

India Corporate
Renewable PPA Forum

PPAs in India: Market & Policy Update December 2019



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Introduction

India's renewable energy development has become a symbol of the country's ability to rapidly adopt new technology and a focal point of India's efforts to avoid greenhouse gas emissions while meeting its growing energy needs.

Introduction

Procuring renewable power for their operations helps businesses manage electricity expenditure and increase visibility over future costs, while contributing to a renewable energy and/or carbon reduction target.

One option for companies to purchase renewable electricity is a **corporate renewable power purchase agreement (PPA)**, which is a contract between the corporate buyer(s) and the power producer (developer, independent power producer, investor) to purchase renewable electricity at a pre-agreed price for a pre-agreed period. The contract contains the commercial terms of the electricity sale: contract length, point of delivery, delivery date/times, volume, price and product. Corporate renewable power purchase agreements are an important instrument for accelerating renewable energy deployment.

To increase the adoption of corporate renewable PPAs in India, members of the World Business Council for Sustainable Development (WBCSD) formed the India Corporate Renewable PPA Forum in 2017 to exchange practical knowledge on the effective implementation of corporate renewable PPAs for both rooftop and utility-scale renewable energy installations in India.

We combined the learning from this work with research on the regulatory environment and market conditions in India to produce the WBCSD report: [Accelerating corporate procurement of renewable energy in India](#) (June 2018).

Because the Indian power market is constantly evolving, we are producing twice yearly market and policy reviews to keep our members and other corporate customers informed of the latest developments.

We published our first review, [Corporate Renewable PPAs in India – a market and policy update for 2019](#) in June. It concluded that corporate renewable PPAs in India flourished in 2017-18 due to waivers on open access charges offered by states such as Karnataka, Andhra Pradesh and Telangana. The update also concluded that as the window of opportunity to avail these waivers ended in these states, the extension of such waivers was equally unlikely in other states across India.

This report is the second and final update for 2019. It tracks policy changes, analyzes new business models and explores future trends that are likely to define the growth of corporate renewable PPAs in India.

In this second update, we elaborate on six recent market trends. While a couple of these trends are secular and based on long-term renewable power procurement fundamentals, most are business reactions to policy changes. This report then goes on to explain the policy direction based on recent changes at the state and central government level. It concludes with an outlook for 2020.

This report assumes an understanding of terms and concepts relating to corporate renewable sourcing in India. For further information, please see the glossary at the end of this report and refer to the WBCSD's [Accelerating corporate procurement of renewable energy in India](#) report (June 2018).

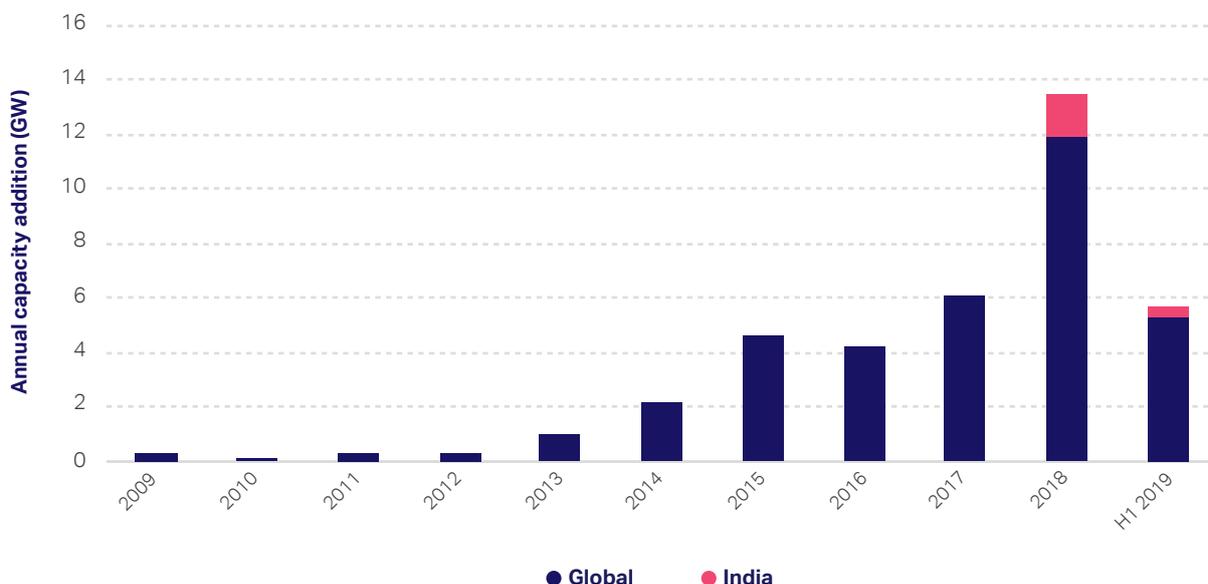
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Key market trends

In the first half of 2019, India continues to be the second largest market for corporate PPAs, with a global share of 7.4% (440 MW installed). However, estimates suggest that the annual corporate PPA renewable addition in India in 2019 will be about 30-35% lower than installations in 2018.

Key market trends

FIGURE 1: Annual global corporate PPA market size



Source: Bloomberg New Energy Finance, JMK Research

According to Bloomberg New Energy Finance, India was the second largest growth market for corporate renewable PPAs after the US in 2018, with an addition of 1.6 GW of capacity. In the first half of 2019, India continues to be the second largest market for corporate PPAs, with a global share of 7.4% (440 MW installed). However, estimates suggest that the annual corporate PPA renewable addition in India in 2019 will be about 30-35% lower than installations in 2018.

Several key market trends have affected the growth over the past six months. These are:

- The emergence of two northern states – Haryana and Uttar Pradesh – as important markets, with more than 1 GW of group captive solar projects approved.
- The transition of the Indian corporate renewable PPA market from predominantly third-party PPA models to group captive PPA models,

led by the withdrawal of open access waivers for new third-party PPAs in most states.

- Leadership of information technology (IT), automotive, electrical manufacturing, construction/infrastructure and metal companies in adopting corporate renewable PPAs.
- Increased participation of specialized national developers in acquiring key corporate contracts as regional players cede ground.
- Growth in the rooftop solar market for PPA projects in India continuing to dominate growth in projects based on captive installations.
- Developers and corporate customers aligning project schedules to avoid paying a safeguard duty on solar panels.

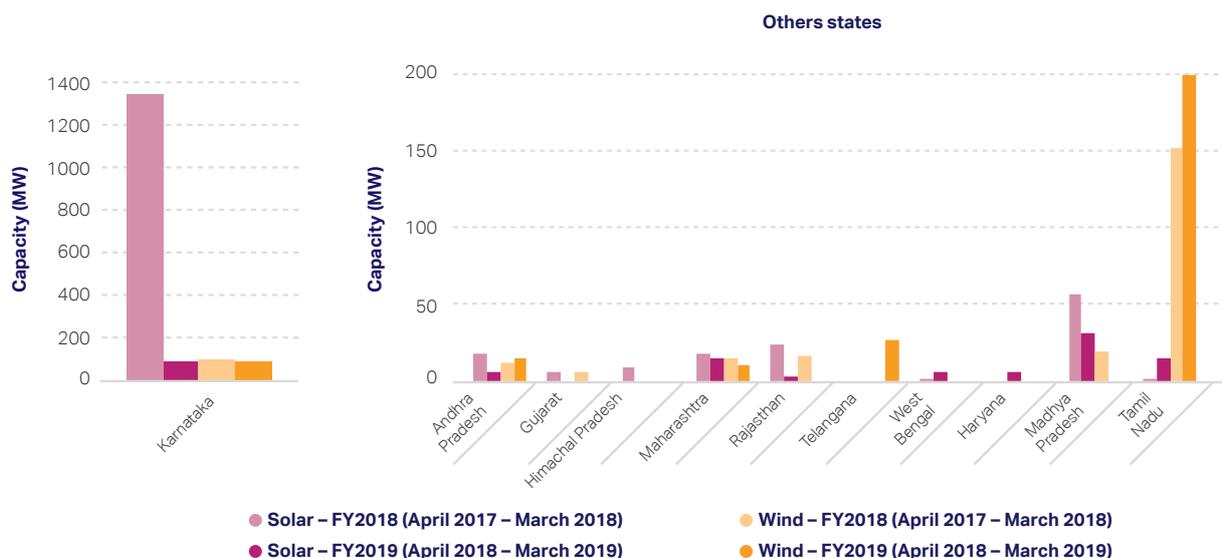
We examine each of these market trends in more detail below.

UTTAR PRADESH AND HARYANA LEAD NEW INSTALLATIONS AND APPROVALS

Between April 2017 and March 2018, companies installed 1,855 MW of third-party sale and open access solar and wind projects in India. Nearly 81% of these installations were in Karnataka as the state had offered a 10-year waiver on most open access charges for projects commissioned until 31 March 2018. After the government withdrew these exemptions, the market contracted significantly, as shown in figure 2.

Key market trends

FIGURE 2: Third-party sale and open access project installations across different states (MW)



Source: JMK Research

Note: Analysis includes data for captive power plants availing of open access as the split of data specific to corporate PPAs is not available.

Between April 2018 and March 2019, companies added 494 MW of capacity through corporate renewable PPAs under the open access route. Of this, 158 MW was from solar projects and 336 MW from wind, highlighting a significant reduction in solar installations compared to the previous year.

However, the north Indian states of Haryana and Uttar Pradesh now show signs of growth recovery. In July 2019, the state power transmission company, Haryana Vidyut Prasaran Nigam (HVPNL) approved about 550 MW of projects under the group captive model. The state had received applications for more than 1,916 MW.¹

In March 2019, Uttar Pradesh approved 340 MW of projects under the group captive model and on a first-come, first-served basis. The process included submission of an application to the power distribution company (DISCOM) for approval. Approval has typically depended on the grid's technical ability to connect power generating capacity at the local sub-station.

A key reason for Haryana and Uttar Pradesh DISCOMs to fast track permits for group captive solar projects is to use them to fulfill their renewable purchase obligation (RPO). Haryana, under its [Solar Power Policy 2016](#),² waived all charges for private renewable projects subject to the condition that the solar power will be utilized within the state and will be counted towards the RPO of the DISCOM.

If the consumer itself is an RPO obligated entity, then the solar power generated counts as part of the fulfillment of its own RPO, while excess power generated beyond the consumer's own RPO obligation counts as part of the DISCOM's RPO.

This is a new approach for DISCOMs to try and fulfil their RPO requirements without entering into public procurement of power on their own. Such an approach can help DISCOMs meet their RPOs at little or no cost while significantly speeding up corporate renewable open access capacity addition. Other states emulating this approach will be a key trend to watch for in 2020.

¹ <http://hareda.gov.in/sites/default/files/2019-02/Regarding-proposal-submitted-for-approval.pdf>

² Source: Haryana Renewable Energy Development Agency (HAREDA)

Key market trends

FIGURE 3: Landed cost of solar power for industrial consumers



Source: JMK Research

Assumptions: (1) Solar power purchase cost is fixed at INR 4.00/kWh across states to highlight changes due to open access charges; actual tariffs will vary. (2) The landed cost of solar is calculated for industrial consumers connected at 33 kV voltage.

SHIFT FROM THIRD-PARTY PPA MODELS TO GROUP CAPTIVE MODELS

There has been a shift from the dominance of third-party PPAs over the last two years to group captive PPAs. This shift has mainly been due to the withdrawal of open access waivers for new third-party PPAs across multiple states.

The group captive project structure continues to offer the advantage of a complete waiver of the cross-subsidy surcharge (CSS) and additional surcharge (AS). These charges often form a significant portion of the overall open access charges and are less predictable than technical charges such as those for transmission and wheeling of power.

The CSS and AS waiver is a key driver for power consumers to opt for group captive models.

Companies have extensively adopted the group captive model for wind power projects in the past but the model had a relatively small share in solar power procurement until 2018.

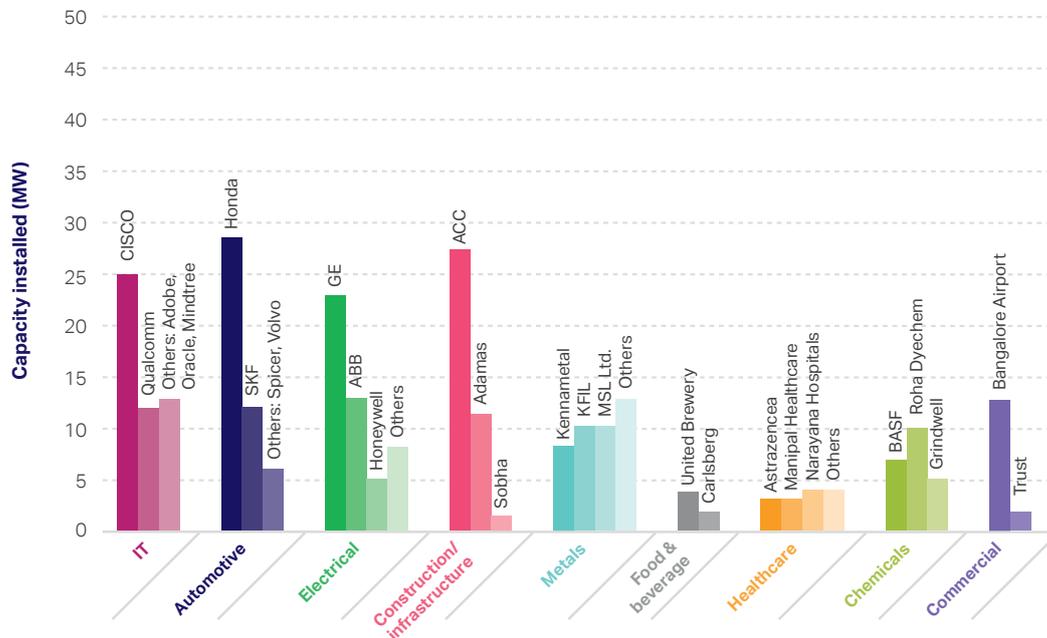
After most states removed CSS and AS waivers for third-party sale projects, the landed cost of solar for third-party sale projects for industrial consumers at 33 kV levels increased more significantly than under the group captive model. In only a few states, such as Tamil Nadu, Uttar Pradesh, Telangana and Odisha, which continue to offer waivers on third-party sale projects, is the cost difference smaller (see figure 3).



⁵ Analysis by CleanMax Solar.

Key market trends

FIGURE 4: Businesses procuring renewable power through corporate PPAs



Source: JMK Research

Note: Data is not comprehensive but as a subset it is representative of the key customer categories in the Indian market.

IT, AUTOMOTIVE, ELECTRICAL MANUFACTURING, CONSTRUCTION/INFRASTRUCTURE AND METAL COMPANIES LEAD RENEWABLE ADOPTION

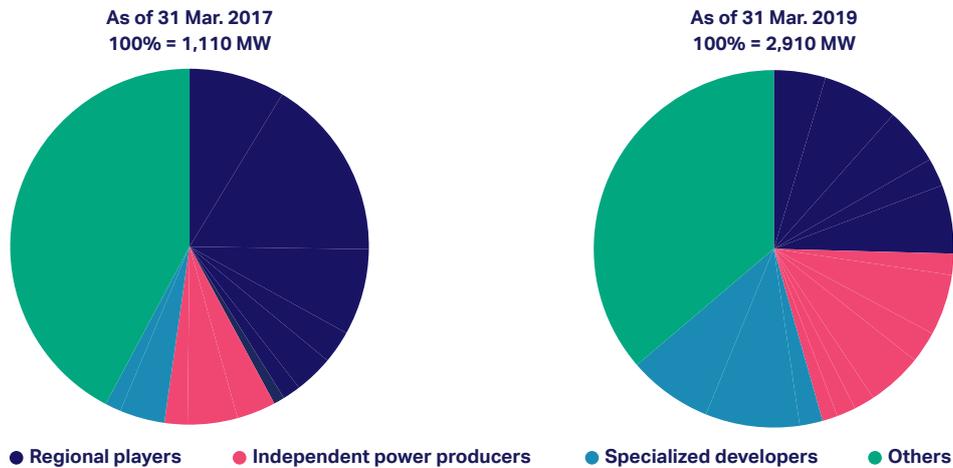
In India, commercial and industrial consumers have been increasingly procuring renewable power through the open access route. The key reasons are corporate decarbonization targets and cost savings because of lower cost of renewable power vis-à-vis other sources.

As shown in figure 4, IT, automotive, electrical manufacturing and construction/infrastructure and metal companies were the leading consumer segments procuring power through the open access route in the last two years.

Together these five segments have procured more than 227 MW of renewable power through the third-party sale or group captive model. Data in the chart below is not comprehensive but points to a significant share of renewable procurement coming from international companies. This could be due to greater awareness and internal green mandates that these companies need to comply with for India operations as well.

Key market trends

FIGURE 5: Power supplier segmentation for open access solar markets in India



Source: JMK Research

Note: This chart includes only open access PPA solar projects, not captive projects.

SHIFT FROM REGIONAL PLAYERS TO SPECIALIZED DEVELOPERS

Mid-sized regional developers have been responsible for structuring most early open access renewable PPA projects as they have had easier access to land and have been better placed to deal with local DISCOMs and regulators. Regional developers include companies such as Ujaas (focus on Madhya Pradesh), Enrich (Maharashtra) and Rays Experts (Rajasthan).

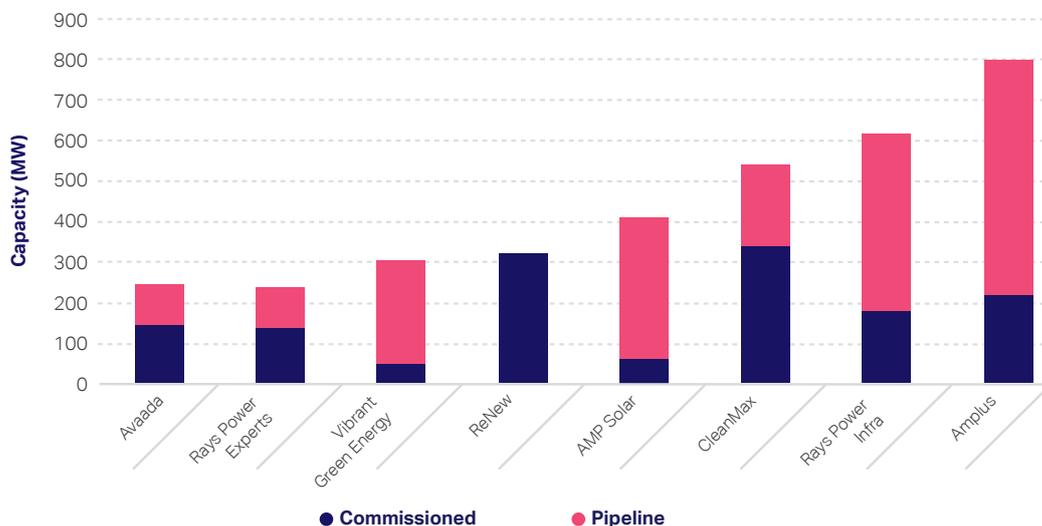
In the last two years, the open access PPA solar market has grown more than 2.5 times to 2.9 GW. With the growth of the open access market, large-sized independent power producers with a national presence, such as ReNew and Avaada, and other specialized project developers, such as CleanMax, Amplus and AMP Solar, have begun to considerably increase their market share. These national developers have the competitive advantage of access to large corporate buyers

as well as access to financing sources with a lower cost of capital.

In the last two years, the shares of independent power producers and specialized developers have increased while the shares of regional players have decreased (see figure 5).

Figure 6 highlights projects developed by independent power producers and specialized developers offering PPAs under the group captive model.

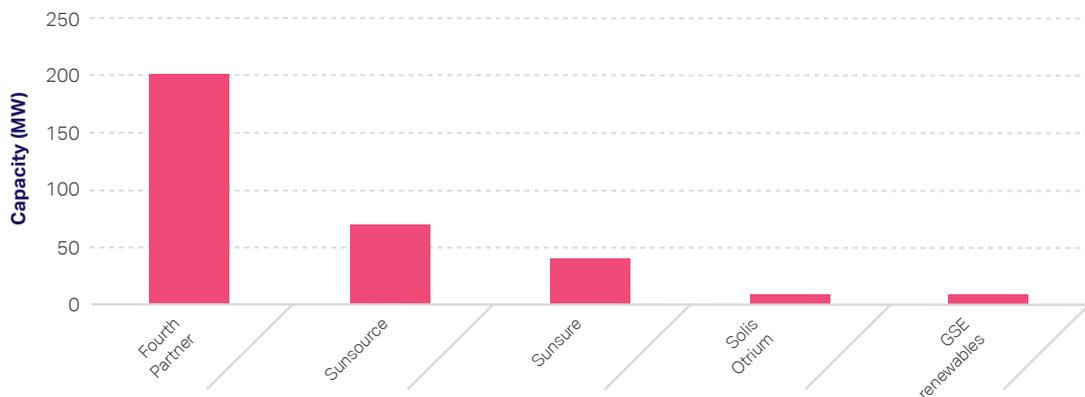
FIGURE 6: Installations and project pipeline for key developers under open access and group captive models, as of 31 August 2019



Source: JMK Research

Key market trends

FIGURE 7: Capacities planned by rooftop solar focused companies under the group captive model, as of 31 August 2019



Source: JMK Research

GROWTH IN THE ROOFTOP SOLAR MARKET FOR PPA PROJECTS CONTINUES TO DOMINATE

As of 31 March 2019, projects setup under the OPEX model constituted more than 37% of cumulative rooftop³ solar installations in India. Under the OPEX model, a third-party project developer finances and installs the solar system on consumer premises and sells power output under a long-term PPA agreement.

In FY 2019, growth in OPEX projects reached 109%, while projects set up with own investments (CAPEX model) reached 60%. The reasons for such growth in OPEX installations include:

- The market has evolved in the last few years and lenders, developers and end consumers are much more aware of the benefits of this model.
- The OPEX model is a preferred choice for a lot of companies that do not want to invest in non-core operations. It's also convenient for them to

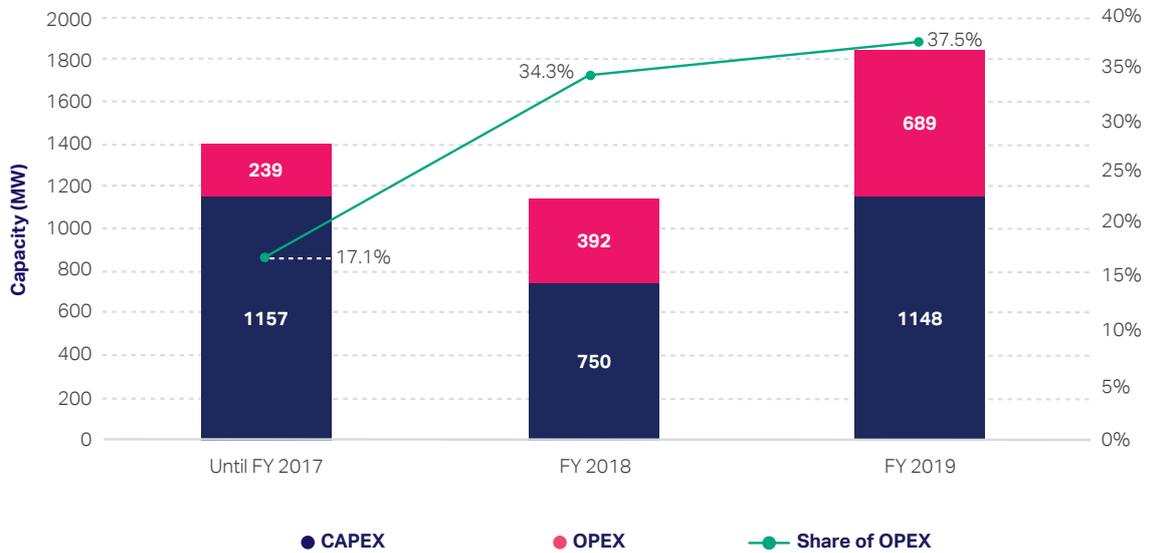
manage these assets through a third-party player. Only a few cash-rich companies, such as ITC, PepsiCo and The Coca-Cola Company, are building these assets on the CAPEX model.

- Most government/public sector solar installations are based on the OPEX model only. In FY 2019 (April 2018 – March 2019), this segment grew by 54% on a year-on-year basis.

However, in the next two to three years, OPEX installations might not see the same growth because of market saturation of good creditworthy commercial and industrial (C&I) companies.

³ Onsite installations include open ground spaces, roofs, parking lots or any other area within the premises.

FIGURE 8: OPEX model-based installations in India



Source: Bridge to India, Rooftop Solar Map

DEVELOPERS AND CORPORATE CUSTOMERS ARE ALIGNING PROJECT SCHEDULES TO AVOID PAYMENT OF SAFEGUARD DUTY ON SOLAR PANELS

In 2018, the government imposed a safeguard duty for two years for most imported solar modules. For the first year, from July 2018 to July 2019, the government fixed the duty at 25%, reducing it subsequently by 5% every six months for the next year, before its scheduled expiry in July 2020.

To avoid paying the duties, many developers have planned to set up new projects that align their module procurement with the removal of safeguard duties.

Despite the withdrawal of open access exemptions by various state agencies, this market is adding significant capacity. Established independent power producers (IPPs) have become active in setting up open access renewable projects. Two clear advantages for these IPPs in opting for corporate renewable PPAs are: less dependency on DISCOMs and better PPA contract prices compared to highly competitive tariff-based auctions under central and state schemes.

Overall, we see movement towards formalization and consolidation of the corporate renewable PPA market in India.

However, as the market is still grappling with a constantly changing policy and regulatory environment, the section below highlights some of the recent changes and the challenges that the market faces due to these changes.

3

Policy and regulatory update

As the corporate renewable PPA market in India is closely linked to the evolving policy and regulatory environment at the state level, tracking such changes becomes important for both renewable electricity buyers and sellers.

Policy and regulatory update

Over the past six months, we have seen that the government has withdrawn several exemptions for open access charges and banking provisions. While some of these changes may negatively impact financial viability for new installations in affected states, these changes do bring open access renewable power up to par with regulations for traditional sources, removing uncertainty arising from short-term support mechanisms, thereby making cash-flow projections for renewable contracts more predictable and stable. As open access and net-metering are key regulatory

mechanisms supporting the corporate renewable PPA market in India, we outline the relevant changes in these regulations during the last year below.

OPEN ACCESS REGULATIONS

Open access regulations determine the charges and procedures for using the public grid to wheel power from an offsite renewable power plant to the premises of a corporate buyer.

These regulations are determined primarily at the state level under a framework provided at the national level. Changes in these regulations can materially affect the viability of renewable procurement from off-site projects. We detail state-level changes in these regulations below.

We provide a comparison of open access exemptions for renewable power procurement provided by various states and how it has changed in the last year in the Annex.

State	Update on open access regulations
Andhra Pradesh	<p>The policy introduced in January 2019 withdraws the exemptions for electricity duty, CSS and wheeling losses⁴ for projects selling renewable power to private consumers. According to the previous policy, these exemptions were available for projects built until March 2020.</p> <p>The new policy has also capped the purchase of unused banked energy at 10% of total banked energy per year and reduced the average power purchase cost (APPC) compensation from 100% to 50%.</p>
Haryana	<p>Haryana amended its solar policy in March 2019. The most significant change in the policy has been the withdrawal of exemptions from wheeling and transmission charges, CSS and additional surcharges for third-party sales of power. The previous policy waived these charges for 10 years. However, the new policy restricts the eligibility of these exemptions to only captive/group captive solar projects, for which companies acquired land and incurred capital expenditures of at least INR 10 million/MW before 13 February 2019.</p>
Karnataka	<p>For open access renewable plants commissioned before 31 March 2018, Karnataka had waived transmission, wheeling, banking and CSS charges for 10 years. The state government decided to discontinue these waivers for plants commissioned after 31 March 2018 despite several requests for extension.</p>
Maharashtra	<p>In July 2019, Maharashtra issued the first amendment to the distribution open access regulations and transmission open access regulations. As per this amendment, it reduced the banking period for open access projects from 1 year to 1 month. The amendment further restricts banking by allowing withdrawal of energy banked during peak time of day (TOD) slots at off-peak TOD slots and not vice-versa. It has also capped the monthly unused banked power at 10% of total generation and increased transmission charges for all open access transactions.</p>
Rajasthan	<p>In Rajasthan, the government had waived CSS for all solar plants commissioned between April 2014 and March 2019. However, it did not extend the exemptions beyond 31 March 2019. For third-party sale/open access projects, the government has changed the banking period from an annual basis to a monthly basis. Moreover, only 10% of banked energy is now eligible for payment at 60% of energy charges applicable under the notified industrial tariff.</p>
Uttar Pradesh	<p>In September 2019, Uttar Pradesh introduced its Captive and Renewable Energy Generating Plants Regulations, 2019, under which it gives a 50% exemption on wheeling and transmission charges for captive and third-party sale renewable projects. There is also a 100% waiver on transmission for interstate sales and a 100% exemption of state CSS for interstate sales of power for captive/third-party use.</p>

⁴ Wheeling losses or power distribution losses, pre-determined by regulators and applicable to power generating plants.

Policy and regulatory update

NET METERING REGULATIONS

Net metering is a key regulatory provision that helps increase the demand for and penetration of rooftop solar installations.

While it took several years to bring most Indian states on board to offer net metering, some states have started to put restrictions and are asking for a shift to gross-metering. We highlight state-level changes in these regulations below.

State	Update on net-metering regulations
Rajasthan	Rajasthan reduced its energy banking period for net metering from 1 year to 1 month for commercial and industrial customers. This change has raised questions about the viability of several projects, particularly those with seasonal power demand.
Tamil Nadu	In March 2019, the Tamil Nadu Electricity Regulatory Commission (TNERC) allowed net-metering connections only for the low tension (LT) consumer category (typically customers with small connected loads), thereby restricting net-metering for large customers. The 2013 regulations will continue to govern existing consumers using the net metering scheme.
Uttar Pradesh	In Uttar Pradesh, under new regulations issued in January 2019, net-metering is no longer available for commercial, industrial and public buildings. These customers can now only opt for gross metering. Under gross metering, excess electricity for C&I customers will receive compensation at a fixed price of INR 2/unit, which is much less than what they would receive under net-metering and, in fact, lower than the average power purchase cost borne by the state for conventional sources of power.

Overall, the removal of open access charges and net metering benefits across several states indicates that regulators and DISCOMs are pushing back at offering incentives for renewable power indefinitely. The increased viability of solar projects due to continued cost reductions should help counteract part of the negative impact of these policy and regulatory changes.



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Risks and challenges for corporate renewable PPAs

Even though India is the second largest growth market for corporate renewable PPAs, its current growth is far lower than its potential.

Policy and regulatory update

Most risks and challenges hampering its growth pertain to policy uncertainty and limited cooperation with DISCOMs. These challenges, unless addressed, can imperil the long-term growth of the market and its associated value chain. The following highlights the key challenges that have emerged over the past six months.

ROLLBACK OF FAVORABLE BANKING PROVISIONS

Since there is a wide seasonal variation in power generation from renewable sources, the annual banking of power is crucial to improving project bankability. Annual banking helps consumers use the excess power generated during peak seasons in non-peak seasons. Maharashtra and Rajasthan have recently shifted to monthly banking instead of annual

banking. This would lead to developers not being able to sell a part of the generated power, increasing power tariffs. Similar changes in other states will likely lead to an overall increase in renewable power tariffs offered to corporate buyers.

POOR PERFORMANCE ON DISCOM APPROVALS

Despite progress in Uttar Pradesh and Haryana, getting an open access approval from DISCOMs has been a key challenge for the corporate renewable PPA market. The reason often cited for denial of permission is the technical inability of the local substation to allow drawing of power. It is often difficult to ascertain such technical limitations. Developers are increasingly facing challenges in receiving any approvals in states such

as Maharashtra, Rajasthan and Telangana.

ROLLBACK OF FAVORABLE NET-METERING PROVISIONS

It took several years for the central government to get all states to offer net-metering to promote rooftop solar installations in the country. Policy changes restricting net-metering for corporate customers in Uttar Pradesh and Tamil Nadu are a major setback in that effort. DISCOM incentives under phase II of the national rooftop solar scheme may help to halt this trend.

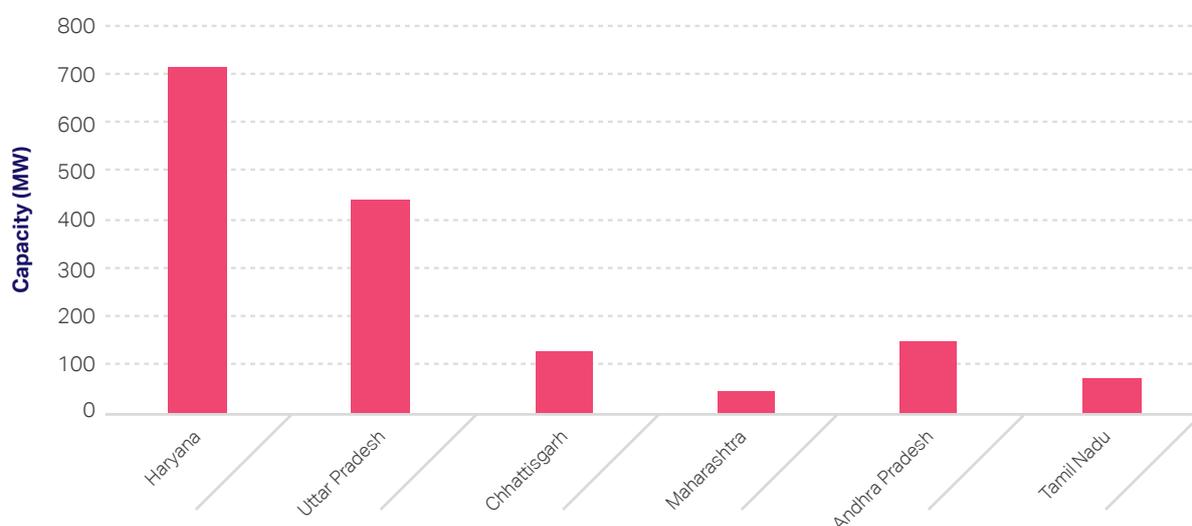


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Outlook for corporate renewable PPAs

Outlook for corporate renewable PPAs

FIGURE 9: Expected project capacity under the group captive model by state



Source: JMK Research

As shown in figure 9, India has a development pipeline of almost 2 GW for corporate renewable PPAs. A small part of this will come online in the current financial year (April 2019 – March 2020) – leading to lower capacity addition this year as compared to last year.

However, we do expect this pipeline to expand and a significant proportion of this to be installed in the next financial year (April 2020 to March 2021), resulting in a bounce back.

The Indian government is considering several new policy initiatives that may positively impact the corporate renewable PPA market:

- Green Term Ahead Market (GTAM):** GTAM is an initiative planned by the government that would allow spot trading of renewable energy through power exchanges. This trading window would let corporate consumers buy renewable power

without entering into a PPA agreement. Currently this is still a work in progress and as per the last update, in May 2019, the Central Electricity Regulatory Commission (CERC) has ordered the Indian Energy Exchange (IEX) to seek comments and feedback on GTAM from all stakeholders, after which it plans to approve it.

- New power tariff policy and amendments to the Electricity Act:** The Union Cabinet is considering a new power tariff policy for approval. It is also considering reforms focused on empowering consumers by giving them the right to choose their power supplier. Additionally, the government is considering a direct transfer of benefits from the government to the bank accounts of customers eligible for subsidies. This should help eliminate the maze of subsidies and

market inefficiencies that currently influence how tariffs are set and reduce the unpredictability around cross-subsidization of tariffs. Most significantly, there may be a proposal in the new tariff policy or an amended Electricity Act to remove cross-subsidy charges levied on private renewable energy procurement.

We would like to reiterate the importance of the March 2019 amendment to the Haryana Solar Policy that has opened the door for DISCOMs to meet their RPOs by leveraging corporate renewable PPAs. This is a novel approach that can bring more states and DISCOMs on board to pro-actively support such projects and would remove a key bottleneck for growth. Other states may explore this option as well.

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Annex

TABLE 1: Open access waivers for solar projects across states, as of 31 August 2019

States	Waivers for solar open access projects applicable until 31 March 2018	Changes enforced between April 2018 and August 2019
Andhra Pradesh	<ul style="list-style-type: none"> CSS waiver for five years from commercial operation date (COD) Transmission and wheeling charge waiver for captive model/third-party sale within the state Exemption from distribution losses for projects injecting at 33kV or below Availability of exemptions for projects built by March 2020 	<ul style="list-style-type: none"> Wheeling and transmission charge exemptions limited to only interstate supply of power; no exemptions are applicable for intrastate projects Withdrawal of CSS waiver, distribution losses and all other exemptions; purchase of unused banked energy capped at 10% of total banked energy during a year
Haryana	<ul style="list-style-type: none"> Wheeling, transmission and distribution, CSS, reactive power charges, electricity duty, tax and cess waived for 25 years for projects commissioned during the policy period Policy remains in force until new policy released 	<ul style="list-style-type: none"> Reactive power charges, electricity duty, tax and cess waived for 25 years from COD Wheeling and transmission charges exempted for 10 years only for captive solar projects where companies have acquired land and incurred capital expenditure of at least INR 10 million/MW before 13 February 2019 Banking facility not available for third-party sale projects
Karnataka	<ul style="list-style-type: none"> Wheeling charges and CSS waived for 10 years Exemptions from transmission charges and losses, and banking charges Reduced charges apply to plants built by 31 March 2018 	<ul style="list-style-type: none"> No open access waivers after 31 March 2018
Maharashtra	<ul style="list-style-type: none"> No exemptions 	<ul style="list-style-type: none"> Banking period reduced from 1 year to 1 month Transmission charges increased for all open access transactions
Odisha	<ul style="list-style-type: none"> No waivers 	<ul style="list-style-type: none"> CSS exempted for renewable projects 80% of wheeling charge waived for consumers drawing power from a renewable source (excluding co-generation and biomass power plant)
Punjab	<ul style="list-style-type: none"> Transmission and wheeling charges for renewable energy plants to be levied at 2% of energy injected for FY 2018-19. 	<ul style="list-style-type: none"> Transmission and wheeling charges for renewable energy plants to be levied at 2% of energy injected extended to FY 2019-20.
Rajasthan	<ul style="list-style-type: none"> CSS waived for all solar plants commissioned between April 2014 and March 2019 	<ul style="list-style-type: none"> Withdrawal of exemptions from 31 March 2019 onwards
Tamil Nadu	<ul style="list-style-type: none"> Transmission, wheeling charges, scheduling and system operation charges at 30% of conventional power 40% of CSS waived Waivers available for FY 2018-19 	<ul style="list-style-type: none"> Transmission, wheeling charges, scheduling and system operation charges at 50% of conventional power 30% of CSS waived

States	Waivers for solar open access projects applicable until 31 March 2018	Changes enforced between April 2018 and August 2019
Madhya Pradesh	<ul style="list-style-type: none"> • Wheeling charge of only 2% • CSS and AS waived until November 2017 • Revision of policy has resulted in CSS and AS being applicable from December 2017 onwards 	<ul style="list-style-type: none"> • No changes
Gujarat	<ul style="list-style-type: none"> • Electricity duty, 50% of CSS waived • No additional surcharge • Incentives apply for 25 years from COD for projects built by March 2020 	<ul style="list-style-type: none"> • No changes
Telangana	<ul style="list-style-type: none"> • CSS waived for five years from date of commissioning • Transmission and wheeling charges waived for 10 years for captive consumption within the state • Exemptions applicable only for projects built by 31 March 2020 	<ul style="list-style-type: none"> • No changes
Uttar Pradesh	<ul style="list-style-type: none"> • Exemption up to 50% of wheeling and transmission charges for plants commissioned between April 2017 and March 2022 for intrastate sale of power • Exemption from all wheeling and transmission charges for interstate sale of power • Unless the policy and regulation are extended, the exemptions shall not be available beyond March 2022 	<ul style="list-style-type: none"> • For captive and third-party sale RE projects, 50% exemption is given on wheeling and transmission charges • 100% waiver on transmission for Interstate sale • 100% exemption of state CSS for Interstate sale of power for Captive/Third Party use"

Source: SERC tariff orders, JMK Research

Glossary

average power purchase cost (APPC): The weighted average pooled price at which the distribution licensee has purchased the electricity including cost of self-generation.

additional surcharge (AS): DISCOMs impose an additional surcharge to recover stranded cost on account of stranded power purchase agreements (PPAs) and stranded assets due to consumers procuring power through open access.

capacity utilization factor: The ratio of the actual electricity generated by a renewable energy project over the year to the equivalent electricity output at its rated capacity over the year.

captive buyer: The end user of the electricity generated by the captive generating plant.

captive model: A power asset in which the captive buyer consumes at least 51% of the electricity generated and owns at least 26% of the equity.

cess: A tax typically imposed by the government. It levies this tax for a specific purpose until it has raised sufficient funds for the stated purpose. For example, after seeking permission from the regulator, a state utility can levy a cess on electricity duties to upgrade infrastructure or to compensate for a shortfall in revenue.

commercial and industrial (C&I): A business segment set up with the sole motive of gaining profit.

commercial operation date (COD): The date on which the commercial operation of the power plant begins, after successful testing and injection of power at delivery point (the metering point between the power producer and the utility at the pre-determined voltage level).

corporate PPA: An agreement between a private company and a power producer (developer, independent power producer, investor) to purchase electricity at a mutually agreed tariff, tenor and capacity.

cross-subsidy surcharge (CSS): A charge levied to recover the cost of the utility providing subsidized power to certain categories of consumers, such as the poor, religious entities and agriculture.

group captive model: This is a unique structure provided under the 2003 Electricity Act where C&I consumers are enabled to set up power plants for their collective use and which should have a 26% equity in the plant and must consume 51% of the power produced.

distribution company (DISCOM): Supplies power to the consumer.

independent power producers (IPP): An entity that is not a public utility but that owns facilities to generate electric power for sale to utilities and end users.

net-metering: A billing mechanism allowing onsite projects to feed excess electricity to the grid, reducing their own electricity bills. It is usually limited to solar rooftop, though some

states allow other sources to qualify as well.

off-taker: The buyer of electricity in a PPA.

open access: A regulatory mechanism allowing a grid-connected bulk consumer, having a valid contract demand of 1000 kVA or above, to meet part of or its entire electricity requirements through alternative sources.

OPEX: This is an operating expenditure-based model in which an investor invests the upfront capital cost of the project and the consumer pays for the electricity consumed/supplied by the project developer.

power purchase agreement (PPA): A contract between a power producer and a buyer of electricity for an agreed tariff, tenor and capacity.

special purpose vehicle (SPV): A subsidiary company with an asset/liability structure and legal status that makes its obligations secure even if the parent company goes bankrupt.

State Electricity Regulatory Commission (SERC): The electricity regulator in each Indian state. One of their key responsibilities is to determine retail electricity tariffs and open access charges.

tariff: The cost per unit of electricity that a buyer pays.

utility: Local electricity distribution company.

DISCLAIMER

This publication is released in the name of the World Business Council for Sustainable Development (WBCSD). This document is the result of a collaborative effort between WBCSD, JMK Research & Analytics and representatives from companies participating in the India Corporate Renewable PPA Forum. A range of WBCSD members reviewed the material, thereby ensuring that the document broadly represents the majority view of the India Corporate Renewable PPA Forum. It does not mean, however, that every company within the forum agrees with every word.

To contact WBCSD about this report:

Jasmeet Khurana

Manager, Climate & Energy
khurana@wbcسد.org

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Jyoti Gulia, Director, JMK Research & Analytics

Shipra Arora, Manager, JMK Research & Analytics

ABOUT WBCSD'S RESCALE PROJECT

REscale brings together leading companies representing the full renewable energy value chain to accelerate the deployment of renewables and the transition to a low-carbon electricity system. REscale members share the ambition to scale up renewable deployment beyond average growth.

In 2017, REscale formed the India Corporate Renewable PPA Forum to increase understanding and uptake of corporate renewable procurement in India.

To find out more about REscale, the Corporate Renewable PPA Forum and previous reports, visit our [webpage](#) or contact:

Lucy Hunt

Associate, Renewable Energy
hunt@wbcسد.org

ABOUT THE WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD)

WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world. We help make our member companies more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies.

Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD \$8.5 trillion and 19 million employees. Our global network of almost 70 national business councils gives our members unparalleled reach across the globe. WBCSD is uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues.

Together, we are the leading voice of business for sustainability: united by our vision of a world where more than 9 billion people are all living well and within the boundaries of our planet, by 2050.

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OTHER PARTNER INITIATIVES

RE100

RE100 is a collaborative, global initiative uniting influential businesses committed to 100% renewable electricity, working to massively increase demand for – and the delivery of – renewable energy. Led by The Climate Group in partnership with CDP, RE100 brings together the world's most significant, ambitious and forward-thinking companies that are accelerating the transition to a zero emissions economy by committing to 100% renewable electricity across their operations.

Shailesh Telang

Technical Manager (Renewable Energy)
CDP India
shailesh.telang@cdp.net

Atul Mudaliar

Program Manager
The Climate Group
amudaliar@theclimategroup.org

Green Power Market Development Group (GPMDG) India

Green Power Market Development Group (GPMDG) India is an industry-led initiative aimed at rapidly increasing the share of renewable energy in the overall energy consumption of commercial and industrial establishments. This will be accomplished by addressing the policy, regulatory and market barriers that currently impede the growth of renewable energy sector. GPMDG works with government agencies and other relevant institutions to help member companies voluntarily set and achieve their renewable energy goals.

Deepak Krishnan

Manager, Energy Program
World Resources Institute India
DKrishnan@wri.org

Ravi Chander Rangavajjula

Principal Counsellor
Confederation of Indian Industry
ravi.c@cii.in

Renewable Energy Demand Enhancement (REDE)

The Renewable Energy Demand Enhancement (REDE) initiative aims to build an alliance among corporate buyers (commercial and industrial consumers) to increase commitments to renewable energy procurement and to catalyze solutions to address challenges that are significantly restricting demand. By means of developing an appropriate interface between buyers, suppliers and policy-makers, the initiative intends to create a cohesive and informed market to meet corporate renewable energy demand. REDE is built on the success of the Renewable Energy Buyers Alliance (REBA) founded in June 2016 in the USA.

Bhavna Prasad

Director, Sustainable Business
WWF-India
bprasad@wwfindia.net

Shuva Raha

Deputy Director and Head, New Initiatives
Confederation of Indian Industry
shuva.raha@cii.in

**World Business Council
for Sustainable Development**

WBCSD

Maison de la Paix

Chemin Eugene-Rigot 2B

CP 2075, 1211 Geneva 1

Switzerland

WBCSD India

4th Floor, WorldMark 2, Aerocity

New Delhi, 110037, India

www.wbcd.org

