



Charting a course to net-zero

How companies can turn decarbonization ambition into action



The race to a greener future has begun.

Organizations around the world have invested half a trillion dollars in decarbonization, and more than a thousand large companies have committed to setting science-based emissions targets to limit warming to 1.5°C, the goal established by the Paris Agreement at the Conference of the Parties, COP 21, in December 2015.¹

While these commitments represent progress, tangible results remain elusive. For example, only 110 of the world's 2,000 largest companies meet the United Nations' "starting line" criteria to "pledge, plan, proceed and publish," and only 25 percent of those that have made commitments to ESG goals are on track to reach Paris Agreement goals.²

Treating net-zero targets merely as aspirations, or worse, as part of branding or marketing, can pose serious risks. Not living up to commitments can have reputational impact and can provoke backlash from investors, lenders, customers, employees, and local communities. And, of course, failure to act means falling short in meeting the climate challenge.

To reach goals of any kind, organizations need roadmaps, including near-term milestones and actions to drive a sense of urgency. In this short report, we explain how organizations of all kinds can develop the strategies and roadmaps they need to start their journeys to decarbonization.



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¹ Source: Hanna Ziady, "Companies are crucial to solving the climate crisis. 75% are falling short," CNN.com, April 21, 2021

² Source: "Taking stock: A global assessment of net-zero targets," Energy & Climate Intelligence Unit and Oxford Net Zero, March 2021

Devising a meaningful decarbonization strategy

Net-zero targets resemble New Year's resolutions in that they're easy to set but require changes in specific behaviors and practices, consistent effort over time, and a clear plan. In any organization, the actions

required to decarbonize are numerous and demand changes in all sorts of processes and business units. Decarbonization therefore cannot succeed as a stand-alone effort—it must be woven into an organization's

operations and align with and enable the enterprise strategy.

A tailored decarbonization strategy can be developed in just a few months. Our approach includes five main steps (Exhibit 1).

Exhibit 1. Five steps to developing a decarbonization strategy and roadmap

Baseline and GHG inventory assessment



- Current state
- Carbon baseline and footprint
- Asset inventory
- Diagnostic to link vision to strategy
- Identify quick wins and existing initiatives
- Stakeholder analysis
- Climate risk identification

Define future state



- Define decarbonization and net-zero vision and targets
- Define scope 1, 2, and 3 areas to be considered
- Analyze gaps in decarbonization vision and current state
- Identify material issues
- Develop carbon pricing model

Scenario planning



- Identify decarbonization initiatives
- Analyze options
- Define decarbonization pathways
- Analyze financial impact
- Refine and set decarbonization targets

Roadmap and implementation plan

- Develop roadmap
- Explore financing and delivery options
- Define metrics and incentives
- Refine and detail strategic priorities and operating model needs (challenges to roles, processes, etc.)



Operationalize



- Launch projects
- Operationalize targets, track progress, and maintain regular reporting cycle
- Provide climate risk disclosures to SEC, etc.
- Communicate with investors and other stakeholders

The first step is building a detailed picture of the organization's carbon footprint at the individual asset level (e.g., buildings, vehicles, equipment), assessing the impact of climate risk on these assets, and identifying gaps between the current state and a future decarbonization vision. Based on these analyses, leaders can set realistic targets and draft a defensible roadmap to reach net-zero goals using an array of decarbonization levers.

Using our decarbonization pathways methodology, we help clients establish emission baselines, model scenarios, and develop a roadmap that aligns to the organization's capital program strategy. Based on the roadmap, the company defines a target operating model that specifies the changes needed to adjust processes, policies, and behaviors to reach net-zero goals.

An execution plan requires insights across functions

While many organizations can measure their carbon footprints and set emission targets, we find that they often run into difficulties in defining needed operational changes and determining the size and timing of required investments.

To translate targets into a roadmap, an organization should gather and analyze critical issues:

How decarbonization fits into strategy and financial decision-making

Success requires leadership buy-in; changes in governance, processes, and controls; and an understanding of how ESG reports will inform business decisions

Investment levels and funding sources

The organization needs to consider how it can fund critical decarbonization efforts, accounting for tax credits and incentives, and explore the issuance of green bonds to lower the cost of capital

Priorities and phased investments in decarbonization projects

The roadmap should include short- and long-term goals based on feasibility, trade-offs, and cost-benefit analyses

Operational levers required to execute on the roadmap

Pathways can include levers as simple as energy-efficient LED lighting to more complex electric fleet transitions

Guidance and guardrails for entering commercial deals and structures

Many companies on the forefront of decarbonization are entering into power purchase agreements, for example



Decarbonizing a port operation

A U.S. port authority had bold ambitions for its decarbonization plan. It wanted to keep pace with the net-zero goals of its large customers, boost efficiency, get ahead of future regulations that might require deep emission reductions, and become an industry leader by contributing to UN Sustainable Development Goals.

The first step was gauging current fossil fuel use. This was complicated by the inability to track the fuel consumption and idle time of decades-old vehicles. Using fuel consumption estimates, additional data, analytics, and our decarbonization pathways capability, we helped the port calculate its carbon footprint at the asset level and make decisions about how to achieve its climate ambitions.

Its options fell into two categories: which assets to electrify (and when), and where to get the electricity to power the new equipment. Local providers offered renewable choices at low cost. We considered total cost of ownership and a range of options, such as switching to electric fleets in phases.

Our analysis concluded that tapping renewable energy and electrifying some of the port's equipment could reduce overall scope 1 and 2 emissions³ over time by more than 90 percent, while cutting costs by more than \$20 million annually (see Exhibit 2).

Using these analyses, senior leaders could then agree on a future state where the port would switch to 100 percent renewable energy, reduce greenhouse gas emissions by two-thirds by 2032, and achieve net-zero carbon emissions by 2040.

As the company launches projects based on its new roadmap, it is tracking progress toward targets and providing employees, customers, and local communities with clear performance metrics. It has already announced 14 percent reductions in CO₂e emissions since its baseline year of 2017, and a 44 percent decline in scope 1 emissions as it transitions to hybrid and electric straddle carriers.

³ Scope 1 emissions are the direct result of an organization's activities and under its control, from its fleets to air conditioning. Scope 2 emissions are generated indirectly from the purchase of electricity whether it comes from fossil fuels or renewable sources. Scope 3 emissions are emitted by suppliers and customers.

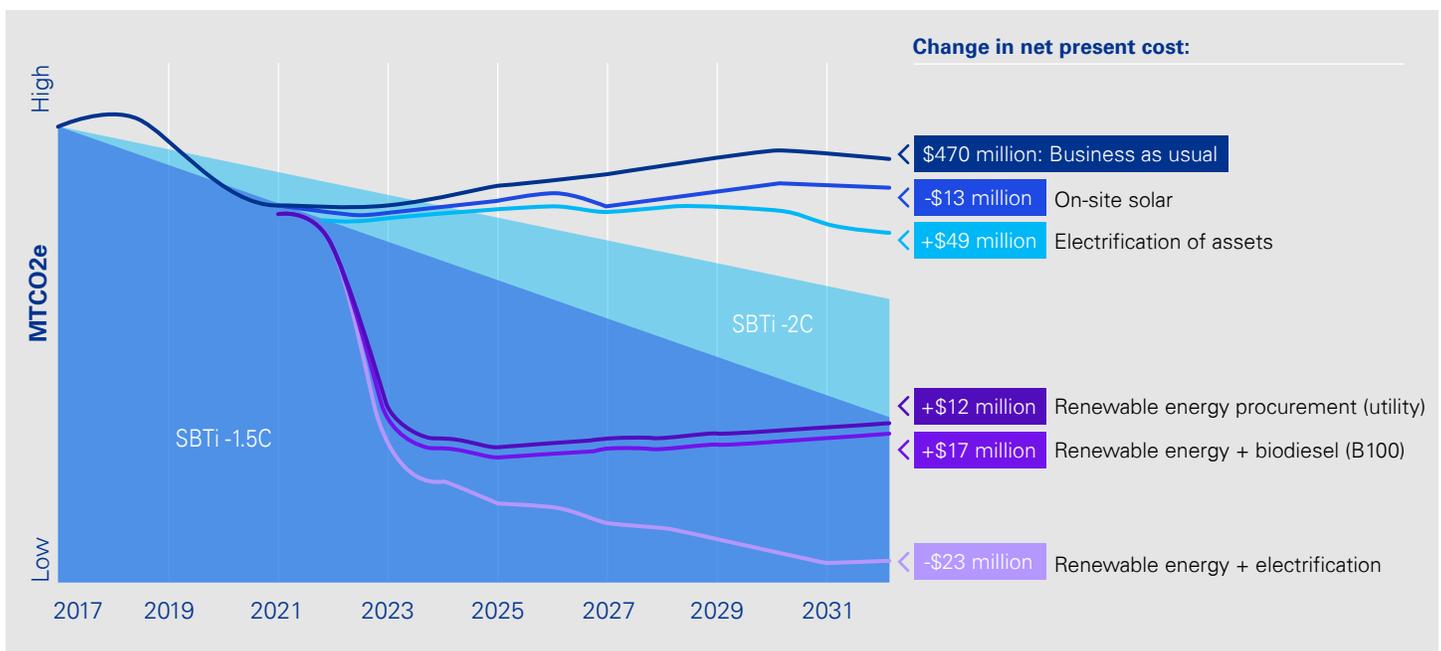
Decarbonization is a bottom-line imperative

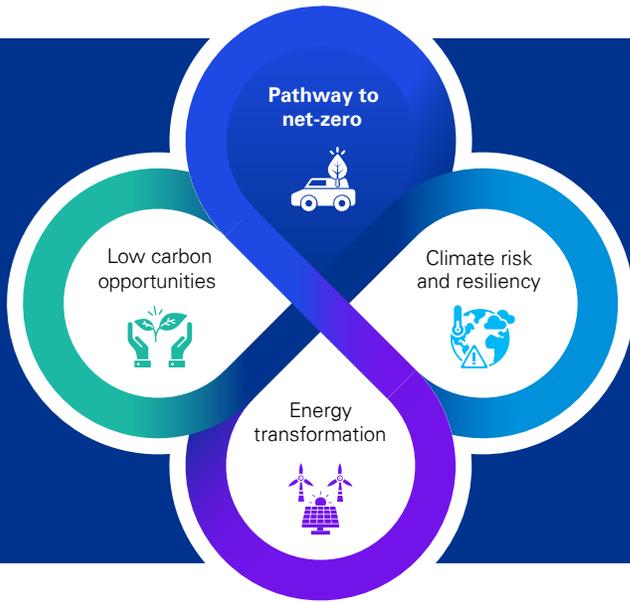
Significant decarbonization requires investment. But there are returns, too: in lower energy costs and gains in reputation, brand, and employee retention. Companies that act now also can reduce transition risks and will be prepared if carbon taxes are implemented in the U.S.

Exhibit 2 shows a typical decarbonization pathway, such as the one adopted by the port described above. This is the moment to craft a decarbonization strategy and an actionable plan to achieve it. The costs of delay will only continue to rise.

Exhibit 2. Greenhouse gas reduction scenario modelings

Sample carbon reduction scenario for scope 1 and 2 emissions that measure total emissions and approximate costs.





This report is part of a series on climate change published by KPMG. This paper focuses on pathways to net-zero and features key insights for organizations beginning their decarbonization journeys. Companies should consider the other challenges and opportunities created by the transition to a low-carbon economy discussed in this climate change series. For more on these, visit the [KPMG IMPACT website](#).

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