

Energy-saving solutions for off-grid power systems in Chile





Overview

The study reveals that replacing aging inflexible power plants with modern, flexible balancing power plants - capable of operating with sustainable fuels - could reduce total electricity generation costs by 5%, amounting to \$3. This case study examines a real-world off-grid solar hybrid system designed for a copper mining operation in the Atacama. 2 MW photovoltaic array, a 12 MWh lithium-ion battery bank, and 4 MW of diesel generator backup. Recognizing the complex interplay of challenges and opportunities, Fluence has emerged as a key player in Chile's energy transition, offering cutting-edge battery storage solutions that address the multifaceted needs of the country's evolving power system. This report has been driven by the Enel Group in Chile and prepared by energiE in collaboration with MRC, as an analytical and participative consideration on the steps and the path Chile must follow to advance in its transition to decarbonization. Technology company Wärtsilä Energy has today, together with consulting company Inodú, released a study "Navigating the Energy Transition in Chile: A Reliability-Focused Approach to the Chilean Energy Transition". Chile's electricity sector emissions have already peaked - in 2016 - and decarbonization by 2050 can be achieved smoothly with a comprehensive regulatory framework for flexibility solutions, and the correct steps to accelerate the phase-out of coal generation.



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Wärtsilä highlights challenges and solutions for Chile's energy transition

Without these flexible power plants, Chile would need to invest in over 40 GW of excess renewable and energy storage capacity to ensure the same security of supply, significantly

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Off-Grid Power: Sustainable Solutions for Independence

Bloom Energy's technology, for example, is particularly effective for consistent, high-demand power needs due to its efficiency and independence

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Chile Power System Outlook

In this report, we model a long-term outlook for the energy system, as well as an accelerated decarbonization scenario, to explore how Chile's power system may adapt to increasing volumes of

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Analysis of rural electrification policy formulation in Chile: Key

In this context, this research analyzes the case of Chile, focusing on how its market-based reforms influenced the design and implementation of rural electrification policies and the main factors

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Sustainability of rural electrification programs based on

In this paper, we assess the sustainability of rural electrification efforts in Chile paying special attention to off-grid photovoltaic (PV) programs.

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Chile: BESS as an answer to solar curtailment, grid

However, in recent years, Chile has been facing some serious issues: curtailment and marginal costs nearing zero. With solar project owners needing to

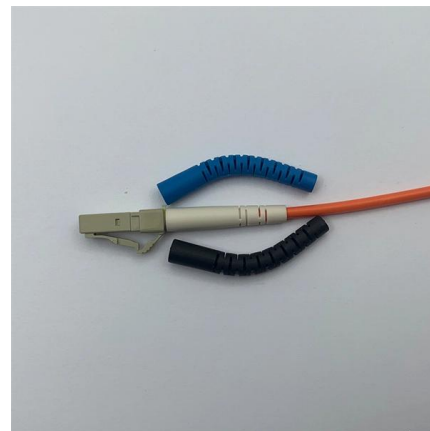
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Roadmap for the Energy Transition in Chile Final Report

In September 2022, we were the first company to stop using coal to generate electricity in Chile and we still have more to contribute by finding ways and solutions through innovation, the creation of new

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An analysis of renewable energy resources and options for the energy

Three practical international options to unlock Chile's potential are discussed. Further technical-economic assessment of these energy-transition acceleration paths is recommended.

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Off-Grid Solar Case Study: PV + Battery + Diesel Hybrid Mining in Chile

Off-grid solar mining case study Chile: 70% solar fraction, 500,000 L diesel saved yearly. Atacama Desert PV + battery + diesel hybrid system design and financial analysis.

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Chile moves on storage to 'decarbonize the night'

Chile has emerged as a world leader in hybrid systems and standalone energy storage since implementing its Renewable Energy Storage and Electromobility Act in 2022. Ensuring projects

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How Energy Storage is Powering Chile's Sustainable Future

Recognizing the complex interplay of challenges and opportunities, Fluence has emerged as a key player in Chile's energy transition, offering cutting-edge battery storage solutions that address the

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Wärtsilä highlights challenges and solutions for Chile's energy

Our solutions include flexible engine power plants, energy storage and optimisation technology, and services for the whole lifecycle of our installations. Our engines are future-proof and

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Off-grid renewable energy systems: Status and methodological issues

Acknowledgements This working paper is the result of the collective input from IRENA staff members working on different aspects of off-grid renewable energy systems. The final report has benefited

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- ☒ OUTDOOR ENERGY STORAGE CABINET
- ☒ 19 INCH



Energy storage is a challenge and an opportunity for Chile

Today, energy can be stored in multiple ways, including using banks of large-scale batteries, which can store electricity before

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Sustainability of rural electrification programs based on off-grid

Background Mainly based on expanding the grid, Chile has reached an impressive electrification rate. However, due to unviable grid expansion to islands and remote areas of the

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Product Catalog



An analysis of renewable energy resources and options for the energy

We analyse data on the potential of wind and solar energy to determine the best areas for renewable projects. The progress of the energy transition occurring in Chile is reviewed in the

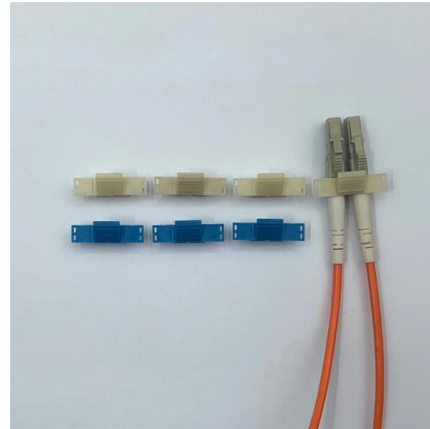
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Chile's Action Plan for Power Sector Decarbonization

This report was authored by the Chile Ministry of Energy in collaboration with Clean Energy Ministerial (CEM) workstreams such as the 21st Century Power Partnership.

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