

Solar plant capacity requirement based on monthly consumption slabs for domestic consumers

Monthly consumption slabs	No of consumers in each slab (Nos)	Bi monthly bill amount	Solar plant capacity (AC capacity)(in kW)	kWp capacity in DC side (taken as 120% of the plant capacity)*	Average monthly generation possible with mono facial panels #	Average monthly generation possible with bifacial panels #	Remarks	Observation
(1)	(2)	(3)	(4)	(5)	(6) = (5) * 4	(7) = (5) * 5	(8)	(9)
0-40	19,191	Bimonthly bill upto Rs 144/-	1	1.2	140	180	55,60,306 number of consumers having monthly consumption upto 100 units can meet entire requirement with a 1 kW plant (generation potential 140-180 units)	99.11 % of the domestic consumers can meet their entire energy requirements with solar plants of capacity up to 3 kW.
0-50	26,11,937	Bimonthly bill upto Rs 409/-						
51-100	29,29,178	Bimonthly bill upto Rs 902/-						
101-150	26,25,289	Bimonthly bill upto Rs 1,665/-	2	2.4	280	360	1,00,18,846 number of consumers having monthly consumption upto 250 units can meet entire requirement with a 1-2 kW plant (generation potential 140-360 units)	
151-200	12,68,302	Bimonthly bill upto Rs 2,553/-						
201-250	5,64,949	Bimonthly bill upto Rs 3,514/-						
251-300	2,25,534	Bimonthly bill upto Rs 5,001/-	3	3.6	430	540	1,04,46,210 domestic consumers have a monthly electricity consumption below 400 units. To meet their energy requirement through solar generation, these consumers would require a 1–3 kW monofacial solar plant, with a generation potential ranging from 140 to 430 units per month. In the case of bifacial modules, a 2 kW plant would be sufficient for consumers with consumption up to 350 units, while those with consumption up to 400 units would require a 3 kW bifacial plant. (generation potential 180-540 units).	
301-350	1,30,510	Bimonthly bill upto Rs 6,474/-						
351-400	71,320	Bimonthly bill upto Rs 7,594/-						
401-500	67,199	Bimonthly bill upto Rs 9,735/-	4	4.8	570	720	67,199 number of consumers having monthly consumption in the consumption slab of 401-500 units requires a 4 kW monofacial plant or 3kW bifacial pant. (generation potential 540- 570 units)	1,05,21,768 number of domestic consumer (99.83%) can meet their entire energy requirement with solar plants of capacity upto 5 kW
501-600	4,482	Bimonthly bill upto Rs 12,866/-	5	6	720	900	8,359 number of consumers having monthly consumption slab of 501- 700 units requires a 5 kW monofacial plant or 4 kW bifacial plant. (generation potential 720 units).	
601-700	3,877	Bimonthly bill upto Rs 14,902/-						
Above 700	17,860	Bimonthly bill above Rs 14,902/-	6	7.2	860	1080	17,860 domestic consumers have average monthly electricity consumption exceeding 700 units, which accounts for approximately 0.17% of the total domestic consumers. To meet their monthly requirement through solar energy, these consumers would require a solar plant capacity of 6 kW or higher.	0.17% of domestic consumers require a solar plant above 5 kW to meet their full energy requirement

* Assupmtions taken - 4 units per day generation for 1 kWp for monofacial panel and 5 units per day generation for bifacial panels

*Solar plants are typically installed with a DC overloading factor to optimize inverter performance