

enel x

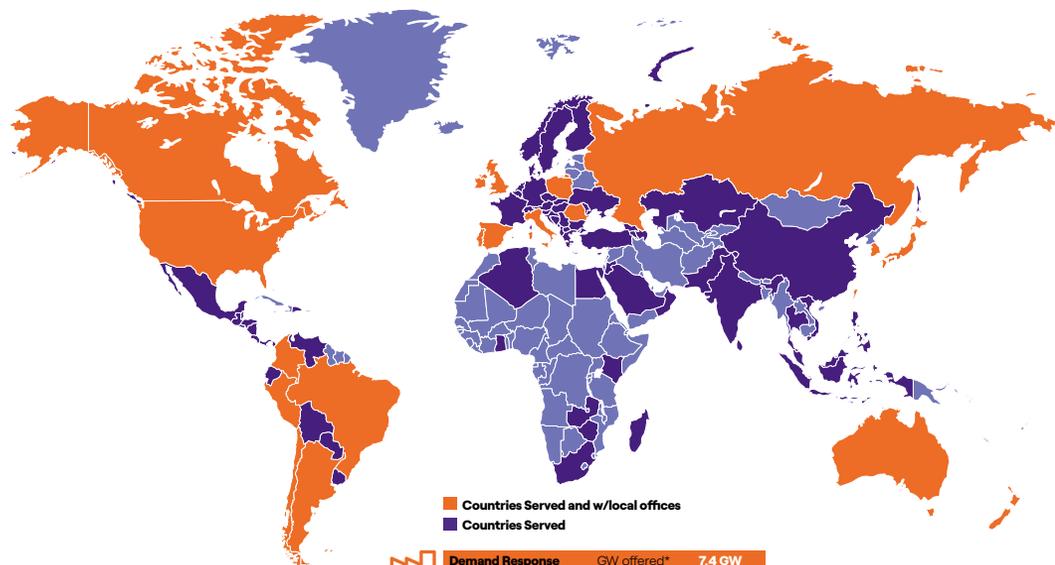


# e-Industries



# e-Industries throughout the world

As a company driven by digital technology, Enel X accommodates customer needs across sectors, throughout the world.



Demand Response	GW offered*	7,4 GW
Storage	MW installed*	137 MW

\*1H-2021

## Enabling sustainable progress, together

With our fully-fledged suite of energy solutions, Enel X creates shared value across the board. The material benefits of our solutions impact the environment, the communities, the stability of national grids in which we operate, and generate

a new source of savings and income for the companies we serve. Translating the United Nations Sustainable Development Goals into measurable actions to decarbonize the planet with our customers.

## Trust is earned

With a comprehensive suite of energy products and services tailored to suit commercial and industrial business needs, Enel X is uniquely positioned to offer an integrated turn-key energy package of solutions that help improving Commercial and Industrial (C&I) businesses bottom line and minimize risks.

Our solutions are designed for enabling companies to:

- **Earn Revenue:** monetize flexibility and excess of production of existing assets in the electricity markets.
- **Reduce Cost:** lower demand charges and reduce critical billing by independently producing energy on-site and optimizing consumption schedules
- **Improve Resiliency:** protect against operational disruptions and power quality issues
- **Improve Sustainability:** reduce greenhouse gas emissions and your corporate sustainability goals
- **Manage Risk:** address compliance issues, and manage market exposure and budget certainty
- **Increase Transparency:** over your energy usage

# e-Industries array of solutions

Offering innovative premium services and turnkey digital solutions, as well as leveraging the Enel Group legacy with its 70mln customers\*, Enel X is the partner of choice of commercial and industrial businesses.

\*1H-2021

## Customer Insights

Digital, AI-based tools matchable with customized energy management advisory services.

- **Enel X Connect:**
  - Utility Bill Management
  - Energy Exchange
  - Energy Management
  - Comfort Management
- **Energy Consulting Services**

## Flexibility Solutions

Access to over 50 DR programs worldwide, remunerating companies with a new revenue stream that stems from their existing energy assets, no capex required.

- Demand Response programs
- Generator Upgrades
- Generation and Energy Optimization (GEO)

## Distributed Energy

Design, delivery and maintenance of turnkey sustainable and resilient solutions, as well as tailored Energy Infrastructures best suited to client needs.

- PV
- CHP
- Energy Infrastructure

## Battery Energy Storage

End-to-end solutions for Commercial & Industrial (C&I) customers with a revenue optimization enabled by Enel X's DER Optimization Software

- Standalone Storage
- Solar-plus-Storage
- Microgrid
- DER.OS



# 01

## Customer Insights

In today's deregulated markets, businesses are attempting to obtain savings, manage risk, optimize energy related processes, and improve their sustainability standards. In a constant attempt to help commercial and industrial businesses strike the balance between meeting these goals and executing their primary business objectives, Enel X

is the trusted energy advisor for businesses to implement a custom-fit comprehensive and strategic energy plan. The Customer Insights portfolio is made of, on the one hand, digital software-based solutions whose data are leveraged by our consultants to execute, on the other hand, energy consulting projects for businesses.

# Our solutions

## 1 - Enel X Connect

Customer Insights taps into a digital energy suite, the **Enel X Connect**, with four digital applications aimed at helping clients understand, optimize and manage their energy consumption in an efficient and sustainable way:



### Utility Bill Management

Utility Bill Management (UBM) enables an outsourced and automated management of global utility costs. UBM is a money-and-time saver software which also ensures that the enterprise correctly abides by sustainability metrics with the use of additional reporting and forecasting tools.



### Energy Exchange

The software assists customers on how to buy energy by digitizing energy commodities transactions through competitive reverse auctions. Furthermore, Energy Exchange enables risk management strategy and energy budget and forecasting support.



### Energy Management

The Energy Management solution enables a real time collection, analysis, and comparison of energy consumption data from any energy vector within the enterprise. The solution detects energy inefficiencies and suggests solutions for energy efficiency and savings.



### Comfort Management

A smart data-driven green invention which enables clients to implement a unique approach to improving the climate comfort within their premises, especially by remotely optimizing loads and performances of their HVAC systems. Comfort Management algorithms guarantee air quality comfort without the intervention of in-house personnel, ensuring savings and flexibility monetization.

## 2 - Energy Consulting Services

Enel X has a long-standing energy market expertise and global footprint which permits its trusted partners to benefit from turnkey energy consulting services, specifically centred around the sustainability target. Mid to large C&Is daily turn to Enel X's adept consultants, who promptly execute individual business

energy diagnosis and suggest customized long-term energy optimization strategies to help businesses meet their industrial requirements. Enel X team of advisors taps into the data collected from the above-mentioned software-based platforms to execute each individual energy consulting project.



# 02

## Flexibility Solutions

Through our flexibility portfolio of energy solutions, companies can now monetize their flexible energy consumption profiles and electricity produced on-site, increase their resiliency and contribute to grid stability, while decarbonizing.

# Our solutions

## 1 – Demand Response programs

Demand response **remunerates companies** who agree to modulate their energy consumption in response to grid signals. DR programs are used by utilities and grid operators to improve electricity network stability and enable the integration of renewable energy resources into the energy mix. The participation of businesses in these programs contribute to a cleaner, more reliable and more efficient electric grid, while keeping energy prices stable for all.

Depending on the country and the regulatory framework, utility, grid operators or market exchange operators typically offer three types of DR programs.

- **Capacity programs**, which pay energy users for their ability to reduce their demand on the grid when called upon
- **Ancillary Services programs**, which leverage responses from businesses in near real-time to help prevent unexpected grid reliability issues
- **Price-Responsive Markets**, also known as economic DR, which pay businesses to reduce their electricity demand on the grid in response to high electricity prices.

Any facility that can reduce demand, with at least 100 kilowatts of electricity, is typically a good candidate for Demand Response. Examples may include schools and college campuses, hospitals and healthcare facilities, manufacturing facilities of all types, food processing and cold storage facilities, commercial property buildings, grocery stores and retail malls, government buildings, data centers and every kind of industry.

Companies' ability to be flexible about when they use energy represents an opportunity that can be monetized. Utility and grid-sponsored DR programs allow companies to be paid for that flexibility. Enel X assists commercial and industrial businesses to monetize their energy assets and use energy in a highly efficient and remunerative way, while decarbonising. Enel X offers the opportunity to participate in more than 50 programs worldwide and extract further value from their existing assets and energy consumption.



## What are the benefits of participating to Demand Response programs?

DR programs offer a broad set of financial, operational, and environmental benefits for participating companies, in exchange for being on call to modulate their energy profile. When dispatches are called, participants also receive additional “energy” payments, based on the amount

of energy reduced during dispatches. Payment amounts vary depending on the program rates offered by the utility or grid operator sponsor. Enel X works with businesses to ensure that they receive the maximum financial benefits for their participation.

# What are the steps to participate in a **Demand Response** program?

## A. Prepare

### A customized Energy Management Plan designed around your company's need

Enel X will work with you to identify ways to modulate your energy profile without affecting business operations, comfort, or product quality. It's our job to create a strategy that delivers maximum value with the minimum operational impact. Energy modulation measures are customised for each unique facility and can include turning off lighting, air conditioning, pumps, and other equipment. Many facilities find that energy-intensive processes can be shifted by a few hours to facilitate dispatch participation. In some geographic areas, facilities may participate by switching

to backup generation, thereby reducing demand on the grid. We will work with your facility to create an individual participation strategy that works for you. Enel X will facilitate installation of metering devices, at your facilities. For example, we may install Metering technology: a small gateway device at each facility in order to establish communication with our Network Operations Centre (NOC). This connection ensures that we can monitor energy consumption levels in real-time during DR dispatches, and allows you to access your real-time data and the valuable tools in our energy software platform 24x7.

## B. Respond

### Receive and acknowledge dispatch notification:

When the utility or grid operator anticipates need for support, it dispatches a signal to the DR aggregators, such as Enel X. We will then send you a notification via phone/email/SMS informing you that the dispatch will begin and how long it will last (typically between 15 minutes and 4 hours). Once you acknowledge the notification, you're ready to respond.

### Implement your customized Energy Management Plan:

At the start of the dispatch, your facility will reduce its electricity usage according to your pre-determined energy management plan. Energy modulation can be managed manually on-site, or, if appropriate, conducted automatically with the assistance of our NOC.

## C. Restore



Return to normal operations. Once the DR dispatch is over, participating facilities will receive a notification that they are now clear to return to normal operations.



We will remain in contact with you before, during, and after the dispatch to ensure that you are hitting your reduction targets and receive the highest level of financial payments.



Enel X is uniquely positioned to offer 24x7 customer support thanks to our state-of-the-art Network Operations Centre ("The NOC"). The NOC is our Demand Response command hub to manage our flexibility services. All energy dispatches are actioned, monitored and managed from here.



Through the NOC we operate the largest portfolio of flexible energy assets across the world, to reduce global decarbonisation and promote national grid stability in a variety of regions. We currently manage over 6 GW of flexible load across 15 countries worldwide, and stream data from more than 15,000 enterprise sites globally.



The energy flexibility load managed by the NOC is distributed across more than 50 Demand Response programmes across the world, varying substantially in design and dynamics. In the NOC we receive dispatching orders from any of the TSOs that manages one of the programmes we are active in, and from the NOC we execute the order, guaranteeing the correct response from the portfolio of sites we manage.

### Benefits:

- Maximize Earnings
- Protection of your business operations from sudden black-outs
- More Reliable electricity in your Community
- Improved Resilience
- Corporate Citizenship and Sustainability
- Boost Circularity

## 2 – Generator Upgrades

Enel X supports businesses that own a backup generator to extend the life and value of their energy assets, in compliance with local regulatory policies. Enel X develops a **customized energy management plan** enabling business' participation in Demand Response programs, when **financially and operationally convenient**. Enel X can **finance the backup generator upgrades**, facilitating business participation in Demand Response programs **with no upfront cost**.

### Benefits:

- Upgrade your generator to meet the regulatory requirements
- Extend the life your existing energy asset at no upfront cost
- Extract value and generate new earnings from your existing energy asset
- Improve your business resilience

## 3 – GEO – Generation and Energy Optimization

The solution, designed by Enel X, is dedicated to Commercial and Industrial businesses that own an energy generation asset. There are two types of solutions:

- **GEO**, dedicated to businesses owning an on-site energy generation system.  
The solution unlocks a new revenue stream, as it enables businesses to sell the energy produced in excess by their on-site plant into the electricity market
- **GEO Advanced**, dedicated to businesses that own a **C(C)HP**. This solution **optimizes the energy production schedule** thanks to a combination of advanced modelling that takes into account the commodity prices, the regulatory framework and much more.

### Benefits:

- Maximize Earnings
- Access to Energy Markets
- Increase visibility and control
- Integrated management of all your energy assets
- Optimization of your CHP production schedule, taking into account regulatory measures and much more
- Improved sustainability & Energy Efficiency

## Why do commercial and industrial companies choose Enel X as their trusted DR partner?

- Enel X is the world's leading Demand Response aggregator with **7.4 GW** of flexible load and a unique ability to monetize the energy assets of commercial and industrial businesses in complex energy markets
- Part of Enel Group, with over **50-year** experience in energy
- Presence in **15 countries** with access to over **50 programs**
- **6000** business partners globally
- Streaming data from more than **15,000** enterprise sites
- Network Operations Center with customer support **24/7/365**
- More than **\$200M** invested in technology to date
- **3,000+** employees in offices across countries

# 03

## Distributed Energy

Boasting decades of experience in the energy industry and a thorough knowledge of it, Enel X is the qualified energy partner of choice. Supplying sustainable and circular Distributed Energy Generation and Infrastructure solutions bundled with premium energy services, Enel X allows Businesses to focus on their core business activities, while enabling savings and new revenue streams.

Enel X's Premium Distributed Generation and Infrastructure solutions can be accessed by our industrial businesses through three different financing options customized to meet each corporate strategy and necessity. Clients can choose the shares of their capital which they are willing to invest through our available formula: Asset Purchase, Energy as a Service or Existing Asset Sale.

# Our solutions

## 1 - Photovoltaic System

Enel X creates turnkey Solar Photovoltaic Systems tailored to the specific needs of each client, hence offering a customized end-to-end solution. The upgradable version of this solution includes

the possibility to install at the PV on site our Energy Management software, as well as gain access to the energy markets by monetizing the excesses of energy self-produced.



## 2 - Combined Heat and Power

Enel X deals with the installation of cogeneration and trigeneration plants. These systems produce electricity, while recovering and re-using almost all the heat produced, preventing it from dissipating into the atmosphere. Trigeneration assets

produce cooling energy on top of electricity and heat. Depending on each country's market regulations, this solution might be complemented with Demand Response programs in order to unlock additional revenue streams.

## 3 - Energy Infrastructure

Our skilled Enel X team has years of experience in designing and constructing Energy Infrastructure projects, such as conversion cabins and transmission lines, as well

as other energy infrastructure solutions, which can extensively contribute to the reduction of the clients' carbon footprint and costs throughout their supply chain.

# 04

## Battery Energy Storage

Among others, one technology which is nowadays warmly and widely welcomed is Battery Energy Storage, as it helps businesses stay ahead of the curve. Certainly, the falling costs of this technology and the grid vulnerability have made it even a more appealing addition to existing local assets. Battery Energy Storage operates under different solutions and can therefore perform a wide and varied array of functions for the grid depending on the specific solution activated or chosen by the client. Enel X offers three Battery Energy Storage solutions which allow Commercial and Industrial (C&I) customers to stack multiple

value streams, enabling them to lower electricity bills, improve sustainability across the supply chain, activate backup power to avoid disruptions to daily operations and generate revenues from participation in Flexibility markets (such as Demand Response programs). Regardless of the chosen solution, the key enabler of these benefits is Enel X's DER Optimization Software, our best-in-class forecasting and optimization engine, which leverages sophisticated machine learning and AI algorithms to extract the maximum value from synergistic operations of Battery Energy Storage, site loads and generation assets.

# Our solutions

## 1. Standalone Storage

An independent Battery Energy Storage System (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 C&I businesses to capitalize on energy price volatility, prevent power outage 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 C&I customers to extract added value from their on-site asset, and access new revenue streams. The battery, indeed, 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 maximize the on-site utilization of self-generated green electricity.

## 3. Microgrid

Small-scale Distributed Energy Systems, usually composed of PV, Storage 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.

## DER.OS

Enel X in-house DER Optimization Software powers all BESS solutions behind the scenes. The software intelligently determines when to charge and discharge the battery to deliver maximum savings and superior operational performance, providing:

- Optimal BESS charge-discharge strategy via AI and machine learning forecasting/optimization algorithms
- Real-time system performance monitoring
- Optimal performance re-calculated every 15 minutes
- Reports specifying bill savings "before" and "after" installing a BESS
- 24/7 online connection with our Network Operations Center (NOC) Control Room for remote monitoring and troubleshooting



# 05

## Enel X offer for Business

Enel X services and products for the B2B target can be integrated with Financial Service and Electric Mobility solutions.



## Financial Services

Enel X Financial Services offers several different digital payment and acquiring solutions, integrated with Enel's ecosystem, aimed at increasing access, inclusion and convenience to satisfy the needs of people, businesses and commercial networks. In partnerships with financial institutions, the Company offers all the typical services of a modern digital bank and provides businesses with a single interlocutor for financial intermediation, in order to simplify processes, digitize the enterprise network.

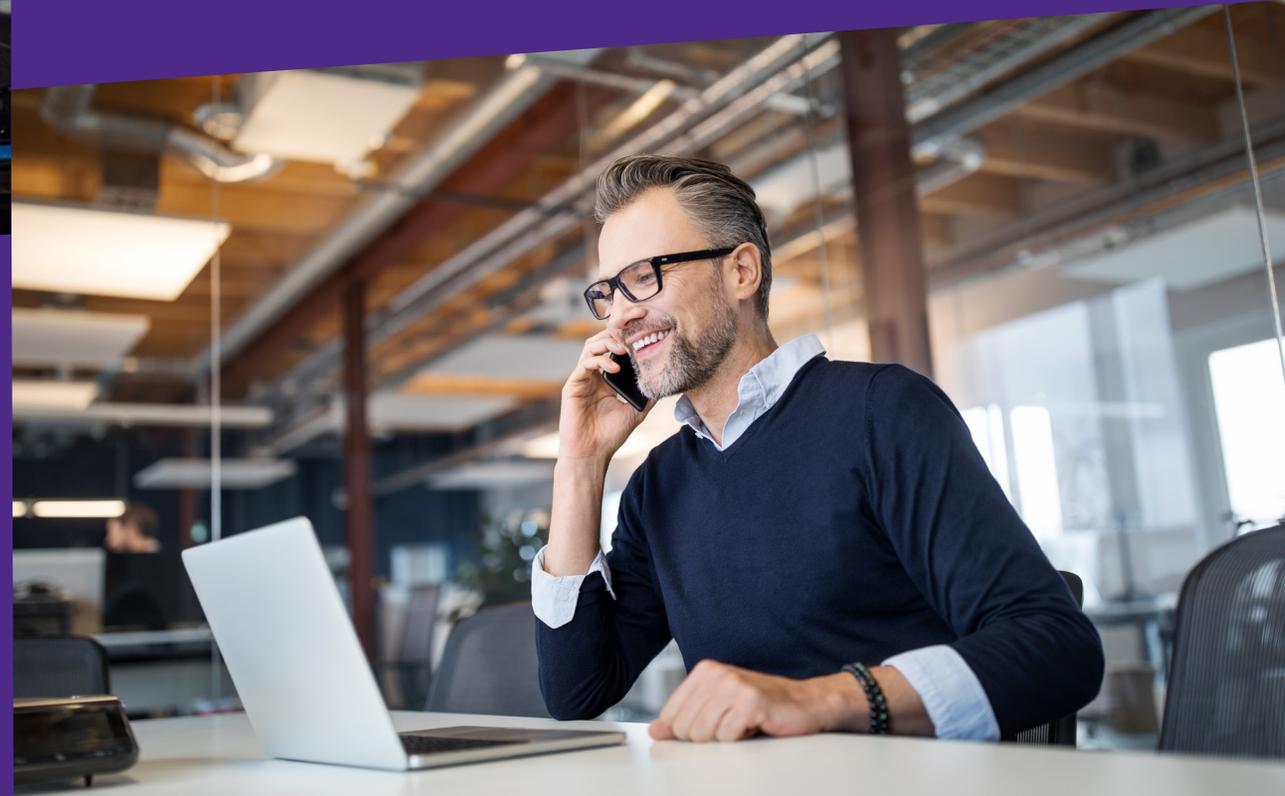
Digital payment solutions – wallet and/or card based – enabling retail clients to easily pay bills and control their financial wealth, as well as supporting business clients in managing payment collection and payouts. Enel X Financial Services partnership network is also evolving in the Insurtech and Wealth Management field. Micro and Instant insurances offered in partnership with insurance companies will provide soon the most suitable solution for consumers who pay through their energy bill.



## Mobility

Intelligent charging solutions, a bespoke and ready to scale ecosystem of intelligent charging and EV fleet solutions with Vehicle to grid integration for businesses. Enel X enables people, cities and companies to take part in the electric mobility

transformation easily and conveniently by delivering a seamless experience for all drivers setting world-wide infrastructure standards in partnership with industry leaders and creating complete end-to-end offerings.



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