

enel x

A night cityscape with digital data lines overlaid. The image shows a city at night with many skyscrapers and buildings illuminated. Overlaid on the city are numerous vertical lines of varying heights and colors (blue, purple, pink) that represent data or connectivity. The lines are connected to various points on the buildings and the ground, creating a network-like appearance. The overall tone is futuristic and technological.

Powering Sustainable Data Centre Growth

Making Opportunities Happen

enelx.com

Building Value Together

Data centre operators have the opportunity to foster innovation in energy production, management and distribution at a scale that is unmatched by almost any other sector. By taking action that supports grid stability and furthers the growth of renewable energy use, the sector can contribute to a more secure and sustainable energy future for everyone, while simultaneously clearing a pathway for its own growth.

For many organisations, energy in itself is not a core business competence. Implementing an effective energy strategy requires specialist expertise and a deep understanding of local and international regulatory and compliance legislation. We've put together this guide to give you an insight into some of the ways that Enel X can help you to leverage electrification and digitalisation as you pursue decarbonisation and more efficient use of energy across your business operations.

If the world's appetite for data consumption is to be matched by data centre growth, we all need to work together to reduce carbon emissions and improve grid stability. By exploring ways to create a more sustainable energy ecosystem for energy companies, grid operators and data centres alike, we can all build value together in a sustainable way.



Vision and
Targets

+



Energy
Strategy
Governance

+



Data
Collection &
Management

+



Mandatory
& Voluntary
Reporting

+



Internal &
External
Engagement

+



Energy
Solutions

Energy Consulting Services



Vision and Targets



Energy Strategy Governance

Energy supply management is the corner-stone of any low-carbon energy strategy. Our Global Energy Advisory team evaluates your goals and formulates an appropriate go-to-market strategy, including:

1 Procurement

Defining energy purchasing strategies, taking into account company objectives and market opportunities, as well as identifying the best electricity and gas offers.

2 Risk Management

Managing market and budget risks (price and volume) by monitoring indicators such as open position, mark-to-market and value at risk, in addition to legal and regulatory risks.

3 Budgeting & Forecasting

Planning annual energy budgets at an individual site level by aligning them with the previously defined risk management strategy.

4 Cost Prioritisation

Understanding energy cost drivers in detail, analysing billing data to identifying possible opportunities, such as energy efficiency projects or distributed generation and optimising rates.

5 Sustainability Advisory

Developing and pursuing a sustainability energy strategy, in alignment with corporate objectives and market opportunities, monitoring historical and expected CO2 emissions, promoting the use of renewable energy, negotiating PPA and solutions for reducing emissions, and improving the circularity of their businesses.



Leading multinational technology company accelerates renewable energy purchase through auctions

In 2018, a leading multinational technology company that specialises in internet-related services and products matched 100% of its global electricity consumption with renewable energy for the second year in a row. Looking to the future, they recognised that sustaining a 100% match would require thinking beyond its historical procurement methods. To continue meeting its users' needs in a sustainable way, it decided to streamline its renewables procurement process by running reverse auctions (where energy sellers bid for a buyer's business) for wind and solar projects. Their goal was to source, negotiate and sign a large wave of renewable energy deals in a single, global push.

Using Enel X's proprietary reverse auction technology, which is integrated in Enel X Connect, 10 agreements comprising more than 1.2 GW of renewable energy were successfully transacted. In addition to securing the renewable energy needed to maintain their industry-leading commitment to sustainability, running digital reverse auctions provided complete transparency, accelerated the procurement process and was instrumental in the achievement of cost optimisation goals.

1.2^{GW}

of renewable energy
purchased at auction



100% of global energy
consumption matched
from renewables



Data Collection & Management



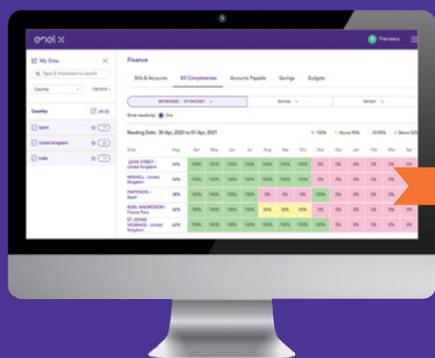
Mandatory & Voluntary Reporting

Data for informed decision making

Our digital platform, Enel X Connect, provides visibility into how and when you use energy, providing a baseline for further efficiency measures while ensuring that billing errors are identified and corrected. Enel X Connect enables us to create an energy strategy that is built around your needs.

Energy and Emissions Visibility Powered by Enel X Connect

To capture the environmental benefits of your renewable programmes, we have integrated carbon reporting into Enel X Connect. It allows for the tracking of all data associated with the purchase, consumption and generation of renewable energy, including its impact on sustainability goals and environmental benefits using market-based emission calculations.





Actions

Informed decision making requires accurate and easily accessible data

1.4M bills processed per year | +100 countries supported | \$14.5B annual spend under management

Developing and Executing an Energy Strategy to Meet Your Sustainability Goals

Enel X is a CDP Gold Partner.

In this capacity, we can help you:

- > Organise and report your environmental data
- > Develop and implement an emissions reduction strategy
- > Procure and advise on renewable energy products
- > Measure and understand your environmental impact
- > Analyse the benefits and costs of setting different emissions reduction targets
- > Benchmark your company against your peers



Navigating the Renewables Market

Simplifying renewable energy purchases through a holistic, three-step process

1 Strategy



Understanding how different renewable energy resources and product options accomplish different objectives is the cornerstone of an effective renewable energy strategy. We help you prioritise your goals and select

the best resources (wind, solar, biomass), products such as Power Purchase Agreements (PPA), Virtual Power Purchase Agreements (VPPA), Energy Attribute Certificates (EAC) and types of production (new vs. existing projects) for tender.

2 Execution



Given the complexity of renewable energy contracts, precise RFP (Request for Proposal) definition is critical. We help you structure RFPs to manage market, basis, counterparty and contractual risks effectively. Commercial, production and operational guarantees should all be consistent across bidders so that you can evaluate deals on equal terms.

After qualifying providers, we conduct either sealed-bid or live renewable PPA auctions to ensure bid transparency, exert maximum competitive pressure and to achieve the best price. We then integrate the production of physical and virtual PPAs into your broader supply mix by optimising net meter aggregations, managing monthly market settlements, risk management, EAC delivery, retirement and arbitrage and support for physical PPAs.

3 Support



To further maximise the economic benefits of renewable PPAs, Enel X can provide ongoing support to renewable energy and sustainability programs monitoring PPA terms and conditions and financial settlements,

EAC management and arbitrage (GOs, RECs, etc.), integration of renewable energy into broader procurement and risk management programs and GHG calculations and market-based emission reporting.



Decarbonising the grid

Stabilising the future of renewables

Going green is not without its challenges. The intermittent nature of renewable energy production can challenge the stability of the electricity grid. With Demand Response (DR), data centres can create the flexibility needed to balance the grid, paving the way for more green energy to be used. Demand Response isn't just good for the grid, it's good for your business too. Participating with Enel X reinforces your operational resilience, drives down costs and provides you with a new source of revenue. Here are some of the benefits experienced by data centres that participate in DR:

- > DR offers a safe way to test back-up systems while the grid is still available, so you'll have higher confidence in them during a real grid event.

- > DR prevents actual black-outs that would result in grid downtime and prolonged reliance on back-up power. Participating in DR protects both your business and the wider community.
- > DR prepares you for potential future grid restrictions on maximum energy use. DR event triggers can also be used to transfer some data centre load over to backup systems when a maximum demand threshold is reached.
- > DR participation often uncovers opportunities to improve your overall energy efficiency, reduce costs and help you to achieve your sustainability goals.

Demand Response with Enel X provides bottom line benefits to your data centre while contributing to a more reliable and environmentally friendly electricity grid. No capital investment is required and you maintain full control of your energy assets at all times.

Case study

Cork Internet Exchange (CIX), Ireland



CIX, is a 33,000 square foot co-location data centre with 4MVA of generative capacity. It participates in the grid operator's demand response programme, guaranteeing 400kW of curtailed load for up to 20 dispatches in a given year. In the rare event that the grid encounters difficulties, a demand response call is initiated. Enel X immediately relays that call to CIX, which already has a reduction plan they can enact quickly. Rather than seeing DR as a threat to uptime, CIX uses Enel X's dispatch intelligence to mitigate power source interruption risk.



Battery Energy Storage Solutions

With technology costs falling, and an increasing need for flexibility and resilience to accommodate the fast penetration of renewable resources, Energy Storage represents a unique opportunity for Industrial and Commercial (I&C) energy customers. Battery Energy Storage Systems (BESS) are becoming a key technology to support the energy transition. Therefore, choosing the right system integrator able to seamlessly combine artificial intelligence with reliable hardware solutions is a long term investment for your business.

Benefits of BESS

Enel X offers three solutions which enable I&C businesses to lower their electricity bills, improve their sustainability across the supply chain, and access backup power to avoid disruptions to daily operations:

1 Standalone Storage

An independent BESS which allows users to store electricity during hours when it is cheaper, and then dispatch it later when prices are higher. Standalone storage enables I&C businesses to capitalise on energy price volatility, prevent power outages and contribute to balancing the grid, thus enabling a higher penetration of renewables.

2 Solar-plus-Storage

Pairing a solar photovoltaic system (PV) with a BESS allows I&C customers to extract added value from their on-site asset and access new revenue streams. The battery stores the self-generated energy by the PV for later use providing resiliency and backup power. Consequently, businesses can benefit from energy cost reduction, reach the highest sustainability value and maximise the on-site utilisation of self-generated green electricity.

3 Microgrid

Small-scale distributed energy systems – usually composed of PV, storage and a genset – allow the customer to self-produce energy on-site while being connected to the utility grid. It offers the highest degree of resiliency by ensuring power supply for the duration of an outage.



Energy
Solutions



Holistic Energy Management

Energy management initiatives extend beyond the matter of supplying power to the data centre itself. Increasingly, businesses are seeking holistic approaches to manage their energy needs. For example, as the use of electric vehicles grows, workplaces are integrating charging infrastructure for employee and visitor use. Smart EV charging can play a role in grid balancing by integrating these more flexible, non-critical loads into an overall energy efficiency plan.

Funding Energy Initiatives

While major energy users see the benefits of planning a broad approach to energy strategy, finding capital to fund the measures can be a barrier to moving forward. A potential solution to address the funding barrier is to partner with Enel X as a provider of Energy-as-a-Service (EaaS). EaaS helps to overcome the issue of having to find capital to fund improvements, for example through shared savings models, forging a long-term relationship with a partner who can advise and deliver on PPAs, flexibility solutions, energy efficiency measures, utility bill management and much more. EaaS supports increased profitability, resiliency, sustainability and better risk management – especially with respect to compliance and market exposure.

A holistic approach to managing energy typically incorporates efficiency measures, alongside other initiatives such as DR, PPAs, EV infrastructure and utility bill management, which provides detailed insights into energy spend that can inform planning.

Driving Grid Innovation

As large energy consumers and one of the fastest growing users of power, data centres have the potential to make a tremendous impact to grid innovation. Given the data and power industries' interdependence, many now advocate that it's time for data centres to contribute to the overall stability of electricity systems by becoming better grid citizens.



Local knowledge, global resources and specialist technological expertise make Enel X the trusted energy management partner for data centres and large scale enterprises all over the world. Join us as we pave the way for a cleaner, more dynamic future.

- All-in-one energy management
- Simplification of management and control operations
- Mitigation of energy risks and costs
- Complete portfolio of scalable solutions for every type of need
- Personalised consultancy
- Tech-agnostic solutions compatible with any environment
- Innovative and reliable partner, part of the Enel Group, world leader in the energy sector
- Recognised by CDP as a Global Gold Accredited Solutions Provider

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