



Samoa energy storage for grid stability

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Close to 50 percent of the Samoa's electricity supply is produced by renewable sources. As more renewable generation comes online, the ability of the grid to handle the intermittent generation from various energy sources is fundamental to ensuring stable and reliable electricity supply for this Island Nation.

Electric Power Corporation (EPC, Samoa's sole electricity utility) is mandated under the Government of Samoa to achieve a 70% renewable electricity grid by the year 2031. To help achieve this goal, EPC are seeking to review their electricity network to ensure it can deliver improved security of supply through increased resilience of the grid to accommodate embedded renewable energy generation.

A full technical feasibility study is needed to assess the fundamental supporting systems needed to enable an increasingly renewable grid while ensuring grid stability, including:

The project will start with an inception call between the consultant, GGGI, and the Electric Power Corporation (EPC, Samoa's National Utility). On the call, the scope and objectives of the assignment will be discussed, and EPC will give a preliminary overview of the grid stability challenges being faced.

The consultant shall then gather and review relevant data and information. This will include historical data on grid performance, load patterns, voltage fluctuations, and frequency variations as well as reviewing previous related studies such as:

Based on the review of previous studies and historical data, the consultant shall identify gaps in the information needed to conduct the technical assessment, and the approach planned to obtain that information or develop assumptions.

Deliverable 1: Inception report with confirmation of objectives and workplan and summary of desktop review and gaps.

The consultant shall conduct a full technical feasibility study to assess the fundamental support systems needed to enable an increasingly renewable grid. The technical assessment should provide a clear understanding of the current state, identify gaps, and propose well-defined practical and technical solution(s) that enhance the grid's stability and reliability.

The consultant shall conduct the technical assessments based on PowerFactory modeling and simulations, or equivalent. This will involve load flow, contingency, and fault analysis of the grid for the proposed/future operation scenarios and grid elements with distributed batteries and upgraded SCADA systems and



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analysing how these measures would respond to grid disturbances, load changes, and renewable energy integration.

Deliverable 2: Draft technical assessment report Deliverable 3: Final technical assessment report

This project is expected to be completed by 31 January 2023. The assignment duration is 4 months with a tentative timetable shown below. The deliverables will be reviewed by GGGI who will provide comments within 1 week to be addressed by the consultant.

Contact us for free full report

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