



TURNING SUNSHINE INTO SAVINGS: THE FUTURE OF RESIDENTIAL GRID-TIED SOLAR PV SYSTEMS IN ST. KITTS AND NEVIS

TECHNOLOGY DESCRIPTION

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Residential grid-tied solar photovoltaic (PV) systems convert sunlight into electricity and are connected directly to the national grid. These systems allow homeowners to generate their own electricity, reducing reliance on grid electricity while exporting excess power back to the grid. Grid-tied solar PV systems do not require battery storage, making them a cost-effective and efficient option for reducing electricity bills and decreasing the load on the central electricity generation system. This technology is particularly well-suited for St. Kitts and Nevis, where abundant sunlight provides a reliable and renewable energy source.

CLIMATE RATIONALE OF THE TECHNOLOGY

The energy sector in St. Kitts and Nevis is highly dependent on imported fossil fuels, making the country vulnerable to global energy price fluctuations and contributing to significant greenhouse gas (GHG) emissions. Residential grid-tied solar PV systems offer a sustainable solution to reduce the country's reliance on fossil fuels, lower electricity costs for consumers, and cut GHG emissions. By promoting the adoption of solar PV, St. Kitts and Nevis can advance its climate mitigation goals while improving energy security and reducing the environmental impacts of energy production.

AMBITION OF THE TECHNOLOGY

SCALE FOR IMPLEMENTATION AND TIMELINE

The ambition is to achieve **diffusion of 500 kW of installed capacity of solar PV systems at critical government buildings by 2028** at a cost of **USD 1.935 million**.

Actions	Target	Timeline (Years)	Costs (USD)
Action 1: Comprehensive feasibility studies on the use and penetration of residential grid-tied solar PV system. Action 2: Expand and implement training programs for technicians Action 3: Develop and implement pilot projects at critical government buildings Action 4: Design and roll-out public awareness campaign and community engagement	The TAP target for solar PV systems is 500 kW installed capacity by 2028.	3	1,935,000



EXPECTED IMPACTS OF THE TECHNOLOGY

- **Reduction in GHG emissions:** By generating electricity from a clean, renewable source, residential solar PV systems will contribute to significant reductions in GHG emissions, helping St. Kitts and Nevis meet its Nationally Determined Contributions (NDCs) under the Paris Agreement.
- **Reduction in electricity costs for consumers:** Homeowners will benefit from reduced electricity bills by generating their own electricity and selling excess power back to the grid, increasing household disposable income.
- **Improved energy security:** Solar PV reduces reliance on imported fossil fuels, enhancing national energy security and resilience to global fuel price volatility.
- **Economic benefits:** The growth of the residential solar PV market will create new jobs in installation, maintenance, and grid management, contributing to the local economy.
- **Integration with renewable energy targets:** Increasing residential solar PV adoption helps St. Kitts and Nevis diversify its energy mix and reach its renewable energy targets.

POLICY ACTIONS FOR TECHNOLOGY IMPLEMENTATION

EXISTING POLICIES IN RELATION TO THE TECHNOLOGY

Recently, the NDC and mitigation analysis chapters in the third National Communication to the UNFCCC assess progress towards mitigation actions identified in the **National Climate Change Policy** (2017) and **National Energy Policy and Action Plan** (2014). These important policy tools and action plans provide the roadmap for climate change mitigation in the Federation. Although the National Energy Policy and Action Plan is dated, it does set out targets and action plan for diffusion of technologies reliant on renewable energy.

PROPOSED POLICIES TO ENHANCE TECHNOLOGY IMPLEMENTATION

To enable residential grid-tied solar PV systems, the current National Energy Policy is sufficient (although dated) but the associated Action Plan requires implementation of which many of the elements are also included in the TAP. Detailed feasibility studies are required to ensure full and effective diffusion of the technology.

- **Comprehensive feasibility study on the use and penetration of residential grid-tied solar PV systems** including economic assessments, finalization and implementation of the feed-in tariff, design and roll-out of incentive regimes and guidelines to ensure safety and reliability (Action 1 of the TAP)

COSTS RELATED TO THE IMPLEMENTATION OF POLICIES

The estimated cost for comprehensive feasibility studies for residential grid-tied solar PV systems was estimated at **USD 400,000** over 1-2 years.



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USEFUL INFORMATION

CONTACT DETAILS

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LINKS TO TNA REPORTS

More information on the Technology Needs Assessment for St. Kitts and Nevis can be found at <https://tech-action.unepccc.org/country/st-kitts-and-nevis/>.