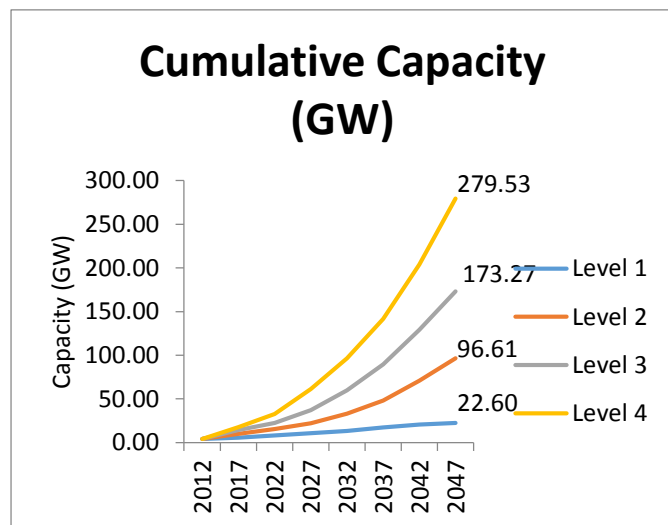


## SOLAR WATER HEATERS (SWH)

Today, India ranks fifth in terms of the number of SWHs installation, accounting for mere 1.6% of the total heating capacity through solar water heaters around the world (REN21:Global Status Report 2014). The total installed collector area has increased from 119,000 sq. m in 1982 to 11 Million sq. m 2013. This sector has been incentivized by capital subsidies and soft loans in the past, with commercial and industrial sectors contributing to 80% in 2001. But, presently residential sector is the largest sector contributing 80% of installation/sales for SWHs. Introduction of mandates for the building sector, provision of capital subsidies and soft loans/ tax rebates have together helped in the growth of the sector. The JNNSM has proposed an ambitious target of achieving 20 million sq. m of collector area by 2022. This technology can greatly relieve peak loads of power demand for heating water in winter.



### LEVEL 1

Level 1 assumes that although there is a gradual improvement in SWH installations in the residential sector there is very little growth in the industrial and commercial sectors. The penetration rate remains low i.e. 2% HHs which was 0.03% in 2012. The resulting collector area rises to 32 million sq m from 6 million sq. m in 2012. The total Solar Water Heaters capacity in 2047 reaches 23 GW from 4.2 GW in 2012.

### LEVEL 2

Level 2 assumes that the JNNSM target of 20 million sq. m is nearly met by 2022, with residential sector remaining the major contributor with a penetration rate of 7% HHs by 2047. The total collector space reaches 138 million sq. m. in 2047. The total Solar Water Heaters capacity in 2047 reaches 97 GW.

### LEVEL 4

Level 4 assumes that there are no economic and social constraints and there is ample rooftop space available in coordination with rooftop PV. The penetration levels are as high as 20% leading to rapid growth in SWH installations. Increase in hot water demand leads to a collector space aggregating to 399 million sq. m. For comparison, 10% of Chinese HHs are already using SWHs and the number is expected to rise to 30% by 2020. The total Solar Water Heaters capacity in 2047 reaches 280 GW.

### LEVEL 3

Level 3 assumes that with the increase in urbanization the demand for hot water rises. Also, strict mandates for industrial, commercial and institutions spaces lead to quick increase in SWH capacities and the penetration level increases to 12.5%. The total collector space grows to ~247 million sq. m. The total Solar Water Heaters capacity in 2047 reaches 173 GW.