



Confederation of Indian Industry

Renewable Energy Procurement by C&I Consumers in Andhra Pradesh





Renewable energy procurement by C&I consumers in Andhra Pradesh

Renewable Energy Demand Enhancement (REDE) Initiative

The Renewable Energy Demand Enhancement (REDE) Initiative for Commercial & Industrial (C&I) consumers aims to build an alliance among corporate buyers to increase commitment for renewable energy procurement and to catalyse solutions for addressing challenges that are significantly restricting demand.

The corporate sector accounts for about 50 per cent of total electricity consumption in India, most of which comes from conventional fuels. Increasing C&I consumer commitment for shifting to renewable power sources and aggregating their demand will provide significant predictable offtake for the expected volume of RE power.

While the business case for RE adoption is stronger than ever before, the process is extremely challenging for corporate buyers. Uncertain, complex, and often conflicting national and state policies and regulations; inadequate awareness, and compliance of implementation processes; technology related issues; real and perceived costs; and operational inertia are the major deterrents to large-scale offtake of RE. Addressing these issues requires informed and concerted efforts by all stakeholders.

About the Study

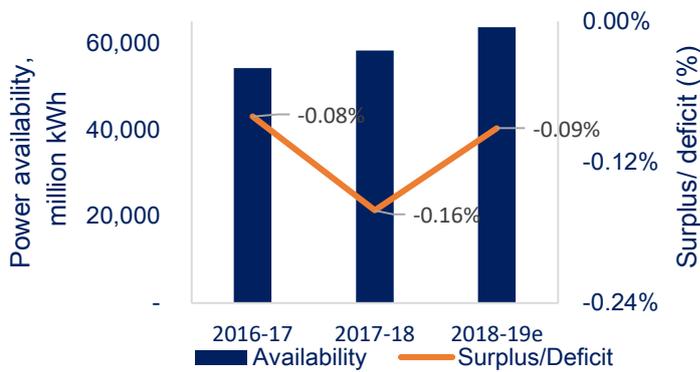
The study was undertaken by Bridge to India with a purpose of seeking inputs and feedback on policy, regulatory, and other challenges being faced by C&I customers, project developers and discoms in the state of Andhra Pradesh. The inputs have been collated through direct interaction with individual C&I customers in Andhra Pradesh in a RE buyer's day organised by WWF India and CII, and also includes inputs from one to one interactions with over 30 stakeholders including C&I customers, developers, and discoms. All the stakeholders' inputs have been compiled to provide a perspective for holistically addressing the barriers to RE procurement. The study's findings are detailed in the following sections.

1.1 Introduction

The installed power generation capacity in Andhra Pradesh is 24,409 MW. Renewable energy capacity is 7,964 MW. The overall demand has grown at an average of 12.10 % in the last two years. The state has a very minor availability deficit.



Figure 1: Power availability



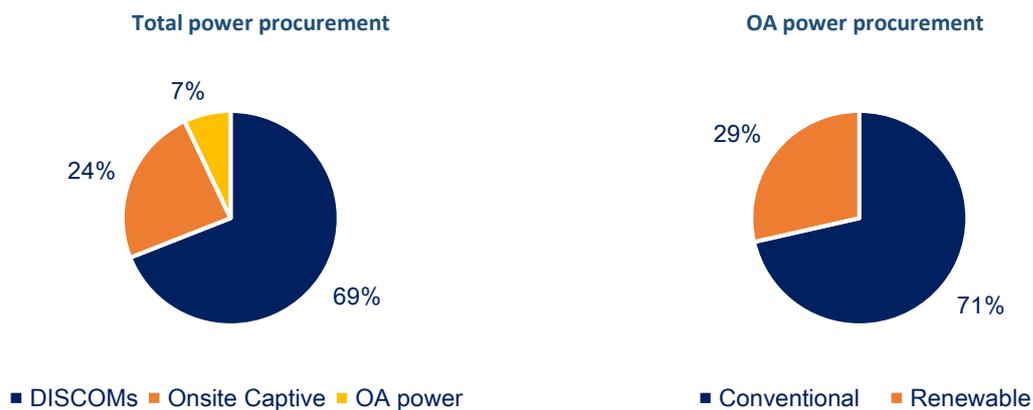
Sources: CEA executive summary on power sector, July 2019; CEA load generation balance reports 2016-17, 2017-18, 2018-19

DISCOMs are mandated to comply with an 11% RPO target (solar 4% and non-solar 7%) for 2018-19 with 2% increase in the total RPO target every year until 2021-22.

2.1 Power Procurement by C&I Consumers

C&I consumers account for 41% of total power consumed in the state, equivalent to about 9,916 MW. They procure most of their power from DISCOMs (69%) and onsite captive sources (24%). Only 7% of power is procured from open access (OA) sources. Out of this, conventional OA is 71% (1,209 MW) and renewable OA is 29% (484 MW).

Figure 2: Power procurement by C&I consumers

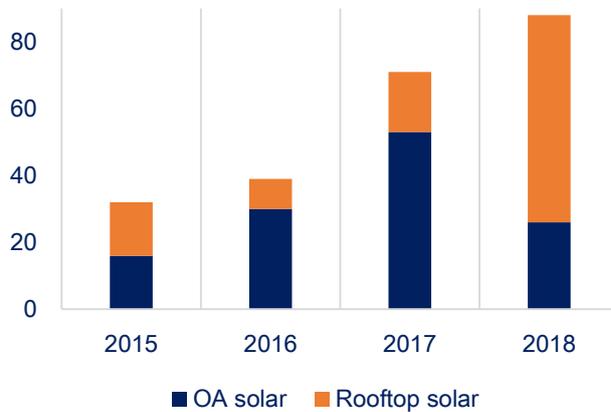


Source: BRIDGE TO INDIA research

After an initial surge, encouraged by CSS exemption and other incentives as part of the solar power

policy of 2015, OA solar capacity addition has slowed down in Andhra Pradesh due to lack of CSS exemption and other policy incentives in the solar policy of 2018.

Figure 3: Solar capacity addition by C&I consumers, MW



Source: BRIDGE TO INDIA research

Cumulative OA solar capacity of C&I consumers is estimated at 154 MW. C&I rooftop solar power installations have grown more consistently with a cumulative capacity addition of 151 MW.

3.1 Regulatory and Policy Framework

The state had issued attractive solar and wind power policies in 2015 with several financial incentives. But many of these incentives (exemptions from CSS; electricity duty, distribution charges; distribution loss; reduction in contract demand) have been withdrawn in the policies of 2018.

Overall, the state policy is still deemed attractive in comparison to other states.

Table 1. Andhra Pradesh RE policies, 2018

		Solar and wind power policies, 2018		
		Third party sale	Captive consumption	Rooftop solar
a.	Intra-state OA for tenure of project or 25 years, whichever is earlier	Y	Y	NA
b.	100% banking of power permitted (no draws from 1 April to 30 June; 1 February to 31 March and peak times of day). Deemed purchase of unutilised banked energy at 50% of average power procurement	Y	Y	NA



	cost (APPC), payment capped at 10% of total banked energy for the year			
c.	Exemption from wheeling and transmission charges for inter-state wheeling	Y	Y	NA
d.	Deemed approval of technical feasibility for evacuation (days)	14 days	14 days	NA
e.	Deemed approval for intra-state OA (working days)	21 days	21 days	NA
f.	Single-window clearance	Y	Y	Y
g.	Freedom to choose net metering or gross metering for 25 years (up to 1 MW); applicable tariff at APPC	NA	NA	Y
h.	Deemed conversion of land to non-agricultural land on payment of applicable charges	Y	Y	NA

Further, banking charges have been increased from 2% to 5% of energy at the point of drawal. No AS has been determined by the regulator due to the inability of the DISCOMs to substantiate their claim for AS in FY 2017-18.

As per forecasting and scheduling regulations in Andhra Pradesh, deviation charges are applicable on solar and wind projects for over/under injection of more than 15% from the schedule. Solar and wind generators are permitted one revision for each 90-minute slot, with a maximum of nine revisions and 16 revisions in a day respectively.

4.1 Cost of Power

OA charges in Andhra Pradesh add up to INR 2.06/ kWh and INR 0.59/ kWh for third party sale and captive consumption respectively as per the solar and wind power policies of 2018 and applicable state regulations. In addition, wind power generators pay INR 0.25/ kVARh for reactive power drawn up to 10% of the net energy generated. Drawal in excess of this is charged at INR 0.50/ kVARh.

Table 2. OA charges for intra-state solar power for industrial consumers for 2019-20, INR/ kWh

CSS	Wheeling loss	Wheeling charge	Transmission loss	Banking charge	SLDC charge	AS	Total
-----	---------------	-----------------	-------------------	----------------	-------------	----	-------



Third party sale	1.47	0.03	0.39	0.11	0.01	0.05	0	2.06
Captive power	0	0.03	0.39	0.11	0.01	0.05	0	0.59

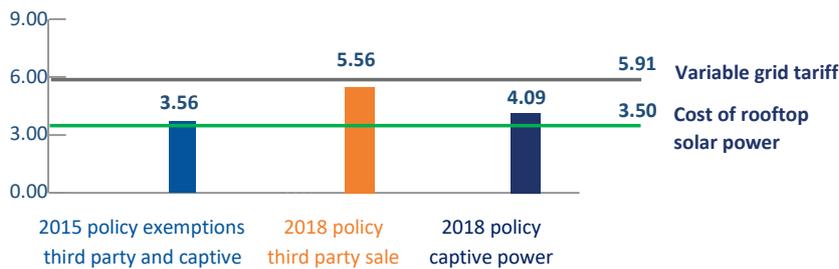
Source: BRIDGE TO INDIA research

Notes:

- i) CSS in this table is as applicable for Andhra Pradesh Eastern Power Distribution Company Limited (APEPDCL) at 33 KV for industry general and seasonal industries.
- ii) Cost of OA solar power is considered at INR 3.50/ kWh.
- iii) The solar policy of 2018 is considered.

As per the 2018 policies, the landed cost of solar power for third party sale has increased tremendously. There is a shift to group captive power.

Figure 4: Landed cost of solar power for industrial consumers, INR/ kWh



Source: BRIDGE TO INDIA research

Notes:

- i) Grid tariff includes variable energy charge and fuel surcharge. It does not include fixed (demand) charges.
- ii) Electricity duty of INR 0.06/kWh is not being applied on rooftop solar
- iii) Connection voltage is assumed at 33 KV.
- iv) Cost of rooftop solar power is estimated assuming system life of 20 years.
- v) CSS in this figure is INR 1.47/ kWh as applicable for APEPDCL at 33 KV for industry (general).
- vi) Cost of OA solar power is considered at INR 3.50/ kWh.

5.1 Barriers to RE procurement

Withdrawal of Policy Incentives



Andhra Pradesh is one of the most active states in open access for conventional and renewable energy. The policy framework and its implementation since 2015 have been generally favourable.

The most significant barrier to RE procurement is the withdrawal of incentives in the solar and wind policies of 2018.

Monthly Reconciliation Delays

Settlement of accounts between the generator, consumer and the DISCOM or TRANSCO for wheeling charges, and line losses done by monthly reconciliation are sometimes delayed and can take up to 6 – 12 months.

6.1 Other Issues

A key condition for captive power status is that not less than 51% of aggregate electricity generated should be consumed for captive use. Inter-state captive RE transactions sometimes do not receive certification of consumption to validate the 51% captive consumption when electricity is consumed in more than one state. Hence, CSS gets charged on captive power transactions.

Viability of transactions under group captive mode is affected by the DISCOM's interpretation of the Ministry of Power's Electricity rules, 2005. These rules state that consumption of energy must be in proportion to consumers' ownership of the power plant with a variation not exceeding 10% determined on an annual basis. Any deviation over and above this by any member of the group captive is likely to render the entire arrangement invalid. A draft amendment proposed by the Ministry of Power in 2018 qualifying that variation in consumption in proportion of ownership of the solar and wind power plants exceeding 15% and up to 30% shall be agreed and allowed by the State Government, if considered appropriate, in consultation with the state regulator, is yet to be finalised.

7.1 Recommendations

Key recommendations for increasing RE power procurement by C&I consumers:

- a. The national load despatch centre (NLDC) can verify the validity of captive power consumption based on certification of energy consumed from SLDCs. This would help secure exemptions from CSS for captive power consumed in different states.
- b. Energy accounting and monthly settlement should be finalised within the subsequent month.
- c. Clarity is required from the state government and regulator for interpretation of group captive power provisions in the Electricity rules, 2005.
- d. There should be no cap on the size of solar rooftop plants for net/gross metering.