

enel x

**Powering your mine
with renewable energy**



Enel X Global Retail who we are

Enel X Global Retail is the Enel Group's global business line working on energy supply and optimization, with a portfolio of products and value-added services to incentivize more independent and sustainable energy use. A global leader in the development of innovative solutions to support the energy transition, Enel X Global Retail caters to residential consumers, businesses, and cities with a modular and integrated offer built around the needs of customers, promoting electrification and digitalization as drivers to create new value.

Enel X Global Retail's ecosystem of solutions is centered on the customer, with a platform business model that includes assets for electricity optimization and self-production, premium energy efficiency solutions, and competitive and flexible energy offers, with the goal of helping customers outline their own energy roadmap and taking them from initial consultation to solution execution. Enel X Global Retail promotes a sustainable approach, based on the principles of the circular economy, inclusion, accessibility, and innovation.



Decarbonization: the biggest challenge of the mining industry

Mining products are essential for the world to continue to grow and many of them will help make the transition to cleaner energy possible. A compelling time to achieve **new sustainability goals**, according to the **new rules** for the commercialization of metals.

As a resources company operating across the world, your business plays a key role in the transition to a **low carbon future**. We support you to build a better, cleaner future by offering you customized solutions as **large-scale clean energy plants, flexibility solutions, electric transport and green hydrogen systems**.

The London Metal Exchange will require ESG metal certifications by the end of 2023.

<https://www.lme.com/en/company/responsibility/responsible-sourcing>

The mining assets certifiers (JORC, NI-43-101, SAMREC) already demand ESG chapters in the feasibility reports of new mines and the expansion of existing ones.

Market instruments



Off-site
Renewable Power Supply

On-site
Renewable Power Supply



Battery Energy Storage

Flexibility Solution



Electrification of transport
within the mines
(E-Mobility)

Green Hydrogen



Welcome to a greener world

Discover our integrated offer for all of your needs



Off-site Renewable Power Supply

Scope **2** emissions

Off-site energy generation is the main market instrument for reducing Scope 2 emissions for those mines connected to the grid.

Physical Power Purchase Agreements.

- Sleeved PPAs.
- Retailled full supply PPAs.

Virtual Power Purchase Agreements.

- No physical delivery of energy.
- No need to change supplier.
- Ideal for multi-site clients.

BHP STRIKES A DEAL FOR A 12 -YEARS PPA IN AUSTRALIA.

Enel Green Power has signed a renewable Power Purchase Agreement with BHP for 100% of the output of its Flat Rocks Wind Farm Stage One, including energy and LGCs. It will supply approximately 315 GWh per year of renewable electricity for 12 years. Under this PPA, renewable energy enables and fuels the concept of green circularity along the entire value chain, enabling decarbonization in a systemic way, thereby taking a concrete step toward the energy transition.

Additional Services

Granular tracking and matching of renewable electricity



Platform to monitor Energy Attributes Certificates flows that the clients can use as a guide for carbon accounting. Moreover, this tool allows free tracking of official certificates issued by issuing bodies from different countries.

PPA Partner Portal

A web-based/API based tool that enables to monitor operational data from the PPA: for example, production, Energy Attributes Certificates, through a dashboard with analytical and graphical features.



Check out our business brochure to learn more about our PPAs:



On-site Renewable Power Supply

Scope **1** **2** emissions

On-site energy generation is a great solution for mines located in remote areas: it can improve their efficiency, circularity and sustainability.

- Onsite PV plants.
- Behind-the-meter storage.
- Design, installation and maintenance of energy infrastructure.

ATALAYA AND THE LARGEST SOLAR FARM FOR MINING OPERATIONS IN SPAIN

Endesa X, Enel X's Spanish subsidiary, and Atalaya Mining have signed an agreement for the construction of the largest self-consumption photovoltaic plant for a mining company in Spain.

This 50 MW (megawatt) facility will be located in the municipality of Minas de Riotinto, on the premises of Atalaya Mining, and will be the first to supply clean energy to a mining operation, within its goal of becoming a producer of "green copper".





Battery Energy Storage

Scope **2** emissions

Battery Energy Storage Systems enable businesses to reduce costs, improve sustainability, increase resiliency activating backup power to avoid disruptions and generate revenues.

Enel X offers three main BESS solutions:

- **Standalone Storage:** Independent BESS solution.
- **Solar-plus-Storage.**
- **Microgrid**

Regardless of the chosen solution, the key enabler of these benefits is Enel X's DER Optimization Software (DER.OS), the best-in-class forecasting and optimization engine. DER. OS leverages sophisticated machine learning and AI algorithms to extract the maximum value from synergistic operations of Battery Energy Storage, site loads and generation assets, determining when to charge and discharge the battery to deliver maximum savings and superior operational performance.

ENEL X GLOBAL RETAIL BESS OFFERING FOR MINING CUSTOMER.

Enel X Global Retail is partnering with a mining company in US for which is developing 7 BESS projects for a total amount of 6.6 MW / 15.0 MWh. The construction of the 7 sites is expected to be completed in the first half of 2024.

This solution will allow customer to reduce costs, improve resiliency and reduce emissions.





Flexibility Solution

Scope **2** emissions

World leading Demand Response aggregator with 8.5 GW of flexible load managed and a unique ability to monetize the energy assets of Enel X's clients in complex energy markets providing access to over 50 DR programs worldwide:

- Demand Response programs
- Generator Upgrades
- Generation and Energy Optimization

U.S. SILICA USES ENERGY FLEXIBILITY TO EARN DEMAND RESPONSE PAYMENTS.

U.S. Silica has been enrolled in demand response (DR) programs since 2008, starting with a facility in Jackson, Tennessee. U.S. Silica enrolled the plant in the TVA-Enel X Demand Response program offered in partnership with its local energy provider, Jackson Energy Authority. Enel X helps ensure the reliability of the energy grid during peak periods by reducing demand. By being part of the TVA-Enel X Demand Response program, U.S. Silica protects the other businesses (including key customers) as well as the residents of the region.

The plant views DR as integral to reducing energy costs, demonstrating the company's commitment to the environment, and supporting the local community.





E-Mobility

Scope 1 emissions

As a global platform for e-mobility services, Enel X Way is focused on developing flexible solutions to help mining by supporting the electrification of transport.

- Charging infrastructure for e-buses.
- Charging infrastructure for e-trucks.

ANGLO AMERICAN E-BUSES FOR COPPER MINERS (CHILE).

Anglo American's goal is to replace 50 traditional buses with electric ones and build an electric station.

- The first phase with 17 buses with the reduction of 850 tons of CO₂ per year.
- This CaaS (Charging as a Service) has a term of 8 years with 10 GWh/year.

SQM PLANT TO PORT E-TRUCKS FOR LITHIUM MINES (CHILE).

The 2022 pilot e-truck has a range of 200 km and weighs 28 tons, and will operate in SQM's lithium Chilean mines to replace diesel trucks. The initial pilot route between one of the SQM plants and the port is 86 km and saves 12 tons of CO₂ each trip. The project analyzes the truck's operation, the high-power charging infrastructure, the adaptation to the mineral processing plant, and the response to the saline environment of the lithium mines.



Green Hydrogen

Scope **1** emissions

Green Hydrogen can perfectly complement direct electrification in tackling the mining industry's "hard-to-abate" emissions.

1. Reduction of consumption for diesel fuels.
2. Lifting and crushing machinery.

THE HARU ONI PROJECT (HIGHLY INNOVATIVE FUEL; CHILE).

We use wind-generated energy in the Chilean Magallanes region to obtain low-cost hydrogen through water electrolysis. We directly capture and condense CO₂ in the atmosphere via filtration, thereby purifying the air.

We then combine the hydrogen obtained by electrolysis with the CO₂ captured from the atmosphere through a synthesis process.

These e-Fuels (synthetic fuels) can replace diesel in today's industries, CAEX and pit to port trucks, pin-ups, or ships, with no modifications required, reducing GHG emissions by up to 90% compared to diesel.



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