



DUFF & PHELPS
INVESTMENT MANAGEMENT CO.



Clean Horizons: Generating Returns on the Road to a Sustainable World

INTRODUCING THE DUFF & PHELPS GLOBAL CLEAN ENERGY STRATEGY

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Introduction

As concerns surrounding global energy consumption, emissions and climate change have continued to rise in recent years, numerous countries, regions, and major corporations have set carbon-neutral goals that advance a secular shift toward increased clean energy production and consumption.

This sustained and accelerating market shift - propelled by a dynamic alignment of governmental and corporate policy around the world - presents a compelling opportunity for investment into clean energy technology, production, and distribution.

Clean energy currently represents less than 10% of global electricity consumption, and is projected to more than triple to at least one-third of global consumption by 2035.¹ Exponential growth in the clean energy sector is being fueled by decreasing cost curves, increasing consumer demand, and wide-ranging political backing, including sweeping new policies in the European Union, China, and the United States.

¹ *Source:* Vestas, November 2018, Market Outlook and Strategy Update.



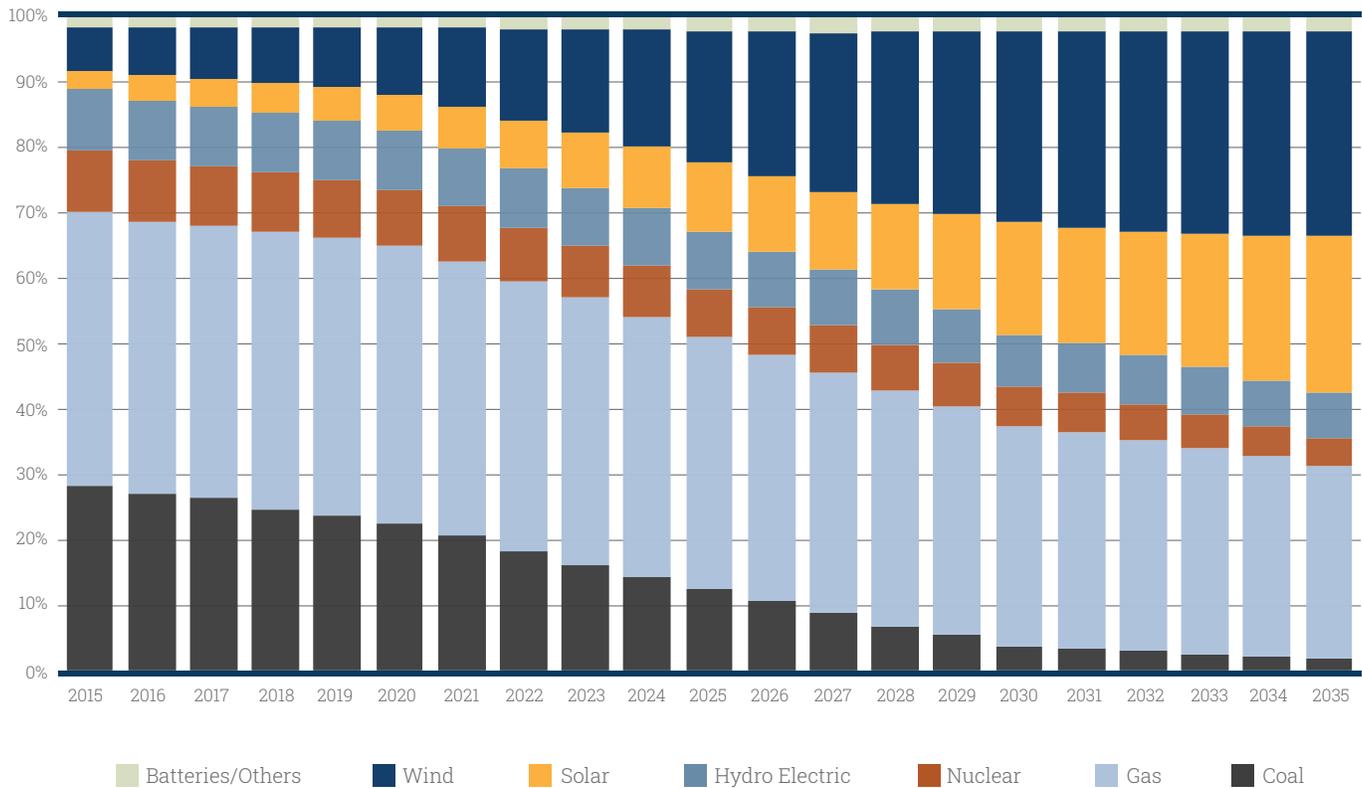
With respect to international governmental policy, the European Union, China, and the United States have all made aligning commitments to carbon neutrality within the last three years that will require accelerated transitions to clean energy to achieve. In 2019, the executive branch of the European Union announced the European Green Deal, with a target of net-zero carbon emissions in the EU by 2050. In 2020, China pledged to reach net-zero carbon emissions by 2060. And in 2021, a new administration in the US has set goals and issued executive orders targeting a “clean energy revolution that achieves a carbon pollution-free power sector by 2035” and “a net-zero economy by 2050.”

Regarding corporate policy, hundreds of global firms, including Fortune 1000 companies like Apple, Google, and Walmart, have committed, through RE100 – a corporate energy renewable energy initiative founded in 2014 – to sourcing 100% renewable energy.

Highlighting the sustainable trajectory of growth in the clean energy sector, clean energy output from solar and wind in the US is projected to grow from, respectively, 5% and 10% of power output in 2020 to 17% and 29% of US power output in 2030.²

The Duff & Phelps Global Clean Energy Strategy (the “Strategy”) is a newly launched diversified investment strategy designed to capitalize on the sustained secular shift to clean energy, while continuing the commitment to quality, reliability and specialization in energy and utilities that Duff & Phelps (the “Firm”) has maintained since its founding in 1932.

USA Generation (MW) by Fuel Type



² Source: Duff & Phelps Investment Management Co., Bloomberg.



Strategy Overview

The core thesis of the Duff & Phelps Global Clean Energy Strategy is that companies have been adapting to meet the needs of consumers for decades. Today, consequential investments are being made in clean, renewable, and sustainable companies and technologies that will power the energy needs of the future.

By owning a portfolio of the best positioned Utility, Industrial, Technology, and Energy companies that are **leaders in clean and sustainable energy**, investors have the opportunity to attain an attractive total return through capital appreciation and current yield, while capitalizing on the ongoing secular trend of ESG investment. The Strategy provides a specialized portfolio of clean and sustainable energy market leaders, with a primary focus on companies with expertise in Clean Energy Technology and Equipment, Clean Energy Production, and Clean Energy Transmission and Distribution.

The Strategy's competitive edge derives from its proven team of investment professionals – supported by Duff & Phelps' broader platform – which cultivates a unique vantage point at the intersection of clean energy users

and providers. The team maintains direct insight into every part of the clean energy value chain by meeting with management teams and conducting deep research into downstream energy utilities that serve clean energy users, as well as upstream developers and manufacturers of clean energy technology and equipment. The Strategy further benefits from the extensive and crucial knowledge of legislative and regulatory detail by country, sector, and municipality that Duff & Phelps has continuously built over decades.

Through research, analysis, and direct sourcing of industry knowledge, the team effectively monitors the Porter's Five Forces framework of the clean energy sector from a central vantage point, thereby keeping an in-depth and comprehensive view of suppliers, buyers, new entrants, threats of substitutes, and industry rivalry within the sector. Utilizing this differentiated vantage point, the Strategy invests in **clean energy innovation where it is most commercially proven.**

“...the Strategy invests in clean energy innovation where it is most commercially proven.”



What is Clean Energy?

The Strategy defines clean energy companies as companies included in any of the following three categories:

- i) clean energy producers, including solar, wind, hydroelectric, biofuel, or battery storage;
- ii) clean energy technology and equipment providers; and
- iii) clean energy transmission and distribution.

These three categories are further outlined in the following visual. D&P defines eligible clean energy companies as those that will derive at least 30% of revenue from any of these categories or have at least 30% of future capital expenditure allocated to them.



1. Clean Energy Producers:

- Biofuel and Biomass Energy Production
- Hydro Electricity Production
- Wind Energy Production
- Battery Storage*
- Specialized Service Providers*



2. Clean Energy Technology and Equipment Providers:

- Biomass and Biofuel Technology and Equipment
- Hydrogen, Fuel Cell Technology and Equipment
- Wind Turbines and Other Equipment
- PV Cells and Equipment
- Clean Water Equipment and Water Scarcity*
- Carbon Capture*



3. Clean Energy Transmission and Distribution:

- Clean Water Distribution*
- Transmission and Distribution of Renewable Energy*
- Distribution of Cleaner Energy that helps transition to better future options*

Investment Attributes
• Secular Growth
• Barriers to Entry
• Pricing Power
• Current and Future Cash Flows
• Growing Universe
• Portfolio Diversification
• Focus on Long-Term Projects vs Short-Term Product Trends

* These sub-categories are not included in the S&P Global Clean Energy Index.



Key Drivers of the Clean Energy Opportunity

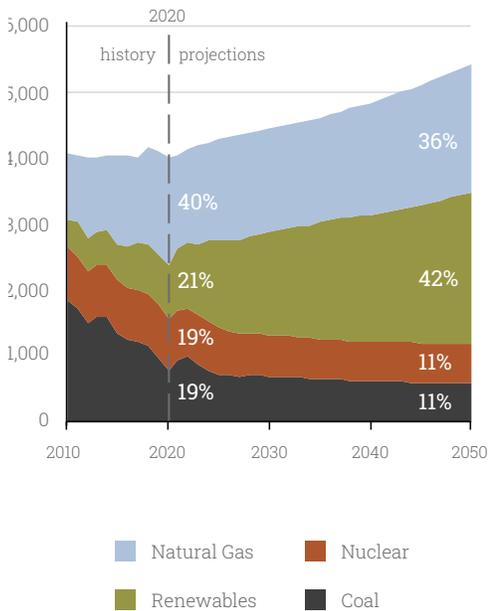
As noted, consumption of electricity produced through clean energy is projected to more than triple from less than 10% of global consumption at present to at least one-third of global consumption by 2035. This timeframe provides a long and sustained runway for growth and investment. Renewables are projected to account for approximately 38% of US electricity generation by 2050, with solar and wind respectively projected to account for approximately 46% and 33% of electricity generated by renewables, as highlighted in the following charts.³

The transition to cleaner energy infrastructure will affect energy generation, transmission, distribution, and storage, and projections estimate that this transition could generate more than \$10 trillion in global investment opportunity by 2030.⁴

Major factors supporting the continuing growth of clean energy consumption include government policy, increasing electric vehicle (“EV”) usage, greater corporate demand for clean energy, and technology innovation resulting in greater productivity and lower cost to the end user.

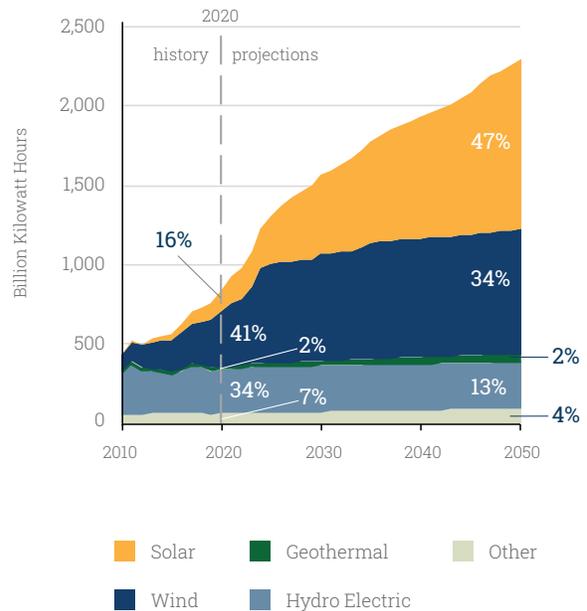
US Electricity Generation from Selected Fuels

AEO 2021 Reference Case



US Renewable Electricity Generation Including End Use

AEO 2021 Reference Case



Source: US Energy Information Administration, *Annual Energy Outlook 2021* (AEO 2021). www.eia.gov/aeo

³ Source: US Energy Information Administration, *Annual Energy Outlook 2021* (AEO 2021). www.eia.gov/aeo

⁴ Source: Aurora Energy Research, research commissioned for UBS. 9/17/2019.



Government Policy

To date, more than 75 countries and 100 cities have committed to reaching 'net-zero' emissions, with target years ranging from 2030 to 2050.⁵ In addition to the EU targeting net-zero emissions by 2050, the United Kingdom has also passed legislation targeting net-zero emissions by the same year. The United States has newly issued executive orders aimed at net-zero emissions by 2050, and there is a continuing increase, in individual states, of Renewable Portfolio Standards ("RPS") and clean energy laws requiring that specified percentages of electricity sold by utilities are produced from renewable energy sources. China is also targeting net-zero emissions by 2060 and, beyond net-zero emissions targets, more than 50 countries and 100 cities have committed to 100% renewable energy targets.

Accelerating Demand Drivers

While renewable energy currently comprises about 5% of the energy mix for Fortune 1000 companies, hundreds of global firms have committed, through RE100, to sourcing 100% renewable energy.⁶ As noted, these firms include Apple, General Motors, Google, JPMorgan, and Walmart, in addition to numerous other major corporations.

Electric vehicle (EV) sales are expected to continue to rise in coming years. In 2020, the EV maker Tesla sold approximately 500,000 vehicles, representing a dramatic increase from approximately 367,000 vehicles sold in 2019. In early 2021, General Motors announced plans to phase out vehicles using internal combustion engines by 2035, as part of its vision for an "all-electric future," and these are just a few examples. Increased EV usage will not only reduce emissions, but importantly the increase in electrification will further support demand for renewable generation.

"...hundreds of global firms have committed, through RE100, to sourcing 100% renewable energy."

⁵ *Source:* Ren 21. Renewables 2020 Global Status Report.

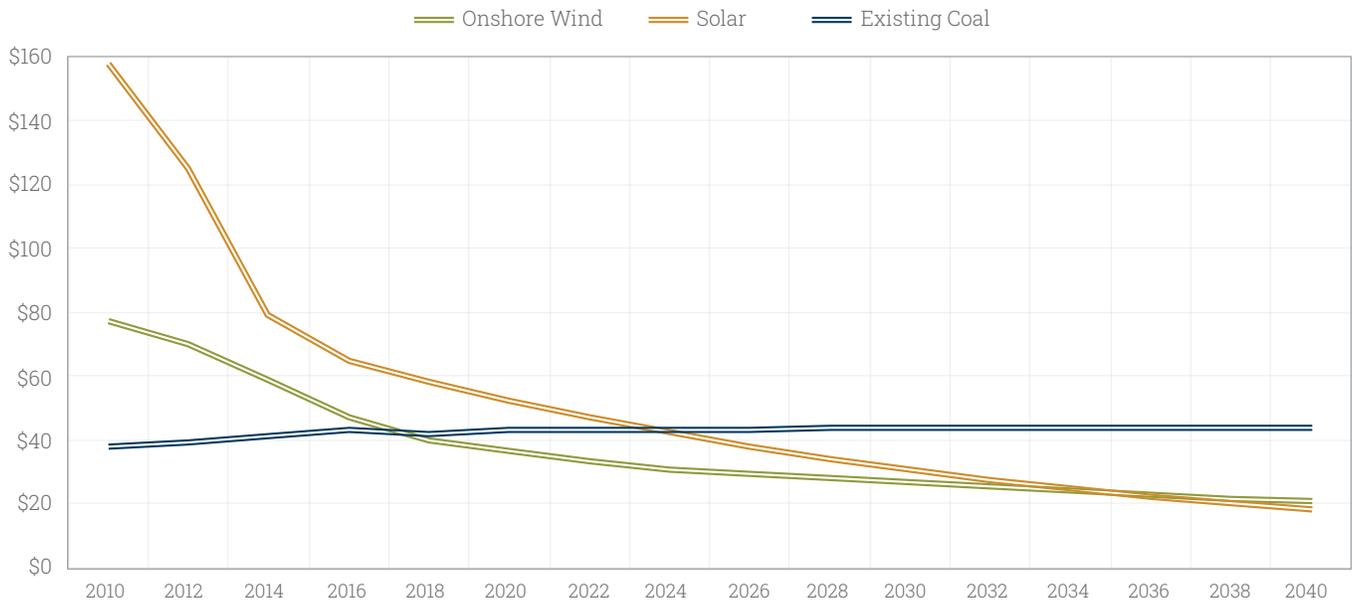
⁶ *Source:* Renewables Now. Fortune 1000 companies present huge opportunity for renewables growth. 8/21/20.



Continuing Technological Advances

Continuing technology advances, including in wind, solar, and batteries, have led to declining costs of clean energy production, making these fuels increasingly competitive. To take solar and wind as examples, the levelized costs of energy (LCOE) – defined as the costs of installing and operating energy assets over their lifetimes – of utility-scale photovoltaic power and wind power have dropped dramatically over the past decade, as installed capacity has continued to increase. Given these powerful economic forces, new wind is already cheaper than energy commissioned coal in most geographies and solar is on a similar path.

**Levelized Cost of Energy
(LCOE \$/MWHR)**



Source: Duff & Phelps Investment Management Co.



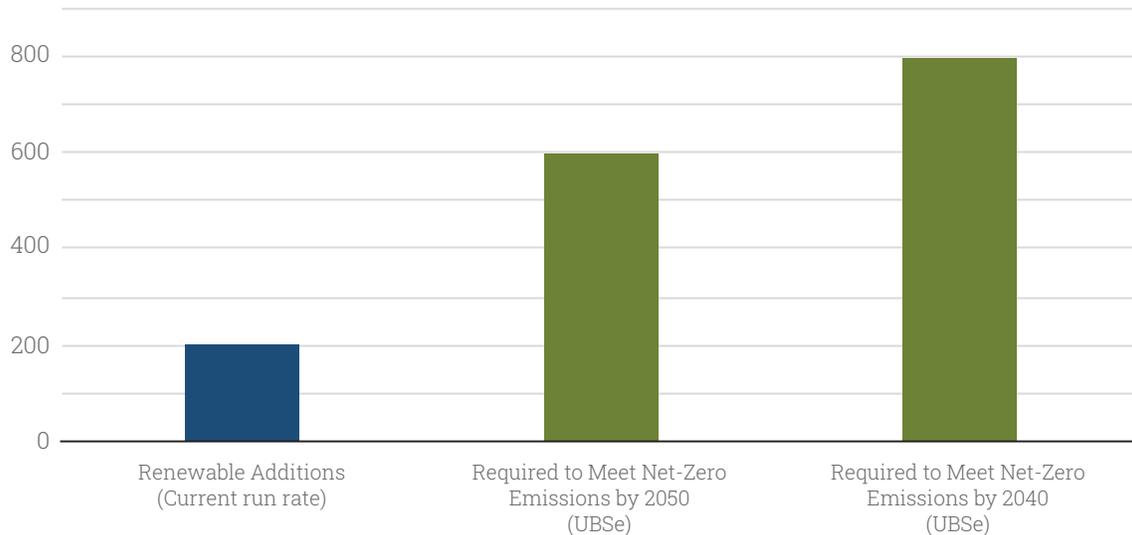
Clean Energy Is Poised for Rapid Growth

Given the compelling combination of forces driving sustained clean energy demand, it is projected that the build-out speed of renewable energy generation capacity could ramp up to two to three times the current pace. An estimated 500 to 800 gigawatts of renewable energy new build could be required every year for several decades, as shown in the following graph.⁷

Continuing growth in clean energy translates to substantial projected capital expenditure (“capex”) supporting sustained investment returns over the course of decades. From 2020 to 2050, it is projected that an average of \$1.2 trillion per year will be invested in wind and solar, batteries, and renewables grid expansion capex. This includes an estimated \$90 billion in annual batteries capex, \$540 billion in annual wind and solar capex, and \$550 billion in annual renewables grid expansion capex.⁸

UBS has estimated that the ramp up could require 500-800 GW of renewable new build every year, for the next several decades.

Annual RES Growth - GW



- According to UBS, achieving net-zero emissions by 2050 implies 2-3 times the current run rate of renewables addition.
- Achieving net-zero by 2040 implies around 4 times the current run rate.

Source: UBSe. European Utilities – Outlook 2019: Rising climate pressure makes wind & solar the new core business. Buy the adaptors. 17/1/19.

⁷ Source: UBSe. European Utilities – Outlook 2019: Rising climate pressure makes wind & solar the new core business. Buy the adaptors. 17/1/19.

⁸ Source: Aurora Energy Research.



The Duff & Phelps Difference

Duff & Phelps' proven history in utilities and energy investment, spanning more than eight decades, provides the Firm with a specialized perspective on clean energy that is informed by experience. The Firm has witnessed and participated in every major evolution of the utility and energy generation and delivery process since 1932, and understands that the energy sector is beginning another major shift.

For a substantial period prior to the launch of the Duff & Phelps Global Clean Energy Strategy, the Firm has been invested in clean energy and utility companies globally, and continues to maintain these investments. The Duff & Phelps Global Clean Energy Strategy provides a diversified, actively managed portfolio of clean energy holdings that includes what we believe to be the top clean energy and utility companies and leaders in clean energy industrial and technology firms.

The Strategy's rigorous investment methodology and active management offer an edge vis-à-vis passive indexes and other actively managed funds in the clean energy sector. Beginning with a global clean energy universe comprising hundreds of stocks, Duff & Phelps selects a portfolio of 30 to 40 names through a well-defined investment process that, in addition to assessment of current revenues and future capital outlays, includes in-depth analysis of companies' business models, sustainability, asset and management quality, and regulatory and legislative environments.

The Strategy's investment process contrasts favorably with the less defined investment processes of passive clean energy indexes, which are driven by market capitalization and clean energy exposure scores derived via opaque, static criteria. The Duff & Phelps Clean Team's investment process is designed to be dynamic and results oriented. The result is a diversified portfolio of clean energy companies and providers with a balanced risk profile.



Strategy Summary

The Duff & Phelps Global Clean Energy Strategy was launched on October 30, 2020. The globally diversified strategy will take a balanced approach to investing in Utility, Industrial, Technology, and Energy companies that are leaders in clean and sustainable energy. A primary focus will be on companies with an expertise in Clean Energy Technology & Equipment, Clean Energy Production, and Clean Energy Transmission and Distribution. The strategy aims to provide investors with a total return through capital appreciation and income while capitalizing on the secular trend toward responsible investing. Duff & Phelps has invested in energy infrastructure companies for decades, and benefits from the team's deep knowledge of the companies, sectors, and management involved in this space. Please contact us for more details.



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Eric Fogarty, Managing Director, is a Senior Research Analyst on the Infrastructure team as well as a Portfolio Manager for the Clean Energy Strategy at Duff & Phelps Investment Management Co. Mr. Fogarty concentrates his research on the utilities sector and leads the firm's research efforts on companies and technologies that will power the energy needs of the future. Prior to joining Duff & Phelps in November 2018, he spent 18 years at Goldman Sachs Asset Management ("GSAM"). In his previous role, he served as an investment committee member and portfolio manager for the GSAM Global Infrastructure Fund. Mr. Fogarty was also the Utilities and Consumer Staples Sector Specialist for GSAM's Small, Mid, and Large Cap Value, and Income funds. Additionally, he was the lead portfolio manager for the US ESG Fund and was a senior member of the task force charged with integrating ESG factors into GSAM's investment process. Mr. Fogarty previously held roles as a derivatives specialist, equity fund risk manager, and trader at GSAM. He started his career at Chase Manhattan Bank in New York. He holds a BS degree from Binghamton University and is a Chartered Financial Analyst (CFA).

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Benjamin Bielawski, Managing Director, is a Senior Research Analyst on the Infrastructure team as well as a Portfolio Manager for the Clean Energy Strategy at Duff & Phelps Investment Management Co. Mr. Bielawski concentrates his research on the global utilities and communications sectors and leads the firm's research efforts on companies and technologies that will power the energy needs of the future. Prior to joining Duff & Phelps in June 2017, he was a Senior Global Equity Analyst/Executive Vice President at Institutional Capital LLC (ICAP), where he covered global utilities, telecommunications, infrastructure, media, and consumer services sectors for eighteen years. In addition to these responsibilities, he co-managed ICAP's global high dividend yield portfolios and was a voting member of the Institutional Capital Investment Committee, which made final decisions on all portfolio recommendations domestically and internationally. Previously he spent four years at Harris Associates in Institutional Services. Mr. Bielawski holds a BS degree in Business Administration from Wayne State University and an MBA with concentrations in accounting and finance from the University of Chicago Graduate School of Business.

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