



Enel X Flexibility solutions

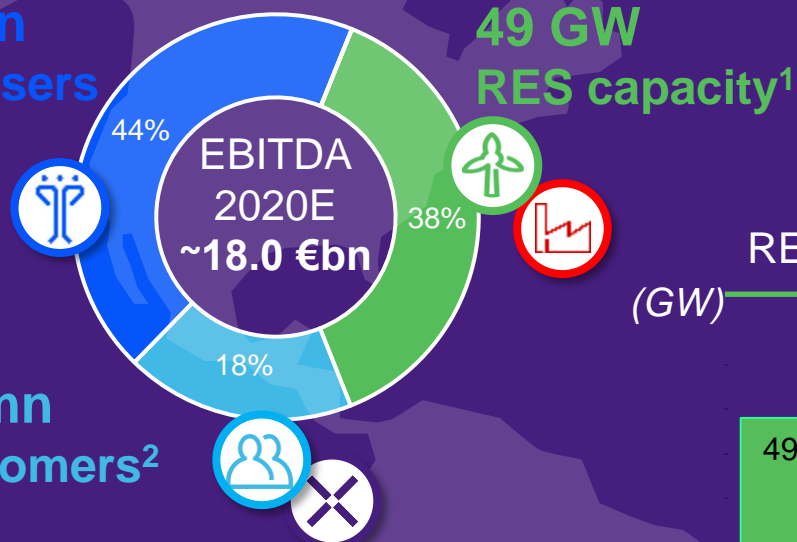
How flexibility is the go to solution
for your business



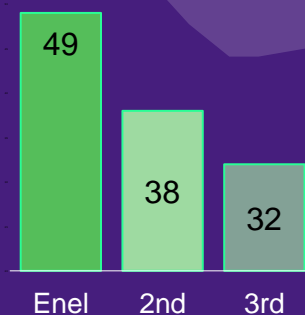
Enel: a leading player in the electricity sector...



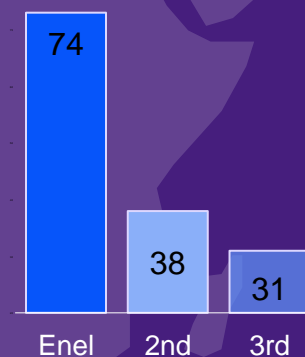
74 mn
end users



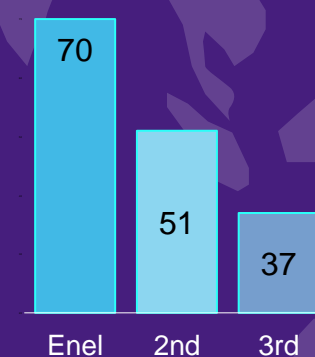
RES capacity³
(GW)



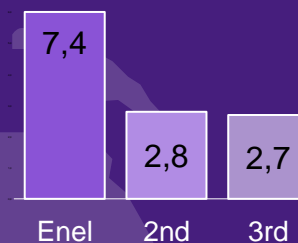
End users³
(mn)



Customers³
(mn)



Demand
Response⁴
(GW)



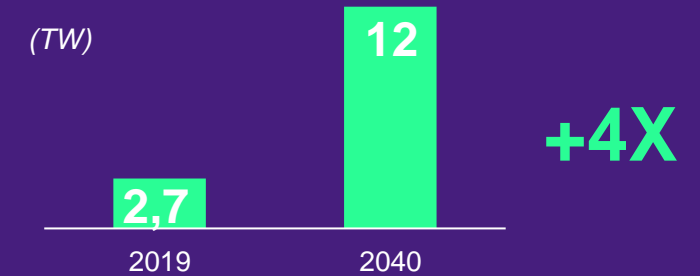
1. It Includes managed capacity
2. Power and gas customers

3. 2019 data for comps
4. 2020 data for Enel; 2019 data for comps

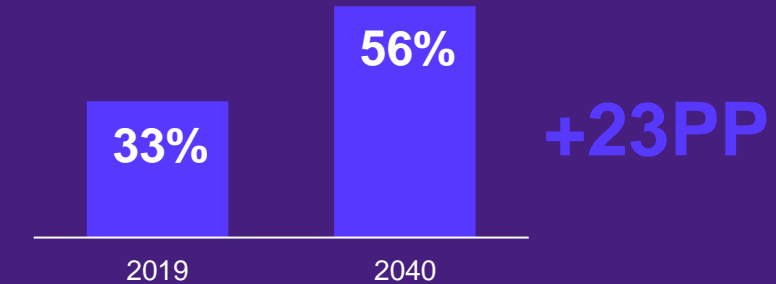
...contributing to a more sustainable and decarbonized planet



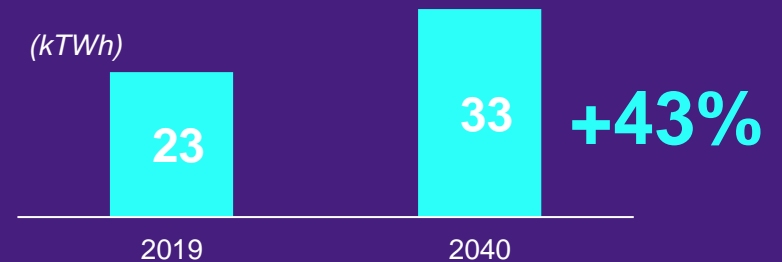
Global RES Capacity



Share of capacity connected to distribution grids¹



Electrified energy consumption



Sustainable electrification is the winner in this transition

Part of the Enel group, Enel X is born to support customers navigate the energy transition...



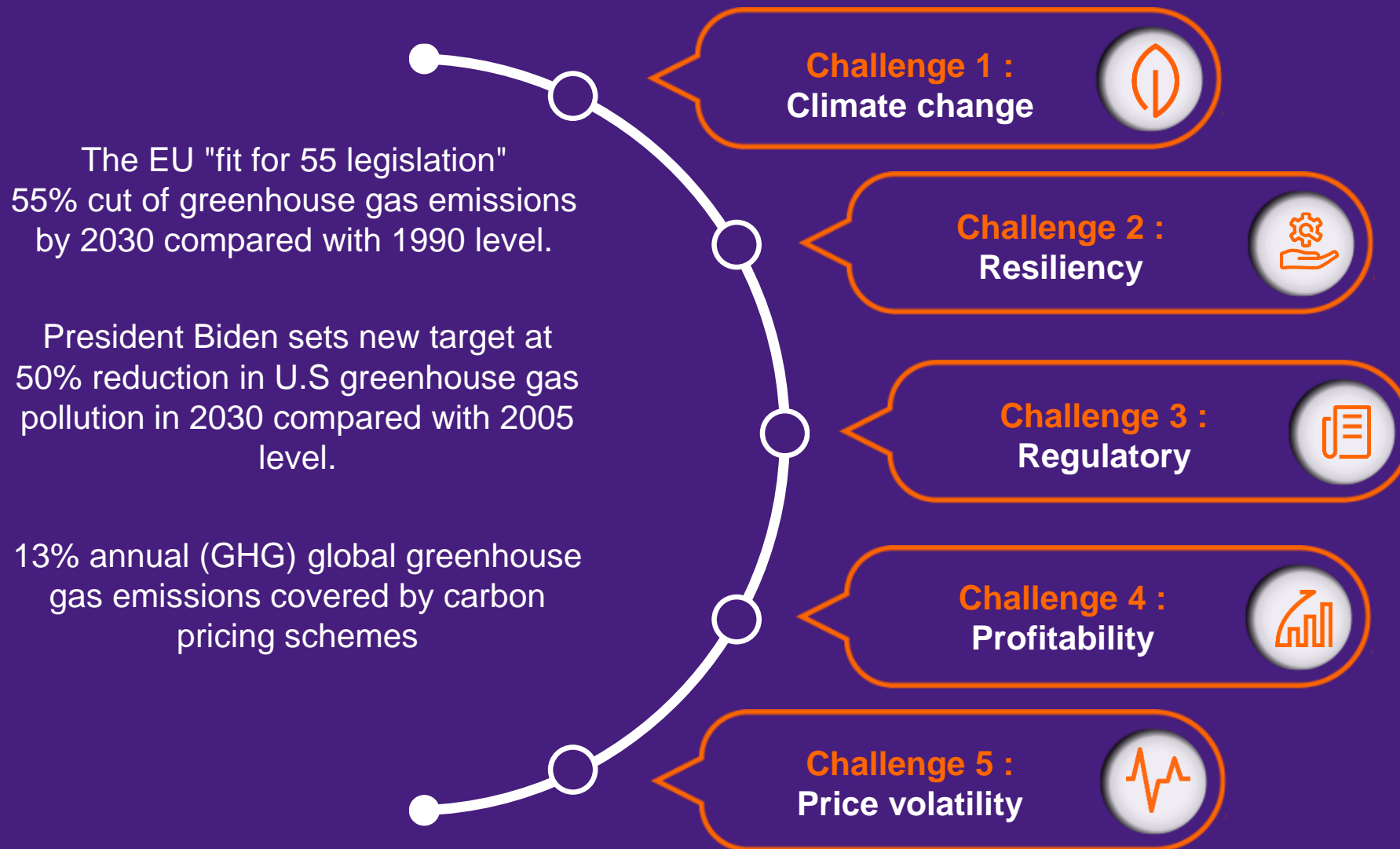
Enel X Mission

Assist customers in
decarbonisation
and in a more
efficient use of
energy, through
electrification and
digitalization

Create new value
through the offer of
new products and
services

How can Enel X support your business through the energy transition?





"The next ten years will be crucial for the energy transition. There are three key things that we will need to see: accelerated deployment of wind and PV; faster consumer uptake in electric vehicles, small-scale renewables, and low-carbon heating technology, such as heat pumps; and scaled-up development and deployment of zero-carbon fuels."

by BNEF CEO Jon Moore

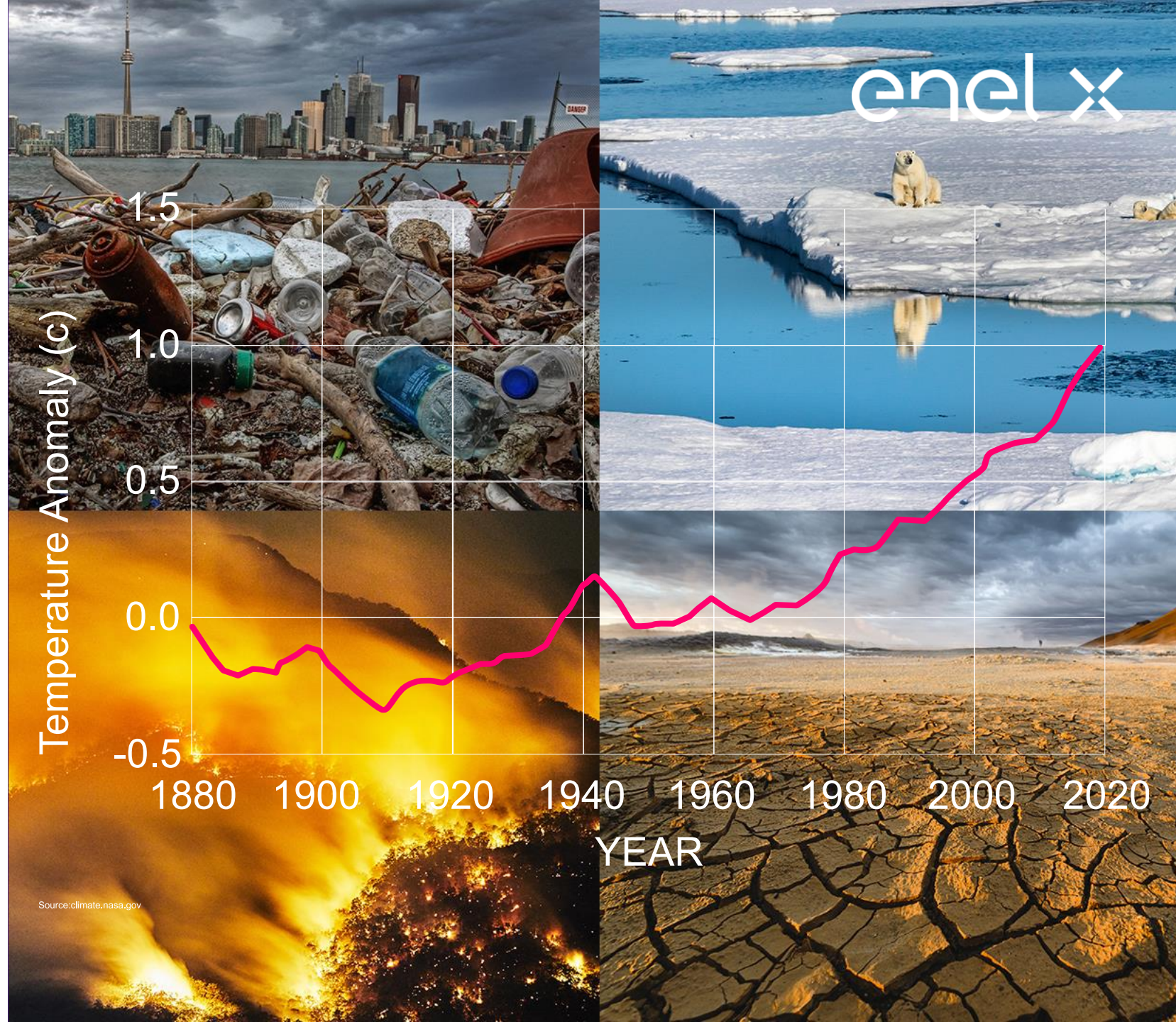
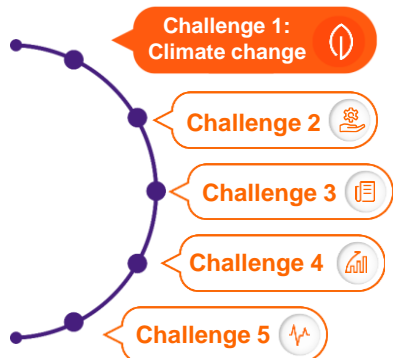


Challenge 1

Climate change

The impact of climate change on the corporate strategy

- Climate change has become **increasingly evident**
- Since the 1880s, it has been causing a steep and **worldwide rise in temperature**



How do you ensure your business is resilient?

EVENT

Hurricane Sandy

WHO

The only Company able to overcome the disaster was **Goldman Sachs**, this capacity made possible by their **resiliency plan** providing for catastrophe-proof buildings with redundancy testing, **backup power system**



Photo: Hurricane Sandy – Fort Goldman by Dan Gray/CC BY-ND



How do you ensure your business is resilient?

Lower Manhattan After Hurricane Sandy

November 1, 2012

enel x





Challenge 3

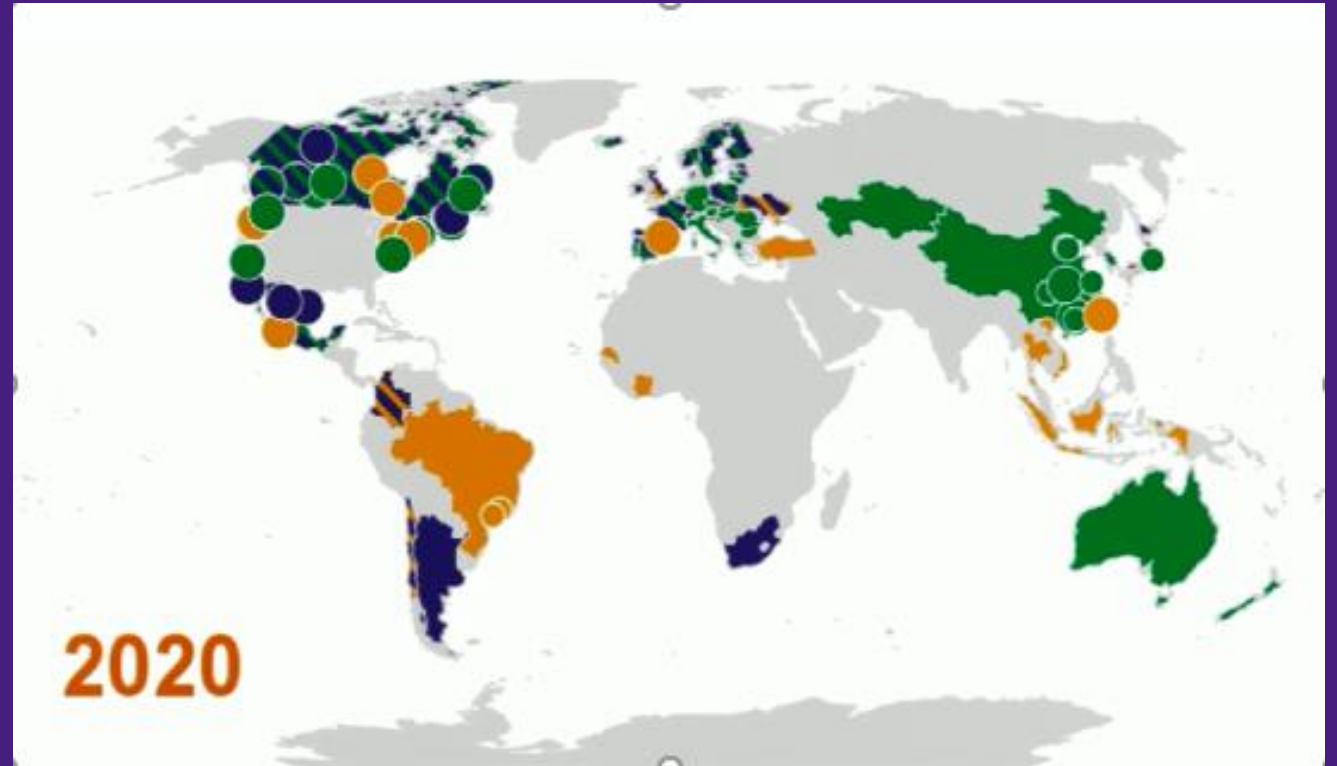
Complex regulatory landscape

How do you ensure your business is compliant with the ever changing regulatory landscape?

- How is your Company preparing at managing and complying with an **increasing number of regulatory requirements?**
- Are you correctly taking advantage of these requirements and **capitalizing your overall energy assets?**



Summary map of regional, national and subnational carbon pricing initiatives



- | | |
|--|---|
| ETS implemented or scheduled for implementation | ETS implemented or scheduled, ETS or carbon tax under con |
| ETS and carbon tax implemented or scheduled | ETS or carbon tax under consideration |
| Carbon tax implemented or scheduled for implementation | Carbon tax implemented or scheduled, ETS under |



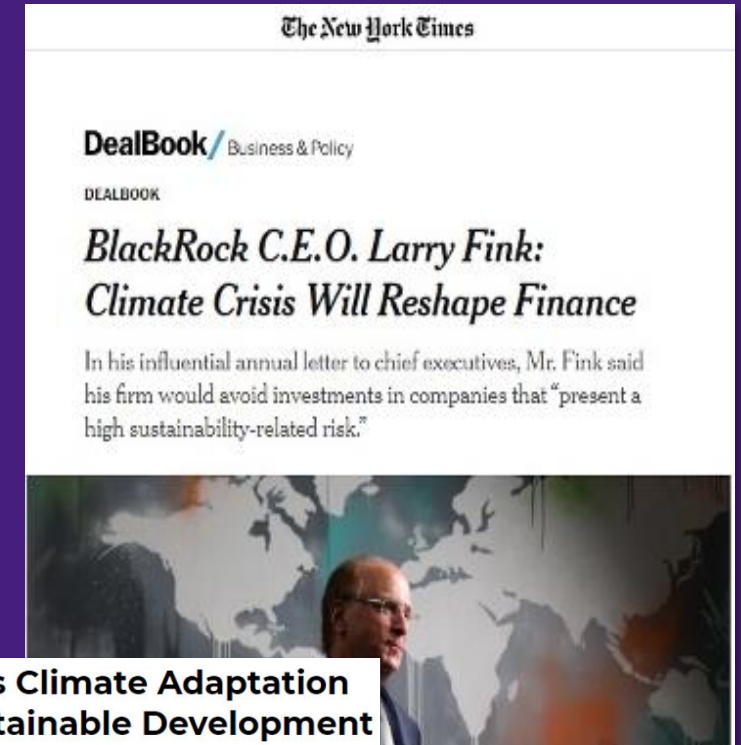
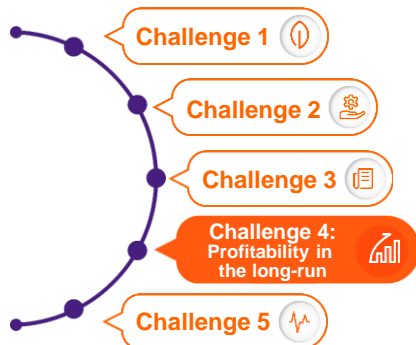
Challenge 4

Profitability in the long-run

How do you ensure your business is profitable and sustainable in the long run?

To remain resilient in the long term and ensure success, businesses are required to:

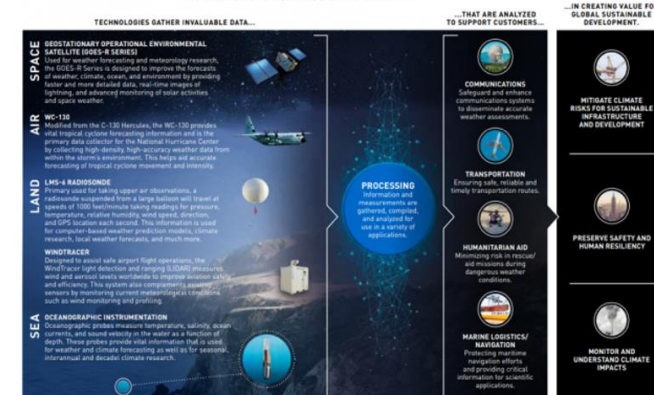
- Ensure the right amount of cash flows to keep the business growing
- decrease inefficiencies to build long-lasting performance...



Lockheed Martin's Climate Adaptation Strategies for Sustainable Development

OUR APPROACH

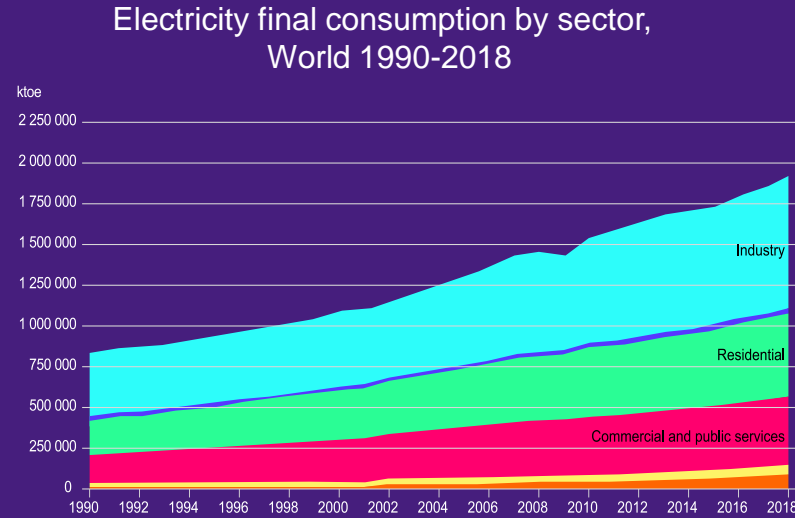
CLIMATE ADAPTATION STRATEGIES FOR SUSTAINABLE DEVELOPMENT
Growing resource constraints and changes to our climate require technologies that strengthen society's resilience and solutions for addressing impacts. At Lockheed Martin, we develop technologies and instruments that continuously monitor the climate from space to sea to support our customers in protecting and strengthening global infrastructure.



Challenge 5 Price volatility

How do you protect your business from price volatility?

The price of traditional energy is increasingly volatile, and geopolitically dependent.



Wholesale electricity prices; lowest and highest regional prices and dispersion

Energy Price Volatility

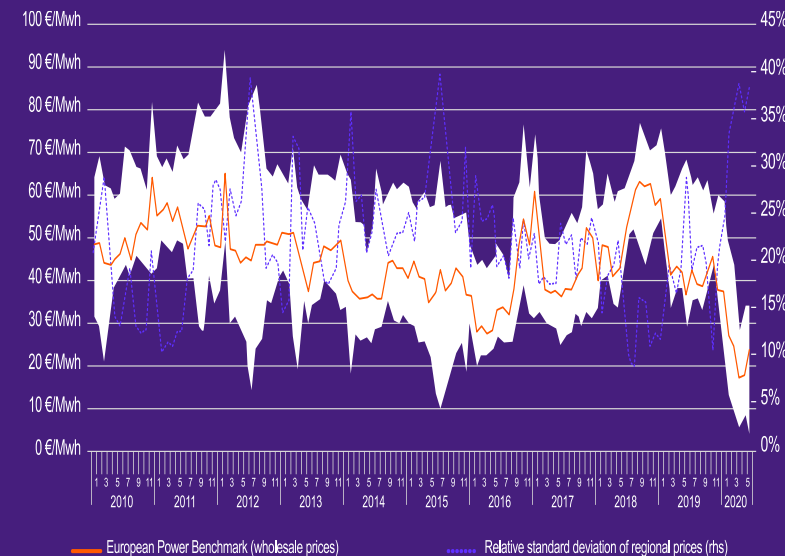
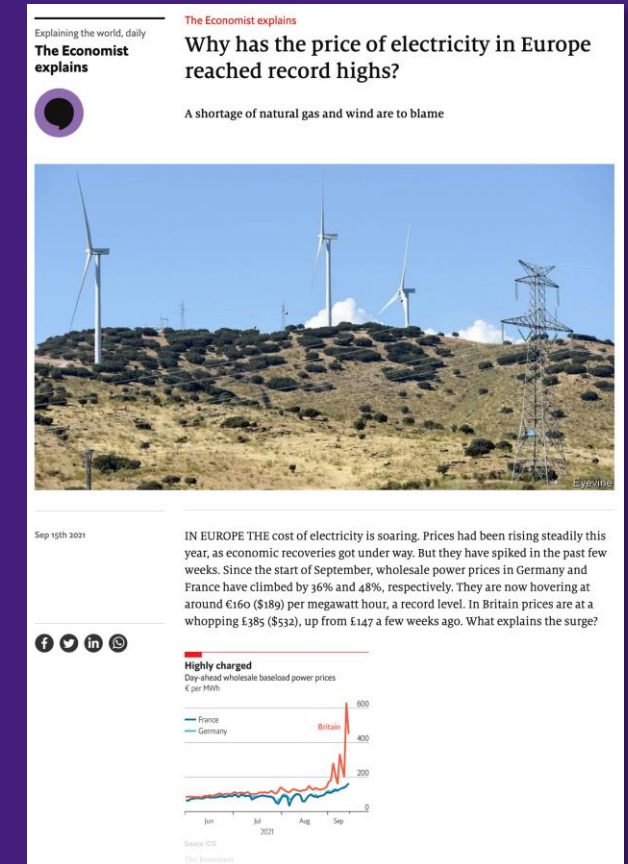


Figure 1 - Wholesale electricity prices; lowest and highest regional prices and dispersion



Why has the price of electricity in Europe reached record highs?

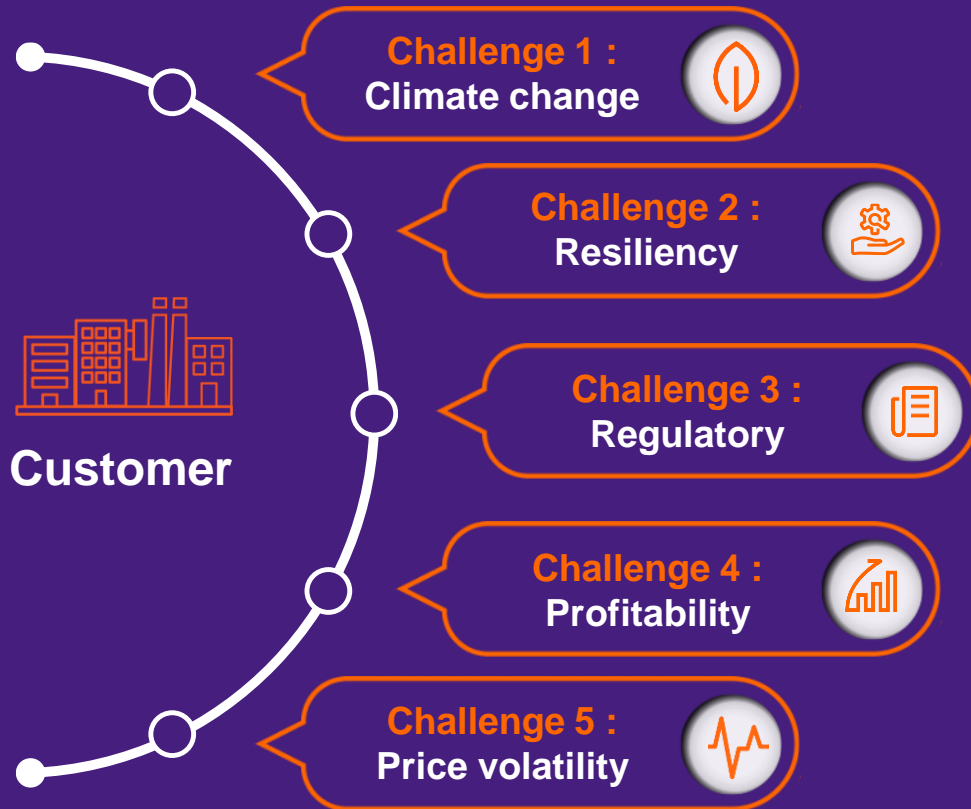
The Economist



...challenges

turn into

opportunities...



...thanks to our Flexibility solutions

Enel X has created Flexibility Solutions to support your business in new value creation



Flexibility Solutions in a nutshell



Demand Response

Demand Response programs pay companies that agree to **reduce the amount of energy** they draw from the grid in response to signals from the network operator.

Benefits: The solution for all businesses that want to contribute to the decarbonization while generating a new revenue stream



Generator Upgrades

Enel X supports **businesses** that own a backup generator to **extend the life and value of their energy assets**, in emission reduction compliance with local regulatory policies.

Benefits: Enrolling Generators and Maximizing Payments



GEO Generation & Energy Optimization

The solution designed by Enel X, is dedicated to businesses owning an energy generation asset.

Benefits: optimizes the energy production schedule of the assets

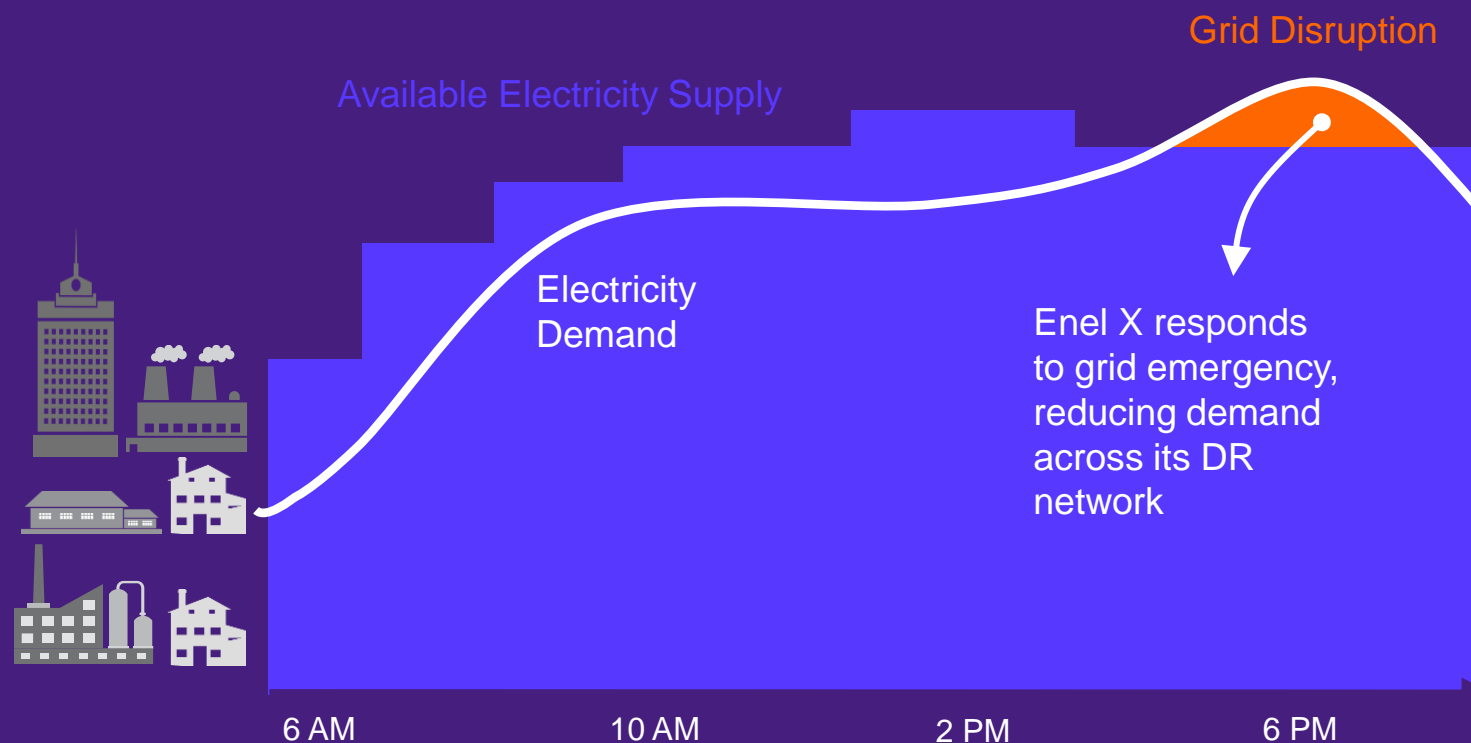


What is Demand Response (DR)?

Demand Response Programs pay companies to reduce energy use in response to emergencies that threaten grid stability

Balancing supply and demand on the electricity grid is difficult and can be expensive if reached building new power plants

- Curtailing consumption during grid emergencies is a cost-effective measure relaying on existing assets
- Grid emergencies can be due to extreme weather, generators outages or unexpected system issues





Why should you participate in DR programs

The solution for all businesses that want to contribute to the decarbonization while generating a new revenue stream.



Program strategies to maximize earnings

Enel X works with customers to develop participation plans that maximize earnings while minimizing operational disruption



No-cost, no-risk agreements

Enel X protects your organization from penalties and other costs associated with participation



Access to more markets and programs

Enel X provides more access to DR programs worldwide than any other provider and leverages its portfolio size to ensure market access for all customers, no matter their load profile



3 types of DR programs



enel x



Capacity Programs,
pay businesses for their
ability to reduce their demand
on the grid when called upon.



Ancillary services programs,
pay businesses for their
responses in near real-time
to help prevent unexpected
grid reliability issues



Price responsive markets programs,
can generate savings to businesses
that reduce their electricity demand on
the grid in response to high electricity
prices



Generator Upgrade and its benefits

Enel X can finance the backup generator upgrades, facilitating your participation in DR programmes with no upfront cost.



Rapid Assessment

Enel X will quickly assess your backup-generator assets, determine your eligibility to participate in Demand-Response programs, and help select the program or programs right for your business.



Fully-Financed Equipment Upgrades

Enel X will finance and implement your generator upgrades, ensuring **emissions reduction compliance** and high performance.



Enrolling Generators and Maximizing Payments

Enel X will enroll your organization in Demand Response and develop a custom plan to maximize your payments, reducing your total cost of energy.



GEO and GEO advanced (Generation Energy and Optimization)

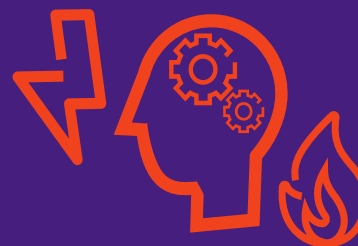
The solution designed by Enel X is dedicated to **businesses owning an energy generation assets** and that want to **extract the maximum value** from them



enel x

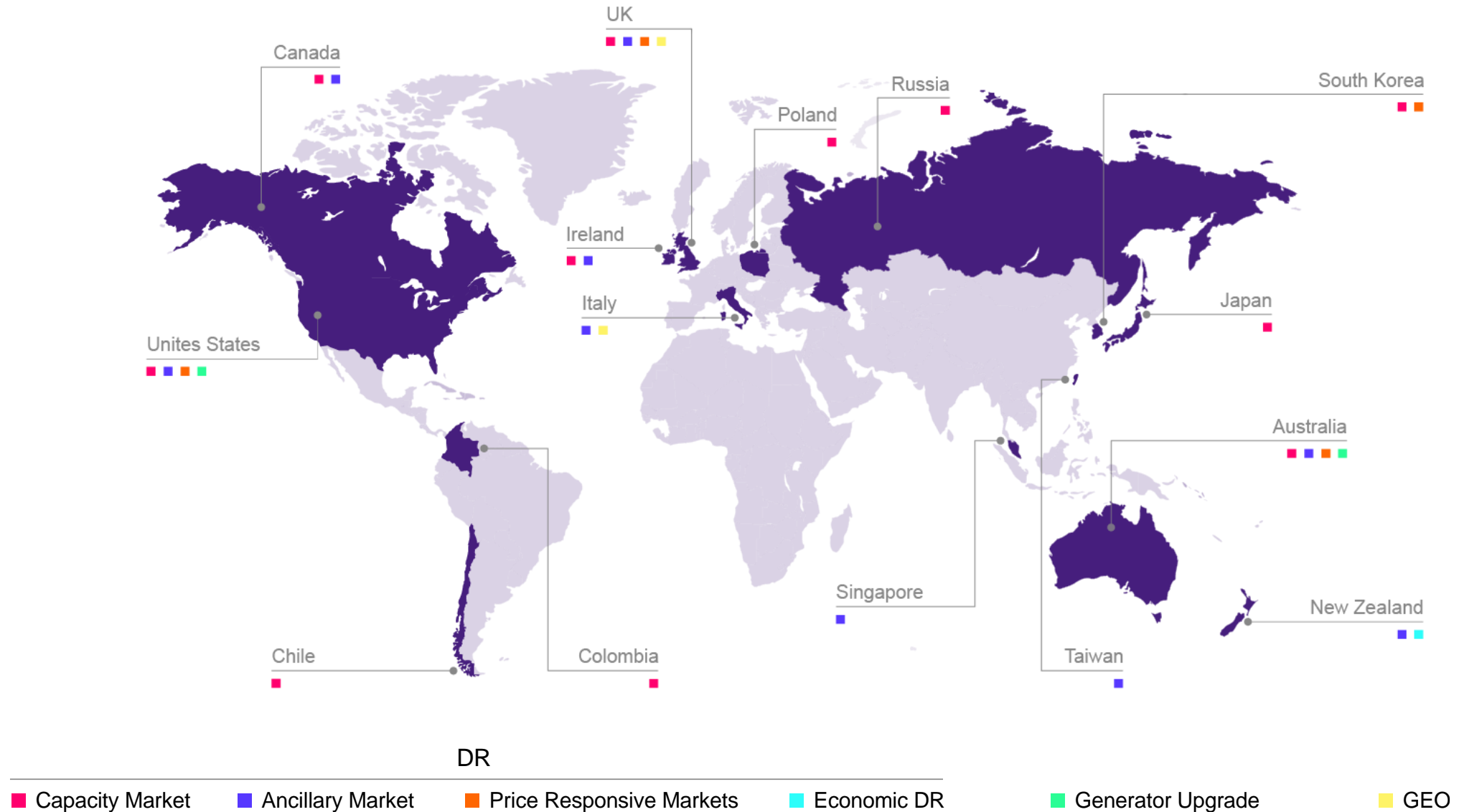


GEO: dedicated to businesses owning a one-site energy generation system (PV/CHP). The solution enables the businesses to **sell energy produced in excess into the electricity market.**

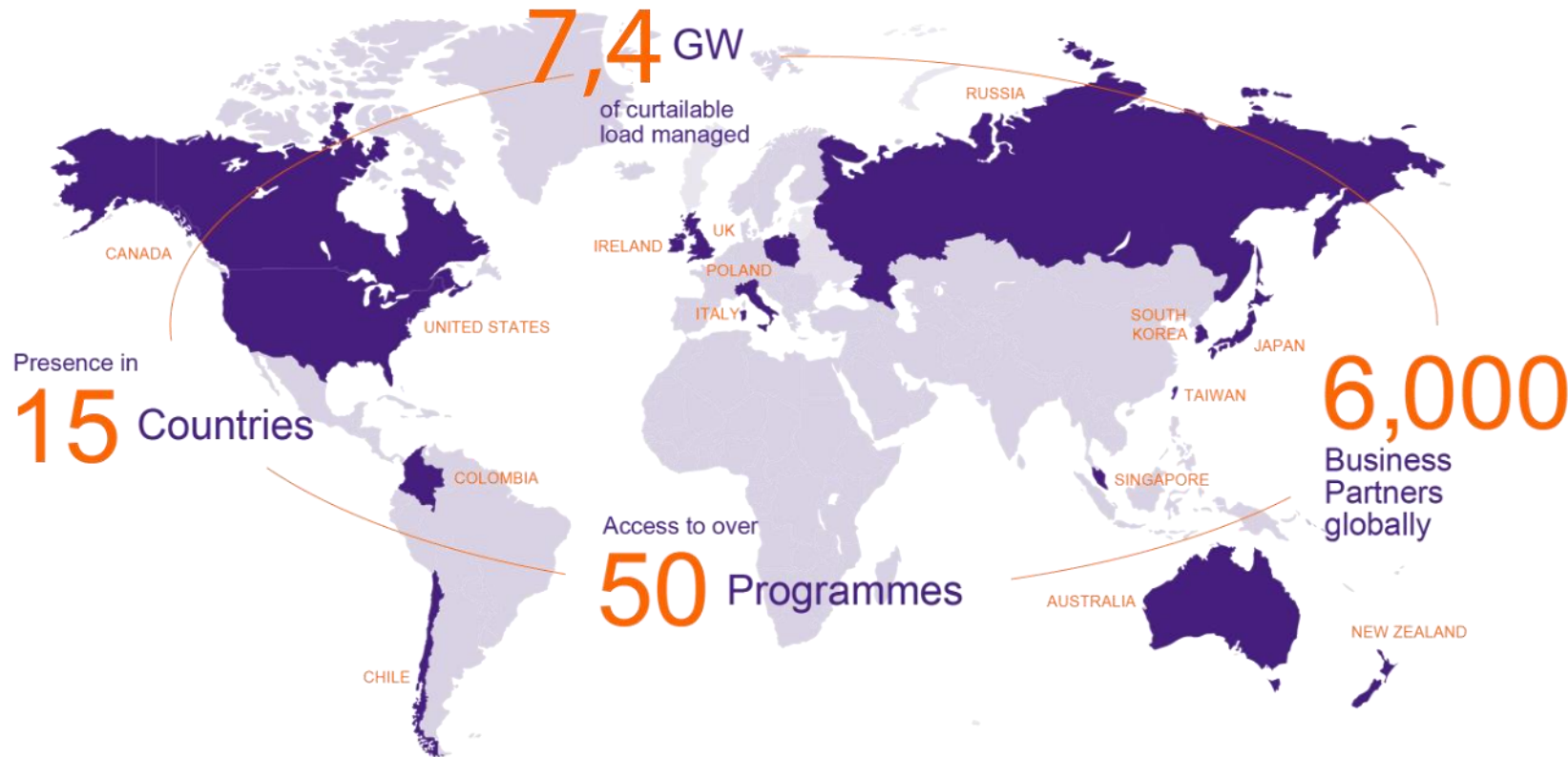


GEO Advanced: dedicated to businesses that own a **CHP**. This solution **optimizes the energy production schedule** of the assets thanks to a combination of advanced modelling and **artificial intelligence.**

Where does Enel X offer these solutions?



Why leading commercial and industrial businesses choose us?



Part of Enel Group, with over
50 Year Experience
in Energy



Streaming Data
from more than
15,000
Enterprise Sites



**Network
Operations
Center**
with customer
support 24/7/365



More than
\$ 200 M
invested in technology
to date



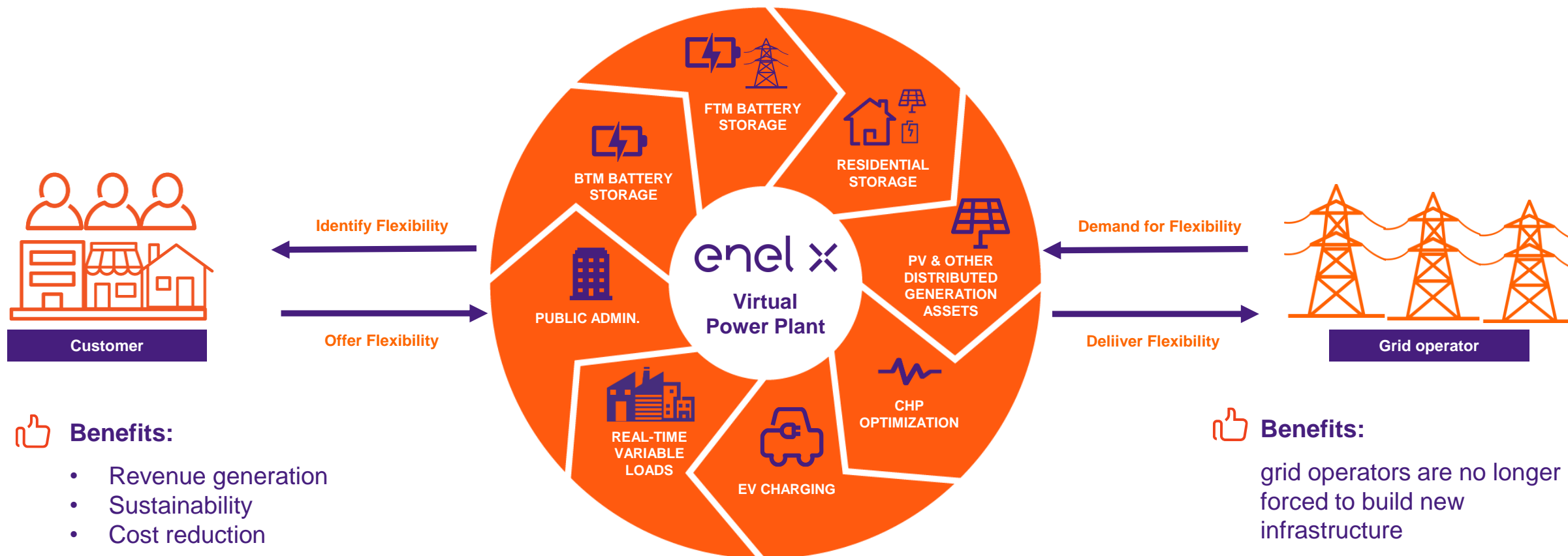
3,000+
Employees in Offices
across countries

We are the World's leading Demand Response aggregator with a unique ability to monetize the energy assets of our clients in complex energy markets.

Joining our Virtual Power Plant together we can move toward the finish line for the Race to Zero

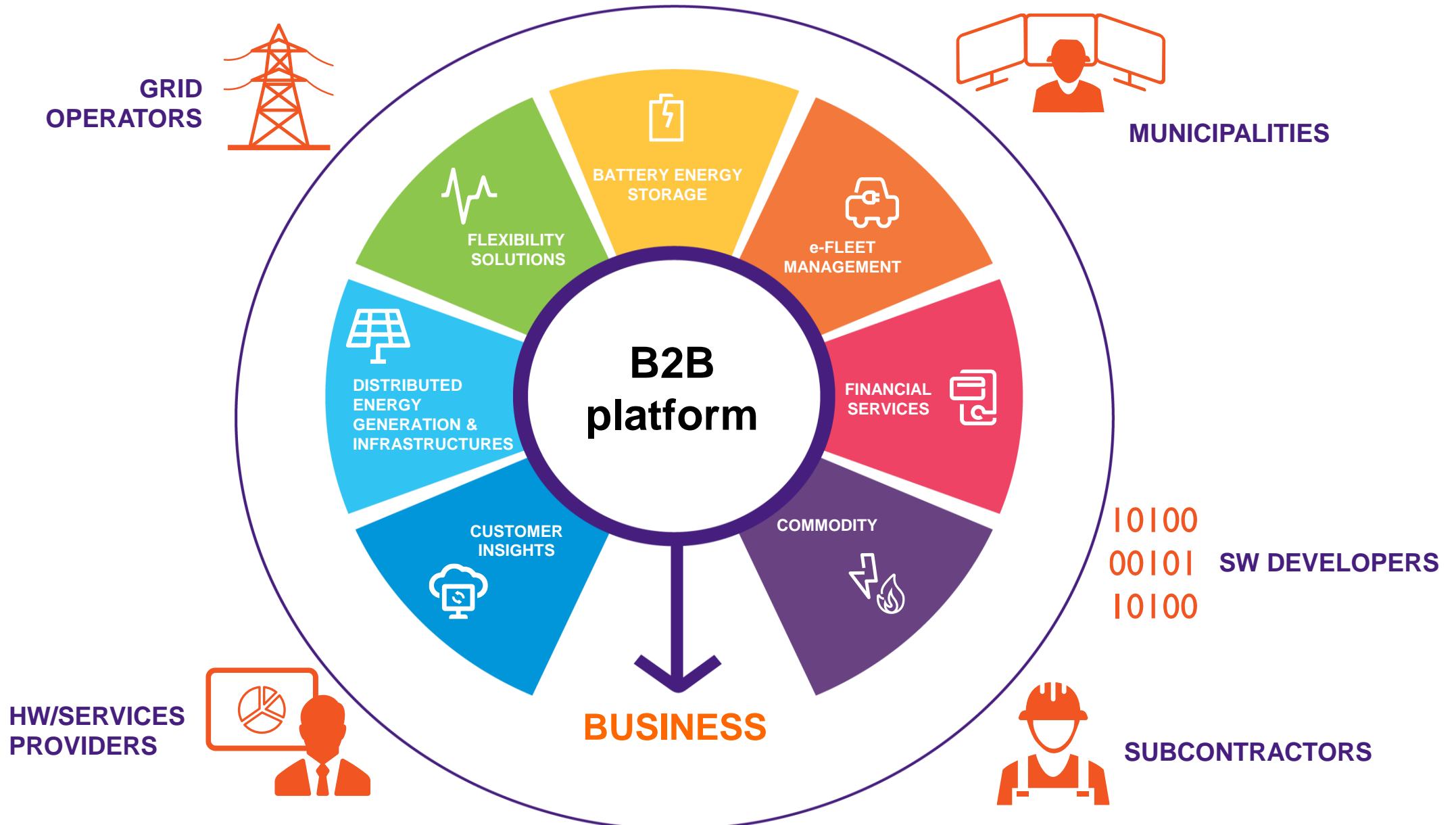


VPP enables the acceleration of the penetration of renewable sources into the grid, thus promoting the decarbonization of consumption



VPP is a virtual network of energy assets across a large geographical area whose combined impact is equivalent to a large power plant, creating shared value for all the players in the energy market.

Our solutions ecosystem for a customer 360° view





Demande Response

Capacity Market



Capacity Programs, which pay energy users for their ability to reduce their demand on the grid when called upon.



CASE STUDY

KIMBERLEY-CLARK: capacity DR



HUNTSVILLE,
ONTARIO



WHO

Multi-national corporation leader in paper-based products sector



NEEDS & SOLUTION

Kimberley-Clark needed to create additional revenue streams using machineries downtime. Therefore, Enel X enrolled the client in capacity Demand Response program with a 4-hour period of downtime, which is used to perform standard required maintenance on the tissue machine



BENEFITS

- \$325,000 annually received just to participate to the program, whether or not a demand response dispatch occurs
- Local Support to maintain the stability of Ontario's electric power grid
- A Comprehensive approach to sustainability





Demande Response

Ancillary Services Programmes



Ancillary services programs, which **pay businesses** for their **responses in near real-time** to help prevent unexpected grid reliability issues



CASE STUDY 1 Taiko Paper

enel x



SHIZUOKA,
JAPAN



WHO

We spoke with Toshiki Narabe, Section Manager of the Power Division and Katsumi Suzuki, Engineering Power Division Manager.



NEEDS & SOLUTION

Although DR is a socially significant initiative, participating businesses also reap rewards, the greater the contracted power reduction, the greater the reward, with power saving efforts directly linked to compensation. A key factor Taiko Paper's cost benefit analysis is the cost of heavy oil to power the boilers.



BENEFITS

- minimize dependence on heavy oil.
- Earned 185K in a year



Demande Response

Ancillary Services Programmes



Ancillary services programs, which **pay businesses** for their **responses in near real-time** to help prevent unexpected grid reliability issues



CASE STUDY 2

GLENWOOD MANAGEMENT: ancillary DR



WHO

A multiple residential buildings sited in New York City (NY)



NEEDS & SOLUTION

The firm needed to be insensitive to grid variations while lowering costs and improving sustainability; therefore, Enel X helped them enrol in multiple DR programs, among which ancillary DR



BENEFITS

- Savings from daily demand charge management, revenues from Demand Management Programs
- Highest rate of brownouts/blackouts network in Con Ed territory
- Reduces grid consumption and maximizes self-consumption from PV





Demande Response

Price-responsive Markets



Price responsive markets programs, which **pay businesses to reduce their electricity demand** on the grid in response to high electricity prices



CASE STUDY

TEMPLE UNIVERSITY



WHO

With on-site natural gas generation resources, a strong push towards renewable energy, and a staff focused on sustainability and conservation, Temple University is a role model for strategic energy management



NEEDS & SOLUTION

Temple University relied on Enel X to increase revenue opportunities. Enel X helped Temple University enrol in Economic DR programme and maximize performance in all available DR programs:

- Synchronized Reserve Market
- Contract Negotiation and Capacity Charge Management
- Emergency Load Response Program
- PECO Act 129 Demand Response



BENEFITS

- Earned nearly \$4.1M in gross revenue in 10yrs
- + \$1.5M in cost savings
- + over \$9M in avoided capacity costs

improved the efficiency of the campus, maintaining a consistent electric load of 300,000 MWh despite a surge in student population and the construction of new facilities.





Generator Upgrades

Generator Upgrades



Enel X can finance the backup generator upgrades, facilitating your participation in DR programmes with no upfront cost.



CASE STUDY

PAWTUCKET WATER TREATMENT FACILITY



WHO

Pawtucket Water Treatment Facility



NEEDS & SOLUTION

The firm wanted to ensure emissions compliance to improve the facility resilience. Thus, Enel X upgraded one generator to meet US EPA RICE NESHAP standards and enrolled in ISO-NE demand with 500 kW in backup generators.



BENEFITS

- Customer keeps more than \$116K in payments over 5 years
- Project costs paid in full during year 2 of DR participation





GEO Advanced: dedicated to businesses that own a **CHP**. This solution **optimizes the energy production schedule** of the assets thanks to a combination of advanced modelling and **artificial intelligence**.



BUSINESS CASE 1 HOSPITAL



WHO

Hospital



NEEDS & SOLUTION

- Energy requirement 60 GWh
- Thermal requirement 80 GWh



BENEFITS

- The CHP generation has increased over the «high-value» hours resulting in:
 - Greater amount of EE produced and sold on the market
 - Greater self-production of thermal energy, resulting in increased cooling through absorbers
 - Reduced purchase of energy from the market
 - Reduction in the use of gas-fired boilers
- Overall economic improvement by 25%



BUSINESS CASE 2
GDO LOGISTIC CENTRE



WHO

GDO Logistic Centre



NEEDS & SOLUTION

save money by optimizing the CHP production schedule



BENEFITS

- Optimized CHP production schedule by shifting production to the “high value” hours with respect to environmental regulations
- Optimized maintenance schedule
- Overall generated revenue: 101.620 euros

Flex retail

Enel X has created a new retail electricity tariff that we call 'Flex Retail'. By taking advantage of solar power's impact on wholesale power prices, we are able to offer a significantly lower electricity tariff than what is available on the market. This is a risk-free proposition. You are not required to take on any exposure to wholesale power prices, and you can opt out of the daily load flexibility whenever required.

BUSINESS CASE COLD STORAGE CLIENT



WHO

Cold storage client



NEEDS & SOLUTION

maximising the value of the client's chilling plant for HV+LV arbitrage



BENEFITS

- Curtail chilling plant
- ~5MW across 8 sites
- ~\$800K earned to date
- 10%(*) discount on monthly electricity price

(*) the saving depends on the market and business in which the client is situated

Thank you!