Rooftop Solar in Bangladesh

Potential & Challenges

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Coastal Livelihood and Environmental Action Network (CLEAN)

Electricity Consumption in Bangladesh

Total generated electricity in Bangladesh is consumed across six major and three minor key sectors:

MAJOR SECTORS (6)

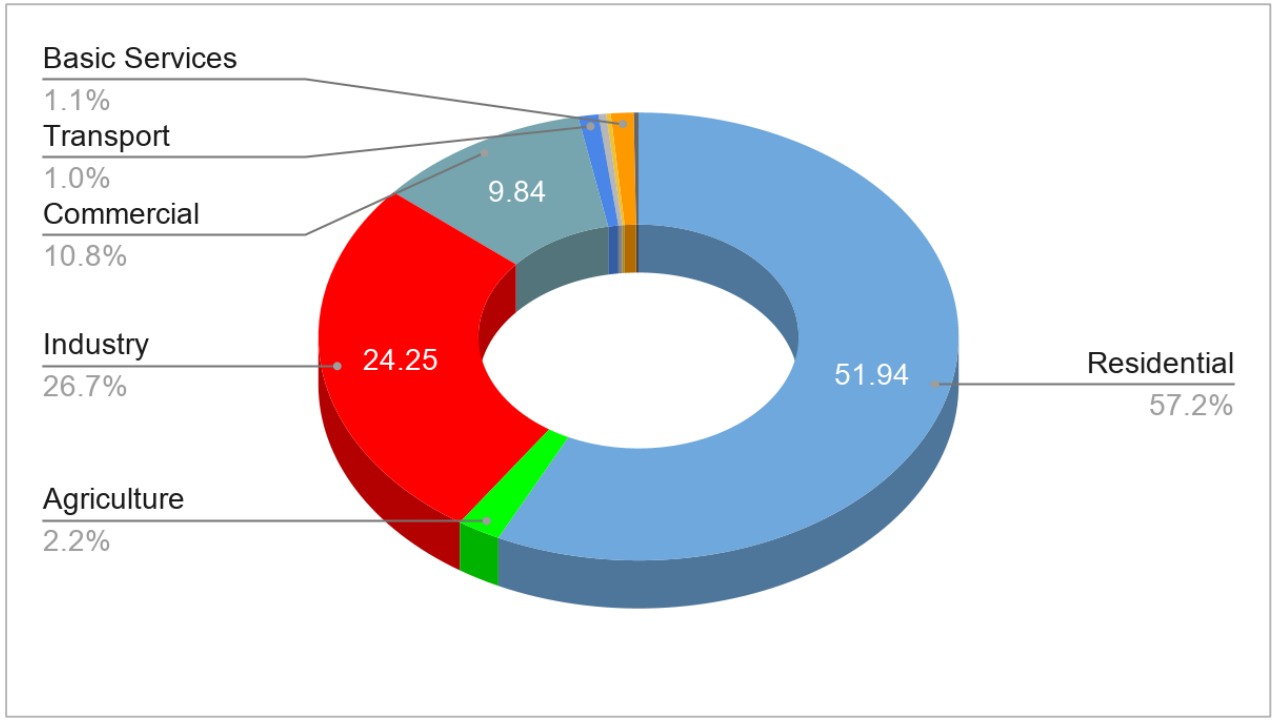
1. Residential
2. Industrial
3. Agriculture
4. Commercial
5. Transport
6. Construction

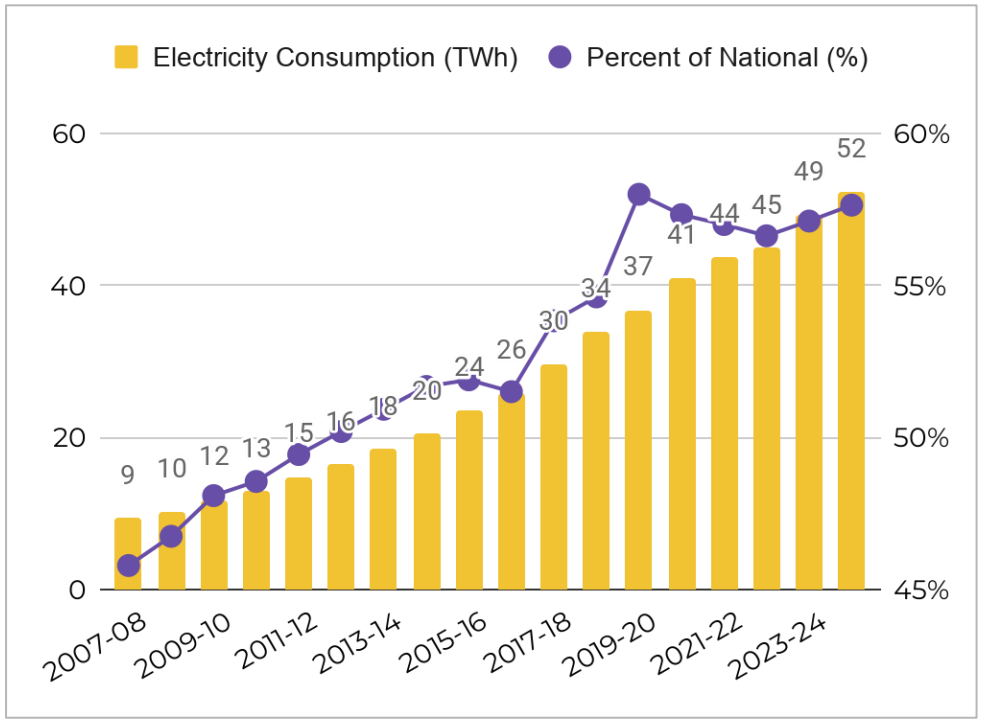
MINOR SECTORS (3)

7. Street Light
8. Basic Services
9. Others



Electricity Consumption by Sector

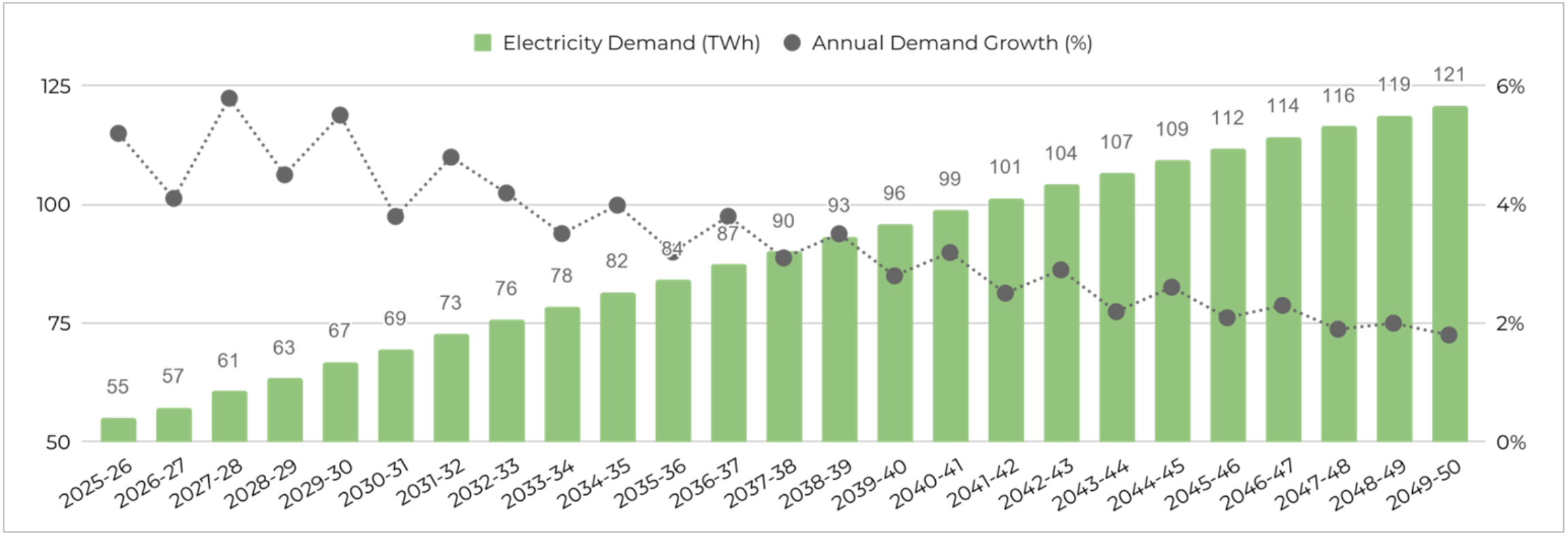




Residential sector is the highest electricity consumer. In the last 18 years since 2007-08, this sector's electricity consumption increased 5.6 folds from 9.4 TWh to 53.3 TWh. Currently it is consuming 57% of the national electricity.

The demand for electricity in the sector has been increasing at 10.7% per year, which is the highest among the six major sectors (e,g,, Agriculture, Industry, Commercial, Transport, Construction)

Electricity Demand Projection (Residential)

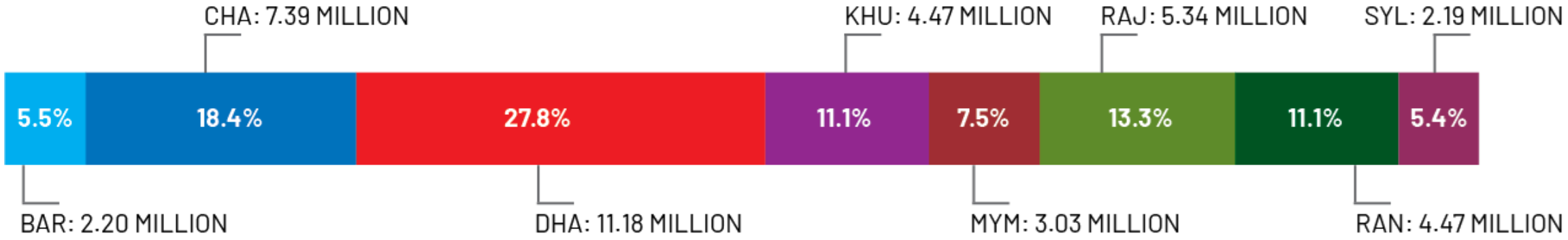


From several national and international research, it is revealed that the demand in the residential sector may reach 66.9 TWh by 2029-30, 81.6 TWh by 2034-35, 95.9 TWh by 2039-40 and 120.9 TWh by 2049-50.

Urbanisation, air cooling, EV, cooking and gazettes will increase demand while energy efficiency and national standards will take it down.

Number of Households

40.26 MILLION HOUSEHOLDS



Income Slab	Monthly Income (BDT)	No. of Households
Low Income	0 - 13,250	10.1 million
Lower-middle Income	13,251 - 19,875	8.86 million
Middle Income	19,876 - 33,125	11.27 million
Higher-middle Income	33,126 - 53,000	6.04 million
High Income	53,000 +	4.03 million

Nationally 80.8% people live in their own houses.

Barishal Division: 91.4%

Chattogram Division: 82.6%

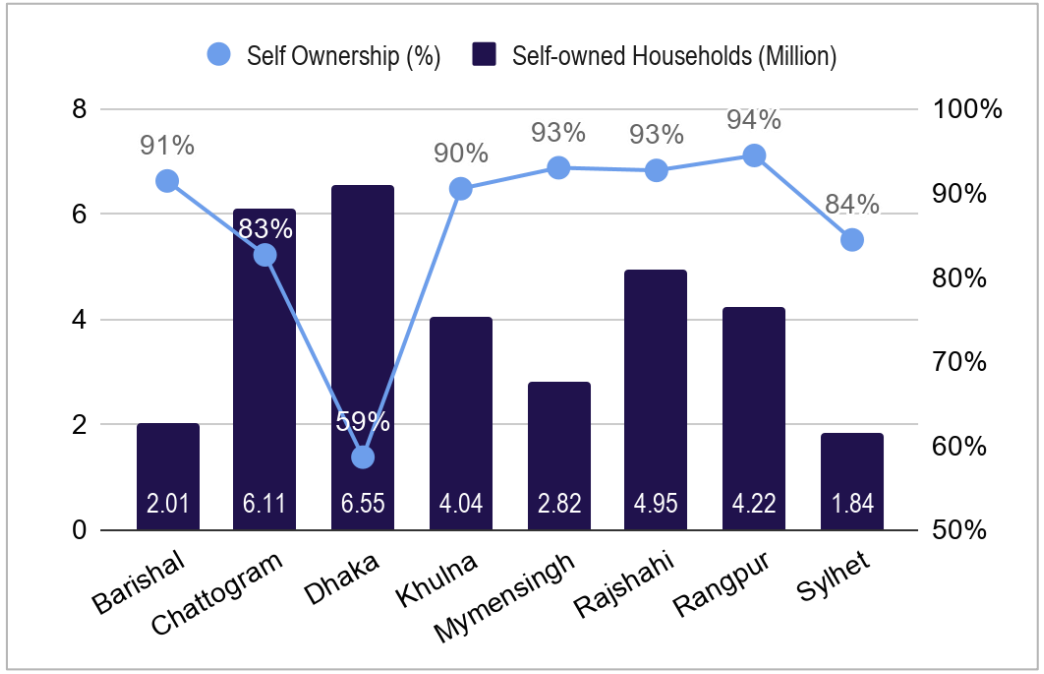
Dhaka Division: 58.5%

Khulna Division: 90.5%

Mymensingh Division: 93%

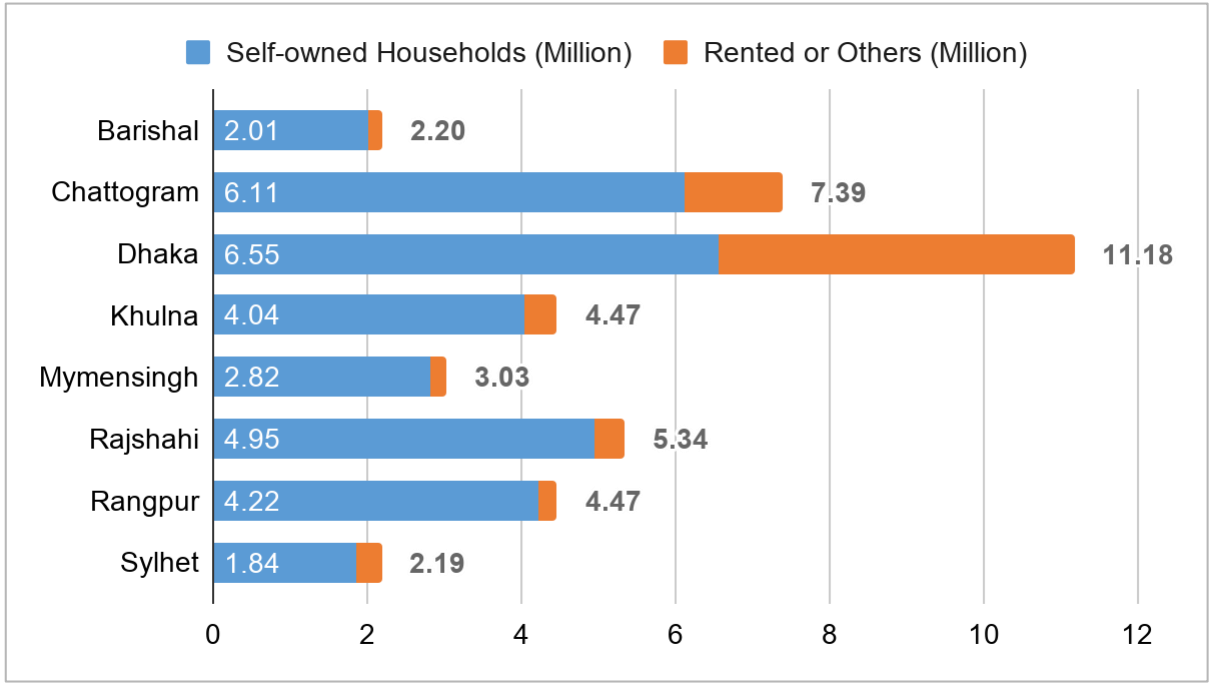
Ownership of Houses by Division

A total of 32.54 million households (81% of the total households) are owned by the dwellers themselves.



Dhaka has the lowest percentage of self-owned houses (59%), followed by Chattogram (83%) and Sylhet (84%).

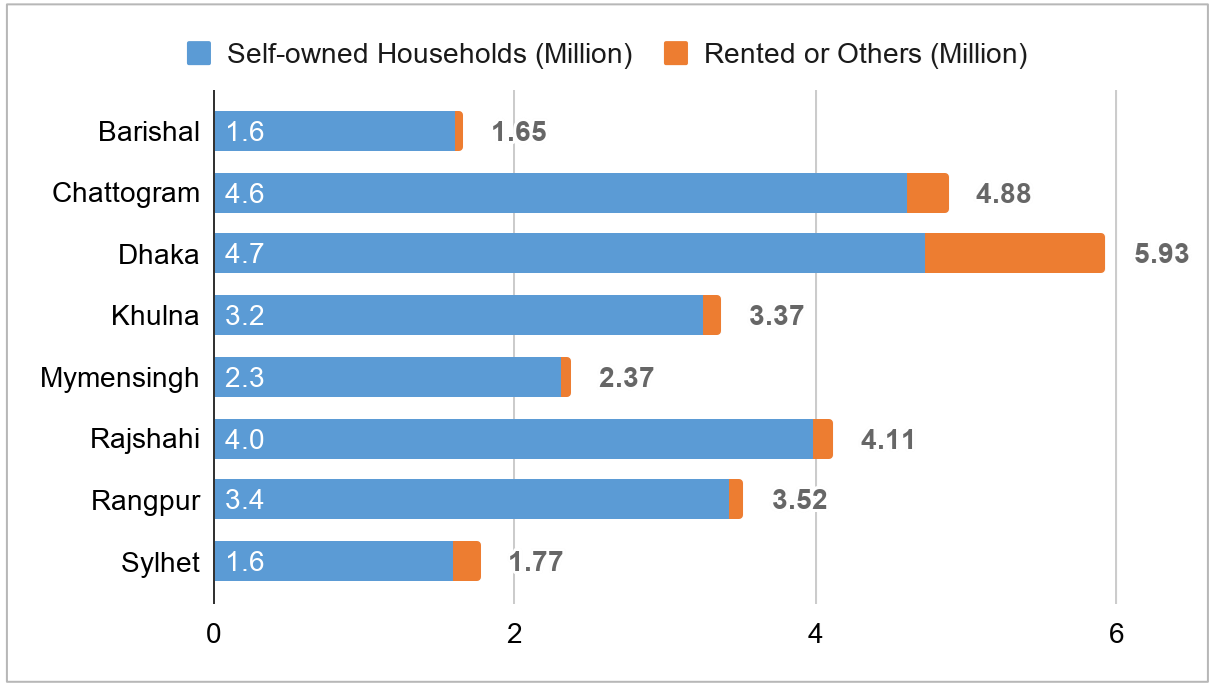
Dhaka Division has the highest self-dwelling households (6.6m), followed by Chattogram (6.1m) and Rajshahi (5m) and Rangpur (4.2m).



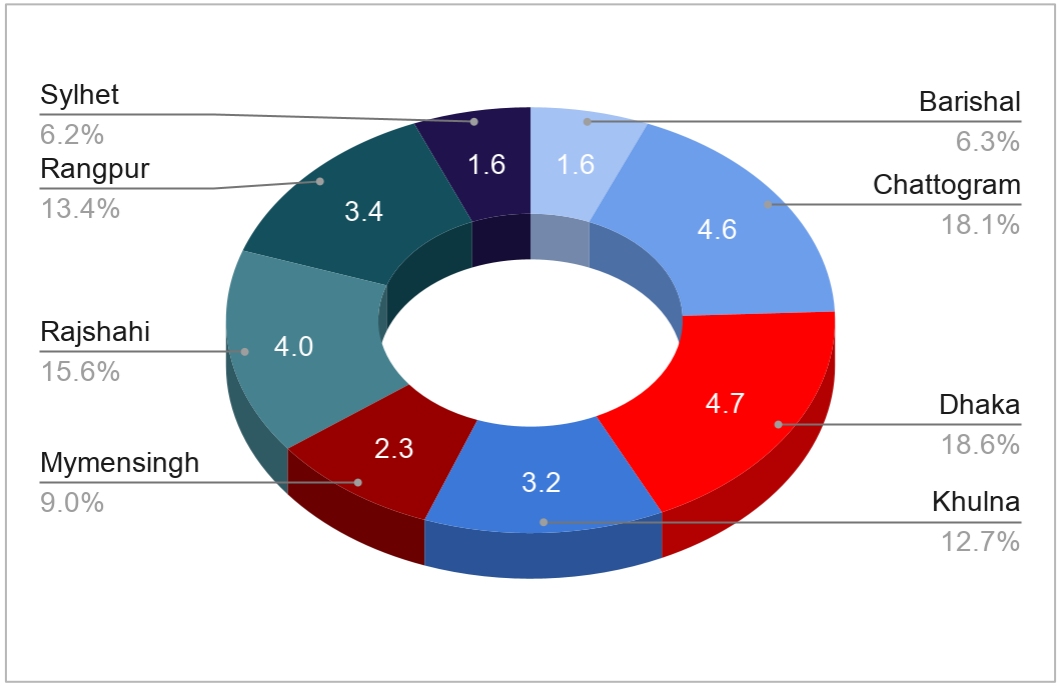
Sylhet Division has the lowest self-owned households (1.8m), followed by Barishal (2m), Mymensingh (2.8m) and Khulna (4m)

Ownership of Houses in Rural Areas

A total of 27.61 million (69%) self-owned households are in the rural areas, while 31% are in the urban areas.



Still, Dhaka Division has the highest self-dwelling rural households (4.7m), followed by Chattogram (4.6m).

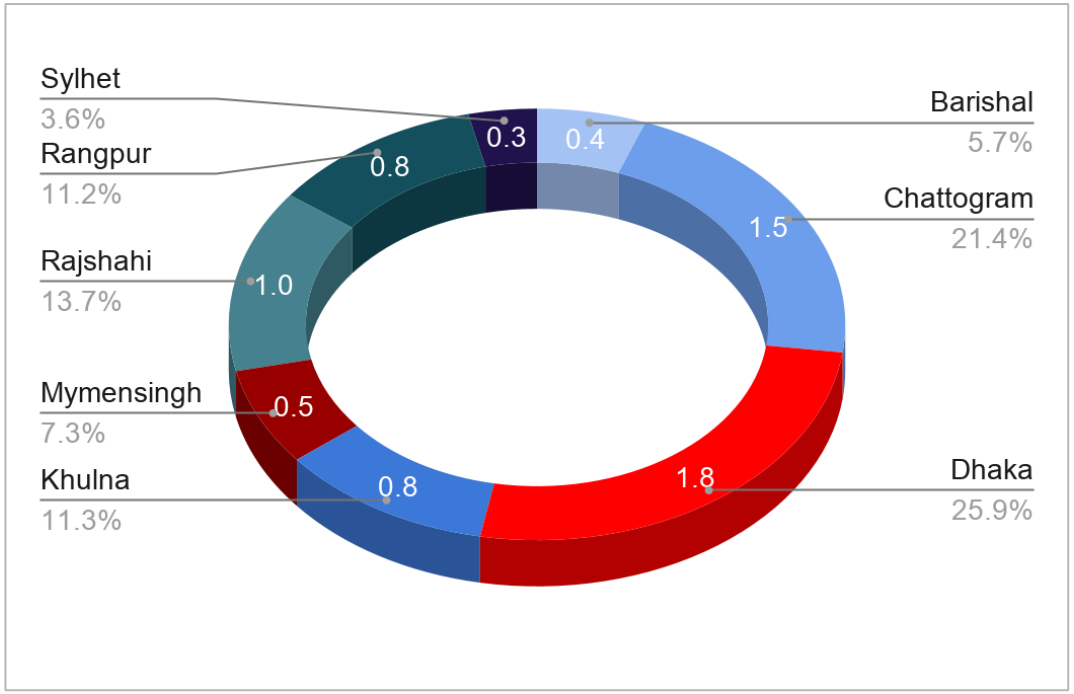


Dhaka has the lowest percentage of rural self-owned houses (80%), followed by Sylhet(90%) and Chattogram (94%).

Barishal and Sylhet Division has the lowest self-owned rural households (1.6m), followed Mymensingh (2.3m).

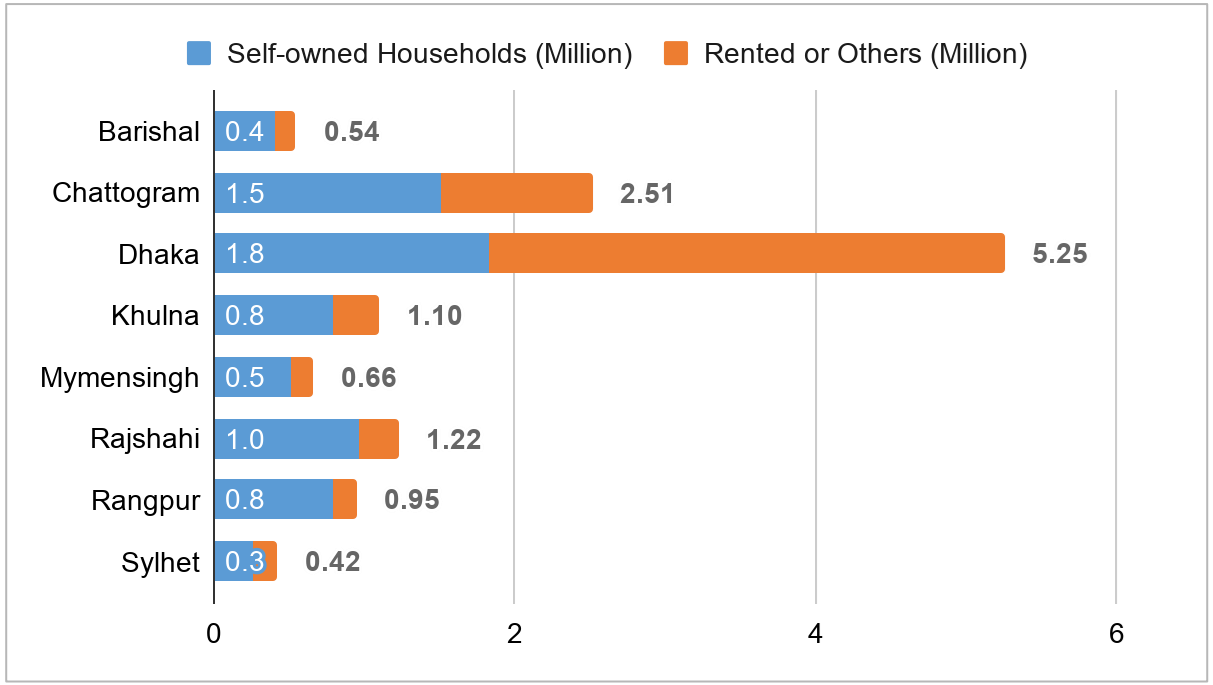
Ownership of Houses in Urban Areas

A total of 12.65 million (31%) self-owned households are in the urban areas who consumes higher level of electricity.



Dhaka has the lowest percentage of rural self-owned houses (35%), followed by Chattogram (60%) and Sylhet (61%).

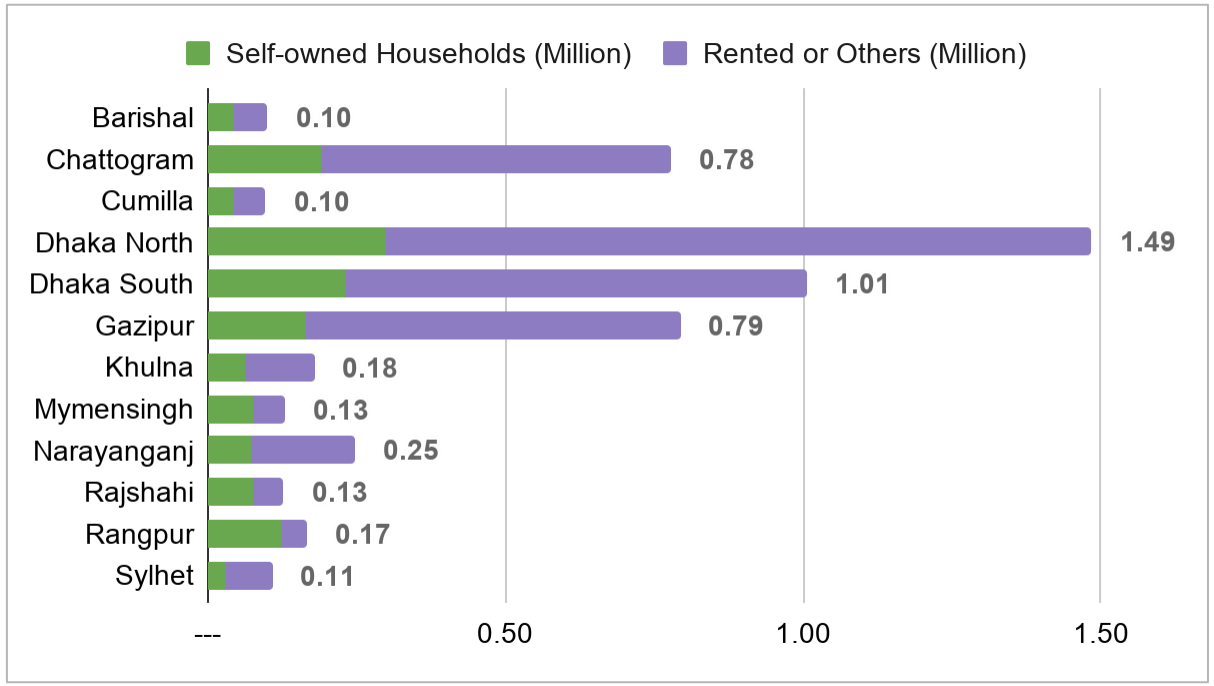
Still, Dhaka Division has the highest self-dwelling urban households (1.8m), followed by Chattogram (1.5m) and Rajshahi (1m)



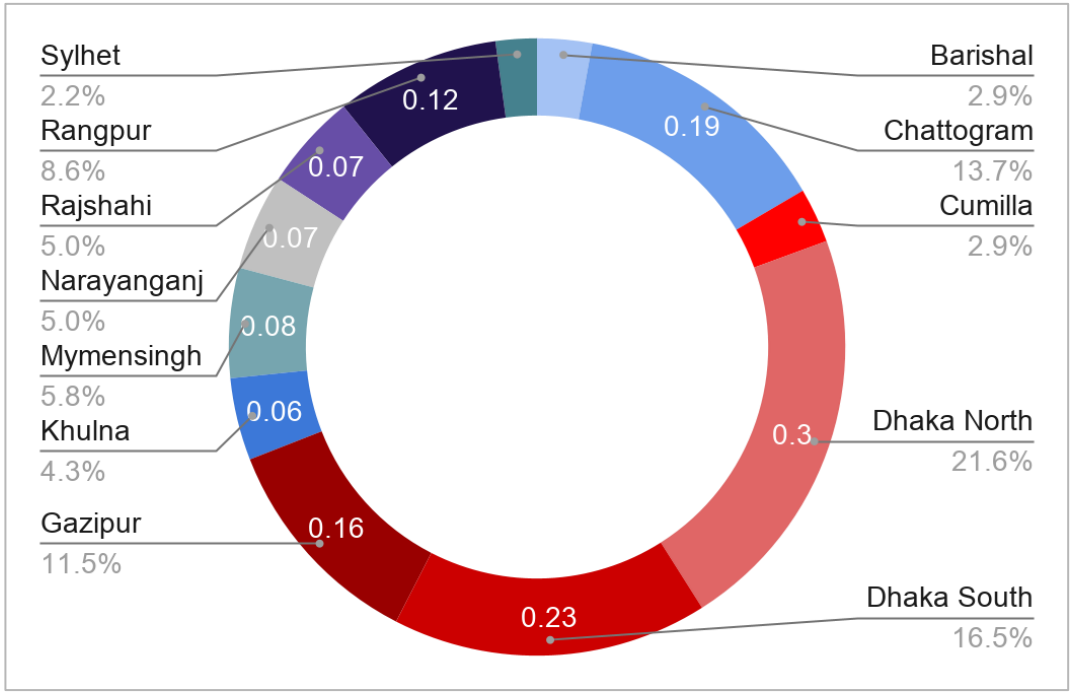
Sylhet Division has the lowest self-owned urban households (0.3m), followed Barishal (0.4m), Mymensingh (0.5m) and Khulna & Rangpur (0.8m)

Ownership of Houses in the City Corporation

There are 5.22 million households in 12 city corporations in which 1.4 million (27%) live in the self-owned households.



Still, DNCC has the highest self-dwelling urban households (0.3m), followed by DSCC (0.23m) and Chattogram (0.19m).



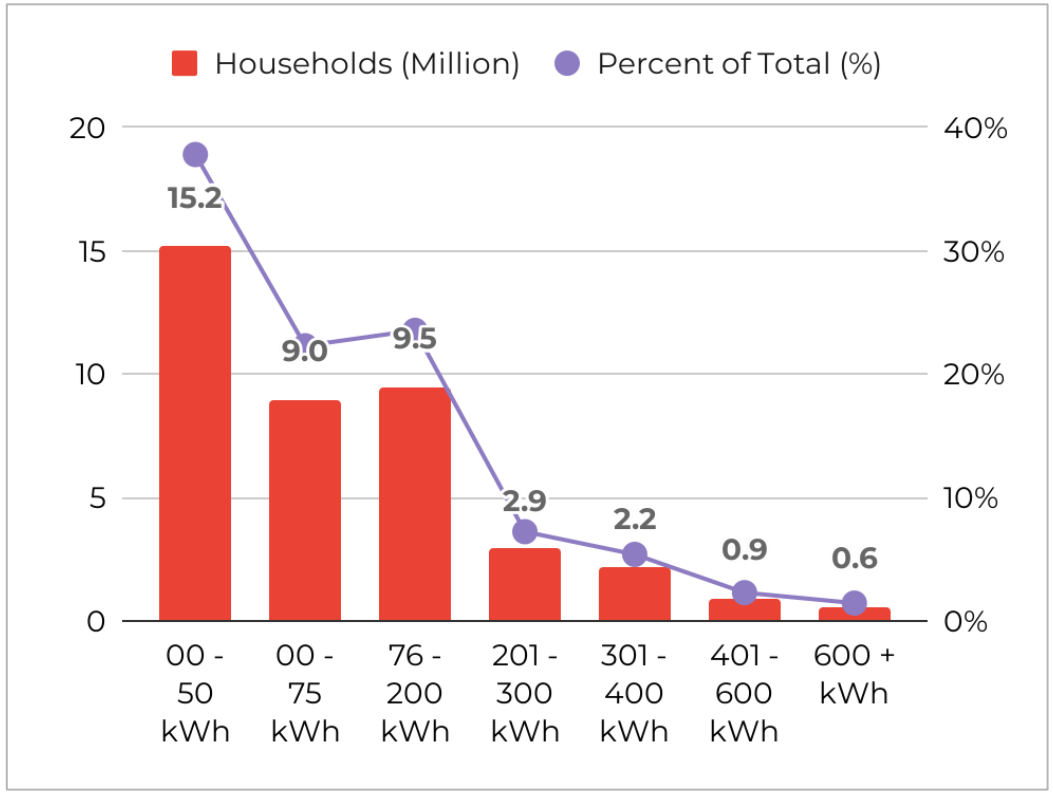
Dhaka North city has the lowest percent of city level self-owned houses (20%), followed by Gazipur (21%) and Dhaka South (23%).

Sylhet has the lowest self-owned city households (0.03m), followed Barishal and Cumilla (0.04m), Khulna (0.06m).

Household Income & Electricity Consumption

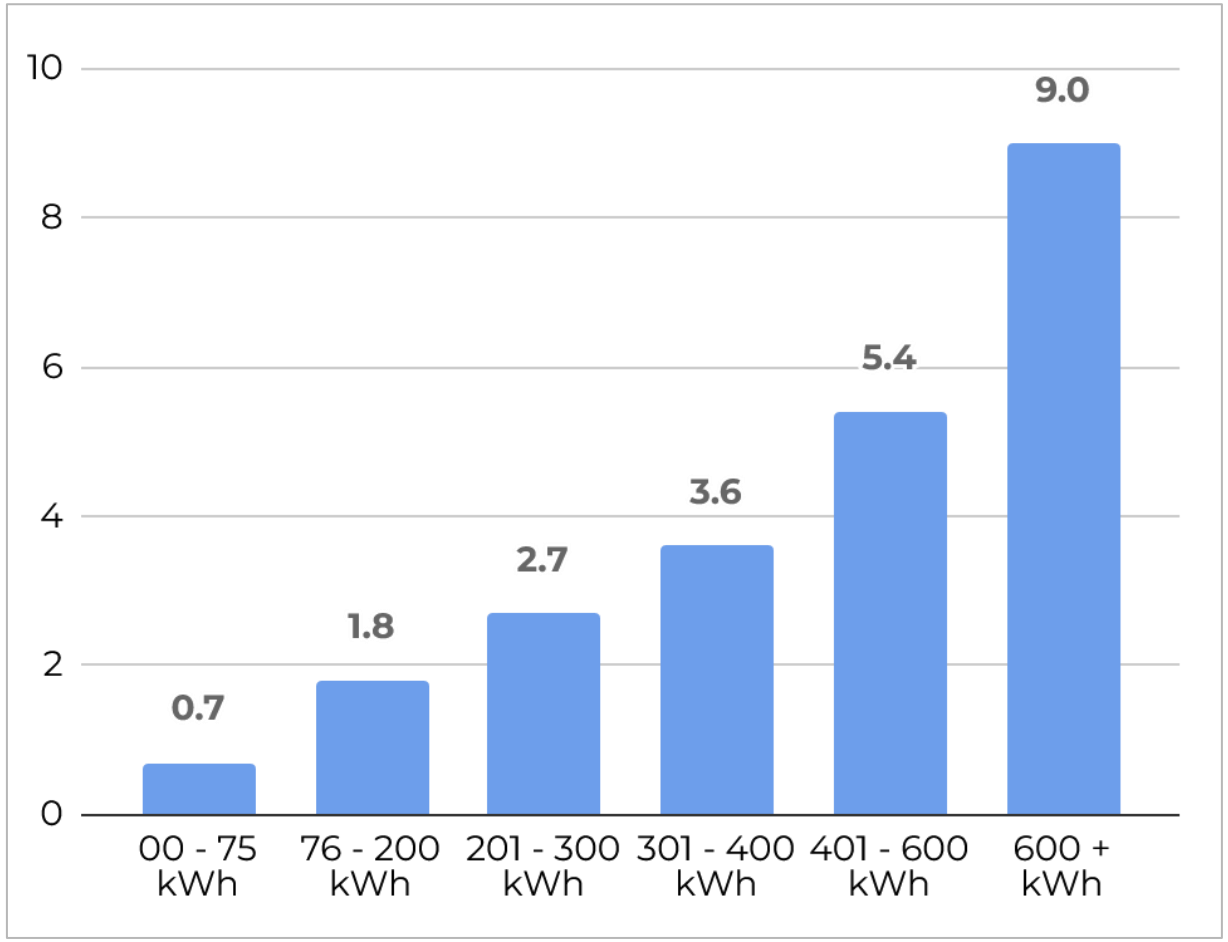
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37.8% households use only 0-50 kWh of electricity monthly, while 22.3% use 0-75 kWh, 23.6% 76-200 kWh, 7.2% 201-300 kWh, 5.4% 301-400 kWh of electricity monthly.



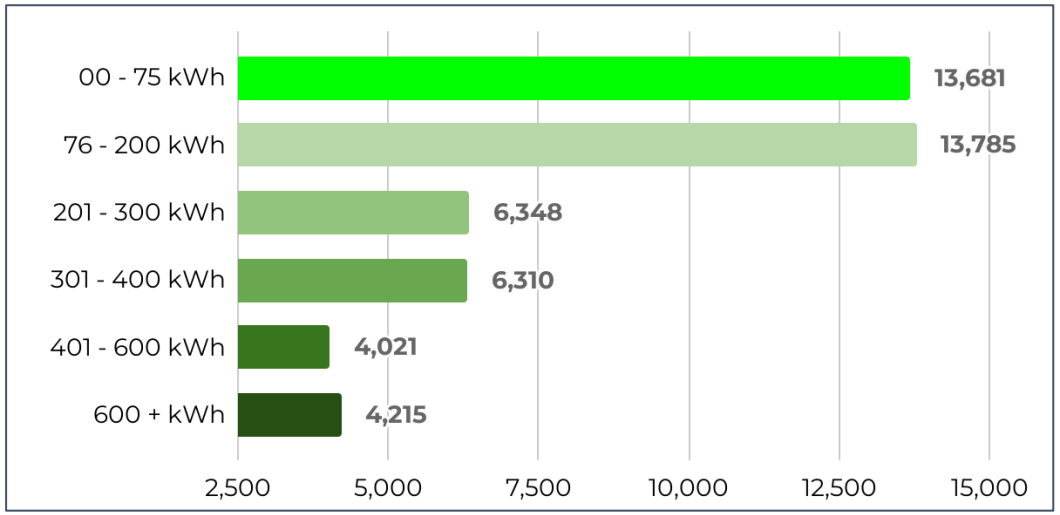
Only 2.3% consume 401-600 kWh and only 1.4% of the consumers use 600+ kWh of electricity monthly.

Rooftop Solar Power Required per Household

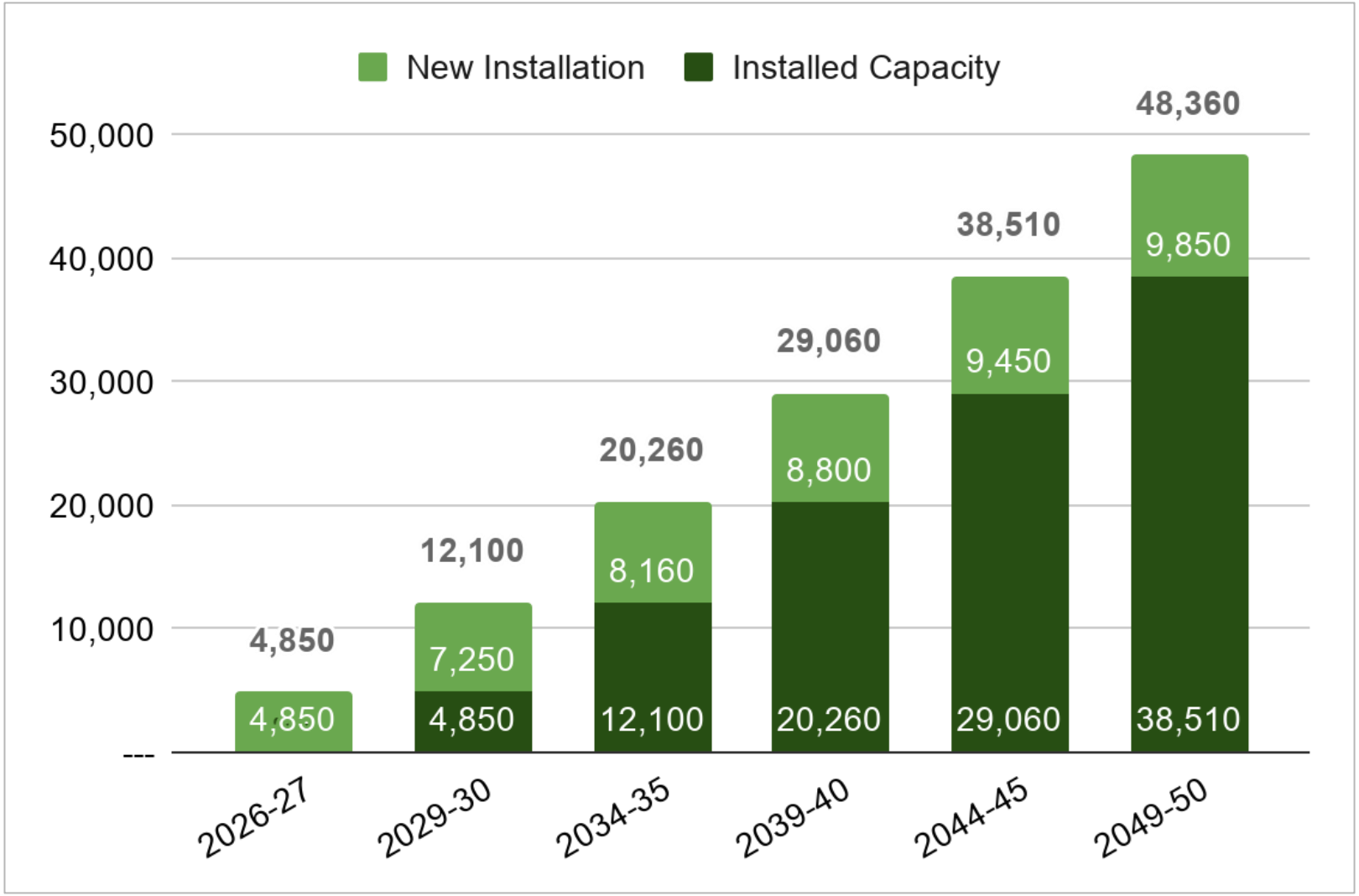


We can set up rooftop solar on 32.52 million households allover Bangladesh.

If we can do so, 48,360 MW of rooftop solar could be installed.



Short- & Long-term Targets

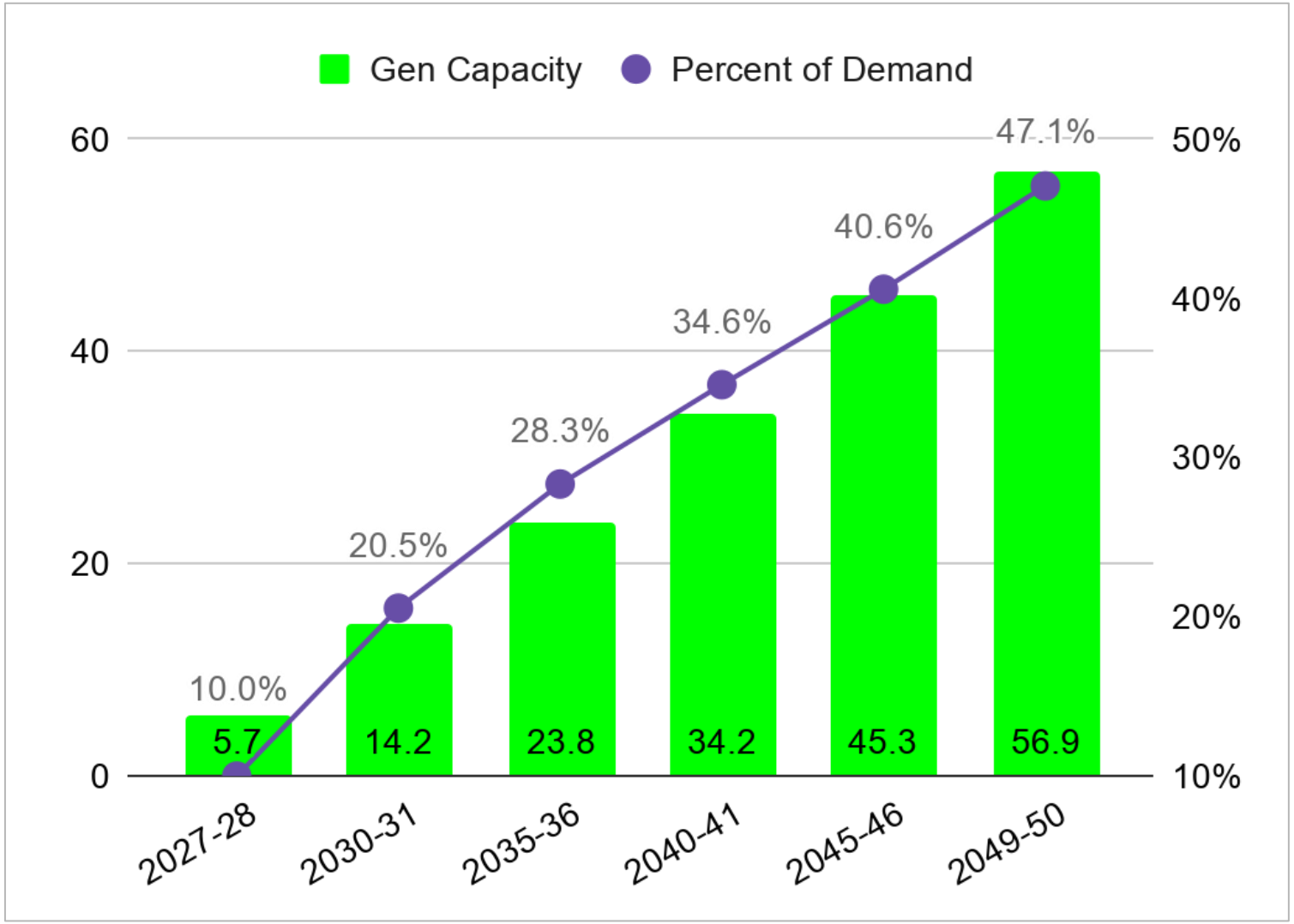


We can not implement the rooftop solar power overnight.

We need a immediate, short and long-term plan to install household rooftop solar.

We can target from 10% of total capacity by 2026-27, which can be increased to 15% by 2030, 50% by 2040 and 100% by 2050.

Electricity Generation



If we can implement effectively, the household rooftop solar may generate:

- 2027-28: 5.7 TWh/year
- 2030-31: 14.2 TWh/year
- 2040-41: 34.2 TWh/year
- 2050-51: 56.9 TWh/year

It will ensure at least 47% of the residential demand for electricity is generated by the residential sectors.

Supply Chain of Rooftop Solar

Market of 10 different accessories and five professions are directly related to solar power.


Entrepreneurs

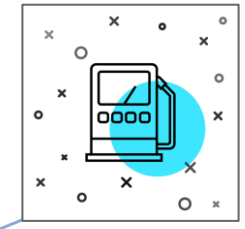

Trainers & Facilitators


Installers



Battery


Solar Panels


Charge Controller


Combiner Box




Solar Inverter


Unskilled Labour


Mounting Struct.


Servicing


Energy Meter


DC Cables


Lightning Arrester

1. AC Cables
2. Battery Storage
3. Charge Controller
4. Combiner Box
5. Connector
6. DC Cables
7. Energy Meter
8. Inverter
9. Lightning Arrester
10. Mounting Structure
11. Solar Panel

Employment Generation



According to the World Bank, **1.37 million green jobs** were created by December 2021 through the installation of 543 MW of solar systems in Bangladesh.

On average, 1 KW of off-grid Solar power created 2.52 green jobs. Even at 50% job intensity, 1.5 million new jobs could be created.

SL #	Materials	Price (USD Million)
1.	Solar Panels	628
2.	Solar Inverters	335
3.	Charge Controllers	188
4.	Electricity meters	52
5.	Battery Storage (Li-Ion)	251
6.	Lightning arresters	84
7.	DC Cables	100
8.	Switches and Connectors	84
9.	Mounting structures	251
Total		**1,973**

Foreign Exchange Reserve

Annual Cost Savings

BDT 29,600 – 31,300/KWp

Saved every year for each KWp of Rooftop Solar capacity installed.

Reducing Heavy Fuel Oil Imports

Financial savings are achieved by directly reducing the import of Heavy Fuel Oil (furnace oil) required for power generation.

Scaling rooftop solar adoption preserves critical foreign currency reserves while transitioning to sustainable domestic energy production.



Emissions Reduction

Annual Emissions Impact

1.42 Tons CO_2/KWp

Reduced every year for each KWp of rooftop solar installed compared to coal power plants.

Replacing Fossil Fuel Power

Transitioning industrial and commercial roofs in Bangladesh to solar directly displaces heavy coal and oil-based grid electricity.

This clean energy shift significantly cuts greenhouse gas emissions, improves urban air quality, and supports national climate action targets.



Current Initiatives

APRIL 2026

10,000 MW Solar Target by 2030

Government announced a national target to generate 10,000 MW of electricity from solar energy by 2030 and formed a committee to finalize implementation policies.

MAY 2026

5,000 MW Public Rooftop Drive

Directives issued to install solar panels on all public rooftops (offices, schools, colleges, madrasas, and hospitals), aiming for 5,000 MW in 5 years.

JULY 2026

Expanded Rooftop Target in RESP

Formulated the National Renewable Energy Strategy Paper (RESP), increasing the rooftop solar installation target from 3,000 MW to 5,500 MW by 2030.

OCTOBER 2026

Site-Specific Solar Power Plants

Initiated plans to establish 130 MW solar power plants at Matarbari and Payra power plant sites to expand utility-scale solar generation.

Demands

National Call for Solarisation

Prime Minister's state to the nation; use public and private media in advertising, install billboards and hoardings, involve the non-profit organizations.

Create a 25,000 crore RE Fund

The current fund of BDT 150 crore is really insufficient for achieving the target. An additional **RE Sector Holding company** is required.

Revise the Rate of Exported Electricity from Net Metering

Change the rule by giving 20% extra, rather than a fixed rate.

Compensation for Rooftop Solar

Provide at least BDT 20,000 per kWp for small scale rooftop solar (up to 3 kWp).

Promote Off-grid Rooftop first

To mitigate the problems with grid stability, promote off-grid rooftop solar instead of net metering.

Train the Youth

Train the youths through Youth Development, Social Welfare, Women Development and Labour Department to create a skilled and semi skilled forces.

Thank You

100% RENEWABLES POSSIBLE