

Powering your mine with
renewable energy

enel
Green Power

Decarbonization: the biggest challenge for the mining industry

Mining products are essential for the world economy to continue to grow and many of them will help make the transition to cleaner energy possible. Now is the time to reach **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 can help you build a better, cleaner future by offering you customized solutions such as **large-scale clean energy plants, electric transport and green hydrogen systems**.

The London Metal Exchange will require ESG metal certification by the end of 2024.

<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 for new mines and the expansion of existing ones.

Market instruments



Off-site Renewable Power Supply



On-site Renewable Power Supply



Electrification of transport within the mines (E-Mobility)



Green Hydrogen

Our energy, your power

Our solid track record



on **5**
continents

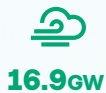


+1200 plants

21
countries with
active projects

5
countries with
developing
projects

Technologies



16.9GW

WIND

Leading technology in renewables with an expected growth of 500% by 2050 (over 3,000 GW of installed capacity).



0.92GW

GEOHERMAL

We are a world leader in the sector, and are the only operator that's capable of covering the entire cycle (from exploration to operation).



STORAGE

Strong and growing technology that can complement Wind and Solar PV for baseload generation.



7.9GW

SOLAR

Thanks to an 80% decrease in energy costs since 2010, Solar PV is extremely competitive worldwide.



28.3GW

HYDROELECTRIC

One of our renewable sources for the production of electricity at a global level.



GREEN HYDROGEN

Renewable hydrogen will play a strategic role in the decarbonization process, as a cost-effective and sustainable solution.

5.1 GW of PPAs signed with C&I companies

Data as at 31 December 2021

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.

ENEL GREEN POWER AND BHP STRIKE A DEAL FOR A 12 -YEAR 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.

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

<https://resources.enelgreenpower.com/digital-library/sustainable-energy-is-our-business/>

Additional Services



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.

Check out the EAC tracking platform:
<https://www.enelgreenpower.com/our-offer/publications/sustainability-certification-chain>



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

Check out the EGP Partner Portal:
<https://www.enelgreenpower.com/our-offer/publications/green-energy-data>



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 ENDESA X WILL BUILD 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".



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 crashing 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.

Hydrogen as part of an overall decarbonization strategy

1

- Building reliable partnerships
- Identifying shorter time to market solutions

PARTNERSHIPS

NEW BUSINESS MODELS

FEASIBILITY STUDIES

ON-SITE PILOT HYBRID PROJECTS

2

- Technology advances and cost competitiveness

OFF-SITE GENERATION

MINE CLUSTERING

**BUSINESS MODEL
DEFINITION AND TESTING**

3

- Scale up and vertical integration along the supply chain

SCALING UP H₂ PROJECTS

GEOGRAPHICAL EXPANSION

**INNOVATIVE BUSINESS
SOLUTIONS**

Fostering ecosystems: from green energy to sustainable energy

Our Premium offer

We invite our Partners to take part in their preferred CSV (Creating Shared Value) initiative by choosing between one of the following options:

1. EGP team will enable the mining company to take part in an existing CSV project.
2. EGP will support the mine in the development of a new CSV project tailored to sustainable goals and in a community of its interest.



The Ollagüe Hybrid Power Plant. CSV with Minera El Abra – FreePort – McMoRan Copper & Gold.

– The Ollagüe community, which lives on the Chilean–Bolivian border, relied on a diesel generator, a solution that only allowed villagers partial access to light and electricity until 2 p.m. EGP launched this CSV project by combining 1,538 thin-film photovoltaic panels, a small wind turbine, and battery backup. 2 Trinum solar thermal generators were also installed for the local school’s hot water. Some Quechua women went to India in order to learn about solar energy, and this empowered them in O&M operations. Today the people of Ollagüe have electricity 24 hours a day and are Internet-connected.

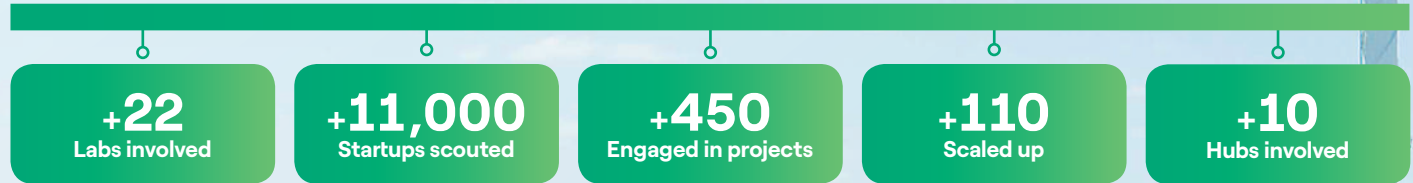
Innovation is the power of mining ideas

Enel Innovability

Not only do we deliver green energy, we also deliver state-of-the-art technology. We operate 10 innovation Hubs and 11 Labs around the world to help innovative startups explore the latest energy innovation frontiers.

Enel Innovability networks

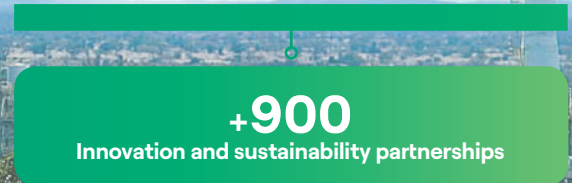
INNOVATION HUBS / LABS



CROWDSOURCING



PARTNERSHIPS





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