5)**	**(52.8)**	(152.5)	(49.8)
Settlements	**(3.0)**	**(1.8)**	(11.7)	(0.9)
Currency translation and other	**—**	**53.7**	—	85.0
Fair Value at End of Year	**$3,343.7**	**$1,905.0**	$3,048.3	$1,726.8
Funded Status at End of Year	**$8.4**	**($64.6)**	($375.5)	($222.9)

	2021		2020	
	U.S.	**International**	U.S.	International
Amounts Recognized				
Noncurrent assets	**$90.5**	**$128.7**	$26.5	$—
Accrued liabilities	**19.6**	**0.5**	10.5	0.2
Noncurrent liabilities	**62.5**	**192.8**	391.5	222.7
Net Asset (Liability) Recognized	**$8.4**	**($64.6)**	($375.5)	($222.9)

The changes in plan assets and benefit obligation that have been recognized in other comprehensive income on a pretax basis during fiscal years 2021 and 2020 consist of the following:

	2021		2020	
	U.S.	**International**	U.S.	International
Net actuarial (gain)/loss arising during the period	**($273.2)**	**($87.6)**	$14.6	$68.9
Amortization of net actuarial loss	**(79.8)**	**(19.8)**	(88.7)	(19.7)
Prior service cost arising during the period	**0.5**	**—**	1.6	—
Amortization of prior service cost	**(1.2)**	**—**	(1.2)	—
Total	**($353.7)**	**($107.4)**	($73.7)	$49.2

The net actuarial gains and losses represent the actual changes in the estimated obligation and plan assets that have not yet been recognized in the consolidated income statements and are included in accumulated other comprehensive loss. Actuarial gains arising during fiscal year 2021 are primarily attributable to higher than expected return on plan assets and higher discount rates. Accumulated actuarial gains and losses that exceed a corridor are amortized over the average remaining service period of active U.S. participants, which was approximately seven years as of 30 September 2021. For U.K. participants, accumulated actuarial gains and losses that exceed a corridor are amortized over the average remaining life expectancy, which was approximately twenty-four years as of 30 September 2021.

The components recognized in accumulated other comprehensive loss on a pretax basis at 30 September consisted of the following:

	2021		2020	
	U.S.	**International**	U.S.	International
Net actuarial loss	**$444.7**	**$535.8**	$797.7	$643.2
Prior service cost	**6.3**	**3.6**	7.0	3.6
Net transition liability	**—**	**0.4**	—	0.4
Total	**$451.0**	**$539.8**	$804.7	$647.2

The accumulated benefit obligation ("ABO") is the actuarial present value of benefits attributed to employee service rendered to a particular date, based on current salaries. The ABO for all defined benefit pension plans was $5,140.0 and $5,166.5 as of 30 September 2021 and 2020, respectively.

The following table provides information on pension plans where the benefit liability exceeds the value of plan assets:

	2021		2020	
30 September	**U.S.**	**International**	U.S.	International
Pension Plans with PBO in Excess of Plan Assets:				
PBO	**$82.1**	**$456.6**	$3,202.2	$1,949.7
Fair value of plan assets	**—**	**263.4**	2,800.3	1,726.7
PBO in excess of plan assets	**$82.1**	**$193.2**	$401.9	$223.0
Pension Plans with ABO in Excess of Plan Assets:				
ABO	**$79.2**	**$416.8**	$3,081.4	$475.8
Fair value of plan assets	**—**	**263.4**	2,800.3	324.4
ABO in excess of plan assets	**$79.2**	**$153.4**	$281.1	$151.4

The tables above include several pension arrangements that are not funded because of jurisdictional practice. The ABO and PBO related to these plans as of 30 September 2021 were $86.2 and $91.7, respectively. As of 30 September 2021, the U.S. salaried and U.K. pension plans had plan assets in excess of both PBO and ABO resulting in a decrease to the U.S. and International balances presented above. As of 30 September 2020, the PBO of these plans exceeded the fair value of plan assets.

Pension Plan Assets

Our pension plan investment strategy is to invest in diversified portfolios to earn a long-term return consistent with acceptable risk in order to pay retirement benefits and meet regulatory funding requirements while minimizing company cash contributions over time. De-risking strategies are also employed for closed plans as funding improves, generally resulting in higher allocations to long duration bonds. The plans invest primarily in passive and actively managed equity and debt securities. Equity investments are diversified geographically and by investment style and market capitalization. Fixed income investments include sovereign, corporate and asset-backed securities generally denominated in the currency of the plan.

Asset allocation targets are established based on the long-term return, volatility and correlation characteristics of the asset classes, the profiles of the plans' liabilities, and acceptable levels of risk. Assets are routinely rebalanced through contributions, benefit payments, and otherwise as deemed appropriate. The actual and target allocations at the measurement date are as follows:

	2021 Target Allocation		2021 Actual Allocation		2020 Actual Allocation	
	U.S.	International	U.S.	International	U.S.	International
Asset Category						
Equity securities	20 - 35%	29 - 38%	30%	36%	51%	43%
Debt securities	61 - 76%	62 - 71%	64%	63%	43%	56%
Real estate and other	— - 10%	—%	6%	—%	5%	—%
Cash	—%	2%	—%	1%	1%	1%
Total			100%	100%	100%	100%

In fiscal year 2021, the 6.75% expected return for U.S. plan assets was based on a weighted average of estimated long-term returns of major asset classes and the historical performance of plan assets. In determining asset class returns, we take into account historical long-term returns and the value of active management, as well as other economic and market factors.

In fiscal year 2021, the 4.73% expected rate of return for international plan assets was based on a weighted average return for plans outside the U.S., which vary significantly in size, asset structure and expected returns. The expected asset return for the U.K. plan, which represents over 80% of the assets of our International plans, is 5.30% and was derived from expected equity and debt security returns.

The table below summarizes pension plan assets measured at fair value by asset class (see Note 13, *Fair Value Measurements*, for definition of the levels):

	2021				2020			
30 September	**Total**	**Level 1**	**Level 2**	**Level 3**	Total	Level 1	Level 2	Level 3
U.S. Qualified Pension Plans								
Cash and cash equivalents	**$14.8**	**$14.8**	**$—**	**$—**	$16.9	$16.9	$—	$—
Equity securities	**325.3**	**325.3**	**—**	**—**	573.9	573.9	—	—
Equity mutual funds	**243.4**	**243.4**	**—**	**—**	213.1	213.1	—	—
Equity pooled funds	**448.7**	**—**	**448.7**	**—**	762.0	—	762.0	—
Fixed income:								
Bonds (government and corporate)	**2,125.6**	**—**	**2,125.6**	**—**	1,312.7	—	1,312.7	—
Total U.S. Qualified Pension Plans at Fair Value	**$3,157.8**	**$583.5**	**$2,574.3**	**$—**	$2,878.6	$803.9	$2,074.7	$—
Real estate pooled funds[(A)]	**185.9**				169.7			
Total U.S. Qualified Pension Plans	**$3,343.7**				$3,048.3			
International Pension Plans								
Cash and cash equivalents	**$16.8**	**$16.8**	**$—**	**$—**	$13.9	$13.9	$—	$—
Equity pooled funds	**676.4**	**—**	**676.4**	**—**	746.8	—	746.8	—
Fixed income pooled funds	**948.5**	**—**	**948.5**	**—**	694.1	—	694.1	—
Other pooled funds	**16.7**	**—**	**16.7**	**—**	15.5	—	15.5	—
Insurance contracts	**246.6**	**—**	**—**	**246.6**	256.5	—	—	256.5
Total International Pension Plans	**$1,905.0**	**$16.8**	**$1,641.6**	**$246.6**	$1,726.8	$13.9	$1,456.4	$256.5

(A) Real estate pooled funds consist of funds that invest in properties. These funds generally allow for quarterly redemption with 30 days' notice. Timing for redemption could be delayed based on the priority of our request and the availability of funds. Interests in these funds are valued using the net asset value ("NAV") per share practical expedient and are not classified in the fair value hierarchy.

The table below summarizes changes in fair value of the pension plan assets classified as Level 3, which is comprised of investments in insurance contracts:

Balance at 30 September 2019	$254.1
Actual return on plan assets:	
Assets held at end of year	2.4
Balance at 30 September 2020	$256.5
Actual return on plan assets:	
Assets held at end of year	(7.9)
Purchases, sales, and settlements, net	(2.0)
Balance at 30 September 2021	**$246.6**

The descriptions and fair value methodologies for the U.S. and International pension plan assets are as follows:

<u>Cash and Cash Equivalents</u>

The carrying amounts of cash and cash equivalents approximate fair value due to the short-term maturity.

<u>Equity Securities</u>

Equity securities are valued at the closing market price reported on a U.S. or international exchange where the security is actively traded and are therefore classified as Level 1 assets.

<u>Equity Mutual and Pooled Funds</u>

Shares of mutual funds are valued at the daily closing price as reported by the fund. The mutual funds are required to publish their daily NAV and to transact at that price. The mutual funds are deemed to be actively traded and are classified as Level 1 assets. Units of pooled funds are valued at the per unit NAV determined by the fund manager based on the value of the underlying traded holdings and are classified as Level 2 assets.

<u>Corporate and Government Bonds</u>

Corporate and government bonds are classified as Level 2 assets, as they are either valued at quoted market prices from observable pricing sources at the reporting date or valued based upon comparable securities with similar yields and credit ratings.

<u>Fixed Income Pooled Funds</u>

Fixed income pooled funds are classified as Level 2 assets, as they are valued at the NAV of the shares held at year end, which is determined by the fund manager based on quoted market pricing from observable pricing sources at the reporting date or valued based upon comparable securities with similar yields, credit ratings, or factors. Fixed income pooled funds may hold government bonds, index linked bonds, corporate bonds, cash and derivative instruments.

<u>Other Pooled Funds</u>

Other pooled funds are classified as Level 2 assets, as they are valued at the NAV of the shares held at year end, which is based on the fair value of the underlying investments.

<u>Insurance Contracts</u>

Insurance contracts are classified as Level 3 assets, as they are carried at contract value, which approximates the estimated fair value. The estimated fair value is based on the fair value of the underlying investment of the insurance company and discount rates that require inputs with limited observability.

Contributions and Projected Benefit Payments

Pension contributions to funded plans and benefit payments for unfunded plans for fiscal year 2021 were $44.6. Contributions for funded plans resulted primarily from contractual and regulatory requirements. Benefit payments to unfunded plans were due primarily to the timing of retirements. We anticipate contributing $40 to $50 to the defined benefit pension plans in fiscal year 2022. These contributions are anticipated to be driven primarily by contractual and regulatory requirements for funded plans and benefit payments for unfunded plans, which are dependent upon timing of retirements.

Projected benefit payments, which reflect expected future service, are as follows:

	U.S.	International
2022	$179.3	$56.8
2023	170.4	60.2
2024	174.3	64.0
2025	178.1	64.6
2026	180.7	68.3
2027-2031	936.5	375.9

These estimated benefit payments are based on assumptions about future events. Actual benefit payments may vary significantly from these estimates.

Defined Contribution Plans

We maintain a non-leveraged employee stock ownership plan ("ESOP") which forms part of the Air Products and Chemicals, Inc. Retirement Savings Plan ("RSP"). The ESOP was established in May of 2002. The balance of the RSP is a qualified defined contribution plan including a 401(k) elective deferral component. A substantial portion of U.S. employees are eligible and participate.

We treat dividends paid on ESOP shares as ordinary dividends. Under existing tax law, we may deduct dividends which are paid with respect to shares held by the plan. Shares of our common stock in the ESOP totaled 1,941,938 as of 30 September 2021.

Our contributions to the RSP include a Company core contribution for certain eligible employees who do not receive their primary retirement benefit from the defined benefit pension plans, with the core contribution based on a percentage of pay that is dependent on years of service. For the RSP, we also make matching contributions on overall employee contributions as a percentage of the employee contribution and include an enhanced contribution for certain eligible employees that do not participate in the defined benefit pension plans. Worldwide contributions expensed to income in fiscal years 2021, 2020, and 2019 were $53.3, $45.6, and $40.6, respectively.

Other Postretirement Benefits

We provide other postretirement benefits consisting primarily of healthcare benefits to certain U.S. retirees who meet age and service requirements. The healthcare benefit is a continued medical benefit until the retiree reaches age 65. Healthcare benefits are contributory, with contributions adjusted periodically. The retiree medical costs are capped at a specified dollar amount, with the retiree contributing the remainder. The cost of these benefits was not material in fiscal years 2021, 2020, and 2019. Accumulated postretirement benefit obligations as of the end of fiscal years 2021 and 2020 were $27.4 and $38.6, respectively, of which $5.5 and $7.2 were current obligations, respectively.

We recognize changes in other postretirement benefit plan obligations in other comprehensive income on a pretax basis. In fiscal years 2021 and 2020, we recognized gains that arose during the period of $5.4 and $1.3, respectively. There was $1.8 net actuarial gain amortization in fiscal year 2021 and no actuarial gain amortization in 2020 as the corridor for the plan was not exceeded.

The net actuarial gain recognized in accumulated other comprehensive loss on a pretax basis was $6.6 and $3.0 as of 30 September 2021 and 2020, respectively.

16. COMMITMENTS AND CONTINGENCIES

Litigation

We are involved in various legal proceedings, including commercial, competition, environmental, intellectual property, regulatory, product liability, and insurance matters. We do not currently believe there are any legal proceedings, individually or in the aggregate, that are reasonably possible to have a material impact on our financial condition, results of operations, or cash flows.

In September 2010, the Brazilian Administrative Council for Economic Defense ("CADE") issued a decision against our Brazilian subsidiary, Air Products Brasil Ltda., and several other Brazilian industrial gas companies for alleged anticompetitive activities. CADE imposed a civil fine of R$179.2 million (approximately $33 at 30 September 2021) on Air Products Brasil Ltda. This fine was based on a recommendation by a unit of the Brazilian Ministry of Justice, following an investigation beginning in 2003, which alleged violation of competition laws with respect to the sale of industrial and medical gases. The fines are based on a percentage of our total revenue in Brazil in 2003.

We have denied the allegations made by the authorities and filed an appeal in October 2010 with the Brazilian courts. On 6 May 2014, our appeal was granted and the fine against Air Products Brasil Ltda. was dismissed. CADE has appealed that ruling and the matter remains pending. We, with advice of our outside legal counsel, have assessed the status of this matter and have concluded that, although an adverse final judgment after exhausting all appeals is possible, such a judgment is not probable. As a result, no provision has been made in the consolidated financial statements. In the event of an adverse final judgment, we estimate the maximum possible loss to be the full amount of the fine of R$179.2 million (approximately $33 at 30 September 2021) plus interest accrued thereon until final disposition of the proceedings.

Additionally, Winter Storm Uri, a severe winter weather storm in the U.S. Gulf Coast in February 2021, disrupted our operations and caused power and natural gas prices to spike significantly in Texas. We are currently in the early stages of litigation of a dispute regarding energy management services related to the impact of this unusual event, and other disputes may arise from such power price increases. In addition, legislative action may affect power supply and energy management charges. While it is reasonably possible that we could incur additional costs related to power supply and energy management services in Texas related to the winter storm, it is too early to estimate potential losses, if any, given significant unknowns resulting from the unusual nature of this event.

Environmental

In the normal course of business, we are involved in legal proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA," the federal Superfund law), Resource Conservation and Recovery Act ("RCRA"), and similar state and foreign environmental laws relating to the designation of certain sites for investigation or remediation. Presently, there are 31 sites on which a final settlement has not been reached where we, along with others, have been designated a potentially responsible party by environmental authorities or are otherwise engaged in investigation or remediation, including cleanup activity at certain of our current and former manufacturing sites. We continually monitor these sites for which we have environmental exposure.

Accruals for environmental loss contingencies are recorded when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. The consolidated balance sheets at 30 September 2021 and 2020 included an accrual of $76.7 and $84.7, respectively, primarily as part of other noncurrent liabilities. The environmental liabilities will be paid over a period of up to 30 years. We estimate the exposure for environmental loss contingencies to range from $76 to a reasonably possible upper exposure of $90 as of 30 September 2021.

Actual costs to be incurred at identified sites in future periods may vary from the estimates, given inherent uncertainties in evaluating environmental exposures. Using reasonably possible alternative assumptions of the exposure level could result in an increase to the environmental accrual. Due to the inherent uncertainties related to environmental exposures, a significant increase to the reasonably possible upper exposure level could occur if a new site is designated, the scope of remediation is increased, a different remediation alternative is identified, or a significant increase in our proportionate share occurs. We do not expect that any sum we may have to pay in connection with environmental matters in excess of the amounts recorded or disclosed above would have a material adverse impact on our financial position or results of operations in any one year.

<u>Pace</u>

At 30 September 2021, $39.8 of the environmental accrual was related to the Pace facility.

In 2006, we sold our Amines business, which included operations at Pace, Florida, and recognized a liability for retained environmental obligations associated with remediation activities at Pace. We are required by the Florida Department of Environmental Protection ("FDEP") and the United States Environmental Protection Agency ("USEPA") to continue our remediation efforts. We recognized a before-tax expense of $42 in fiscal year 2006 in results from discontinued operations and recorded an environmental accrual of $42 in continuing operations on the consolidated balance sheets.

During the second quarter of fiscal year 2020, we completed an updated cost review of the environmental remediation status at the Pace facility. The review was completed in conjunction with requirements to maintain financial assurance per the Consent Order issued by the FDEP discussed below. Based on our review, we expect ongoing activities to continue for 30 years. Additionally, we will require near-term spending to install new groundwater recovery wells and ancillary equipment, in addition to future capital to consider the extended time horizon for remediation at the site. As a result of these changes, we increased our environmental accrual for this site by $19 in continuing operations on the consolidated balance sheets and recognized a before-tax expense of $19 in results from discontinued operations in the second quarter of fiscal year 2020. There has been no change to the estimated exposure range related to the Pace facility in fiscal year 2021.

We have implemented many of the remedial corrective measures at the Pace facility required under 1995 Consent Orders issued by the FDEP and the USEPA. Contaminated soils have been bioremediated, and the treated soils have been secured in a lined on-site corrective action management unit. Several groundwater recovery systems have been installed to contain and remove contamination from groundwater. We completed an extensive assessment of the site to determine the efficacy of existing measures, what additional corrective measures may be needed, and whether newer remediation technologies that were not available in the 1990s might be suitable to more quickly and effectively remediate groundwater. Based on assessment results, we completed a focused feasibility study that has identified alternative approaches that may more effectively remove contaminants. We continue to review alternative remedial approaches with the FDEP and have started additional field work to support the design of an improved groundwater recovery network with the objective of targeting areas of higher contaminant concentration and avoiding areas of high groundwater iron which has proven to be a significant operability issue for the project. In the first quarter of 2015, we entered into a new Consent Order with the FDEP requiring us to continue our remediation efforts at the Pace facility, along with the completion of a cost review every 5 years. In the second quarter of fiscal year 2020, we completed an updated cost review which resulted in a change in assumptions regarding future operating costs as discussed above.

Piedmont

At 30 September 2021, $9.5 of the environmental accrual was related to the Piedmont site.

On 30 June 2008, we sold our Elkton, Maryland, and Piedmont, South Carolina, production facilities and the related North American atmospheric emulsions and global pressure sensitive adhesives businesses. In connection with the sale, we recognized a liability for retained environmental obligations associated with remediation activities at the Piedmont site. This site is under active remediation for contamination caused by an insolvent prior owner.

We are required by the South Carolina Department of Health and Environmental Control ("SCDHEC") to address both contaminated soil and groundwater. Numerous areas of soil contamination have been addressed, and contaminated groundwater is being recovered and treated. The SCDHEC issued its final approval to the site-wide feasibility study on 13 June 2017 and the Record of Decision for the site on 27 June 2018, after which we signed a Consent Agreement Amendment memorializing our obligations to complete the cleanup of the site. Remediation has started in accordance with the design, which includes in-situ chemical oxidation treatment, as well as the installation of a soil vapor extraction system to remove volatile organic compounds from the unsaturated soils beneath the impacted areas of the plant. We estimate that source area remediation and groundwater recovery and treatment will continue through 2029. Thereafter, we expect this site to go into a state of monitored natural attenuation through 2047.

We recognized a before-tax expense of $24 in 2008 as a component of income from discontinued operations and recorded an environmental liability of $24 in continuing operations on the consolidated balance sheets. There have been no significant changes to the estimated exposure.

Pasadena

At 30 September 2021, $11.2 of the environmental accrual was related to the Pasadena site.

During the fourth quarter of 2012, management committed to permanently shutting down our polyurethane intermediates ("PUI") production facility in Pasadena, Texas. In shutting down and dismantling the facility, we have undertaken certain obligations related to soil and groundwater contaminants. We have been pumping and treating groundwater to control off-site contaminant migration in compliance with regulatory requirements and under the approval of the Texas Commission on Environmental Quality ("TCEQ"). We estimate that the pump and treat system will continue to operate until 2042.

We plan to perform additional work to address other environmental obligations at the site. This additional work includes remediating, as required, impacted soils, investigating groundwater west of the former PUI facility, performing post closure care for two closed RCRA surface impoundment units, establishing engineering controls, and performing a pilot study to treat impacted soils. In 2012, we estimated the total exposure at this site to be $13. There have been no significant changes to the estimated exposure.

Asset Retirement Obligations

Our asset retirement obligations are primarily associated with long-term on-site supply contracts under which we have built a facility on land owned by the customer and are obligated to remove the facility at the end of the contract term. The retirement of assets includes the contractually required removal of a long-lived asset from service and encompasses the sale, removal, abandonment, recycling, or disposal of the assets as required at the end of the contract term. These obligations are primarily reflected within "Other noncurrent liabilities" on the consolidated balance sheets. The timing and/or method of settlement of these obligations are conditional on a future event that may or may not be within our control.

Changes to the carrying amount of our asset retirement obligations were as follows:

Balance at 30 September 2019	$208.2
Additional accruals	22.0
Liabilities settled	(2.8)
Accretion expense	9.5
Currency translation adjustment	4.5
Balance at 30 September 2020	$241.4
Additional accruals	16.5
Liabilities settled	(4.1)
Accretion expense	10.5
Currency translation adjustment	5.3
Balance at 30 September 2021	**$269.6**

Warranties and Guarantees

We do not expect that any sum we may have to pay in connection with warranties and guarantees will have a material adverse effect on our consolidated financial condition, liquidity, or results of operations.

Warranties

We, in the normal course of business operations, have issued product warranties related to equipment sales. Also, contracts often contain standard terms and conditions which typically include a warranty and indemnification to the buyer that the goods and services purchased do not infringe on third-party intellectual property rights. The provision for estimated future costs relating to warranties is not material to the consolidated financial statements.

Guarantees

To date, no equity contributions or payments have been made since the inception of the guarantees discussed below. The fair value of these guarantees is not material.

We are party to an equity support agreement and operations guarantee related to an air separation facility constructed in Trinidad for a venture in which we own 50%. At 30 September 2021, maximum potential payments under joint and several guarantees were $24.0. Exposures under the guarantees decline over time and will be completely extinguished by 2024.

We guaranteed the repayment of our 25% share of an equity bridge loan that has been provided to fund equity commitments to the Jazan Gas Project Company joint venture with ACWA Holding in Saudi Arabia. ACWA also guarantees their share of the loan. As of 30 September 2021, our maximum exposure under the guarantee was approximately $100, and payables and accrued liabilities on our consolidated balance sheets included $94.4 for our obligation to make equity contributions.

We also have a long-term sale of equipment contract with the joint venture to engineer, procure, and construct the industrial gas facilities that will supply gases to Aramco. We provided bank guarantees to the joint venture to support our performance under the contract. As of 30 September 2021, our maximum potential payments were $247.

Subsequent Event

As part of the Jazan Integrated Gasification and Power Company transaction discussed in Note 24, *Subsequent Events*, Jazan Gas Project Company sold its air separation units to Aramco in October 2021 and repaid its outstanding debt, including the equity bridge loan. Our bank guarantees that support performance under the sale of equipment contract remain in place.

Unconditional Purchase Obligations

We are obligated to make future payments under unconditional purchase obligations as summarized below:

2022	$1,656
2023	540
2024	543
2025	563
2026	545
Thereafter	6,135
Total	**$9,982**

Approximately $8.3 billion of our unconditional purchase obligations relate to helium and rare gases. The majority of these obligations occur after fiscal year 2026. Helium purchases include crude feedstock supply to helium refining plants in North America as well as refined helium purchases from sources around the world. As a rare byproduct of natural gas production in the energy sector, these helium sourcing agreements are medium- to long-term and contain take-if-tendered provisions. The refined helium is distributed globally and sold as a merchant gas, primarily under medium-term requirements contracts. While contract terms in our helium sourcing contracts are generally longer than our customer sales contracts, helium is a rare gas used in applications with few or no substitutions because of its unique physical and chemical properties.

We estimate our maximum obligation for future purchases of plant and equipment to be approximately $1.0 billion based on open purchase orders as of 30 September 2021. Although open purchase orders are considered enforceable and legally binding, the terms generally allow us the option to reschedule, cancel, or otherwise modify based on our business needs. We have disclosed this obligation in fiscal year 2022; however, timing of actual satisfaction of the obligation may vary.

Our unconditional purchase obligations also include commitments for power and natural gas supply as well as feedstock supply for numerous HyCO (hydrogen, carbon monoxide, and syngas) facilities. Our long-term sales contracts to customers are generally matched to the term of these obligations and provide recovery of price increases. As a result, we do not believe these purchase obligations would have a material effect on our financial condition or results of operations.

17. CAPITAL STOCK

Common Stock

Authorized common stock consists of 300 million shares with a par value of $1 per share. As of 30 September 2021, 249 million shares were issued, with 221 million outstanding.

On 15 September 2011, the Board of Directors authorized the repurchase of up to $1.0 billion of our outstanding common stock. We repurchase shares pursuant to Rules 10b5-1 and 10b-18 under the Securities Exchange Act of 1934, as amended, through repurchase agreements established with several brokers. We did not purchase any of our outstanding shares during fiscal year 2021. At 30 September 2021, $485.3 in share repurchase authorization remains.

A summary of the changes in common shares in fiscal year 2021 is presented below:

Fiscal Year Ended 30 September	2021	2020	2019
Number of common shares outstanding, beginning of year	**221,017,459**	220,415,262	219,515,245
Issuance of treasury shares for stock option and award plans	**379,296**	602,197	900,017
Number of common shares outstanding, end of year	**221,396,755**	221,017,459	220,415,262

Preferred Stock

Authorized preferred stock consisted of 25 million shares with a par value of $1 per share, of which 2.5 million were designated as Series A Junior Participating Preferred Stock. There were no preferred shares issued or outstanding as of 30 September 2021 and 2020.

18. SHARE-BASED COMPENSATION

Our outstanding share-based compensation programs include deferred stock units and stock options. During the fiscal year ended 30 September 2021, we granted market-based and time-based deferred stock units. We have not issued stock option awards since fiscal year 2015. The terms of our share-based awards are fixed at the grant date. We issue shares from treasury stock upon payout of deferred stock units and exercise of stock options.

At the annual shareholders meeting held on 28 January 2021, the shareholders approved a new Long-Term Incentive Plan ("LTIP"), which has an authorized pool of 1,500,000 shares available for future grant, plus additional shares underlying awards outstanding on the date the LTIP was adopted but that are not issued. As of 30 September 2021, there were 1,566,433 shares available for future grant under our LTIP.

Share-based compensation cost recognized on the consolidated income statements is summarized below:

	2021	2020	2019
Before-tax share-based compensation cost	**$44.5**	$55.8	$41.2
Income tax benefit	**(11.0)**	(13.0)	(9.7)
After-tax share-based compensation cost	**$33.5**	$42.8	$31.5

Before-tax share-based compensation cost relates to deferred stock units and is primarily included in "Selling and administrative" on our consolidated income statements. The amount of share-based compensation cost capitalized in fiscal years 2021, 2020, and 2019 was not material.

Deferred Stock Units

We have granted deferred stock units to executives, selected employees, and outside directors. These deferred stock units entitle the recipient to one share of common stock upon vesting, which is conditioned, for employee recipients, on continued employment during the deferral period and may be conditioned on achieving certain performance targets. We grant deferred stock unit awards with a two- to five-year deferral period that is subject to payout upon death, disability, or retirement. Deferred stock units issued to outside directors are paid after service on the Board of Directors ends at the time elected by the director (not to exceed 10 years after service ends). We generally expense the grant-date fair value of these awards on a straight-line basis over the vesting period; however, expense recognition is accelerated for retirement eligible individuals who meet the requirements for vesting upon retirement. We have elected to account for forfeitures as they occur, rather than to estimate them. Forfeitures have not been significant historically.

Market-based deferred stock units vest as long as the employee continues to be employed by the Company and upon the achievement of the performance target. The performance target, which is approved by the Compensation Committee, is our share price appreciation and dividends paid, or "total shareholder return," in relation to a defined peer group over a three-year performance period beginning 1 October of the fiscal year of grant. We granted 77,251, 80,215, and 114,929 market-based deferred stock units in fiscal years 2021, 2020, and 2019, respectively.

The fair value of market-based deferred stock units was estimated using a Monte Carlo simulation model as these equity awards are tied to a market condition. The model utilizes multiple input variables that determine the probability of satisfying the market condition stipulated in the grant and calculates the fair value of the awards. We generally expense the grant-date fair value of these awards on a straight-line basis over the vesting period. The estimated grant-date fair value of market-based deferred stock units was $235.48, $275.19, and $229.61 per unit in fiscal years 2021, 2020, and 2019, respectively. The calculation of the fair value of these market-based deferred stock units used the following assumptions:

	2021	2020	2019
Expected volatility	**29.9%**	17.8%	17.5%
Risk-free interest rate	**0.2%**	1.6%	2.8%
Expected dividend yield	**2.1%**	2.4%	2.6%

In addition, we granted 110,555 time-based deferred stock units at a weighted average grant-date fair value of $282.48. In fiscal years 2020 and 2019, we granted 123,448 and 169,666 time-based deferred stock units at a weighted average grant-date fair value of $230.92 and $168.68, respectively.

A summary of deferred stock unit activity in fiscal year 2021 is presented below:

	Shares (000)	Weighted Average Grant-Date Fair Value
Deferred stock units outstanding at 30 September 2020	926	$181.14
Granted	188	261.95
Paid out	(330)	185.33
Forfeited	(17)	241.55
Adjusted	87	161.64
Deferred stock units outstanding at 30 September 2021	**854**	**$194.12**

Cash payments made for deferred stock units totaled $5.2, $4.8, and $1.9 in fiscal years 2021, 2020, and 2019, respectively. As of 30 September 2021, there was $47.0 of unrecognized compensation cost related to deferred stock units. This cost is expected to be recognized over a weighted average period of 1.5 years. The total fair value of deferred stock units paid out during fiscal years 2021, 2020, and 2019, including shares vested in prior periods, was $88.0, $65.4, and $19.2, respectively.

Stock Options

We have granted awards of options to purchase common stock to executives and selected employees. The exercise price of stock options equals the market price of our stock on the date of the grant. Options generally vest incrementally over three years and remain exercisable for ten years from the date of grant. As of 30 September 2021, there was no unrecognized compensation cost as all stock option awards were fully vested.

A summary of stock option activity in fiscal year 2021 is presented below:

	Shares (000)	Weighted Average Exercise Price
Stock options outstanding and exercisable at 30 September 2020	941	$96.95
Exercised	(140)	80.63
Stock options outstanding and exercisable at 30 September 2021	**801**	**$99.79**

The weighted average remaining contractual term of stock options outstanding and exercisable at 30 September 2021 was 1.9 years. The aggregate intrinsic value of these stock options was $125, which represents the amount by which our closing stock price of $256.11 as of 30 September 2021 exceeds the exercise price multiplied by the number of in-the-money options outstanding or exercisable. The intrinsic value of stock options exercised during fiscal years 2021, 2020, and 2019 was $29.0, $65.7, and $87.2, respectively.

Compensation cost is generally recognized over the stated vesting period consistent with the terms of the arrangement, which is either on a straight-line or graded-vesting basis. Expense recognition is accelerated for retirement-eligible individuals who would meet the requirements for vesting of awards upon their retirement.

Cash received from option exercises during fiscal year 2021 was $10.6. The total tax benefit realized from stock option exercises in fiscal year 2021 was $6.8, of which $6.5 was the excess tax benefit.

19. ACCUMULATED OTHER COMPREHENSIVE LOSS

The table below summarizes changes in accumulated other comprehensive loss ("AOCL"), net of tax, attributable to Air Products:

	Derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance at 30 September 2018	**($37.6)**	**($1,009.8)**	**($694.5)**	**($1,741.9)**
Other comprehensive loss before reclassifications	(44.1)	(356.2)	(326.2)	(726.5)
Amounts reclassified from AOCL	12.3	(2.6)	63.2	72.9
Net current period other comprehensive loss	($31.8)	($358.8)	($263.0)	($653.6)
Amount attributable to noncontrolling interests	(8.0)	(11.7)	(0.2)	(19.9)
Balance at 30 September 2019	**($61.4)**	**($1,356.9)**	**($957.3)**	**($2,375.6)**
Other comprehensive income (loss) before reclassifications	43.5	233.4	(68.2)	208.7
Amounts reclassified from AOCL	(57.7)	—	82.5	24.8
Net current period other comprehensive income (loss)	($14.2)	$233.4	$14.3	$233.5
Amount attributable to noncontrolling interest	(21.1)	19.3	(0.2)	(2.0)
Balance at 30 September 2020	**($54.5)**	**($1,142.8)**	**($942.8)**	**($2,140.1)**
Other comprehensive income before reclassifications	3.3	267.3	274.3	544.9
Amounts reclassified from AOCL	43.5	—	74.6	118.1
Net current period other comprehensive income	$46.8	$267.3	$348.9	$663.0
Amount attributable to noncontrolling interest	20.6	18.3	(0.1)	38.8
Balance at 30 September 2021	**($28.3)**	**($893.8)**	**($593.8)**	**($1,515.9)**

The table below summarizes the reclassifications out of AOCL and the affected line item on the consolidated income statements:

Fiscal Year Ended 30 September	2021	2020	2019
(Gain) Loss on Cash Flow Hedges, net of tax			
Sales	**($0.6)**	($0.2)	$0.4
Cost of sales	**(0.3)**	(0.8)	0.2
Other income (expense), net	**—**	—	(3.0)
Interest expense	**3.5**	2.8	14.7
Other non-operating income (expense), net(A)	**40.9**	(59.5)	—
Total (Gain) Loss on Cash Flow Hedges, net of tax	**$43.5**	($57.7)	$12.3
Currency Translation Adjustment(B)	**$—**	$—	($2.6)
Pension and Postretirement Benefits, net of tax(C)	**$74.6**	$82.5	$63.2

(A) The fiscal years 2021 and 2020 impacts include amortization of the excluded component and the effective portion of the related hedges.

(B) The fiscal year 2019 impact relates to a net gain on the exchange of two equity affiliates with a joint venture partner. Refer to Note 3, *Acquisitions*, for additional information.

(C) The components of net periodic benefit cost reclassified out of AOCL include items such as prior service cost amortization, actuarial loss amortization, and settlements and are included in "Other non-operating income (expense), net" on the consolidated income statements. Refer to Note 15, *Retirement Benefits*, for additional information.

20. EARNINGS PER SHARE

The table below details the computation of basic and diluted earnings per share ("EPS"):

Fiscal Year Ended 30 September	2021	2020	2019
Numerator			
Net income from continuing operations	**$2,028.8**	$1,901.0	$1,760.0
Net income (loss) from discontinued operations	**70.3**	(14.3)	—
Net Income Attributable to Air Products	**$2,099.1**	$1,886.7	$1,760.0
Denominator (in millions)			
Weighted average common shares — Basic	**221.6**	221.2	220.3
Effect of dilutive securities			
Employee stock option and other award plans	**0.9**	1.1	1.3
Weighted average common shares — Diluted	**222.5**	**222.3**	**221.6**
Per Share Data*			
Basic EPS from continuing operations	**$9.16**	$8.59	$7.99
Basic EPS from discontinued operations	**0.32**	(0.06)	—
Basic EPS Attributable to Air Products	**$9.47**	$8.53	$7.99
Diluted EPS from continuing operations	**$9.12**	$8.55	$7.94
Diluted EPS from discontinued operations	**0.32**	(0.06)	—
Diluted EPS Attributable to Air Products	**$9.43**	$8.49	$7.94

*EPS is calculated independently for each component and may not sum to total EPS due to rounding.

Diluted EPS attributable to Air Products reflects the potential dilution that could occur if stock options or other share-based awards were exercised or converted into common stock. The dilutive effect is computed using the treasury stock method, which assumes all share-based awards are exercised, and the hypothetical proceeds from exercise are used by the Company to purchase common stock at the average market price during the period. To the extent they would have been dilutive, the incremental shares, or the difference between shares assumed to be issued versus purchased, are included in the denominator of the diluted EPS calculation. There were no antidilutive outstanding share-based awards in fiscal years 2021, 2020 and 2019.

21. INCOME TAXES

The table below summarizes income from U.S. and foreign operations before taxes:

	2021	2020	2019
United States income	**$924.6**	$943.7	$723.3
Foreign income	**1,288.7**	1,215.3	1,350.8
Equity affiliates' income	**294.1**	264.8	215.4
Income from continuing operations before taxes	**$2,507.4**	$2,423.8	$2,289.5

The table below details the components of our income tax provision:

	2021	2020	2019
Current Tax Provision			
Federal	**$85.6**	$26.9	$163.7
State	**28.4**	23.8	23.3
Foreign	**254.8**	262.7	235.5
Total current tax provision	**368.8**	313.4	422.5
Deferred Tax Provision			
Federal	**54.7**	108.8	9.7
State	**(0.1)**	(3.6)	2.4
Foreign	**39.4**	59.8	45.5
Total deferred tax provision	**94.0**	165.0	57.6
Total income tax provision	**$462.8**	$478.4	$480.1

Cash Paid for Taxes (Net of Cash Refunds)

Income tax payments, net of refunds, were $383.8, $379.9, and $324.3 in fiscal years 2021, 2020, and 2019, respectively. Fiscal year 2021 reflects an income tax refund of $6.7 that is related to cash provided by discontinued operations.

India Finance Act 2020

On 27 March 2020, the Indian government passed Finance Act 2020 (the "India Finance Act"), which amended rules regarding the taxation of dividends declared and distributed by Indian companies. Under the India Finance Act, future dividends declared or distributed by an Indian company are no longer subject to dividend distribution tax. Instead, any non-resident recipient is subject to a withholding tax. Our income tax provision for the fiscal year ended 30 September 2020 reflected an expense of $20.3 for estimated withholding taxes that we may incur on future dividends related to INOX Air Products Private Limited ("INOX"), an equity affiliate investment in our Industrial Gases – Asia segment. Additionally, we recorded a benefit of $33.8 within "Equity affiliates' income" for our share of accumulated dividend distribution taxes released with respect to INOX.

U.S. Tax Cuts and Jobs Act

On 22 December 2017, the United States enacted the U.S. Tax Cuts and Jobs Act (the "Tax Act" or "Tax Reform"), which significantly changed existing U.S. tax laws, including a reduction in the federal corporate income tax rate to 21%, a deemed repatriation tax on unremitted foreign earnings, as well as other changes. Our consolidated income statements reflect a discrete net income tax expense of $43.8 in fiscal year 2019 related to impacts of the Tax Act. The net expense included the reversal of a non-recurring $56.2 benefit initially recorded in fiscal year 2018 related to the U.S. taxation of deemed foreign dividends, which was eliminated by regulations issued in fiscal year 2019. The reversal in 2019 was partially offset by a benefit of $12.4 to reduce the total expected costs of the deemed repatriation tax.

As of 30 September 2021, the remaining liability for the deemed repatriation tax is $177.7, $157.1 of which is presented within noncurrent liabilities on our consolidated balance sheets. We are paying this obligation in installments over five remaining years.

Effective Tax Rate

The effective tax rate equals the income tax provision divided by income from continuing operations before taxes. A reconciliation of the differences between the United States federal statutory tax rate and the effective tax rate is provided below:

(Percent of income before taxes)	**2021**	2020	2019
U.S. federal statutory tax rate	**21.0%**	21.0%	21.0%
State taxes, net of federal benefit	**0.9**	0.6	1.0
Income from equity affiliates	**(2.5)**	(2.3)	(2.0)
Foreign tax differentials	**0.5**	0.1	1.0
Tax on foreign repatriated earnings	**0.7**	0.9	0.1
Share-based compensation	**(0.7)**	(0.8)	(0.6)
Tax reform repatriation	**—**	—	1.9
Other	**(1.4)**	0.2	(1.4)
Effective Tax Rate	**18.5%**	19.7%	21.0%

Foreign tax differentials represent the differences between foreign earnings subject to foreign tax rates that are different than the U.S. federal statutory rate and include tax holidays and incentives. Our income tax holidays relate to operations in jurisdictions that provide reduced income tax rates for certain qualifying activities and are conditional upon us meeting certain operating thresholds. The impact of these tax holidays decreased income tax expense by $26.9 ($0.12 per share) in fiscal year 2020, primarily related to a preferential tax rate in China that is effective until 31 December 2030. This includes the impact of remeasurement of the deferred tax assets and liabilities in 2020 due to an extension of the holiday period in China. The impact of tax holidays in fiscal years 2021 and 2019 was not material.

Tax on foreign repatriated earnings includes benefits and costs related to U.S. and foreign taxation on the current and future repatriation of foreign earnings and a U.S. benefit for related foreign tax credits. The effective tax rate in 2020 reflects impacts from the India Finance Act 2020 discussed above. In addition, the Tax Act included new provisions related to the taxation of foreign operations, known as Global Intangible Low Tax Income ("GILTI"). We have elected as an accounting policy to account for GILTI as a period cost when incurred.

Share-based compensation reflects the impact from recognition of $17.0, $20.0, and $14.6 of excess tax benefits in our provision for income taxes during fiscal years 2021, 2020, and 2019, respectively.

In fiscal year 2021, other includes net tax benefits of $21.5, including interest, resulting from the release of U.S. unrecognized tax benefits upon expiration of the statute of limitations on uncertain tax positions taken in prior years.

Deferred Tax Assets and Liabilities

The significant components of deferred tax assets and liabilities are as follows:

30 September	**2021**	2020
Gross Deferred Tax Assets		
Retirement benefits and compensation accruals	**$69.4**	$209.0
Tax loss carryforwards	**120.9**	112.6
Tax credits and other tax carryforwards	**27.3**	40.3
Reserves and accruals	**74.5**	67.0
Currency losses	**30.4**	30.4
Other	**44.0**	64.6
Valuation allowance	**(97.6)**	(95.0)
Deferred Tax Assets	**268.9**	428.9
Gross Deferred Tax Liabilities		
Plant and equipment	**1,171.8**	1,110.9
Unremitted earnings of foreign entities	**69.1**	58.7
Partnership and other investments	**15.3**	19.3
Intangible assets	**86.2**	83.6
Other	**7.2**	3.9
Deferred Tax Liabilities	**1,349.6**	1,276.4
Net Deferred Income Tax Liability	**$1,080.7**	$847.5

Deferred tax assets and liabilities are included within the consolidated balance sheets as follows:

	2021	2020
Deferred Tax Assets		
Other noncurrent assets	**$100.2**	$115.1
Deferred Tax Liabilities		
Deferred income taxes	**1,180.9**	962.6
Net Deferred Income Tax Liability	**$1,080.7**	$847.5

Deferred tax liabilities related to plant and equipment increased due to the impact of accelerated tax depreciation deductions in excess of book depreciation primarily in the United States. Deferred tax assets related to retirement benefits and compensation accruals are impacted by changes in plan assets and benefit obligations that have been recognized in other comprehensive income. This balance decreased primarily due to higher than expected asset returns and higher discount rates. Deferred tax assets related to tax credits and other tax carryforwards decreased primarily due to the utilization of tax credits against our income tax liabilities.

As of 30 September 2021, we had the following deferred tax assets for certain tax credits:

Jurisdiction	Gross Tax Asset	Expiration Period
U.S. State	$2.2	2022 - 2035
U.S. Federal	2.1	2027 - 2031
Foreign	27.5	2022 - 2041; Indefinite

Of the $27.5 foreign tax credits, $14.2 have indefinite carryforward periods.

As of 30 September 2021, we had the following loss carryforwards:

Jurisdiction	Gross Loss Carryforward	Expiration Period
U.S. State Net Operating Loss	$318.8	2022 - 2040
U.S. Federal Capital Loss	26.5	2025
Foreign Net Operating Loss	258.8	2022 - 2036; Indefinite
Foreign Capital Loss	221.6	Indefinite

Of the $258.8 of foreign net operating loss carryforwards, $111.5 have indefinite carryforward periods.

The valuation allowance was $97.6 and $95.0 as of 30 September 2021 and 2020, respectively. As of 30 September 2021, the balance primarily related to $35.1 of foreign credits and loss carryforwards as well as $55.4 related to foreign capital losses that were generated from the loss recorded on the exit from the Energy-from-Waste project in 2016. If events warrant the reversal of the valuation allowance, it would result in a reduction of tax expense. We believe it is more likely than not that future earnings and reversal of deferred tax liabilities will be sufficient to utilize our deferred tax assets, net of existing valuation allowance, as of 30 September 2021.

We record income taxes on the undistributed earnings of our foreign subsidiaries and corporate joint ventures unless those earnings are indefinitely reinvested. Such earnings may be subject to foreign withholding and other taxes. The cumulative undistributed earnings that are considered to be indefinitely reinvested in foreign subsidiaries and corporate joint ventures are included in retained earnings on the consolidated balance sheets and amounted to $5.9 billion as of 30 September 2021. An estimated $540.4 in additional foreign withholding and other income taxes would be due if these earnings were remitted as dividends.

Unrecognized Tax Benefits

A reconciliation of the beginning and ending amount of the unrecognized tax benefits, which excludes interest and penalties, is as follows:

	2021	2020	2019
Unrecognized tax benefits balance at beginning of year	**$237.0**	$231.7	$233.6
Additions for tax positions of the current year	**14.5**	7.6	7.8
Additions for tax positions of prior years	**3.5**	17.7	14.2
Reductions for tax positions of prior years	**(8.2)**	(4.1)	(14.7)
Settlements	**(3.1)**	(1.2)	(1.5)
Statute of limitations expiration	**(104.6)**	(14.0)	(3.9)
Foreign currency translation	**1.2**	(0.7)	(3.8)
Unrecognized tax benefits balance at end of year	**$140.3**	$237.0	$231.7

Of our unrecognized tax benefits as of 30 September 2021, $73.7 would impact the effective tax rate from continuing operations if recognized.

In fiscal year 2021, reserves for unrecognized tax benefits decreased $104.6 due to statute of limitation expirations. We released reserves of $65.6 related to the sale of our former Performance Materials Division ("PMD"), $8.2 associated with our former Energy-from-Waste business ("EfW"), and $27.5 for other reserves, including those associated with a tax election benefit related to a non-U.S. subsidiary in 2017. Upon release of the reserves related to PMD and EfW, we recorded income tax benefits of $51.8 and $8.2, respectively, as a component of discontinued operations. The PMD reserve was net of related deferred tax assets of $13.8. The release of other reserves of $27.5 was net of related deferred tax assets of $8.4 and resulted in an income tax benefit, including interest, of $21.5.

Interest and penalties related to unrecognized tax benefits are recorded as a component of income tax expense and totaled ($0.2), $6.1, and $12.0 in fiscal years 2021, 2020, and 2019, respectively. Our 2021 expense reflects a benefit from the reversal of accrued interest on reserves released during the period. Our accrued balance for interest and penalties was $24.9 and $25.2 as of 30 September 2021 and 2020, respectively.

Income Tax Examinations

We are currently under examination in a number of tax jurisdictions. It is reasonably possible that a change in our unrecognized tax benefits may occur in fiscal year 2022 if any of these examinations are resolved during the next twelve months. However, quantification of an estimated range cannot be made as of the date of this report.

We generally remain subject to examination in the following major tax jurisdictions for the years indicated below:

Major Tax Jurisdiction	Open Tax Years
North America	
United States – Federal	2018 - 2021
United States – State	2012 - 2021
Canada	2015 - 2021
Europe	
France	2018 - 2021
Germany	2017 - 2021
Netherlands	2016 - 2021
Spain	2015 - 2021
United Kingdom	2018 - 2021
Asia	
China	2011 - 2021
South Korea	2010 - 2021
Taiwan	2016 - 2021
Latin America	
Chile	2018 - 2021

22. SUPPLEMENTAL INFORMATION

Other Receivables and Current Assets

30 September	2021	2020
Contract assets	**$119.4**	$55.9
Contract fulfillment costs	**125.5**	109.9
Derivative instruments	**59.8**	97.5
Current lease receivables	**84.4**	86.7
Other	**161.8**	132.9
Other receivables and current assets	**$550.9**	$482.9

Other Noncurrent Assets

30 September	2021	2020
Operating lease right-of-use assets	**$566.2**	$376.8
Pension benefits	**219.2**	26.5
Long-term deposits on plant and equipment	**200.0**	100.0
Deferred tax assets	**100.2**	115.1
Prepaid tax	**75.0**	19.3
Investments other than equity method	**66.9**	17.0
Derivative instruments	**23.6**	45.8
Other	**255.4**	242.6
Other noncurrent assets	**$1,506.5**	$943.1

Payables and Accrued Liabilities

30 September	2021	2020
Trade creditors	**$736.8**	$546.2
Contract liabilities	**366.8**	313.8
Dividends payable	**332.1**	296.2
Accrued payroll and employee benefits	**221.2**	196.8
Obligation for future contribution to an equity affiliate	**150.0**	94.4
Current lease obligations	**78.6**	70.7
Derivative instruments	**68.8**	50.9
Pension and postretirement benefits	**25.6**	17.9
Other	**238.4**	246.3
Payables and accrued liabilities	**$2,218.3**	$1,833.2

Other Noncurrent Liabilities

30 September	2021	2020
Operating lease liabilities	**$503.4**	$335.8
Asset retirement obligations	**258.0**	236.2
Pension benefits	**255.3**	614.2
Postretirement benefits	**22.1**	31.4
Long-term accrued income taxes related to U.S. tax reform	**157.1**	190.9
Contingencies related to uncertain tax positions	**111.8**	138.6
Environmental liabilities	**68.5**	73.6
Contract liabilities	**58.4**	57.9
Derivative instruments	**52.7**	34.7
Other	**153.6**	202.7
Other noncurrent liabilities	**$1,640.9**	$1,916.0

Related Party Transactions

Our consolidated income statements include sales to some of our equity affiliates and joint venture partners as well as other income primarily from fees charged for use of Air Products' patents and technology. Sales to and other income from related parties totaled approximately $225, $335, and $410 for the fiscal years ended 30 September 2021, 2020, and 2019, respectively. Sales agreements with related parties include terms that are consistent with those that we believe would have been negotiated at an arm's length with an independent party. As of 30 September 2021 and 2020, our consolidated balance sheets included related party trade receivables of approximately $90 and $95, respectively.

In addition, refer to Note 14, *Debt*, for information concerning debt owed to related parties.

Facility Closures

During the second quarter of fiscal year 2021, we recorded a charge of $23.2 primarily for a noncash write-down of assets associated with a contract termination in the Industrial Gases – Americas segment. This charge is reflected as "Facility closure" on our consolidated income statements for the fiscal year ended 30 September 2021 and was not recorded in segment results.

In December 2018, one of our customers was subject to a government enforced shutdown due to environmental reasons. As a result, we recognized a charge of $29.0 during the first quarter of fiscal year 2019 primarily related to the write-off of onsite assets. This charge was reflected as "Facility closure" on our consolidated income statements for the fiscal year ended 30 September 2019 and was not recorded in segment results.

Company Headquarters Relocation Income (Expense)

During the second quarter of fiscal year 2020, we sold property at our former corporate headquarters located in Trexlertown, Pennsylvania, in anticipation of relocating our U.S. headquarters. We received net proceeds of $44.1 and recorded a gain of $33.8, which is reflected on our consolidated income statements as "Company headquarters relocation income (expense)" for the fiscal year ended 30 September 2020. The gain was not recorded in the results of the Corporate and other segment.

Cost Reduction Actions

In fiscal year 2019, we recognized an expense of $25.5 for severance and other benefits associated with position eliminations. These actions were taken to drive cost synergies primarily within the Industrial Gases – EMEA and the Industrial Gases – Americas segments. The charge is reflected on our consolidated income statements as "Cost reduction actions" for the fiscal year ended 30 September 2019 and was not recorded in segment results.

23. BUSINESS SEGMENT AND GEOGRAPHIC INFORMATION

Our reporting segments reflect the manner in which our chief operating decision maker reviews results and allocates resources. Except in the Industrial Gases – EMEA and Corporate and other segments, each reporting segment meets the definition of an operating segment and does not include the aggregation of multiple operating segments. Our Industrial Gases – EMEA and Corporate and other segments each include the aggregation of two operating segments that meet the aggregation criteria under GAAP.

As of 30 September 2021, our reporting segments are:

- Industrial Gases – Americas;
- Industrial Gases – EMEA (Europe, Middle East, and Africa);
- Industrial Gases – Asia;
- Industrial Gases – Global; and
- Corporate and other

On 4 November 2021, we announced the reorganization of our industrial gases segments effective 1 October 2021. Refer to Note 24, *Subsequent Events*, for additional information.

Industrial Gases – Regional

The regional Industrial Gases segments (Americas, EMEA, and Asia) include the results of our regional industrial gas businesses, which produce and sell atmospheric gases, such as oxygen, nitrogen, and argon; process gases, such as hydrogen, helium, carbon dioxide (CO_2), carbon monoxide, and syngas (a mixture of hydrogen and carbon monoxide); and specialty gases. The industrial gases business also develops, builds, and operates equipment for the production or processing of gases, such as air separation units and non-cryogenic generators.

We supply gases to diversified customers in many industries, including those in refining, chemical, gasification, metals, electronics, manufacturing, and food and beverage, through a variety of supply modes. For additional information, refer to Note 4, *Revenue Recognition*.

Electricity is the largest cost component in the production of atmospheric gases. Steam methane reformers utilize natural gas as the primary raw material, and gasifiers use liquid and solid hydrocarbons as the principal raw material for the production of hydrogen, carbon monoxide, and syngas. We mitigate energy, natural gas, and hydrocarbon price fluctuations contractually through pricing formulas, surcharges, and cost pass-through and tolling arrangements.

The regional Industrial Gases segments also include our share of the results of several joint ventures accounted for by the equity method. The largest of these joint ventures operate in China, India, Italy, Mexico, Saudi Arabia, South Africa, and Thailand.

Each of the regional Industrial Gases segments competes against global industrial gas companies as well as regional competitors. Competition is based primarily on price, reliability of supply, and the development of industrial gas applications. We derive a competitive advantage in locations where we have pipeline networks, which enable us to provide reliable and economic supply of products to larger customers.

Industrial Gases – Global

The Industrial Gases – Global segment includes activity related to the sale of cryogenic and gas processing equipment for air separation. The equipment is sold worldwide to customers in a variety of industries, including chemical and petrochemical manufacturing, oil and gas recovery and processing, and steel and primary metals processing. The Industrial Gases – Global segment also includes centralized global costs associated with management of all the Industrial Gases segments. These costs include Industrial Gases global administrative costs, product development costs, and research and development costs. We compete with a large number of firms for all the offerings included in the Industrial Gases – Global segment. Competition in the equipment business is based primarily on technological performance, service, technical know-how, price, and performance guarantees.

Corporate and other

The Corporate and other segment includes our liquefied natural gas, turbo machinery equipment and services, and distribution sale of equipment businesses as well as our corporate support functions that benefit all segments. Competition for the sale of equipment businesses is based primarily on technological performance, service, technical know-how, price, and performance guarantees.

The results of the Corporate and other segment also include income and expense that is not directly associated with the other segments, such as foreign exchange gains and losses.

In addition to assets of the global businesses included in this segment, other assets include cash and cash items, short-term investments, deferred tax assets, and financial instruments.

Customers

We do not have a homogeneous customer base or end market, and no single customer accounts for more than 10% of our consolidated revenues.

Accounting Policies

The accounting policies of the segments are the same as those described in Note 1, *Major Accounting Policies*. We evaluate the performance of segments based upon reported segment operating income.

Business Segment Information

	Industrial Gases– Americas	Industrial Gases– EMEA	Industrial Gases– Asia	Industrial Gases– Global	Corporate and other	Total	
2021							
Sales	$4,167.6	$2,444.9	$2,920.8	$511.0	$278.7	$10,323.0	(A)
Operating income (loss)	1,065.5	557.4	838.3	(60.6)	(132.8)	2,267.8	(B)
Depreciation and amortization	611.9	229.8	444.4	10.9	24.3	1,321.3	
Equity affiliates' income	112.5	93.7	81.4	6.5	—	294.1	(B)
Expenditures for long-lived assets	909.6	371.3	792.3	112.6	278.4	2,464.2	
Investments in net assets of and advances to equity affiliates	383.8	587.4	608.1	70.0	—	1,649.3	
Total assets	7,092.5	4,353.2	7,627.1	648.4	7,138.0	26,859.2	
2020							
Sales	$3,630.7	$1,926.3	$2,716.5	$364.9	$217.9	$8,856.3	(A)
Operating income (loss)	1,012.4	473.3	870.3	(40.0)	(112.2)	2,203.8	(B)
Depreciation and amortization	559.5	195.9	399.4	9.6	20.6	1,185.0	
Equity affiliates' income	84.3	74.8	61.0	10.9	—	231.0	(B)
Expenditures for long-lived assets	1,264.7	327.6	690.3	35.3	191.1	2,509.0	
Investments in net assets of and advances to equity affiliates	310.9	535.2	539.7	46.4	—	1,432.2	
Total assets	6,610.1	3,917.0	6,842.9	397.8	7,400.7	25,168.5	
2019							
Sales	$3,873.5	$2,002.5	$2,663.6	$261.0	$118.3	$8,918.9	(A)
Operating income (loss)	997.7	472.4	864.2	(11.7)	(152.8)	2,169.8	(B)
Depreciation and amortization	505.2	189.5	361.5	8.6	18.0	1,082.8	
Equity affiliates' income	84.8	69.0	58.4	3.2	—	215.4	(B)
Expenditures for long-lived assets	545.8	216.3	1,105.5	33.8	88.3	1,989.7	

(A) The sales information noted above relates to external customers only. All intersegment sales are eliminated in consolidation. Intersegment sales are generally transacted at market pricing. We generally do not have intersegment sales from our regional industrial gases businesses. Equipment manufactured for our regional industrial gases segments are generally transferred at cost and are not reflected as an intersegment sale.

(B) Refer to the *Reconciliations to Consolidated Results* section below.

Reconciliations to Consolidated Results

Operating Income

The table below reconciles total operating income disclosed in the table above to consolidated operating income as reflected on our consolidated income statements:

Fiscal Year Ended 30 September	**2021**	2020	2019
Total	**$2,267.8**	$2,203.8	$2,169.8
Facility closure	**(23.2)**	—	(29.0)
Cost reduction actions	**—**	—	(25.5)
Gain on exchange with joint venture partner	**36.8**	—	29.1
Company headquarters relocation income (expense)	**—**	33.8	—
Consolidated Operating Income	**$2,281.4**	$2,237.6	$2,144.4

Equity Affiliates' Income

The table below reconciles total equity affiliates' income disclosed in the table above to consolidated equity affiliates' income as reflected on our consolidated income statements:

Fiscal Year Ended 30 September	2021	2020	2019
Total	**$294.1**	$231.0	$215.4
India Finance Act 2020	**—**	33.8	—
Consolidated Equity Affiliates' Income	**$294.1**	$264.8	$215.4

Geographic Information

Sales to External Customers

Fiscal Year Ended 30 September	2021	2020	2019
United States	**$3,895.8**	$3,359.6	$3,351.8
China	**1,828.0**	1,719.7	1,730.2
Other foreign operations	**4,599.2**	3,777.0	3,836.9
Total	**$10,323.0**	$8,856.3	$8,918.9

Long-Lived Assets[(A)]

30 September	2021	2020	2019
United States	**$5,187.8**	$4,633.9	$3,721.3
China	**4,137.7**	3,719.4	3,302.6
Other foreign operations	**3,929.1**	3,611.4	3,313.7
Total	**$13,254.6**	$11,964.7	$10,337.6

(A) Long-lived assets represents plant and equipment, net.

Geographic information is based on country of origin.

24. SUBSEQUENT EVENTS

Equity Affiliate Investment in Jazan Integrated Gasification and Power Company ("JIGPC")

On 27 October 2021, we made an initial investment of $1.6 billion in Jazan Integrated Gasification and Power Company ("JIGPC"). JIGPC is a joint venture with Saudi Aramco Power Company (a subsidiary of Aramco), ACWA Power, and Air Products Qudra in the Jazan Economic City, Saudi Arabia. Our investment, which was made primarily in the form of shareholder loans, represents a 55% interest in the joint venture, of which 4% is attributable to the non-controlling partner of Air Products Qudra. Our $1.6 billion investment includes approximately $130 received from the non-controlling partner in September 2021. This cash receipt is reflected within "Investments by noncontrolling interests" on our consolidated statements of equity and cash flows for the fiscal year ended 30 September 2021.

We expect to make an additional investment in JIGPC of approximately $1 billion in 2023.

We determined JIGPC is a variable interest entity for which we are not the primary beneficiary. Therefore, we will account for our investment in JIGPC under the equity method within the Industrial Gases – Middle East segment, a new reporting segment in fiscal year 2022 as discussed below.

JIGPC Joint Venture

On 27 September 2021, JIGPC signed definitive agreements for the acquisition of $12 billion of assets from Aramco and related project financing for the purchase. JIGPC will complete the acquisition of the project assets, which include power blocks, gasifiers, air separation units, syngas cleanup assets, and utilities, in two phases. JIGPC will commission, operate, and maintain the project assets to supply electricity, steam, hydrogen and utilities to Aramco's refinery and terminal complex under a 25-year agreement.

The first phase was completed on 27 October 2021 and included $7 billion of the assets. The second phase is expected to be funded and completed in 2023. JIGPC will account for the asset transfer as a financing, recording a financing receivable upon acquisition and recognizing financing income over the supply term.

Jazan Gas Project Company

Jazan Gas Project Company ("JGPC"), a joint venture between Air Products and ACWA Holding, entered into a 20-year oxygen and nitrogen supply agreement in 2015 to supply Aramco's oil refinery and power plant in Jazan, Saudi Arabia. Air Products owns 26% of the joint venture. In October 2021, the supply agreement between JGPC and Aramco was terminated, and JGPC sold its air separation units to Aramco. We initially sold these assets to JGPC and deferred revenue and profit equal to our ownership percentage in the joint venture. With the termination of the supply agreement and sale of the air separation units complete, we will recognize the remaining deferred profit in equity affiliates' income in the first quarter of fiscal year 2022.

Segment Reorganization

On 4 November 2021, we announced the reorganization of our industrial gases segments. Beginning in the first quarter of fiscal year 2022, we will report our results under the following five reporting segments:

- Industrial Gases – Americas;
- Industrial Gases – Asia;
- Industrial Gases – Europe;
- Industrial Gases – Middle East; and
- Corporate and other

The reorganization reflects the separation of our former Industrial Gases – EMEA segment into two separate reporting segments: Industrial Gases – Europe and Industrial Gases – Middle East. The results of an affiliate formerly reflected in the Industrial Gases – Asia segment will now be reported in the Industrial Gases – Middle East segment. Additionally, the results of our Industrial Gases – Global operating segment will be reflected in the Corporate and other segment. Except for the Corporate and other segment, each reporting segment will meet the definition of an operating segment and will not include the aggregation of multiple operating segments. Our Corporate and other segment will include the aggregation of three operating segments that meet the aggregation criteria under GAAP.

Beginning with our Quarterly Report on Form 10-Q for the first quarter of fiscal year 2022, segment results will be presented on a retrospective basis to reflect the reorganization.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

Not applicable.

Item 9A. Controls and Procedures.

Disclosure Controls and Procedures

We maintain a comprehensive set of disclosure controls and procedures (as defined in Rules 13a-15 (e) and 15d-15(e) under the Exchange Act). Under the supervision of the Chief Executive Officer and Chief Financial Officer, our management conducted an evaluation of the effectiveness of our disclosure controls and procedures as of 30 September 2021. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that, as of 30 September 2021, the disclosure controls and procedures were effective.

Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). Management has evaluated the effectiveness of our internal control over financial reporting as of 30 September 2021 based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on that evaluation, management concluded that, as of 30 September 2021, our internal control over financial reporting was effective. Management's Report on Internal Control over Financial Reporting is provided under Part II, Item 8, of this Form 10-K.

There was no change in our internal control over financial reporting during the fourth quarter of fiscal year 2021 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Deloitte & Touche LLP, our independent registered public accounting firm, has audited our internal control over financial reporting as of 30 September 2021. The Report of the Independent Registered Public Accounting Firm is provided under Part II, Item 8, of this Form 10-K.

Item 9B. Other Information.

M. Scott Crocco, the Company's former Executive Vice President and Chief Financial Officer, retired from the Company effective 30 September 2021. In connection with Mr. Crocco's retirement, the Company and Mr. Crocco entered into a project bonus and release agreement (the "Agreement") on 18 November 2021. Pursuant to the Agreement, Mr. Crocco will receive a lump sum payment of $1,775,000 in recognition of his significant contributions toward achieving the October 2021 financial closing of the Jazan gasification project. The Agreement also contains a customary release of claims arising from or relating to Mr. Crocco's service with the Company.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this item relating to our directors and nominees is incorporated herein by reference to the section captioned "The Board of Directors" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022. The information required by this item relating to our executive officers is set forth in Part I, Item 1 of this Form 10-K.

The information required by this item relating to our Audit and Finance Committee and our Audit and Finance Committee Financial Expert is incorporated herein by reference to the sections captioned "Board Structure–Standing Committees of the Board" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022.

The information required by this item relating to our procedures regarding the consideration of candidates recommended by shareholders and a procedure for submission of such candidates is incorporated herein by reference to the section captioned "The Board of Directors–Selection of Directors" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022.

The information required by this item relating to Section 16(a) Beneficial Ownership Reporting Compliance is incorporated herein by reference to the section captioned "Section 16(a) Beneficial Ownership Reporting" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022.

We have adopted a Code of Conduct that applies to all employees, including the Chief Executive Officer, the Chief Financial Officer, and the Principal Accounting Officer. The Code of Conduct can be found at our website at www.airproducts.com/company/governance/code-of-conduct.

Item 11. Executive Compensation.

The information required by this item is incorporated herein by reference to the sections captioned "Executive Compensation" and "Compensation of Directors" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this item is incorporated herein by reference to the sections captioned "Information About Stock Ownership" and "Equity Compensation Plan Information" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this item is incorporated herein by reference to the sections captioned "The Board of Directors–Director Independence" and "Board Practices, Processes and Policies–Transactions with Related Persons" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022.

Item 14. Principal Accountant Fees and Services.

The information required by this item is incorporated herein by reference to the section captioned "Fees of Independent Registered Public Accounting Firm" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 3 February 2022.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) The documents below are filed as a part of this report:

(1) *Financial Statements.*

The following is a list of the Consolidated Financial Statements of Air Products and Chemicals, Inc. and its subsidiaries included in Part II, Item 8. Financial Statements and Supplementary Data:

Report of Deloitte & Touche LLP, Independent Registered Public Accounting Firm	50
Consolidated Income Statements – Fiscal Years Ended 30 September 2021, 2020, and 2019	53
Consolidated Comprehensive Income Statements – Fiscal Years Ended 30 September 2021, 2020, and 2019	54
Consolidated Balance Sheets – 30 September 2021 and 2020	55
Consolidated Statements of Cash Flows – Fiscal Years Ended 30 September 2021, 2020, and 2019	56
Consolidated Statements of Equity – Fiscal Years Ended 30 September 2021, 2020, and 2019	57

(2) *Financial Statement Schedules.*

Financial statement schedules are omitted as they are either not required or the information is otherwise included in the consolidated financial statements or notes thereto.

(3) *Exhibits.*

The exhibits filed as a part of this report as required by Item 601 of Regulation S-K are listed in the Index to Exhibits beginning on page 114.

Item 16. Form 10-K Summary.

None.

INDEX TO EXHIBITS

Exhibit No.	Description
(3)	Articles of Incorporation and Bylaws.
3.1	Restated Certificate of Incorporation of the Company. (Filed as Exhibit 3.2 to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 1987.)*
3.2	Amendment to the Restated Certificate of Incorporation of the Company dated 25 January 1996. (Filed as Exhibit 3.3 to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 1996.)*
3.3	Amendment to the Restated Certificate of Incorporation of the Company dated 28 January 2014. (Filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended 30 June 2014.)*
3.4	Amended and Restated Bylaws of the Company. (Filed as Exhibit 3.1 to the Company's Current Report on Form 8-K dated 26 November 2019.)*
(4)	Instruments defining the rights of security holders, including indentures. Upon request of the Securities and Exchange Commission, the Company hereby undertakes to furnish copies of the instruments with respect to its long-term debt.
4.1	Indenture, dated as of 10 January 1995, between the Company and The Bank of New York Trust, N.A. (formerly Wachovia Bank, National Association and initially First Fidelity Bank Company, National Association), as Trustee. (Filed as Exhibit 4(a) to the Company's Registration Statement on Form S-3 filed 19 January 1995, File No. 033-57357.)*
4.2	Indenture, dated as of 30 April 2020, between the Company and The Bank of New York Trust Company, N.A., as Trustee. (Filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed 30 April 2020.)*
4.3	Description of Securities.
(10)	Material Contracts.
10.1	Deferred Compensation Program for Directors, effective 7 October 2019. (Filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for quarter ended 31 December 2019.)*†
10.2	Amended and Restated Long-Term Incentive Plan of the Company effective 1 October 2014. (Filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on 23 September 2014.)*†
10.2(a)	Form of Restricted Stock Unit Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2020 awards. (Filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 March 2020.)*†
10.2(b)	Form of Performance Share Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2020 awards. (Filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 March 2020.)*†
10.3	Air Products and Chemicals, Inc. 2021 Long-Term Incentive Plan. (Filed as Exhibit 4.5 to the Company's Registration Statement on Form S-8 (File No. 333-252722) filed on 4 February 2021.)*†
10.3(a)	Form of Restricted Stock Unit Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2021 awards. (Filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 December 2020.)*†
10.3(b)	Form of Performance Share Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2021 awards. (Filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 December 2020.)*†
10.4	Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 November 2017 with provisions effective 1 January 2018. (Filed as Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 December 2017.)*†
10.4(a)	Amendment No. 1 to the Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 November 2017 with provisions effective 1 January 2018. (Filed as Exhibit 10.6(a) to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2018.)*†

INDEX TO EXHIBITS

Exhibit No.	Description
10.4(b)	Amendment No. 2 to the Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 January 2019. (Filed as Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 December 2018.)*†
10.4(c)	Amendment No. 3 to the Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 January 2019. (Filed as Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 December 2018.)*†
10.4(d)	Amendment No. 4 to the Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 August 2019. (Filed as Exhibit 10.6D to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2019.)*†
10.4(e)	Amendment No. 5 to the Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 August 2019. (Filed as Exhibit 10.6E to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2019.)*†
10.4(f)	Amendment No. 6 to the Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 28 January 2021. (Filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 March 2021.)*†
10.4(g)	Amendment No. 7 to the Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 January 2020. (Filed as Exhibit 10.3 to the Company's Annual Report on Form 10-K for the fiscal year ended 31 March 2021.)*†
10.5	Supplementary Pension Plan of Air Products and Chemicals, Inc. as Amended and Restated effective 1 August 2014. (Filed as Exhibit 10.10 to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2014.)*†
10.5(a)	Amendment No. 1 dated as of 30 September 2015 to the Supplementary Pension Plan of Air Products and Chemicals, Inc. as Amended and Restated effective 1 August 2014. (Filed as Exhibit 10.10(a) to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2015.)*†
10.5(b)	Amendment No. 2 dated as of 30 September 2016 to the Supplementary Pension Plan of Air Products and Chemicals, Inc. as Amended and Restated effective 1 August 2014. (Filed as Exhibit 10.7(b) to the Company's Annual Report on Form 10-K for fiscal year ended 30 September 2016.)*†
10.5(c)	Amendment No. 3 dated as of 26 July 2017 to the Supplementary Pension Plan of Air Products and Chemicals, Inc. as Amended and Restated effective 1 August 2017.(Filed as Exhibit 10.7(c) to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2017.)*†
10.6	Deferred Compensation Plan as Amended and Restated effective 1 January 2018. (Filed as Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 December 2017.)*†
10.7	Air Products and Chemicals, Inc. Executive Separation Program as amended effective as of 20 July 2018. (Filed as Exhibit 10.10 to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2018.)*†
10.8	Form of Change in Control Severance Agreement for an Executive Officer. (filed as Exhibit 10.2 of the Company's Current Report on Form 8-K dated 23 September 2014.)*†
10.9	Amended and Restated Employment Agreement dated 14 November 2017, between the Company and Seifollah Ghasemi. (Filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed 14 November 2017.)*†
10.9(a)	Amendment to Employment Agreement, dated 21 May 2020, between Air Products and Chemicals, Inc. and Seifollah Ghasemi. (Filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed 21 May 2020.)*†
10.10	Senior Management Severance and Summary Plan Description effective as of 1 October 2017. (Filed as Exhibit 10.16 to the Company's Annual Report on Form 10-K for the fiscal year ended 30 September 2017.)*†

INDEX TO EXHIBITS

Exhibit No.	Description
10.11	Compensation Programs for Nonemployee Directors effective 26 November 2019. (Filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 December 2019.)*†
10.12	Project Bonus and Release Agreement, dated 18 November 2021, between the Company and M. Scott Crocco.†
10.13	Revolving Credit Agreement dated as of 31 March 2021 for $2,500,000,000. (Filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended 31 March 2021.)*
10.13(a)	Amendment to the Revolving Credit Agreement dated as of 29 September 2021.
(21)	Subsidiaries of the Registrant.
21.1	Subsidiaries of the Registrant.
(23)	Consents of Experts and Counsel.
23.1	Consent of Independent Registered Public Accounting Firm.
(24)	Power of Attorney.
24.1	Power of Attorney.
(31)	Rule 13a-14(a)/15d-14(a) Certifications.
31.1	Certification by the Principal Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification by the Principal Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
(32)	Section 1350 Certifications.
32.1	Certification by the Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.††
(101)	Interactive Data Files.
101.INS	Inline XBRL Instance Document. The XBRL Instance Document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.
104	Cover Page Interactive Data File, formatted in Inline XBRL (included in Exhibit 101).

* Previously filed as indicated and incorporated herein by reference. Exhibits incorporated by reference are located in SEC File No. 001-04534 unless otherwise indicated.

† Indicated management contract or compensatory arrangement.

†† The certification attached as Exhibit 32.1 that accompanies this Annual Report on Form 10-K, is not deemed filed with the SEC and is not to be incorporated by reference into any filing of Air Products and Chemicals, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Form 10-K, irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

AIR PRODUCTS AND CHEMICALS, INC.
(Registrant)

By: /s/ Melissa N. Schaeffer

Melissa N. Schaeffer
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

Date: 18 November 2021

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature and Title	**Date**
/s/ Seifi Ghasemi (Seifi Ghasemi) Director, Chairman, President, and Chief Executive Officer (Principal Executive Officer)	18 November 2021
/s/ Russell A. Flugel (Russell A. Flugel) Senior Vice President, Corporate Controller, and Principal Accounting Officer	18 November 2021
* (Charles I. Cogut) Director	18 November 2021
* (Lisa A. Davis) Director	18 November 2021
* (Chad C. Deaton) Director	18 November 2021
* (David H. Y. Ho) Director	18 November 2021

Signature and Title	**Date**
* (Edward L. Monser) Director	18 November 2021
* (Matthew H. Paull) Director	18 November 2021
* (Wayne T. Smith) Director	18 November 2021

* Sean D. Major, Executive Vice President, General Counsel and Secretary, by signing his name hereto, does sign this document on behalf of the above noted individuals, pursuant to a power of attorney duly executed by such individuals, which is filed with the Securities and Exchange Commission herewith.

/s/ Sean D. Major

Sean D. Major

Executive Vice President, General Counsel and Secretary

Date: 18 November 2021

Shareholders' Information

Common stock information

Ticker Symbol: APD
Exchange Listing: New York Stock Exchange
Transfer Agent and Registrar:
Broadridge Corporate Issuer Solutions, Inc.
P.O. Box 1342
Brentwood, NY 11717
Phone: 844-318-0129
International: 720-358-3595
Fax: 215-553-5402
shareholder.broadridge.com

Publications for shareholders

In addition to this Annual Report and the accompanying Annual Report on Form 10-K, Air Products informs shareholders about Company news through:

Notice of Annual Meeting and Proxy Statement—made available to shareholders in mid-December and posted to the Company's website at investors.airproducts.com/shareholder-info.

Earnings information—shareholders and investors can obtain copies of earnings releases, periodic and current reports, and news releases by visiting investors.airproducts.com. Shareholders and investors can also register for e-mail updates at that website.

Direct investment program

Current shareholders and new investors can conveniently and economically purchase shares of Air Products' common stock and reinvest cash dividends through Broadridge Corporate Issuer Solutions. Registered shareholders can purchase shares on Broadridge Corporate Issuer Solutions, shareholder.broadridge.com/airproducts. New investors can obtain information on the website or by calling:
Phone: 844-318-0129
International: 720-358-3595

Annual meeting

The 2022 annual meeting of shareholders will be held on Thursday, February 3, 2022.

Annual certifications

The most recent certifications by our Chief Executive Officer and Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 are filed as exhibits to our Form 10-K. We have also filed with the New York Stock Exchange the most recent Annual CEO Certification as required by Section 303A.12(a) of the New York Stock Exchange Listed Company Manual.

Additional information

The forward-looking statements contained in this Annual Report are qualified by reference to the section entitled "Forward-Looking Statements" beginning on page 3 of the accompanying Annual Report on Form 10-K.

For more information, please contact us at:

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