

A modern, competitive, and healthy financial marketplace requires investors to consistently evaluate, identify, and address evolving market risk. For decades, Boston Trust Walden has seen the changing climate physically disrupt global supply chains, halt manufacturing, and strain natural resource availability. We've witnessed persistent inequality and toxic workplaces lead to employee strikes, regulatory noncompliance, and heightened reputational risk. Yet, we have also observed effective management of material environmental, social, and governance (ESG) risks can increase operational efficiency, attract and retain key talent, strengthen supply chains, develop new products, and successfully identify new markets.

Since 1975, Boston Trust Walden has integrated ESG factors into investment strategies on behalf of our clients — one of the longest track records of any institutional investment manager. ESG considerations are integral to our investment philosophy and part of our fiduciary duty to ensure client assets are invested in a set of securities well positioned to minimize risk and produce sustainable returns. To be competitive, companies must effectively manage material ESG risks and capitalize on emerging opportunities.

Thus, a core component of our equity research process is recognizing the financial materiality (or significance) of ESG factors related to a potential investment. For companies

ESG INTEGRATION CASE STUDY

AIR PRODUCTS AND CHEMICALS

Company Overview

Understanding the ESG Risks and Opportunities

Potential ESG risks and opportunities for industrial gas companies include workforce health and safety, GHG emissions, energy and water management, community relations, and product impact. In the case of APD, our research indicated its GHG emissions and the company's role in the global transition to clean energy were the most important factors to assess. The analysts explored other risks, which were ultimately deemed to be either immaterial or effectively managed.

The energy-intensive production of industry gases results in a significant greenhouse gas emissions footprint, exposing the company to climate risks, including legislative, regulatory, and societal responses to global climate change. In the case of APD, the company's 2022 GHG emissions totaled approximately 27 million metric tons, putting the company in the top decile of carbon emitters in the S&P 500. As such, future taxation of carbon emissions could present a significant incremental operational expense. To potentially mitigate this risk, the company set a goal to reduce its emissions intensity by one-third by 2030. Further, as APD advances no- and low-carbon projects, the company anticipates ongoing improvement in its emissions intensity over time.

According to the company, however, APD's products enabled customers to avoid 86 million metric tons of CO₂ emissions — more than three times APD's own direct and indirect emissions.

APD's current 10-year capital deployment plans include approximately \$20 billion in investment, with \$15 billion allocated to energy transition projects, including several large-scale green and blue hydrogen gasification projects. While hydrogen is the most abundant element on Earth, it is not readily available in its pure form. The predominant method for purifying hydrogen involves separating methane (CH₄) into hydrogen and carbon dioxide (CO₂) via steam methane reforming, commonly referred to as "grey hydrogen." CO₂ is released into the atmosphere as a byproduct of the process. Consequently, companies within the industry are directing a substantial amount of capital expenditure toward the development of projects that more sustainably produce hydrogen.

APD's green hydrogen gasification projects result in no CO₂ emissions, simultaneously reducing the company's emissions profile and providing customers with a low-carbon fuel. Over a third of the company's planned investments relate to green hydrogen projects. These projects do, however, carry project-related risks linked to scaling the technology at levels previously unseen. The economics of these projects are also highly uncertain as both demand and profitability are dependent on government incentives. For example, grey hydrogen can be produced profitably at less than \$2 per kilogram. In contrast, green hydrogen can cost two to three times that and relies on a combination of improving economics, buyers willing to pay a premium for the environmental attributes, and government incentives to close the gap.² In the US, for example, the Inflation Reduction Act offers an \$85 bonus credit per metric of CO₂ captured and sequestered as well as up to \$3 per kg of green hydrogen.³

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² <https://www.economist.com/business/2023/07/03/can-a-viable-industry-emerge-from-the-hydrogen-shakeout>

³ https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2022/08/Energy-IRA-Brief_R04-9.26.22.pdf

Along with high capital investment requirements and long investment cycles, these projects burden the company's balance sheet. Over the past five years, APD's capital investment increased from 12% of sales to 25% of sales. The relationship between capital investment and sales is an indicator of the amount of investment required to sustain or grow a business. Twelve percent is considered capital intensive, 25% even more so. To fund the capital investment, APD has increased its debt, with its leverage ratio increasing from 1x to 2x. Debt is likely to further increase to meet planned investments. Therefore, there are significant risks associated with the interest rate environment, profitability of new projects, and changes to government incentives.

Our Investment Decision

Boston Trust Walden makes active investment decisions based on our assessment of a security's financial quality, the sustainability of its business model, and valuation, informed by our analysis of ESG risks and opportunities. Our conclusion was that APD exhibits above-average quality and sustainability compared to its sector peers thanks to the stability and profitability of its core industrial gas business and efforts to manage risks associated with its GHG emissions profile. The energy transition presents growth opportunities, but the size, nature, and location of the anticipated capital investment introduces significant additional risk. Portfolio managers will monitor this risk carefully, along with valuation, as they determine