Metrics that Matter

A guide to industrial sustainability KPIs

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Introduction

Industrial operators today face daunting, conflicting pressures. Expectations to deliver high performance, boost profitability, and increase business resilience are intensifying despite unpredictable economic conditions and geopolitical uncertainties. At the same time, we often find ourselves at the mercy of erratic energy prices and availability. Moreover, industry is now under more environmental scrutiny than ever before, with society, markets, public policy makers, investors, and even the workforce calling for tangible proof of sustainability initiatives.

How do we prioritize these competing mandates? The answer is that these goals are not conflicting at all. The synergy between sustainability and industrial resilience is undeniable.

Increased efficiency and sustainability directly impact a company's ability to adapt and thrive in an unpredictable world. Digitalization in the form of automation, software, and connected devices have been proven to reduce energy and resource waste, and improve the efficiency of a process, a plant, or an entire enterprise.

As a result, many are turning to digital technology and automation to help minimize their environmental impact while also optimizing productivity. By embracing a shift toward sustainable operations, industrial enterprises are taking the first step toward achieving all these goals in tandem: resilience, performance, stakeholder satisfaction, and responsible profitability.

Digitally-driven Industrial Sustainability

Initially, many industrial digitalization projects focused on boosting the efficiency of assets, production, and processes. Now it is clear that "smart operations" also reduce energy consumption and waste, resulting in lower greenhouse gas emissions and overall cost savings.

> “Efficient companies are low impact companies. By deploying cutting-edge technology, businesses can drive out costs, maximize profit margins, and minimize emissions.” - Navigating the Decarbonization Journey, Guidehouse

Despite the clear need to act, many companies find it challenging to navigate the intricate sustainability journey. Having a guide can help you leverage the technologies available across your organization, reduce your environmental footprint, buy renewable energy, and keep your business compliant with all regulations.

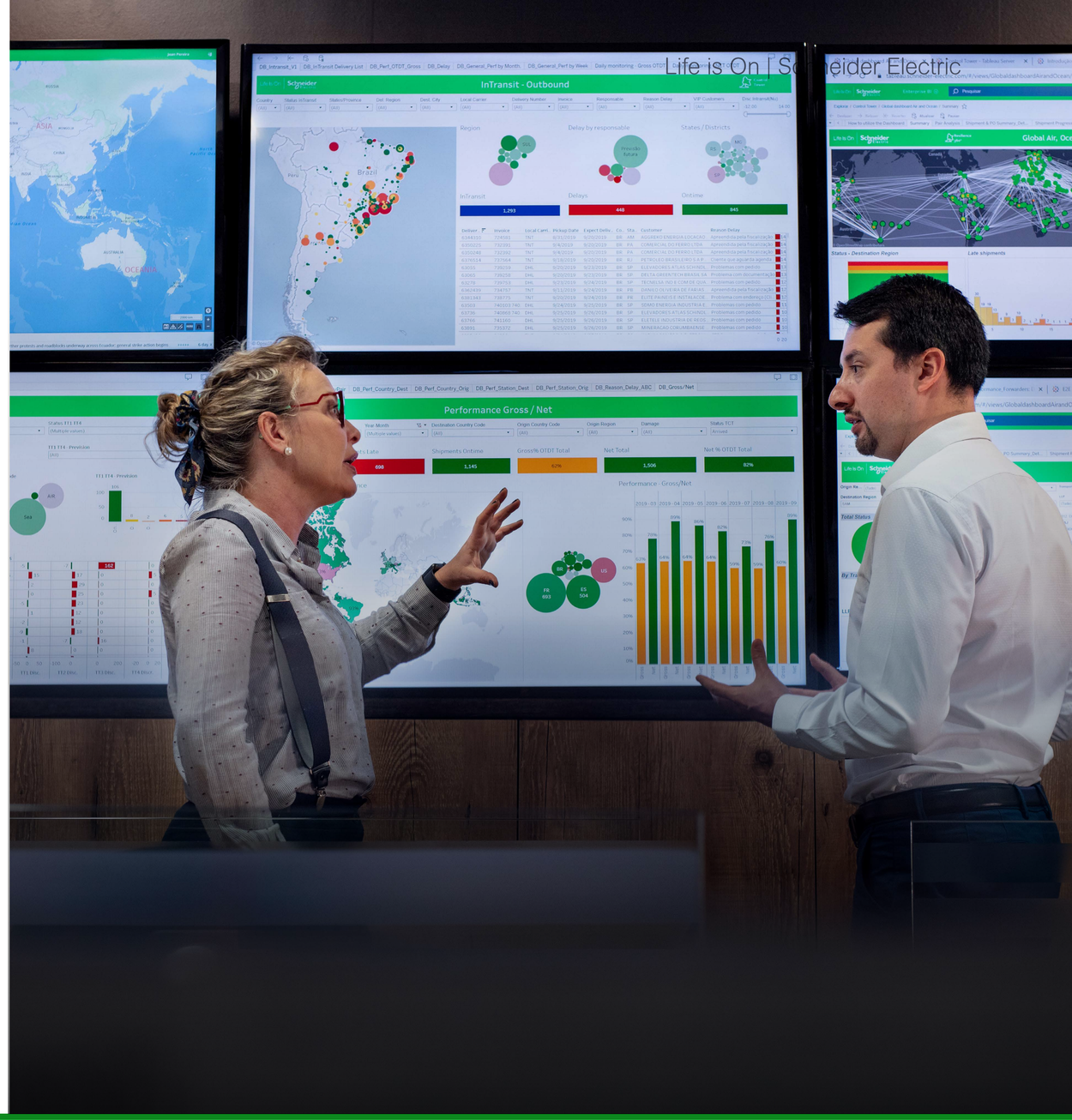
Schneider Electric is both a provider and a practitioner of industrial sustainability (to learn more, read: How Schneider Electric's CEO Made It One of the Most Sustainable Companies in the World, *Time*). Throughout this guide, we’ve included examples of our own sustainability strategy in action.

Sustainable Measures

As most industrialists know, the first step in solving a problem is to define it. The second step is to measure it. Measuring sustainability can be complex, but to better understand, quantify, and ultimately reduce our environmental impact, we need to start with data. Luckily, industrial digitalization and automation offer extensive data for exploration.

> "Most companies have so much data they struggle to make use of it. By unifying data into a digital backbone, visualizing it, and enhancing it with artificial intelligence, organizations can find more sustainable ways of working. This is industrial intelligence in action, and it is key to driving the low-carbon economy and driving resilient growth." – The Narrow Path to Net Zero, Lisa Wee, VP of Sustainability, AVEVA

Two key areas where sustainability metrics can be included in a typical industrial business are **operations and value chain**. Let's look at how we can use metrics that matter in each.



Trimming Waste

Comprehensive monitoring of machine and process data is fundamental to sustainable operations. It serves as the basis for both informed decision-making and future improvement.

Analytic and resource management software can collect, aggregate, and transform this data into actionable insights to uncover efficiency opportunities, foster innovation, and implement transformative strategies.

One critical way this data can be used is to identify and quantify areas of waste, such as:

- Carbon Emissions Output
- Water
- Resources/Materials
- Energy

Collecting data points like these will uncover improvement opportunities, including renewable energy initiatives, and increase innovation and flexibility for long-term sustainability.

Schneider Electric Smart Factories

Waste and usage data is tracked and categorized at all Schneider Electric factories and logistics sites, as well as some major tertiary sites. For example, in 2022, these locations generated 123,311 metric tons of non-hazardous waste, 111,567 of which were reused or recycled, 6,719 of which were incinerated with energy recovery, and 5,025 of which were disposed of without energy recovery. The measured share of non-hazardous waste recovered or reduced at these locations was 96%.

Learn more

A New OEE

Overall Equipment Efficiency (OEE) is a common metric used by industries to measure the effectiveness and productivity of equipment or machinery. By looking across three main factors — availability, performance, and quality — this measurement provides a comprehensive view of how well equipment is utilized and how effectively it is contributing to the production process.

By adding energy efficiency indicators to the OEE metric, industrial enterprises can better align operational excellence and sustainability. Other operational key performance indicators (KPIs) to add include:

- Waste Generation
- Recycling Rate
- Greenhouse Gas Emission Tonnage
- Energy Efficiency Index
- Water Usage Efficiency

Additionally, digitally unifying electrical and automation systems eliminates information silos and helps improve efficiency of a heavy-process facility or enterprise. This combination has resulted in:

- 20% reduction in electrical, instrument, and control CapEx
- 10% improvement in process energy usage
- 15% reduction in unplanned downtime

Typically, by establishing sustainability based OEE KPIs for smart manufacturing programs, a 20-30% gap between optimal and actual resource usage can be closed.

Closing the Loop with Circularity

One way to mitigate risks and increase sustainability within the value-chain is to focus on circularity. Circularity refers to the idea that products should be designed to be reused or repurposed once they reach the end of their intended use. Resources, materials, and products are used, reused, and recycled in a continuous loop to minimize waste and environmental impact. The goal is to reduce the consumption of finite resources and minimize the disposal of waste, to create a more regenerative and less linear economy.

Assessing the circularity of your company and supply chain involves examining the proportion of raw materials and products recycled or repurposed within your operations. Circularity KPIs such as material circularity rate help measure where a company stands on achieving its sustainability goals. If you find your numbers are coming up short, it may be helpful to reevaluate investment in research and development in circular practices.

Embedding sustainability considerations at the earliest phase of product or plant design is critical for long-term success. By embracing sustainable innovation early in the lifecycle, industrial companies can drive positive change and stay ahead of the decarbonization curve.

Schneider Electric Carbon Footprint

When measuring total carbon footprint, Schneider Electric examines and reports Scope 1, 2, and 3 emissions on an annual basis. Schneider Electric tracks both upstream and downstream Scope 3 emissions tonnage by activity, allowing visibility into which processes can be made more efficient.

The 2022 Sustainability Report data reveals that 99% of the company's total emissions originate from Scope 3. Eighty-five percent of this is attributed to product use and end-of-life, and approximately 12% is from purchasing raw materials, equipment, and services from other vendors.

Measurements of saved and avoided GHG emissions are also tracked. Data from the Schneider Electric 2022 Sustainability Report reveals that products and services sold in 2022 will save 51,325,544 TCO2e (tonnes of carbon dioxide equivalent) and avoid 41,674,416 TCO2e over the course of the products' lifetime.

Learn more

Shrinking the Supply Chain Carbon Footprint

To drive improvements across the value chain, it is necessary to both set and adhere strictly to sustainability standards company-wide. Targets should be regularly evolving to foster continuous improvement.

Many industrial enterprises have set goals to reduce their Scope 1 and Scope 2 emissions. However, the World Economic Forum's Net-Zero Challenge addresses the more difficult Scope 3 emissions with decarbonization of supply chains, which many say will be a "game changer" on the impact of corporate climate action.

Considering the impact of Scope 3 emissions is an essential element for a comprehensive sustainability strategy. Scope 3 emissions are indirect, resulting from the company's activity but not generated directly from company-owned or controlled sources. Scope 3 emissions generally account for more than 70% of industry's greenhouse gas emissions.

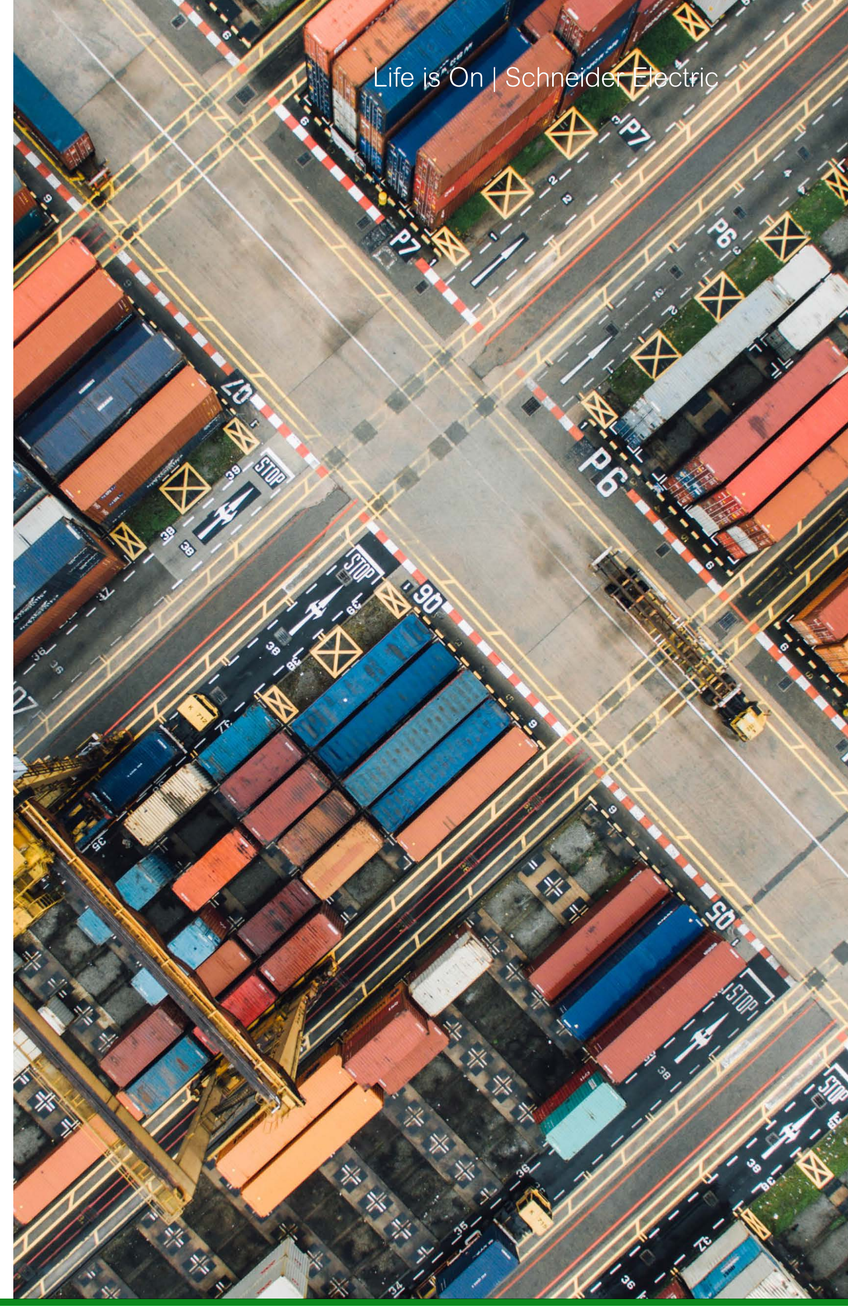
Traditionally, this responsibility has fallen solely on a company's Sustainability Officer. However, this must now extend to Chief Operating Officers and Supply Chain Officers, who can have a sizeable impact on their company's Scope 3 emissions.

Many companies and consumers are already requiring vendors to provide detailed information on the regulatory compliance, material content, environmental impact, and circularity attributes for each of the products they buy.

Schneider Electric Zero Carbon Project

Schneider Electric is helping its top 1,000 suppliers to halve their operational carbon emissions by 2025.

Learn more



Integrating Sustainable KPIs into Financial Reports

As the financial function plays a vital role within the business, it is critical that CFOs and their teams understand and embrace the strategic importance of sustainability as well. Adding clear sustainability measures to financial reports creates a more comprehensive understanding of company performance beyond the standard benchmarks. When sustainability metrics are factored in, investors, employees, partners, and other involved parties have a more complete understanding of the company's status.

Reporting on the progress of your sustainability initiatives is key to a successful program and sustainability strategy. The right partner can help you accurately collect, manage, and report data to all stakeholders inside and outside of your organization, including navigating ever-changing governmental reporting requirements.

Schneider Electric Sustainability Reports

Schneider Electric includes key sustainability indicators within its annual financial reports, including but not limited to greenhouse gas emissions, energy consumption, and water usage. Employee diversity, community engagement, and supplier sustainability performance are also measured and reported on official financial documents.

By providing stakeholders with transparent data, Schneider Electric sets a benchmark for responsible reporting, reinforcing our commitment to driving positive change and sustainable growth.

Learn more

Schneider Electric Sustainability Report

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Accelerating Your Industrial Sustainability Journey

Industry is one of the leading producers of greenhouse gas emissions in the world. With so little time left on the Climate Clock, sustainability is not just a problem for the big, energy-intensive companies to fix. All industrial enterprises have a role to play.

By going beyond traditional economic and operational indicators and embracing a broader perspective with metrics that truly matter, industrial enterprises can create a sustainable future while driving productivity and resilience at the same time.

To learn more about measuring and advancing your company's sustainability goals, and how we do it at Schneider Electric, talk to an Industrial Digital Transformation expert today.

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To learn more visit

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