

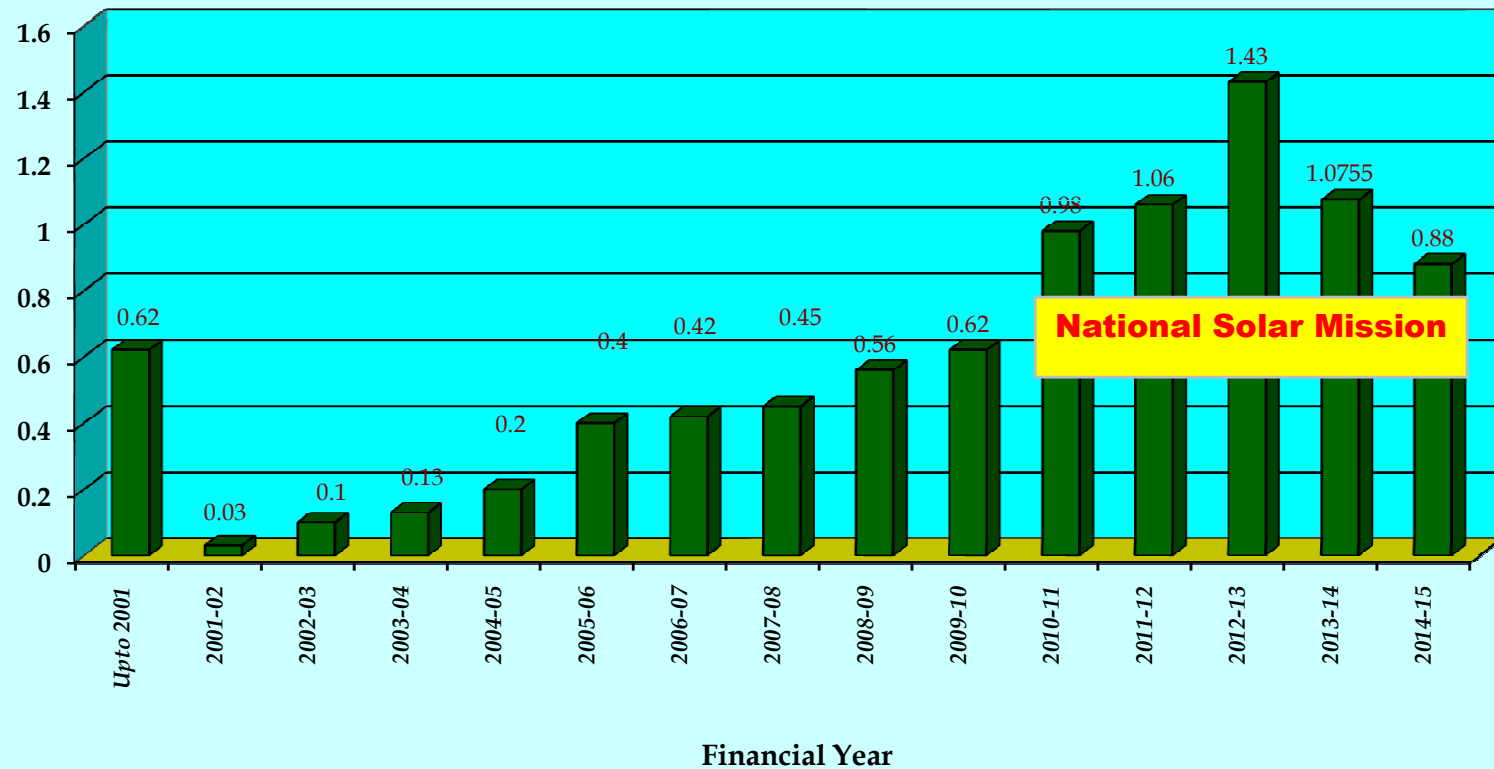
PERSONAL INCOME TAX REBATE ON SOLAR WATER HEATER AND SOLAR THERMAL GENERATION OBLIGATION

Jaideep N. Malaviya



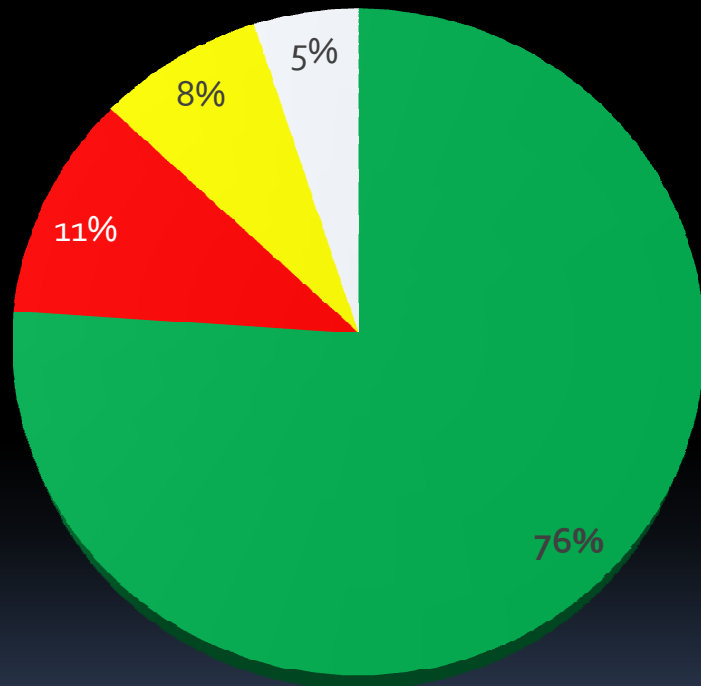
Solar Water Heater Achievement in India in million m² (source: MNRE, govt. of India)

Solar Thermal Installations in India in million m²



Malaviya Solar Energy Consult. - solrico, Germany survey

Recent survey undertaken by Malaviya Solar Energy Consultancy and solrico, Germany on user wise break-up in terms of area as below



■ Individual Residential ■ Commercial
■ Institutional ■ Industrial

Category of user	% share
Individual Residential	76 %
Commercial	11 %
Institutional	8 %
Industrial	5%

Benchmark Costs by MNRE

Type of Collector System	Category	Cost (INR/m ²)
Evacuated Tube	Domestic	8,500
	Commercial	8,000
Flat Plate	Domestic	11,000
	Commercial	10,000

Economic Analysis

Benchmark cost of a 2 m2 Flat Plate Collector System	INR 11,000
Other associated costs	INR 9,000
Electricity savings for 250 days usage @ 5 kWh/day and cost/kWh @ INR4/kWh	INR 5,000
Simple payback period	48 months
Personal Income Tax Rebate @ 30% on solar collector	INR 3,300
<i>Simple payback period post I.T. rebate</i>	<i>39 months</i>

Benefits of Extending Personal Income Tax Rebate

- Section 32 of the Income Tax Act 1961 extends 80% accelerated depreciation benefit for profit making allows commercial entities
- This is helpful in improving the payback period as it helps recover up to 35% of revenue in the first year itself
- Share of individual Solar Water Heater users is the largest in India hence it is suggested to extend 30% income tax rebate. This can be an alternative to the 30% capital subsidy that was applicable earlier
- Will be helpful in improving the payback period and spur market growth
- Will reduce the administrative work unlike the earlier Channel Partner Net-off subsidy and keep the manufacturers balance sheet healthy

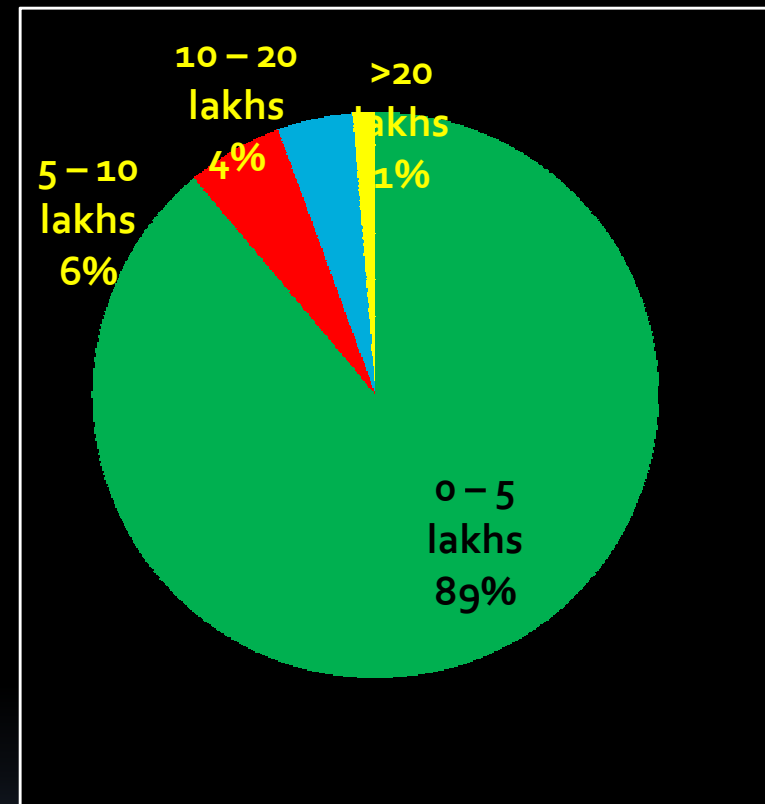
The scheme can be named as

Saur URja Tax Aay Laabh (SURTAL)

Income Tax payers in India in INR

Slab	Number (millions)	Percentage of tax payers
0 – 5 lakhs	28.84	89%
5 – 10 lakhs	1.78	5.50%
10 – 20 lakhs	1.38	4.30%
>20 lakhs	0.40	1.30%
TOTAL	32.4	

Source: Ministry of Finance, Govt. of India



Assuming all Income Tax payers opt for SWH, each requiring 2m² the potential is almost 65 million m²

@ 50% targeted potential it will be **32.5 million m²**

Case Study - USA Personal Income Tax Credit (ITC) on Solar Water Heater

- Solar water heating and photovoltaic power systems placed in service by Dec. 31, 2016 eligible for the 30 percent credit under U.S. Code § 25D Residential energy efficient property
- Helped annual solar installation grow by **over 1,600 %** since implemented in 2006 , **CAGR of 76 %**
- Solar **employment** has grown by **86%**
- Provides market certainty , drives manufacturers for competition and technological innovation
- Lowers costs for consumers due to volume business.

Renewable & Solar Purchase Obligation

- Renewable Purchase Obligation (RPO) is mandated by Electricity Regulatory Commission for promotion of renewable energy
- RPO stipulates minimum percentage of renewable energy in energy mix of
 - ◆ *Distribution licensee*
 - ◆ *Open Access Consumer*
 - ◆ *Captive consumer*
- Further there is a defined Solar Purchase Obligation (SPO) and is a fixed percentage apart RPO

GOTS

- Industrial energy requirement is broadly classified into
 - ◆ Thermal
 - ◆ Electrical
- While RPO/SPO takes care of Electrical, it would be rational to meet a certain portion (10%) of the thermal energy through solar energy
- Over 15 million tones of oil/year in industries for steam/hot water requirements below 250°C & close to 5.000 trillion kWh of electricity for water heating alone
- Portion of high grade fossil fuels /electricity for these applications be deferred through solar thermal means where temp. under 150°C desired
- Scheme can be termed **Generation Obligation of Thermal by Solar (GOTS)**
- GOTS applicable for steam/hot oil/ pressurized water needs betn. 90-250 °C
- To be integrated with existing set-up for operations during sunshine hours

Country/Region SWH targets by 2020

Country	Target
European Union (EU)	500 million m ²
Peoples Republic China	300 million m ²
U.S.A.	300 million m ²
Japan	80 million m ²
<i>India</i>	<i>20 million m²</i>

धन्यवाद

Thank You