

The growing interest in fully decarbonizing worldwide energy systems requires abandoning traditional generation expansion planning in favour of other flexibility-enabling energy system planning tools allowing the integration of energy storage and sector coupling. Therefore, this paper proposes a mixed-integer linear programming formulation focused on enabling flexibility ...

Decarbonizing energy islands with flexibility-enabling planning: The case of Santiago, Cape Verde . The government has put significant efforts in improving the energy access in Cape Verde which went from 80 to 92% between 2011 and 2020, currently estimating completion by 2025 [67].

CONTEXT. In 2010 the Government of Cape Verde had the vision of achieving 50% penetration of renewable energy by 2020. In order to be able to realize this vision it was necessary to create renewable energy storage capacity, being pumped-storage the most efficient way to store large amounts of energy.

[PDF] Off-stream Pumped Storage Hydropower plant to increase renewable energy penetration in Santiago Island, Cape Verde . In order to reduce the high dependence on imported fuels and to meet the ongoing growth of electricity demand, Cape Verde government set the goal to increase renewable energy penetration in Santiago Island until 2020.

The fund that will speed up the exchange of Cape Verde's debt to Portugal will focus on water, sanitation and energy, and could grow to 140 million euros, said Gilson Pina, National Planning Director of the Cape Verde Ministry of Finance, on 2nd July, on the sidelines of the 1st Energy and Climate Seminar, which took place at the headquarters of the CPLP in Lisbon.

In 2012 Cape Verde had an installed electricity generation capacity of around 300 MW, of which about 24% from wind power plants and 3% from photovoltaic stations. While solar power has an enormous potential as a source of renewable energy, natural conditions in Cape Verde are one of the best in the world for the production on wind energy.

During the presentation of the project, Cape Verde's National Director for Industry, Trade and Energy, Rito Moreira, announced that the energy storage centre is scheduled to be operational by 2030, with the aim of injecting 7% of renewable energy into the national public grid and 18% into that of the island of Santiago. More information here.

DOI: 10.1016/j.apenergy.2022.118869 Corpus ID: 248036333; Towards 100% renewable islands in 2040 via generation expansion planning: The case of São Vicente, Cape Verde @article{Pombo2022Towards1R, title={Towards 100% renewable islands in 2040 via generation expansion planning: The case of S{~a}o Vicente, Cape Verde}, author={Daniel V{"a}zquez ...

Renewable energy and energy storage developer Boom Power has successfully landed planning permission for a major battery energy storage system (BESS) project on the Isle of Anglesey, Wales, UK. The Carrog BESS is a 300MW/660MWh, 2-hour duration project located at Carrog Ganol, near Cemaes.

Technological advances in the field of power electronics have allowed a growing increase in the integration of renewable energy to the electrical grid in the island and developing countries" systems, both in terms of the number of projects and in terms of installed power, with predominance for solar and wind technologies, as can be seen in the islands of ...

International Journal of Sustainable Energy Planning and Management Vol. 29 2020 25-40 Planning for a 100% renewable energy system for the Santiago Island, Cape Verde Paula Ferreira^a, Angela Lopes^b, Géremi Gilson^c & Jorge Cunha^a a ALGORITMI Research Centre, University of Minho, Campus Azurém, 4800-058 Guimarães, Portugal b University of ...

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and energy policies are exemplified with a comprehensive generation and storage expansion planning (GSEP) for the island of São Vicente, Cape Verde. Formulated as an optimisation problem with hourly resolution, the GSEP minimises investment, maintenance, operation and emissions costs over a 20 year horizon from 2021.

Decarbonizing energy islands with flexibility-enabling planning: The case of Santiago, Cape Verde. Daniel Vázquez Pombo, Jon Martinez-Rico, Sergiu V. Spataru, Henrik W. Bindner and Poul E. Sørensen. Renewable and Sustainable Energy Reviews, 2023, vol. 176, issue C . Abstract: The growing interest in fully decarbonizing worldwide energy systems requires ...

cape verde energy storage base. ... Decarbonizing energy islands with flexibility-enabling planning: The government has put significant efforts in improving the energy access in Cape Verde which went from 80 to 92% between 2011 and 2020, currently estimating completion by 2025 [67]. The national economy was booming thanks to tourism hand on ...

The H 2 RES model (Fig. 1) simulates the integration of renewable sources and hydrogen in the energy systems of islands or other isolated locations is based on hourly time series analysis of demand (water, electricity, hydrogen, heat); storage (pumped hydro, batteries, hydrogen, heat) and resources (wind speed, solar radiation, precipitation).

independent sizing of power and energy capacities for simultaneous generation and storage expansion

planning. The optimization problem minimizes investment, maintenance, operation and emissions costs over a 20 year horizon with hourly resolution. In this context, islands represent suitable study cases for the energy transition ... of Cape Verde ...

Their common challenges and energy policies are exemplified with a comprehensive generation and storage expansion planning (GSEP) for the island of S. Vicente, Cape Verde. Formulated as an optimisation problem with hourly resolution, the GSEP minimises investment, maintenance, operation and emissions costs over a 20 year horizon from 2021.

N2 - The growing interest in fully decarbonizing worldwide energy systems requires abandoning traditional generation expansion planning in favour of other flexibility-enabling energy system planning tools allowing the integration of energy storage and sector coupling.

S. Vicente, Cape Verde Raquel Segurado a,*, Luísa Alves a, ... have to tackle the need of energy storage. Here, advanced energy planning must be used to combine different intermittent and regular sources in order to match electricity demand and assure security of supply. The main objective of this paper is to analyse different scenarios for ...

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Integrated analysis of energy and water supply in islands. Case study of S. Vicente, Cape Verde . Power in Cape Verde is supplied by the multi-utility ELECTRA, which is also responsible for the water supply in some of the islands, like in S. Scenario 1 - BAU This scenario considers the installed wind power and the fossil fuel-based generators currently in

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