



Distribution Utilities Forum



BRPL's experience in Rooftop Solar implementation

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Brief Overview

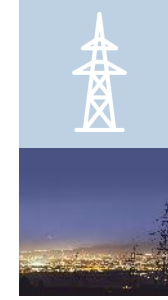


Parameters	Unit	BRPL
Distribution Area	Sq. km	750
No of customers	Million	2.4
Customer Density	Cons/Sq km	2665
Max System Demand	MW	3801
Annual Energy Requirement FY18	MUs	11688
AT&C Loss FY18	%	9.4

JV between Govt. of Delhi (49%) and Reliance Infrastructure Ltd (51%)

**BSES caters to 2/3rd of Delhi
South & West Delhi by BRPL and Central & East Delhi by BYPL**

Current Scenario

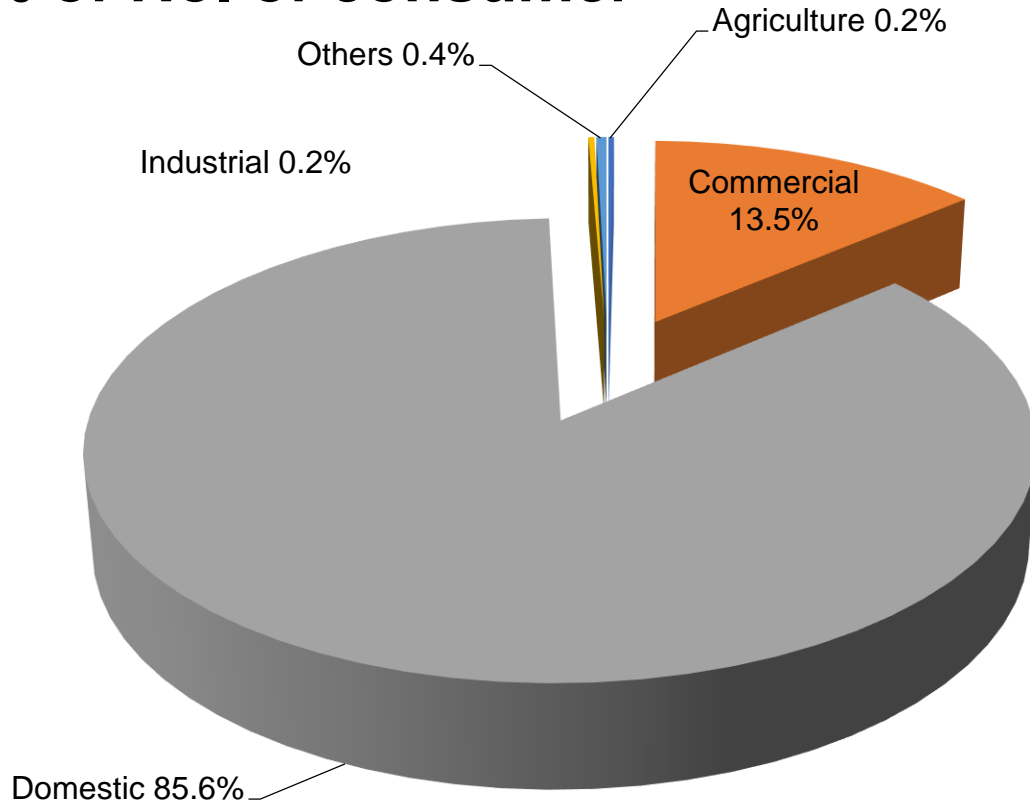


- General Overview:
 - Supply Mix
 - Coal – 68%; Gas – 14%; Hydro – 13%; RE – 3%; Nuclear – 2%
 - Consumer mix – Next slide
- Solar rooftop :
 - Potential – About 500 MWp
 - Installed net-metered capacity – 42 MWp as on 31st Jan '19
 - Plans/trajectory for future – Expect to Add 18 MWp more till Mar'19.

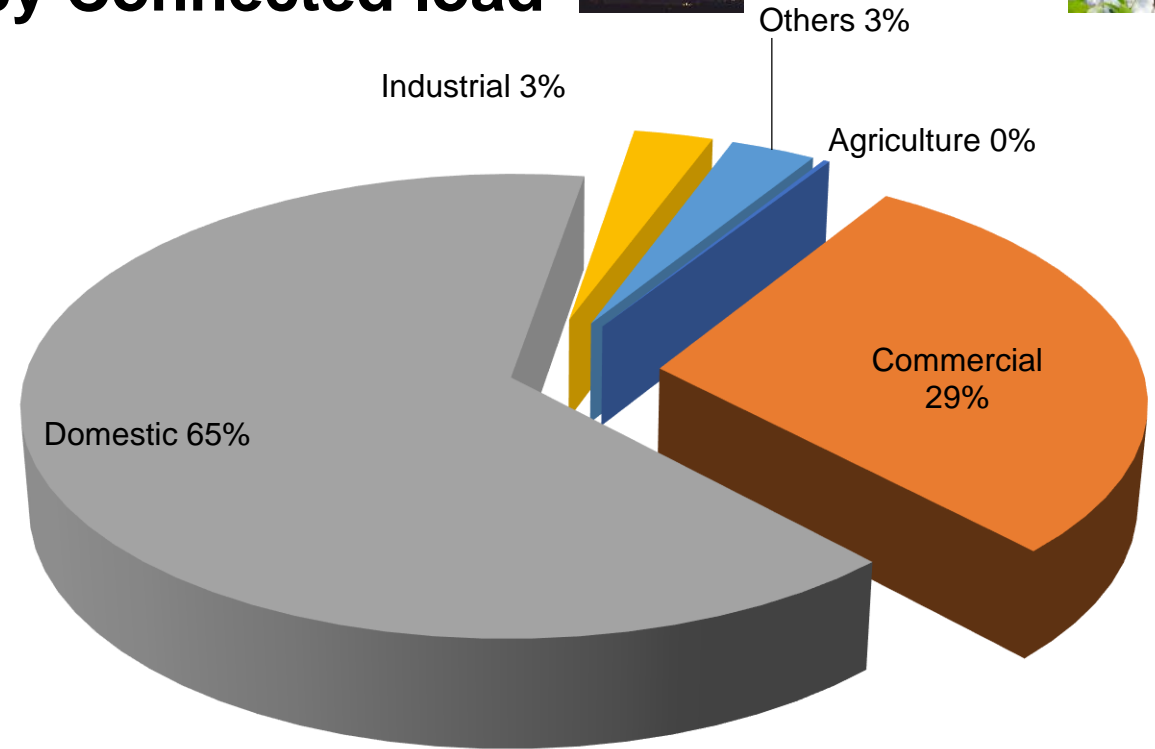
Customer mix of BRPL



% of No. of consumer

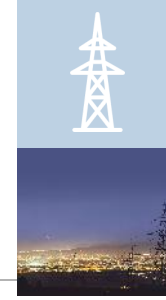


% by Connected load

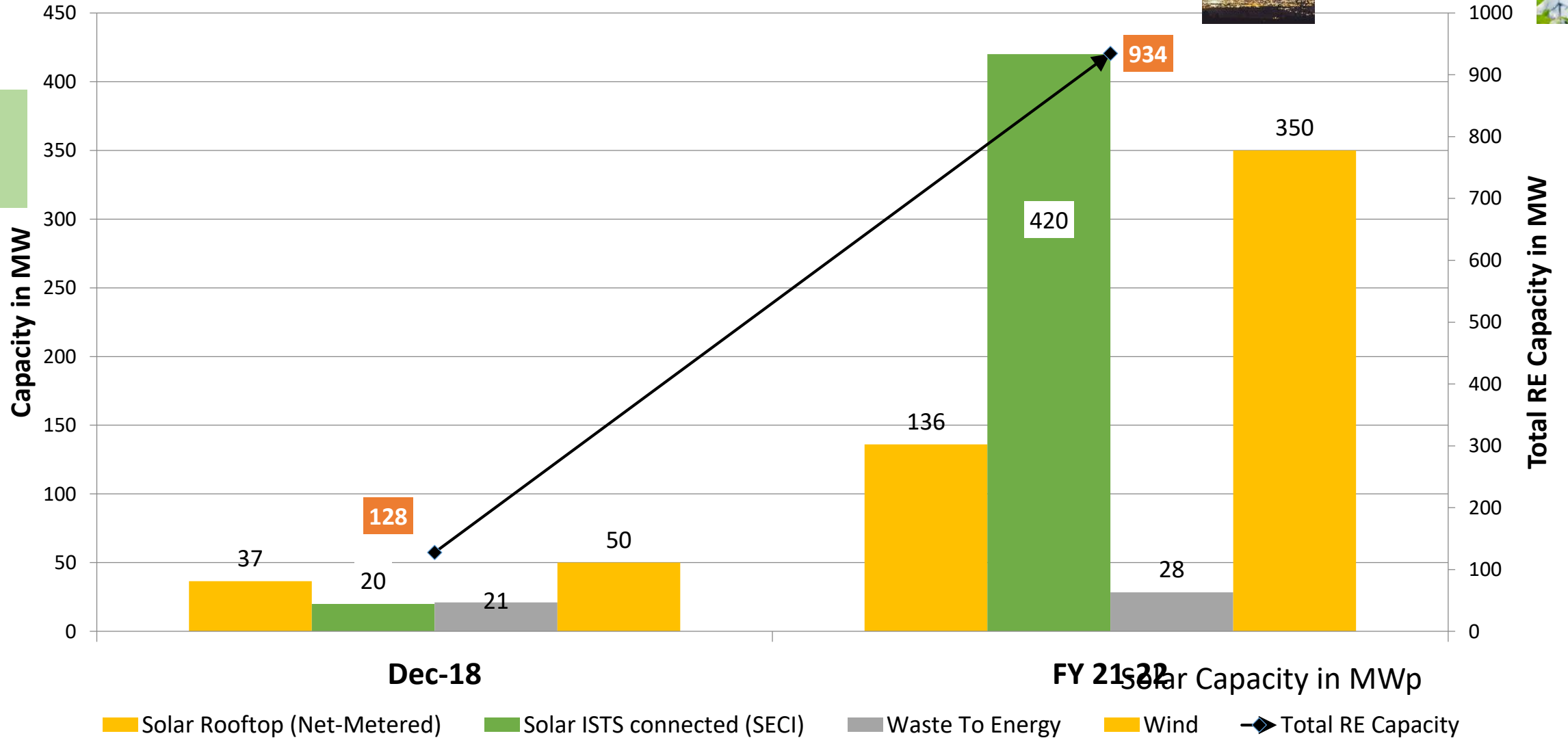


Domestic load contributes 65% of consumption

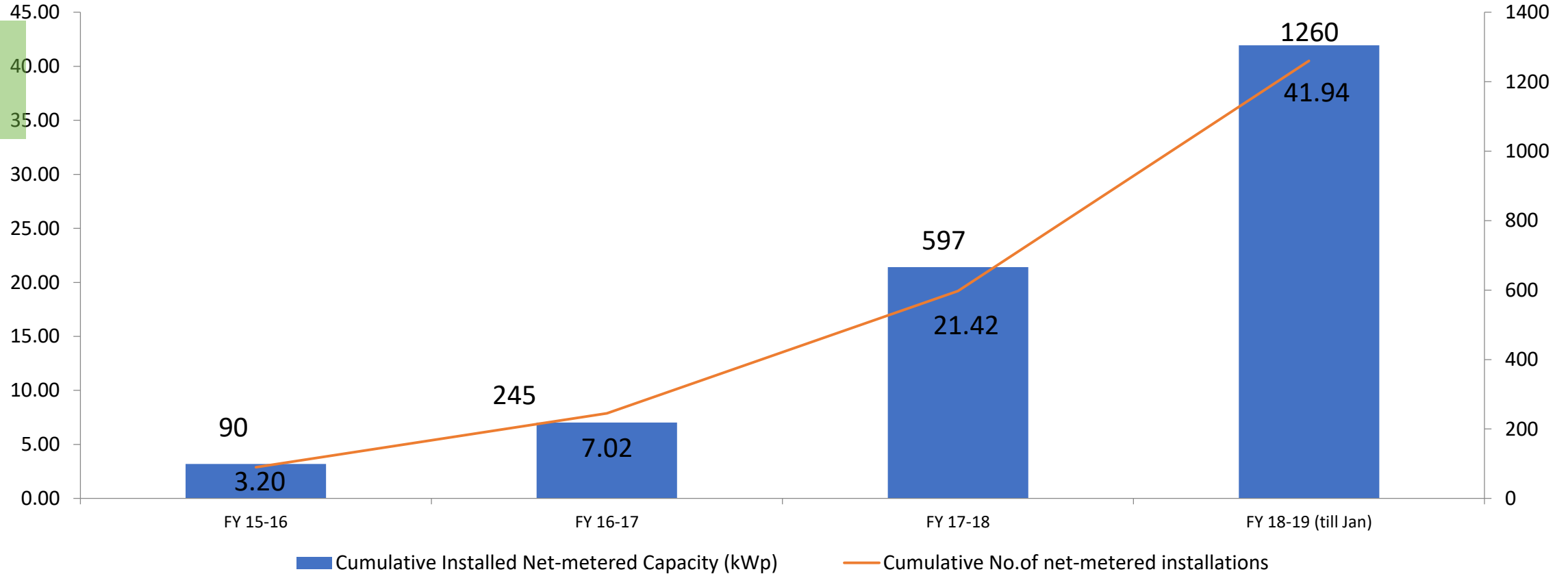
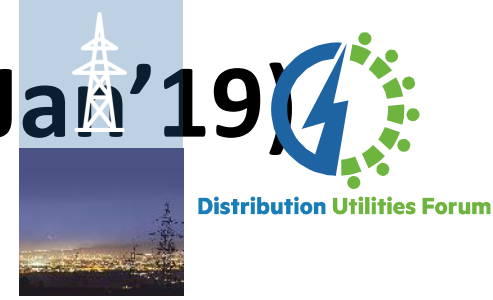
RE Addition at BSES Rajdhani (in MW)



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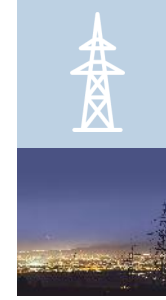


BRPL's Rooftop Journey till FY18-19 (till Jan'19)



No. of net-meter installations in 10 months of FY18-19 is higher than cumulative no. of installations in FY16-17 and FY17-18

Perspective with respect to Solar rooftop



- **Benefits of Solar Rooftop**

- Peak Shaving and Power Purchase cost optimization
- Network congestion relief
- Network upgrade capex deferral
- Reactive Power and Voltage control opportunities
- Avoidance of POC and STU losses in serving load
- RPO benefits

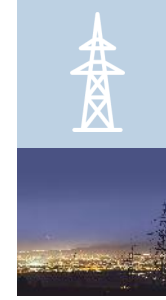
- **Challenges**

- Integration with Grid (DT penetration)
- Lack of viable funding options (CAPEX mode)
- Lack of payment security mechanism, lack of trust, performance (OPEX)

- **Opportunities perceived**

- Solarize roofs in congested network areas
- Introduce battery storage combined with solar PV
- Synchronize with EV charging ?

Initiatives/Recommendations

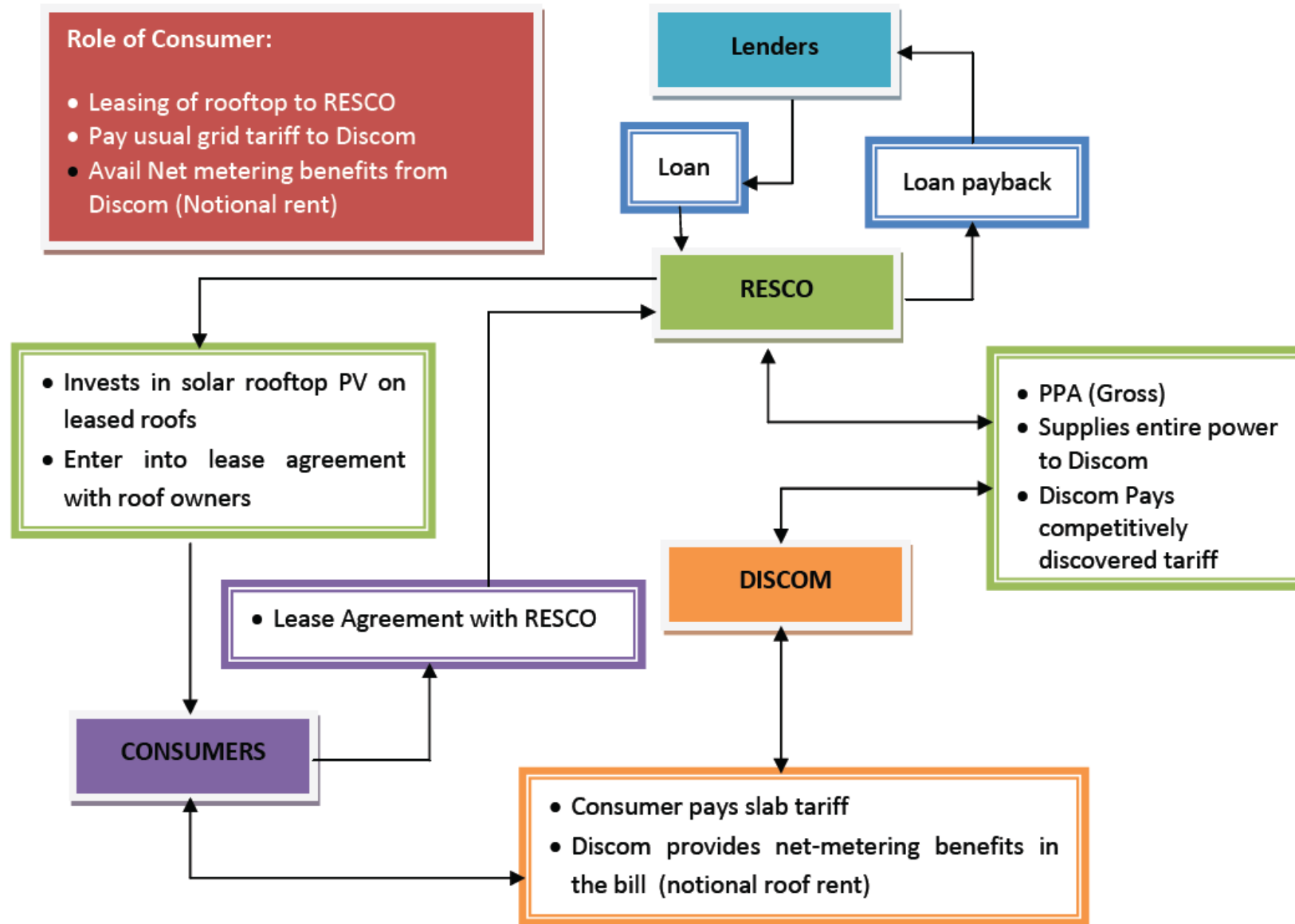


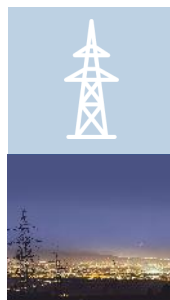
- Initiatives
 - BRPL Solar City Initiative (www.solarbses.com)
 - One stop portal for all FAQs about solar
 - Demand Aggregation through consumer outreach
 - Dedicated solar help line and Online submission of Net metering forms
 - Solar Central Monitoring system (pilot)
- Recommendations:
 - Hybrid Model to tap smaller size rooftop installations
 - Clear roof ownership policy for DDA flats

Recommendations (Hybrid Model)



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Legal aspects

- ELECTRICITY ACT, 2003 - Roof rent model (RESCO mode) promotes generation of electricity from RE sources, a stated mandate under section 86(1)(e) of the Electricity Act, 2003 (“2003 Act”).
- Roof rent model “protects interests of consumers” and hence in the “rationalization of electricity tariffs as well as furthers the objective of “environmentally benign policy”, being the objects stated in the preamble to the 2003 Act.
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Legal aspects [Contd]

- **DERC Net Metering Regulations** - RESCO will invest in the solar roof top of the consumer. This would be “renewable energy system” under the DERC net metering from RE Regulations, 2014.
- RESCO shall have a PPA with the Discom selling the electricity generating which will quality towards the compliance of RPO for the Discom.
- The tariff for supply by RESCO to Discom has been arrived at pursuant to competent bidding organized by the Nodal Agency under the Government of _____. The tariff will have to be “adopted” by the DERC under section 63 of the 2003 Act.
- RESCO would be the “renewable energy generator” under the DERC net metering from RE Regulations, 2014. The provisions of these Regulations shall be complied with.

Contd....

- DERC RPO Regulations - Delhi does not have potential to generate electricity from RE sources (i.e. wind, hydro, etc.). Roof rent model is an aid to help Discoms meet the RPO targets set by the DERC under the RPO Regulations.
- As per 2014 Regulations, the renewable energy system shall be exempted from wheeling, banking, cross subsidy and other charges for a period of 5 years. This needs to be extended.
- The Commission may issue guidelines and directions in regard to the roof rent model (RESCO mode).