



HOT WATER, COOL CLIMATE GOALS: EMBRACING SOLAR WATER HEATING IN ST. KITTS AND NEVIS

TECHNOLOGY DESCRIPTION

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Solar water heating (SWH) systems capture energy from the sun to heat water for residential, commercial, and industrial use. These systems typically consist of solar collectors (usually flat-plate or evacuated tube collectors) and a storage tank to retain the heated water. Solar water heating reduces reliance on electricity or fossil fuels for water heating, leading to significant energy savings and reductions in greenhouse gas (GHG) emissions. The technology is well-suited for St. Kitts and Nevis, where ample sunlight is available year-round, making it a cost-effective and sustainable energy solution.

CLIMATE RATIONALE OF THE TECHNOLOGY

St. Kitts and Nevis, like other Small Island Developing States (SIDS), faces the dual challenge of mitigating climate change and reducing dependence on imported fossil fuels. The energy sector is a major source of GHG emissions, primarily due to the reliance on diesel generators for electricity. Solar water heating offers a low-carbon alternative for water heating, reducing the demand for electricity and fossil fuels. By utilizing a renewable energy source, SWH systems contribute to the country's climate mitigation goals and help stabilize energy costs by reducing vulnerability to global oil price fluctuations.

AMBITION OF THE TECHNOLOGY

SCALE FOR IMPLEMENTATION AND TIMELINE

The ambition is to achieve a **diffusion of 30 SWHs at critical government buildings by 2028** at a cost of **USD 1.035 million**.

Actions	Target	Timeline (Years)	Costs (USD)
Action 1: Comprehensive feasibility study on the use and penetration of solar water heating including economic assessments, design and roll-out of incentive regimes and guidelines to ensure safety and reliability Action 2: Expand and implement training programs for plumbers and electricians Action 3: Develop and implement pilot projects at critical government buildings Action 4: Design and roll-out public awareness campaign and community engagement	Installation of 30 SWHs at critical government infrastructure by 2028.	3	1,035,000



EXPECTED IMPACTS OF THE TECHNOLOGY

- **Reduction in electricity demand:** Solar water heating systems reduce the amount of electricity needed for water heating, easing the strain on the national grid and reducing overall energy consumption.
- **Reduction in GHG emissions:** By decreasing reliance on fossil fuels for water heating, SWH systems contribute to significant reductions in GHG emissions, supporting the country's Nationally Determined Contributions (NDCs).
- **Economic savings for households and businesses:** Solar water heating offers long-term cost savings by reducing electricity bills, providing economic relief for households and businesses.
- **Energy security:** By harnessing locally available solar energy, SWH systems reduce dependence on imported fuels, increasing energy security and resilience to global market fluctuations.
- **Job creation:** The deployment of solar water heating systems will create jobs in installation, maintenance, and manufacturing, stimulating the local economy.

POLICY ACTIONS FOR TECHNOLOGY IMPLEMENTATION

EXISTING POLICIES IN RELATION TO THE TECHNOLOGY

Recently, the NDC (GOSKN, 2021c) 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 SWH, 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 solar water heating** including economic assessments, 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 SWH was estimated at **USD 350,000** 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/>.