

Uruguay – Solar Thermal NAMA

Executive summary

Country: Uruguay

MIEM. Ministry of Industry, Energy and Mining. National Directorate of Energy

MVOTMA. Ministry of Housing, Land Planning and Environment.



Main contact:

Dr. Ramón Méndez

Director of Energy

National Directorate of Energy

Ministry of Industry, Energy and Mining

(+598) 2900 9616

ramon.mendez@dne.miem.gub.uy

Introduction

Uruguay has set very ambitious targets for renewable energy. By 2015, it will have 90% of its electricity and more than 50% of its primary energy coming from renewable sources. Electricity production and primary energy from renewable sources already account for 75% and 38%, respectively, and with an estimated 1000MW of wind power either under construction or awarded, the country is on its way to achieving these objectives.

To further promote the substitution of fossil fuels, solar thermal collectors are being proposed as a way to reduce electricity consumption.

Law 18,585 establishes that all new public buildings, health-care institutions, hotels and sports facilities where at least 20% of the total energy consumption is used for water heating, will have to meet 50% of the water heating demand through solar thermal collectors.

The National Directorate of Energy (DNE) estimates that solar collectors can reduce the use of electricity for water heating by up to 60% in the residential sector. Since water heating accounts for 37% of the average household electricity bill, the benefits to consumers is significant. The residential sector consumes **41%** of national power production, thus the introduction of solar thermal technology would

potentially reduce total national electricity consumption by **9 %**, yielding a reduction of 440,000 tCO₂e per year.

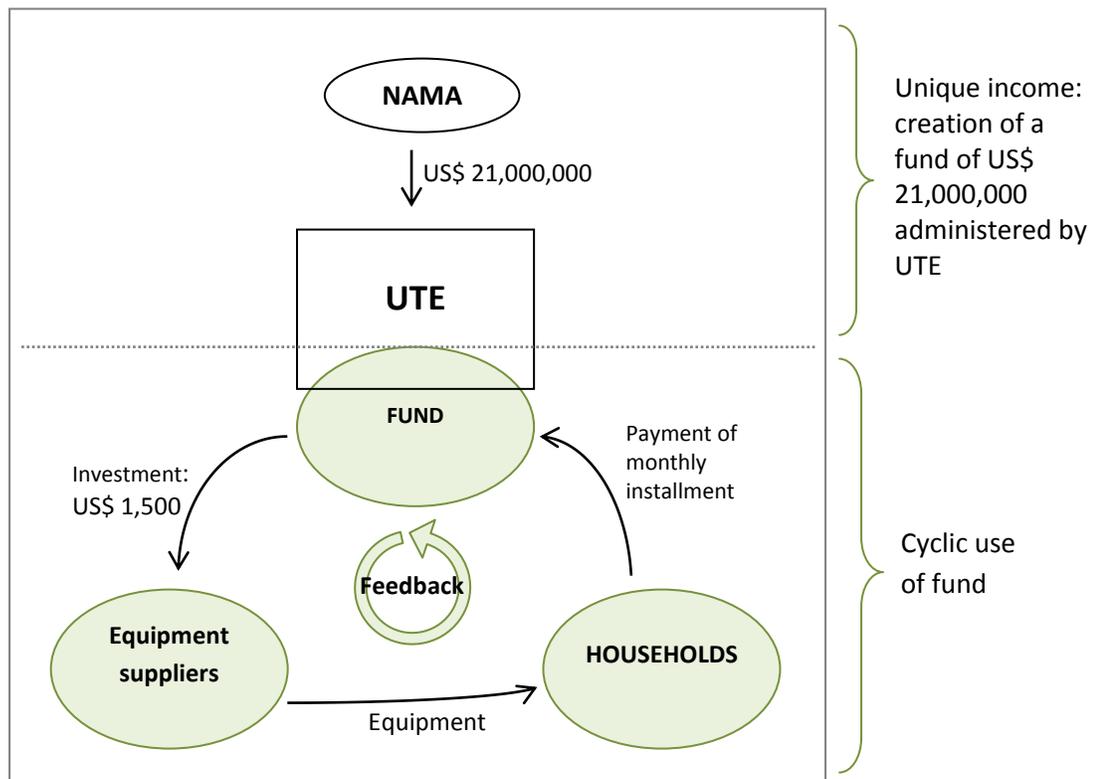
In an effort to promote the technology among residents, Uruguay's government-owned power company (UTE) and the Ministry of Industry, Energy and Mining (MIEM) have launched the Solar Plan – an initiative that seeks to provide access to solar thermal collectors for private users by providing an affordable, easily attainable 5 year-loan that includes insurance for the equipment. In addition to this loan, UTE offers a monthly discount of 700 Uruguayan pesos plus VAT (est. US\$43) off of electricity bills during the first 2 years for the first 2,000 program beneficiaries. This program, despite its great economic advantages, has had little uptake due to lack of familiarity with solar water heating technology.

NAMA Description

The Solar Plan – deployed in 2012 - focuses on the existing private residential sector. In order to promote solar thermal energy in new social housing, the Ministry of Housing, Land Planning and Environment plans to make a mandate where all new housing built with public funding will have to include the necessary infrastructure to install solar collectors. Private housing that benefit from a public contribution will also be included in the mandate. Over 2,000 new social houses are built with government funds per year and 4,000 built by private institutions with public contribution. The incorporation of this mandate is one of the pillars of the NAMA allowing the installation of at least 4,000 solar collectors per year.

As Uruguay has three local manufacturers of solar collectors, this program also boosts the domestic sector and increases the technical expertise of the companies, contributing to the cost decrease by technological learning.

NAMA funds would be used to (help) finance the installation of the collectors, which would then be paid back through the electricity bill using an approximation of the savings achieved due to the use of solar technology. A continuous flow of financing can be generated once funding for the development of the program has been obtained. The proposed fund, which would be operated by UTE, would operate as shown in the following figure:



Estimations of the Ministry of Industry, Energy and Mining assure that 37% of the electricity used in a household is used to heat water, and that the use of solar collectors would reduce the use of electricity for this purpose by up to 60%. This would then save each household the equivalent of 900kWh per year, or US\$ 240. As the number of installed systems would increase by 4,000 a year, a constant number of 80,000 units would be achieved after 20 years (including the ones at the end of their lifetime). Once this final number is achieved, an annual avoidance of around 75,000 MWh could be attained. Giving the project a lifetime of 30 years (even though if managed correctly the fund could continue indefinitely) the emissions reduction could reach 1 Mt CO₂e over 30 years.

In addition to the GHG emission reductions, the deployment of this NAMA is critical for socializing this technology - creating success stories that highlight the economic and environmental benefits of solar water heater use – in order to accelerate uptake of the technology, as prescribed in the Solar Plan. This will transform the sector by making solar water heaters common practice as new homes are built, leveraging private investment in and uptake of this technology beyond the homes supported under the NAMA. Although Uruguay’s primary energy supply is relatively low-carbon due to a reliance on hydropower, diesel generators are used to complement the baseload when meteorological conditions are not favourable for electricity production. The solar water heaters are thus important for displacing fossil fuel consumption and increasing the share of renewables in both the primary energy supply and electricity production. Finally, demonstration of this technology and financing mechanism is important for replication, especially in countries with a carbon-intensive energy supply.

Support requested

To complement the funding obtained through the NAMA program, Uruguay proposes two channels for financial contributions:

- UTE would provide direct support to the fund.
- The government would provide financial support by means of the Uruguayan Energy-Saving and Efficiency Trust Fund (FUDAEE).

This would allow the creation of a fund with an overall financing need of US\$ 21,000,000, which will be used throughout the development of the NAMA.

In this regard, the **support requested** to finance 4,000 installations per year at a cost of US\$ 1,500 each is **US\$ 14,000,000**, and the rest of the total amount would be provided by the Uruguayan Government, in particular US\$ 5,000,000 by the state-owned company UTE and the remainder by the Uruguayan Energy-Saving and Efficiency Trust Fund (FUDAEE). The funds would be used over time as shown in the following table:

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Fund total
FUNDS NEEDED	6,000,000	5,000,000	4,000,000	3,000,000	2,000,000	1,000,000	21,000,000
RECOVERY THROUGH REPAYMENT		1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	