



Converging on Success

Connecting Energy Efficiency and Sustainability to Make Commitments, Finance Projects, Innovate and Progress

Life Is On

Schneider
Electric

The dream of a sustainable energy future is closer to reality than ever before. Declines in renewable energy costs, new efficiency strategies, and advanced technologies such as distributed energy resources and storage, are giving companies around the globe an opportunity to embrace a sustainable future based on a low-carbon, hyper-efficient economy.

But many organizations find themselves stalled on short-term initiatives because they can't get buy-in from internal stakeholders. Often, that's because these businesses view sustainability and energy management as separate or loosely connected efforts. To maximize investments and outcomes—and truly realize the promise of sustainable energy—these teams must work in tandem.





Active Energy Management

Active Energy Management is when energy efficiency, energy procurement and sustainability teams work together to increase performance and return on investment through integrated decision-making and initiatives.

This paper focuses on the opportunities found when energy efficiency and sustainability teams work together.

Here are three sustainability- and energy-focused initiatives happening in companies across geographies, and how they benefit from integrated thinking, planning and execution.

1 **Develop precise targets and accelerate progress**

by making goal setting a cross-business process

- Public commitments
- Science-based targets
- Certification and reporting requirements

2 **Unlock budget and finance needle-moving projects**

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Develop precise targets and accelerate progress

by making goal setting a collaborate, cross-business process.

Public Commitments

The first, obvious and difficult step in making external commitments to climate action is deciding what those commitments should be. Goal setting is a layered, highly nuanced process that requires companies to consider and analyze a range of internal and external variables.

A too-conservative approach can limit the view of savings opportunities and lead to competitive disadvantages. It's like aiming for a C grade when an A might be possible—in an environment where peers have all pledged to get top marks, and internal and external stakeholders expect similar ambitions.

Setting a 70% renewable energy target might be a better starting point.



Conversely, far-reaching goals can put organizations in a position where they don't have the ability or resources to succeed. E.g., it may be too challenging or ambitious to pledge to move to 100 percent renewable energy out of the gate. In some markets, the ability to contract for offsite renewable power is limited. Plus, onsite wind and solar may not be able to address the energy needs and load profile of a site or group of sites. So, setting a 70-percent renewable energy target that the company can build on over time might be a better starting point.

While defining and communicating targets is often the domain of sustainability and corporate social responsibility teams, developing significant-yet-attainable goals requires input from across an organization. And operations and energy management teams should be at the top of the list of contributors.

Simply put, sustainability leads need to collaborate with their energy management peers because of the volume of emissions tied to energy use. Scope 2 emissions, those derived from purchased electricity or other power sources, as defined by the Greenhouse Gas (GHG) protocol, account for 40 percent of global emissions. And 50 percent of that total comes from electricity use by businesses¹. Setting a carbon-reduction goal without a clear view into the company's baseline energy consumption and potential for reduction could result in an ill-advised target.



Thanks to the internal coordination, the company has seen massive progress in just a few years—20% energy reduction—and will meet its goals much sooner than expected.

That's why getting an accurate read on current energy use, as well as developing projections based on the likely growth of an organization, is recommended as the first phase of the goal-setting process. This activity inevitably requires time and input from in-house energy and efficiency-focused specialists.

Energy teams also benefit from the partnership by playing a key, strategic part in the process, elevating their role beyond day-to-day operations. They have an opportunity to help set viable targets rather than being given targets. They have an early view into company commitments and can be proactive in developing roadmaps to meet goals. And, finally, these teams can more easily track projects against critical business KPIs, reallocate efficiency savings across the business, and improve internal and external reporting.

In the real world, these combined advantages yield significant results. For example, Schneider Electric worked with a global automotive manufacturer to establish and act on aggressive emissions-reduction targets. By bringing sustainability and energy management stakeholders together, the company discovered new efficiency opportunities and used the energy-savings forecasts to inform its public-facing goals.

The teams worked together as well to create line-item strategies to trim energy use and incorporate renewable energy into the global procurement mix. Thanks to the internal coordination, the company has seen massive progress in just a few years—20-percent energy reduction—and will meet its goals much sooner than expected.



Establish science-based targets

Setting goals that align with climate science and support the drive to limit global warming below the 2-degrees Celsius mark, is gaining corporate momentum. Almost 350 companies, including large global brands such as Nike, PepsiCo and Sony, have committed to science-based targets (SBTs).

As the name suggests, establishing SBTs adds complexity, and requires an additional level of internal and external rigor. (The targets must be reviewed and approved by the Science-Based Targets Initiative (SBTi) and its technical advisory group.) This is where organizations can stumble.

The prospect of missteps is greatly diminished, however, when silos are removed, and energy efficiency and sustainability teams partner throughout the process.

One significant difference with SBTs from other carbon-reduction goal-setting is that they require companies to analyze and consider reduction strategies for all three emissions scopes.

Emission scopes defined



SCOPE 1 EMISSIONS

Emissions from owned/
controlled sources



SCOPE 2 EMISSIONS

Emissions from the generation
of purchased energy



SCOPE 3 EMISSIONS

Indirect emissions that
occur in the value chain

Efficiency programs also decrease the baseload that must be “greened”.

Sustainability teams are the primary driver in marshalling the resources necessary to catalog this information and develop a high-level roadmap for success. They have a view into corporate-level data, and usually have the ear of corporate-level and supply-chain stakeholders. Plus, they may also understand renewable energy, which is necessary to achieve SBTs.

But energy management serves an equally crucial function. As mentioned before, this group has domain over the operations and programs that account for most of overall emissions. And energy efficiency is a core component of any effective carbon-cutting initiative. Not only does it trim consumption and costs, but it has a multiplier effect in areas like environmental sustainability, delivering as much as 2.5 times the value of reduced energy use.² That’s why efficiency investments can help address six of the UN’s Sustainable Development Goals.³

Efficiency programs also decrease the baseload that must be “greened”, making the task and expense of procuring a given volume of renewable energy less daunting. These factors combined necessitate that energy managers have a

prime seat at the table when organizations set SBTs or any climate commitments.

An information technology client recently committed to SBTs and completed the target-setting process. Its sustainability and energy management teams worked closely throughout, collecting the required data, and determining where the company could pursue on- and offsite renewables, and optimize energy efficiency across its footprint. The targets were vetted and approved through the SBTi and, since, they have announced a commitment to decrease Scope 1 and Scope 2 emissions 25 percent by 2025, and reduce Scope 3 emissions intensity from the use of its products 25 percent by 2020. It’s one of several reasons the organization was listed in [Barron’s 100 Most Sustainable Companies in 2018](#).

Efficiency investments can help address six of the UN Sustainable Development Goals

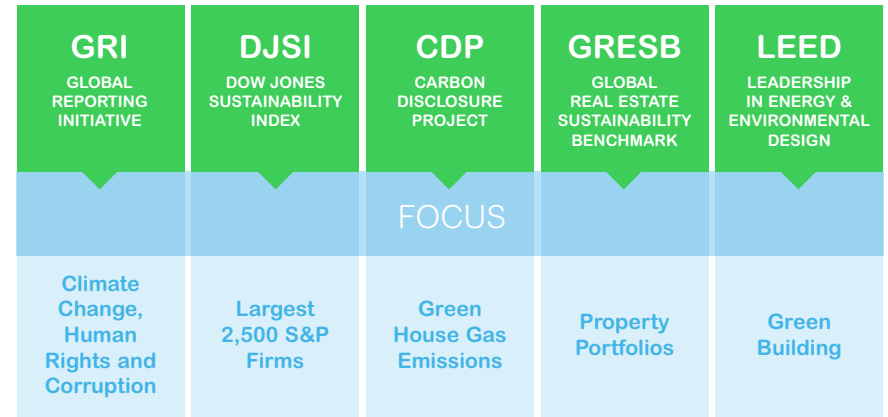


Merge certification and reporting requirements

Today's organizations deal with a variety of certification and reporting requirements, from ISO 50001 to the EU's Energy Efficiency Directive (EED), which can overlap. However, these overlaps don't have to create redundancies. Just the opposite. They can lead to efficiencies that help companies meet their obligations with minimal effort—if sustainability and efficiency teams work together.

Increasingly, data needed to make carbon-reduction and resource-efficiency commitments carry directly over to other sustainability and energy requirements.

For example, companies that respond to the CDP and the Global Reporting Initiative (GRI) can use the same data for both reporting channels, improving consistency and comparability. Synergies also exist within frameworks such as GRI and the Dow Jones Sustainability Index (DJSI). Building certification is another case in point. Companies that pursue Energy Star or LEED® certification receive extra points when responding to GRESB, the global environmental, social and governance benchmark for real estate assets.



There's interplay, too, between demand-side audits and efficiency projects when reporting carbon compliance through EED, Carbon Reduction Commitment and California Carbon Allowance programs. Companies can avoid carbon credits or similar penalties through audits or committing to efficiency improvements.

There are obvious short-term actions companies can take while goals are being finalized. These can range from switching to LED lights to installing onsite solar to doing an offsite renewable energy deal. It is important to keep in mind incentives or tax implications that may expire.

Unlock budget and finance needle-moving projects

with a shared resource efficiency and
sustainability fund.

The capex vs. opex debate

At many companies, operating expenses (opex) and capital expenses (capex) are in constant competition. And opex-funded work tends to carry the day because of its limited accounting and tax implications. The outcome for sustainability, and energy and operations teams is that incremental improvements to existing programs and related technology get the green light while new investments—necessary to accelerate initiatives and meet company commitments—linger in the maybe-next-time column.

However, cross-department collaboration can provide the key to unlocking capital funds for assets and services that may have longer paybacks, but also deliver long-term carbon-reduction and efficiency results.

Instead of always focusing on opex, sustainability and energy management teams can work together to use opex savings to fund larger capex projects. Think lighting retrofits as a revenue-generator to pay for fuel cells.

The benefit for sustainability teams is that onsite renewables and other clean energy technologies typically fall into the capex category. If some of the outlay can be offset by high-ROI efficiency upgrades, the business case for renewables is much stronger. Using conservation measures to reduce the energy consumption baseline also right-sizes the investment in renewables, whether onsite or offsite. The potential for overspending is minimal if a facility or campus is as energy-lean as possible. And, overall, the portfolio of options for hitting targets broadens as a result of a close energy-sustainability partnership.



When the opex-capex battle no longer exists, the cash curve can be optimized through sustainable off-balance sheet solutions similar to a utility-like approach to supply energy savings as a commodity.

For example, a global steel manufacturing company delivered sustainable efficiency projects at several of its plants through a contract, implying no minimum capex and considering energy no longer as a cost-center, but rather as an asset.

Self-supporting development

The strategy of building a bank of sorts to develop larger, CFO-friendly programs also works in reverse. An organization could buy offsite renewables through a power purchase agreement (PPA) to jumpstart a GHG-reduction initiative. This financial tool has the potential to generate a profit, which can be used to support longer-payback energy projects such as combined heat and power (CHP) or microgrids. (If the PPA is in a time of low profit, efficiency savings from the “bank” could also act as a buffer.)

Montgomery County, Maryland, recently used a microgrid-as-a-service model with a 25-year modified power purchase agreement (PPA). As an alternative to buying two microgrid systems outright, the county chose to partner with Schneider Electric and Duke Energy Renewables to develop, own and operate the systems, thereby incurring zero upfront costs. The onsite power generation at the two facilities is projected to jointly reduce yearly greenhouse gas emissions by 3,629 metric tons, ensuring cleaner, more reliable and efficient power.

What is a PPA?

A power purchase agreement is a contract between two parties, one that generates electricity (the seller, or developer) and one that is looking to purchase electricity (the buyer or offtaker). The PPA defines commercial terms for the sale of electricity between the two parties. There are two main ways that a PPA can be structured:

- **Direct**
(also known as retail or physical); or
- **Financial**
(also known as virtual or synthetic⁴)

Favorable financial and contracting terms have led corporations to play an increasing role as the offtaker of renewable energy directly from project developers via a PPA. To date, more than 12 gigawatts of PPAs have been executed by corporations globally.

In this paradigm, sustainability is no longer a cost center, as is often presumed. And operations teams can think beyond short-term savings. Both are integrated into the corporate strategy, and create a circular, efficient system for carbon and energy management.

Rolls Royce used this approach to set and plot a course toward a 30 percent reduction in energy use and 50 percent reduction in GHG emissions by 2025. The company has used savings from traditional conservation measures, as well as energy supply management, to help fund two sizeable solar PV installations at its U.K. factories.

Schneider Electric also advised one Fortune 500 company on a 100 megawatt PPA that netted \$300,000 in new revenue in 2017. This revenue provided much needed capital—money that is now available for the company to use to advance its energy management program.

Efficient sustainability. Or sustainable efficiency. This kind of quid pro quo benefits and elevates the collective importance of both teams. Plus, ultimately, it helps businesses meet public or internal targets in a way that quickly advances climate action and fiscal responsibility.

This revenue provided much needed capital—money that is now available for the company to use to advance its energy management program.

Renewable energy client success story



100 MW
PPA



\$300,000
REVENUE

A best practice broadcast

An automotive manufacturer was challenged with lack of visibility of energy and sustainability initiatives and a low level of consistency across its 74 facilities in 19 countries. Despite global targets, the firm had little visibility at a site level. And global policies were being ignored or inconsistently enacted.

The company also suffered from limited collaboration and unclear accountability. No one was driving the effort to align all sites and improve efficiency, and there was no way to share knowledge of what was working. Consequently, sites were missing targets and experiencing long deployment cycles.

Schneider Electric facilitated energy efficiency workshops at six sites, and a renewable energy analysis to identify PPA and self-generation opportunities. As a result, the company quickly identified up to 20 percent in energy savings—equal to \$4 million—on multiple projects with just two-year paybacks.



As a result of Schneider Electric's energy efficiency workshops, one company was able to quickly identify up to 20% in energy savings.



Adopt new technology and evolve to sustain success

by developing a forward-looking, evergreen strategy.

Connect strategy and technology

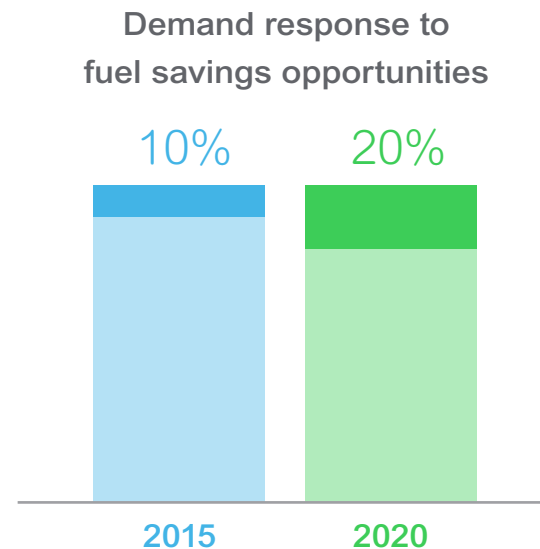
Many exciting new technologies and strategies benefit energy management and sustainability teams. But these teams need to work together when planning and deploying technologies to ensure investments are right-sized and will meet both teams' goals.

For example, demand response is an energy management strategy that is increasingly being used in innovative ways when combined with distributed energy resources (DERs).

Using demand response, utilities are adopting behavioral programs that encourage customers to curb energy use during peak hours. These programs are similar to a customer agreeing to be bumped from an overbooked flight.

With demand response, the regional power grid is overbooked and the market authority/grid regulating entity is looking for volunteers to temporarily alter operations and lower power consumption in exchange for savings.

The savings from participating in demand response programs can be big. In fact, research has estimated the savings from demand response in 2015 exceeded 10 percent of retail electric sales and could reach more than 20 percent by 2020⁵. Demand response strategies can also help companies achieve GHG reduction goals, while maintaining reliability in the power grid by avoiding increasingly high peak demand levels.



Energy storage response

Energy storage can be layered onto demand response to drive benefits for sustainability and energy management teams. In times of temporary excess of power due to added renewable energy, storage can absorb the excess and then re-release it later when it's needed, such as during peak demand (and cost) periods. Energy storage adoption is growing, and market outlooks estimate the global opportunity for storage to reach 1,000 gigawatts in the next 20 years.⁶

For sustainability teams, cooperation optimizes the benefits of renewable energy and other DERs, such as onsite solar, when generation does not match demand. This optimization allows the team to meet energy renewable energy goals.

With the addition of energy storage, energy management teams can take advantage of low-cost, off-peak energy when renewable sources are abundant. Sustainability teams can work with energy management teams to collect and share data on how much grid-sourced power was avoided by using onsite renewable energy and energy storage.

Market outlooks estimate the global opportunity for storage to reach **1,000 gigawatts** in the next 20 years.



A decentralized outlook

Microgrids tie DERs like onsite solar, software-enabled and data-driven equipment, and energy storage together so they work optimally, create resilience, and can respond agilely to outages or fluctuations in electricity supply. Microgrids can help companies better visualize energy use patterns and quickly react to optimize total energy spend. The many connected components that make up a microgrid allow companies to closely monitor real-time energy consumption, and deploy renewable or onsite energy sources at optimal times to save on energy costs. Microgrids are on the rise in many places in the world, and U.S. microgrid operational capacity is expected to exceed 3.7 GW by 2020⁷.

Microgrids provide operational resilience and flexibility on energy sources to lower costs while reducing corporate carbon footprint.

For example, Schneider Electric worked with sustainability and energy teams at the Gordon Bubolz Nature Preserve in Wisconsin to build a sophisticated microgrid, including five different DERs—fuel cell, CHP, onsite solar, microturbines and energy storage. This microgrid is one of the most advanced in existence, and demonstrates how a microgrid creates efficiencies, cost savings, and increased reliability and flexibility while promoting the integration of clean energy. Because of its microgrid, Bubolz expects to become a net-zero energy facility, paying no electricity bill and generating no carbon emissions.

“What’s most important to us is the sustainability aspect of the project—not only the environmental sustainability but the economic sustainability the microgrid brings to our energy budgeting.”

– Gordon Bubolz Nature Preserve

Energy management and sustainability teams need to work together when developing a microgrid project. Sustainability goals, and impact on GHG or renewable energy targets should be considered when determining what energy source is used to power a microgrid, and what the long-term vision is. Energy management teams can help right size a microgrid, and provide a pragmatic approach to meet project goals.

Working together, companies can meet renewable energy goals, consume less power from the grid and reduce their dependence on the market power price to ensure facility-level energy reliability and resiliency.

Data-powered sharing

Energy and sustainability teams need access to both facility- and portfolio-level data. Data such as how much energy is consumed, from what source, and at what price, can be used to find improvement opportunities, set goals, and internally or externally report progress and key indicators. But that data is often hard to get, or siloed in one department. Recent research by Schneider Electric and GreenBiz Research found that though 79 percent of companies are collecting energy and sustainability data, only 41 percent centralize that data globally⁸. The lack of a company-wide strategy makes data inaccessible to many areas of the organization that need it to make decisions.

Only 41% of companies centralize their energy and sustainability data.



De-siloing data, and sharing it between sustainability and energy management benefits both teams. For example:

- Energy procurement data can be used for carbon footprint reporting, vetting renewable energy procurement opportunities, prioritizing energy efficiency improvements and building better business cases for investments.
- Energy consumption data allows for better benchmarking and more accurate price forecasts, determining onsite renewable energy opportunities, and quantifying project savings and GHG reduction.

EcoStruxure™ Resource Advisor

Schneider Electric's enterprise-level, cloud-based sustainability and energy management application gives organizations instant and secure access to energy and environmental information. From enterprise metrics to granular site data, EcoStruxure Resource Advisor (www.resourceadvisor.com) provides essential data to improve energy and sustainability programs.



- Sustainability data can be used to improve a business case for efficiency projects by showing the impact on GHG goals at the corporate level and increasing employee engagement on efficiency initiatives.

A medical device client is a good example of how powerful data sharing can be. After aligning all data on a single platform, the sustainability, energy management and procurement teams could holistically look at opportunities for meeting goals. They identified offsite renewable energy opportunities and improved energy efficiency goals, leading to the installation of efficient lighting across all facilities and a reduction in electricity use. All of this data automatically feeds itself into reporting efforts, combining key environmental metrics that the company reports to CDP.

¹ [GHG Protocol Scope 2 Guidance: Electricity Procurement](#), World Resources Institute

² [Capturing the Multiple Benefits of Energy Efficiency](#), International Energy Agency

³ [Why Energy Efficiency Is Key to Sustainable Development](#), World Economic Forum

⁴ What is the difference between direct and financial PPAs? Read more, [here](#).

⁵ [Energy Efficiency Resource Standards: A New Progress Report on State Experience](#), American Council for an Energy-Efficient Economy

⁶ <https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/the-new-economics-of-energy-storage>

⁷ <https://www.greentechmedia.com/research/report/gtm-research-note-us-microgrid-market-update-q2-2016#gs.p1JvQME>

⁸ [The State of Corporate Energy & Sustainability Programs 2018](#), Schneider Electric

In this e-book, we have explored strategies your organization can use to strengthen the link between efficiency and sustainability teams to maximize results of both programs. Working with an expert partner in energy management can elevate these commitments and help your company embrace a sustainable future. Through technology, software, and services, Schneider Electric helps organizations in over 100 countries coordinate activities across diverse teams, identify opportunities, and act on initiatives in ways that are safe, reliable, efficient and sustainable.

Bring your leadership team together in a collaborative, strategic workshop to set targets, exchange ideas and prioritize tactics. We will help you create a implementation roadmap to guide your organization's coordinated sustainability and efficiency efforts.

To get started, contact our Active Energy Management consultants.

Learn more

Interested in learning more about Schneider Electric's Energy and Sustainability Services?



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