

Researchers in the Energy Economics Group at the Paul Scherrer Institute PSI have used their model of the Swiss electricity system called STEM-E to analyze various electricity supply scenarios. They have concluded that alternatives to today's electricity supply are associated with different costs, risks and opportunities.

- How are the PVB system economics affected by customer group heterogeneity? - What are the expected cumulative PVB system investments at regional and national levels over the coming years? - How sensitive is the economic viability of the PVB system to uncertainties related to costs, load profiles, electricity prices, etc.? Hydro

Baseline methods for distributed flexibility in power systems considering resource, market, and product characteristics. Author links open ... Capacity and output power estimation approach of individual behind-the-meter distributed photovoltaic system for demand response baseline estimation. Appl. Energy, 253 (2019), Article 113595, 10.1016/j ...

Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and ... The key output is the Security baseline for power distribution control systems, which, with an emphasis on the ISO 27001 wage ... means that there are control systems of electric power stations that fail. In addition, the

In a new report, "Future demand for flexibility and the significance of baseload energy in Switzerland," PSI-LEA researchers examine the role of baseload energy in Switzerland's energy system and discuss the challenges of transitioning to a ...

A basic security concept for control systems of power stations, which are part of the power transmission and distribution system, is presented based on the Smart Grid domain model with emphasis on substation intelligence, according to the Purdue model. The use of information technology and the automation of control systems in the energy sector enables a ...

Current power systems are still highly reliant on dispatchable fossil fuels to meet variable electrical demand. As fossil fuel generation is progressively replaced with intermittent and less predictable renewable energy generation to decarbonize the power system, Electrical energy storage (EES) technologies are increasingly required to address the supply ...

IEC 63028:2017 defines technical requirements, behaviors and interfaces used for ensuring interoperability for flexibly coupled wireless power transfer (WPT) systems for AirFuel Resonant WPT. This document is based on AirFuel Wireless Power Transfer System Baseline System Specification (BSS) v1.3.

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There is a clear need for a credible MEE baseline power system architecture concept, which provides all necessary key features for later certification compliance, and focuses on solution sets which are already tailored towards weight, efficiency, and reliability goals. From this baseline, further application-

Details of the costs for future years are provided in Appendix A Input data of a low, baseline and high cost scenario for PV units, Appendix B Input data of a low, baseline and high cost scenario for battery units. Download : Download high-res image (221KB) Download : Download full-size image; Fig. 1. Structure and power flows of the modeled ...

In this article, a basic security concept for control systems of power stations, which are part of the power transmission and distribution system, is presented based on the Smart Grid domain model ...

Frontiers in Energy Research, Xuejiao Han, Power Systems Laboratory 27.04.2021 6. Evaluate each customer group using the median values from within each group - Power from the PV units could: 1) charge the battery 2) supply the demand 3) be injected back to the grid. To optimize: - Investment decisions (PV, battery energy & power capacities)

The key output is the Security baseline for power distribution control systems, which, with an emphasis on the ISO 27001 wage standard, recommends specific mitigation measures that suppliers can use in substation automation projects. ... IEC 61850 Principles and Applications to Electric Power Systems. Springer; Cham, Switzerland: 2022. (CIGRE ...

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In this paper, the three baseline evaluation criteria are used to evaluate the suitability of the baseline methods for the three different key flexibility market characteristics, ...

Strategic Grid planning is based on the Scenario Framework Switzerland and the ENTSO scenarios assigned

in it, which provide essential input values for the grid planning process. The Scenario Framework Switzerland contains national target values for each generation technology and each consumer group for the years 2030 and 2040.

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In this paper, the three baseline evaluation criteria are used to evaluate the suitability of the baseline methods for the three different key flexibility market characteristics, which are: (i) baselines for different DERs, (ii) multi-DER baseline (e.g., behind the meter, aggregators), and (iii) the characteristics of flexibility services.

These projects are all the more important for the country as Switzerland has engaged an ambitious "Energy Strategy 2050", which plans to reduce CO₂ emissions by 50% by 2030 compared to its 1990 baseline while phasing out nuclear power which currently covers close to 40% of the national electricity demand [12].

Methodology that analyzes economics of PV-battery systems for a wide range of buildings across Switzerland is proposed. o Techno-economics of PV-battery systems in Switzerland for 2020 to 2050 is analyzed. o Combining PV with batteries already results in better net present values than PV alone for some customer groups today. o

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