

# INDIAN RENEWABLE ENERGY INDUSTRY

Increasing regulatory constraints amid weak discom finances, a challenge for third-party open access based renewable power projects



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# INCREASING REGULATORY CONSTRAINTS AMID WEAK DISCOM FINANCES POSE CHALLENGES FOR THIRD-PARTY OPEN ACCESS RENEWABLE PROJECTS



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FY2021 witnessed certain adverse developments with respect to open access policies such as disallowance of open access by a few states stating loss of revenue to discoms

This has aggravated regulatory risks for the sector, which is already impacted by increasing open access charges and restrictive banking norms

However, the third-party tariff still remains remunerative in some key states as compared to the utility grid tariffs • Independent Power Producers (IPPs) in the renewable power sector (especially in solar, wind and hybrid segments) selling power in the open access route, particularly in the third-party offtake mode, are faced with increasing regulatory constraints in the form of upward revision of open access charges, denial of open access approvals and tightening of energy banking norms. Also, state-owned distribution utilities (discoms) in most cases show a passive resistance, due to apprehension of losing cross-subsidising / high tariff paying commercial & industrial (C&I) customers.

The renewable power policies in several states have been amended over a period, with the states either completely withdrawing or reducing the incentives given to open access customers, which largely include C&I establishments, for procuring power from solar and wind power projects. This is due to improved tariff competitiveness of wind and solar power and primarily to prevent revenue loss to state power discoms. Further, given that the finances of several discoms remain weak and have been further exacerbated by the impact of the Covid-19 pandemic, there is an increased likelihood of an upward revision in open access charges.

 With increasing regulatory charges, net tariffs for open access renewable players are expected to remain under pressure, going forward. Nonetheless, the overall credit profile of renewable projects in the open access segment remains supported by a) relatively better tariff expectations by about Rs.1.0 - 1.5 Rs. /Unit as against the tariff discovered under the auction route in the utility segment for the developers and b) the ability to ensure tariff competitiveness for the C&I customers, given that the tariffs are at a discount compared to utility grid tariffs. Further, the presence of diverse and credit-worthy customers remains a supporting factor for the credit profile of most open access-based IPPs in the ICRA-rated portfolio. Also, availability of adequate liquidity buffer in the form of the debt service reserve account (DSRA) and access to working capital limits, along with support made available from the respective sponsor groups, has supported the credit profile of such renewable entities.

Overall demand for third-party based PPAs in renewable energy with C&I customers remains favourable, supported by improved tariff competitiveness and voluntary sustainability initiatives of corporate customers, as seen in the recent past. However, increasing regulatory constraints in the form of delays or non-approval of open access and rising open access charges are likely to constrain the capacity addition in this segment.

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# **OPEN ACCESS-BASED RENEWABLE ENERGY PROJECTS INHERENTLY EXPOSED TO REGULATORY RISKS**

The open access route provides an alternate mode for sale of power by power generators /IPPs by enabling them to compete in the open market as opposed to restricting them to sell power only to the state power distribution utilities (discoms). In such cases, the off-takers or customers are primarily commercial and industrial (C&I) establishments who benefit from the lower tariffs offered by the IPPs against the tariffs charged by the discoms, thus providing savings in energy cost. This apart, procurement of renewable power through the open access route helps the institutional C&I customers to meet their respective renewable purchase obligation as well as voluntary sustainability / environment-friendly initiatives.

Sale of power under the open access route was first introduced under the Electricity Act, 2003, allowing non-discriminatory use of transmission and distribution infrastructure of the discoms by consumers with demand greater than or equal to 1 MW for procuring electricity from the source of their choice (power generators, traders or exchange). The same, however, is subject to regulations and charges as approved by the respective State Electricity Regulatory Commissions (SERCs) to be paid by the consumers for using the state utilities' (transcos and discoms) transmission and distribution infrastructure. Power under the open access route can be sold via a third-party offtake mode, which involves sale of power typically to C&I customers by signing a PPA or b. captive/group captive mode wherein the customer holds a minimum of 26% share and consumes a minimum of 51% of generated power. Group captive customers are typically exempt from a certain category of open access charges.

#### Open access charges primarily constitute cross-subsidy surcharge, additional surcharge, transmission and wheeling charges (in cash and kind) and banking charges

**Cross-subsidy surcharge** is levied to compensate the discoms for the loss of cross subsidy from high tariff-paying industrial and commercial consumers, as the grid tariffs charged for these consumers remain high to cross-subsidise the heavily subsidised consumer categories such as below-poverty-line households and agriculture. This is not applicable for captive/group captive projects.

Additional surcharge on the other hand, is typically levied to meet the fixed cost obligation of the distribution utilities under long-term power purchase agreements (PPAs) with the generation entities.

Banking of energy indicates that residual energy (post utilisation by the customer) out of the total injected energy transmission and/or distribution systems of the state can be utilised at a later date by the developer for its own use or for wheeling to customers.

Open Access Charges = Cross Subsidy Surcharge+ Additional Surcharge+ Wheeling and Transmission Charges (in cash and kind) + Banking charges (if applicable)

Thus, open access-based projects are inherently exposed to regulatory risk by virtue of requirement of obtaining requisite open access approvals, payment of open access charges and provision of requisite banking facilities. In this context, the developer's ability to provide discount under the open access route is a function of the applicable open access charges, which are to be borne by the buyer as well as the cost of generation/tariff tied up via the power purchase agreement signed. Higher open access charges thus reduce the developer's ability to provide a discount against the grid tariffs and cash flow pressure.

Discount factor under open access= (Grid tariff - open access charges - cost of generation or tariff of RE project being rated) / Grid tariff



# **RISING REGULATORY RISKS ON ACCOUNT OF REDUCTION OR WITHDRAWAL OF INCENTIVES BY SEVERAL STATES**

Several states have amended their renewable power policies over time and some have either completely withdrawn or reduced incentives given to open access customers (mainly C&I consumers) for power procurement from renewable energy projects, as tariff competitiveness of wind and solar power has shown a significant improvement. Further, the open access charges applicable in case of third-party sale of power have also shown an increasing trend across the key states. Key changes in the cross subsidy surcharge (CSS) and additional surcharge (AS) levied for solar power projects across key states is given in the exhibit below.

#### EXHIBIT 1: Trend in cross subsidy surcharge/Additional surcharge levied across states for solar projects

Parameter	State	Earlier Regulations	Current Regulations
Cross Subsidy Surcharge	Andhra Pradesh	As per the solar policy of 2015, solar projects were exempted from CSS for a period of five years	CSS is being levied at SERC determined levels since January 2019 for Solar Projects
	Gujarat	50% of the applicable CSS for conventional projects	50% of the applicable CSS for conventional projects
	Karnataka	Exempted for projects which commissioned operations by March 2018	CSS is applicable for projects which commissioned operations after March 2018
	Maharashtra	25% of the applicable CSS for conventional projects was payable until FY2017	No discount in CSS; The approved CSS for FY2021, however, is on the lower side as the same was combined for three voltage categories.
	Tamil Nadu	The applicable CSS was very high in Tamil Nadu until FY2017, however the same was reduced from FY2018 because of implementation of the National Tariff Policy 2016 which capped the applicable CSS at 20% of the tariff	The discount on CSS as compared to conventional power, has been reduced from 70% to 50% over the years
	Rajasthan	Exempted	Exempted
	Gujarat	50% of the applicable AS for conventional projects	50% of the applicable AS for conventional projects
	Karnataka	No additional surcharge was levied until FY2019	25% of the applicable AS for conventional projects
	Rajasthan	While third-party sale-based projects are exempted from paying C	SS, additional surcharge is applicable
Additional Surcharge	Maharashtra	25% of the applicable CSS for conventional projects was payable until October 2016	Witnessed an increasing trend since November 1, 2016. Further, additional surcharge has also been levied on group captive projects since April 2020

*Source:* ICRA research, renewable policies by key states



Trend in CSS levied as notified by the SERCs across key states in the past five years for a 11 KV industrial customer availing open access solar power is shown in the Exhibit 2 below.

EXHIBIT 2: Trend in cross-subsidy surcharge levied across key states for open access (third party) solar power over the last five-year period



# EXHIBIT 3: Trend in additional surcharge levied in key states for open access (third party) solar power over the last five-year period



#### Source: ICRA research

Source: ICRA research

Increasing trend in CSS levied over the years can be observed in several key states such as Andhra Pradesh and Karnataka, as exemption on CSS for solar power projects was removed, post FY2018. The applicable CSS was very high in Tamil Nadu until FY2017, however, the same was reduced from FY2018 because of implementation of the National Tariff Policy 2016, which capped the applicable CSS at 20% of the tariff. However, the discount on CSS for procurement from renewable power projects as compared to conventional power, has been reduced from 70% to 50% over the years. The CSS in Maharashtra also followed an increasing trend over the years. The approved CSS for FY2021, however, is on the lower side as the same was combined for three voltage categories. In addition to cross subsidy surcharge, states such as Gujarat, Karnataka, Rajasthan and Maharashtra also levy additional surcharge on open access power. Trend in the same for the past five years for a 11-KV industrial customer availing open access solar power is illustrated in Exhibit 3. While Karnataka has started levying additional surcharge on renewable power (at 25% of the applicable surcharge on conventional power), the levied surcharge has been on the higher side in Maharashtra compared to the other states. Further, in April 2020, Maharashtra also approved additional surcharge on group captive power.



# **INCREASED RESTRICTIONS ON ENERGY BANKING TO CREATE A MISMATCH BETWEEN DEMAND AND SUPPLY**

In addition to increasing the applicable open access charges, some of the states have placed restrictions on availability of banking facilities (either not providing the option to bank energy or restricting the banking period to one month) for renewable power projects, which leads to a mismatch between demand and supply. This is because renewable energy generation is limited only to a few months of a year while demand for power is uniform throughout the year. Changes in banking regulations in key states in the last two-year period are given in the Exhibit below.

#### **EXHIBIT 44: Change in Banking Regulations across key states**

State	Earlier Regulations	Current Regulations
Maharashtra	Banking to be permitted for a 12-month period	Banking permitted on a monthly basis (as stated in the first amendment to distribution open access regulations in June 2019). Further, in March 2020, the SERC also approved banking charges in kind of 7.5% for HT Customers and 12% for LT customers
Andhra Pradesh	As per the Solar/Wind policy 2018, Banking of 100% of energy shall be permitted during all 12 months of the year, based on the feasibility and prior approval of APTRANSCO/APDISCOMs. Banking charges shall be adjusted in kind @ 5% of the energy delivered.	As per the policy modification released in November 2019, facility of energy banking and drawl has been withdrawn. Also, any injection of energy between synchronisation and declaration of date of commercial operations (COD) shall be treated as inadvertent power and no cost shall be paid by the discoms
Karnataka	Banking period approved is 12 months	Banking period was reduced from 12 months to 6 months as per SERC order in March 2018. However, the order was set aside by APTEL in April 2019. The matter is currently sub judice in the Supreme Court. Further, in September 2020, the SERC introduced a discussion paper for discontinuing the banking facility extended to solar, mini hydel, and wind power projects, and invited comments
Gujarat	Banking facility to be available for one billing cycle	Banking facility available for one month
Tamil Nadu	Banking charges levied would be as per the orders of the SERC	No banking facility for solar power projects. Banking period of one year available for wind projects commissioned on or before March 31, 2018 with banking charges @ 14% in kind and banking period of one month is provided for projects commissioned post March 31, 2018 with no banking charges.
Rajasthan	Banking allowed only for captive power projects on a monthly basis (as per 2014 regulations)	Banking allowed for captive power projects while the same is not allowed for third- party PPAs. While banking is allowed on an annual basis, the banking of energy is subject to a ceiling of 25% of the energy injected by the RE plant during a 15-minute time block.

*Source:* ICRA research, renewable policies by key states



# INCREASED LIKELIHOOD OF AN UPWARD REVISION IN OPEN ACCESS CHARGES, GIVEN WEAK DISCOM FINANCES AND IMPACT OF COVID-19 PANDEMIC

The financial profiles of most state power distribution utilities continue to be weak due to higher-than-allowed distribution loss levels for utilities in many states, inadequate tariffs in relation to the cost of supply and inadequate subsidy support by state governments in a few states. Furthermore, permission to sell power via the open access route results in revenue loss for the discoms and also impacts grid stability, largely in the case of open access for renewable power. Thus, the open access charges have witnessed an increasing trend over the years to compensate the discoms for the loss of cross subsidizing customers and stranded capacity. In addition, given the adverse impact of the lockdown/restrictions to control the Covid-19 pandemic on the cash flows and revenue profile of the state-owned distribution utilities, there is an increased likelihood of an upward revision in open access charges.

In one such development, the SERC in Maharashtra has recently approved the levy of AS on group captive projects, as per the order issued in April 2020. Group captive consumers were earlier exempt from such levy in Maharashtra. Risk of such levy by the SERCs in other states cannot be ruled out for group captive IPPs. In September 2020, the Haryana Electricity Regulatory Commission (HERC) disallowed open access for some of the RE projects and allowed the discoms to purchase power from these RE generators designated for third-party/group captive route citing loss of revenue from sale of power under open access to industrial consumers. This is against the provisions of Section 63 in the Electricity Act of 2003. Further, the said project was also allotted basis the state's Solar Policy 2016 and the same does not provide for sale of power via the negotiation route.



# TARIFF RATIONALISATION MEASURES, IF IMPLEMENTED, WOULD IMPACT NET TARIFFS OF OPEN ACCESS PLAYERS

The National Tariff Policy prescribes that the amount of CSS and the additional surcharge to be levied on large consumers procuring electricity under open access should not be so burdensome that it eliminates competition and stipulates that the regulators and discoms should progressively rationalise the tariffs to keep the retail tariffs across consumer categories within +/-20% of the average cost of supply. Further, the draft amendments proposed in the Electricity Act, 2003 in April 2020 also suggest simplification of tariff structure by mandating state electricity regulatory commissions (SERC) to determine cost reflective tariffs with reduction in cross subsidies. However, the progress with respect to tariff rationalisation by the SERCs across states has been modest so far. As seen from the exhibit here, the cross subsidisation remains at more than 120%, especially with respect to the tariffs charged to the commercial customers. While the cross-subsidisation is below 120% for HT industrial consumers in few states, the cross-subsidisation remains at or more than 120% across all the states. The average billing rate for the HT industrial customers remains above Rs. 7-8 per unit across the states and the average billing rate for commercial consumers remains above Rs. 9-10 across most states. Tariff rationalisation measures, if implemented, could reduce the overall cross subsidy and improve fixed cost recovery for discoms, thereby resulting in a reduction of open access charges (CSS and AS) and impacting the overall net tariffs received by a developer.

#### Exhibit 5: Tariff cross-subsidisation level by industrial and commercial consumers across key states



Source: ICRA research



# DESPITE THE REGULATORY CHALLENGES, OPEN ACCESS POWER REMAINS REMUNERATIVE IN SOME KEY STATES

Despite the aforementioned challenges, the sale of power under open access remains attractive in some of the key states like Gujarat, Karnataka, Rajasthan and Tamil Nadu. As seen in the exhibit below, the extent of discount to grid tariff that can be offered by a solar power project under open access (at a tariff of Rs. 3.25 per unit) is estimated to be about 20-30% of the grid tariff. The extent of discount varies based on the open access charges along with the CSS and the AS prevalent in the state. A solar power project selling power under the third-party route through open access in these three states would be able to generate relatively better returns compared to projects selling power to state utilities at the quoted bid tariff rates of Rs. 2.5 – 2.8 per unit. On the other hand, the open access charges are relatively high in Maharashtra due to the high level of wheeling and transmission charges along with CSS of Rs. 1.7 per unit and AS of Rs. 1.3 per unit. As a result, it is not economical for the industrial consumers to procure power under the third-party route; rather, the consumers would be exempted from the CSS. Overall, a favourable regulatory framework is crucial for development of the open access market, which offers better returns to developers as well as lower tariffs to industrial consumers. This apart, the developers' ability to identify large credit-worthy consumers and securing approvals for open access would remain crucial. Also, the developers face challenges arising out of relatively much lower tenure (5-10 years) of the PPAs under the third-party sale route against the 25 year-tenure for PPA in case of utility scale projects. Further, the net tariff realised for such projects remains exposed to the regulatory risk, given the likelihood of revision in open access charges by the regulators.

# EXHIBIT 6. Estimates of net tariff (maximum possible discount and 10% discount) by solar power projects in key states for solar tariff of Rs. 3.5/unit



# EXHIBIT 7: Net solar tariffs that can be offered by developers across key states at 10% discount to grid tariffs after factoring in open access charges



Source: ICRA research

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Source: ICRA research



# CLEAN ENERGY TARGETS SET BY CORPORATES TO ALSO DRIVE GROWTH OF THE OPEN ACCESS SEGMENT

Commercial and industrial segments contribute to around 40% of the electricity demand in India and are setting clean energy procurement targets to achieve their sustainability goals/environment friendly initiatives. Several corporates in India have voluntarily set up targets to move to 100% renewable energy by joining several initiatives such as the RE100 initiative (global initiative to bring together the world's most influential businesses committed to 100% renewable electricity), climate development group or by setting explicit sustainability targets. Clean energy targets set up by some of the key players in India are given in the exhibit below.

#### EXHIBIT 8: Clean Energy Targets set/achieved by various players in the commercial and industrial segment in India

Name of the Entity	Clean Energy Targets	
Dolmia Comont (Pharat) Ltd (DCL)	DCL has set a goal to power all its operations with 100% renewable electricity, and an interim target to increase fourfold the	
Daima Cement (Bharat) Ltd (DCL)	renewable/carbon-neutral share of its electricity use by 2030 (2015 baseline) under the RE100 initiative.	
	During FY2020, Infosys Limited sourced 44% of its energy requirement from renewable power sources and also installed 40 MW of solar	
Infosys Limited	PV plants for captive consumption. The company also achieved carbon-neutral status in 2020. The company is a member of the RE100	
	group.	
Mahindra Holidays & Posorts Limitod (MHPL)	MHRL has a target to power 100% of its global operations with renewable electricity by 2050. The company is a member of the RE100	
	initiative.	
Tata Matars Limitad (TML)	TML has set a goal of using 100% renewable electricity across all its own operations, by 2030. Its manufacturing unit in Lucknow currently	
	sources 16% of energy from renewable power sources. The company is a member of the RE100 initiative.	
Dr. Roddyc Laboratories Limited (DPL)	DRL aims to meet 50% of its power requirement with renewable energy sources by 2025. The share of renewable power sources in the	
Dr. Reddys Laboratories Limited (DRL)	total energy consumption stood at 8.8% as of FY2020	
Reliance Industries Limited (RIL)	In August 2020, RIL announced its vision to become a clean energy company in a period of 15 years	
	ITC has set a target of meeting 100% of its power requirements from renewable sources by 2030. Currently, around 40% of its electricity	
The Limited (The)	requirements are being met through renewable sources like wind, solar and biomass.	
ICICI Pank Limited (ICICI)	As of FY2020, renewable sources supplied 7.4% of the power requirement for ICICI. The banks to increase procurement from renewable	
	power sources going forward	

Source: ICRA research, announcements by various corporates, company websites

Apart from the above, several international players with establishments in India viz large IT players such as Microsoft, Amazon, Cisco, Facebook etc., have also set explicit targets to source power from renewable power sources. Further, World Wide Fund – India (WWF-India), in association with the Confederation for Indian Industry (CII), launched the Renewable Energy Demand Enhancement (REDE) initiative for corporate RE buyers. This initiative aims to increase businesses' commitment to renewable energy while also addressing the challenges that hinder the same.



# **SUMMARY**

### Credit profile of open access players remain exposed to rising regulatory risks, with key mitigants being tariff competitiveness and greater adoption of clean energy by the C&I customers

The renewable IPPs based on third party / group captive off-take sale remain exposed to regulatory risks in the form of increasing open access charges, tightening of banking norms and also obtaining timely approvals. This risk is set to augment even further, given the likelihood of an increase in open access charges due to an adverse impact of the lockdown/restrictions to control the Covid-19 pandemic on the cash flows and revenue profile of the state-owned distribution utilities. Further, with the improved tariff competitiveness for wind and solar energy against the conventional power sources, open access charges for renewable energy projects are likely to remain aligned as that for conventional power sources, going ahead.

In addition, open access projects face debt financing challenges, given that the tenure of the power purchase agreements (PPAs) under this mode typically remains lower at 5-10 years against the 25 year-tenure for utility scale projects. Also, the risk of variability in realisation remains high, given the regular revision in open access charges by the regulators and as discounts offered to C&I customers is linked to grid tariffs. Further, the deviation between the generation pattern of the renewable power projects and consumption pattern of the C&I customers, exposes the projects to adequacy of the banking facilities offered by the utilities.

Despite the challenges, the open access route remains remunerative in several key states given the sizeable savings to customers, in addition to enabling them to adhere to environmental norms. Clean energy targets set by various players in the commercial and industrial segment along with tariff competitiveness of renewable power (particularly solar power) are expected to be the major growth drivers for this segment.



# **UPGRADES DRIVEN BY CREDIT ENHANCEMENTS IN FY2021**

ICRA has outstanding ratings on 21 renewable players which sell power in the open access route with a cumulative capacity of 419 MW. Of this about 48% of the capacity has been tied up under the group captive route while the remaining is under third-party open access route. Further, in terms of energy source mix, solar players accounted for 68% of the capacity followed by wind at 22% and small hydro at 10%. Of the 21 players, 20 are rated in the investment grade and above as illustrated in EXHIBIT 9.

An analysis of the credit profiles of the aforementioned players shows that despite increasing regulatory risks, the ratings have remained relatively stable owing to a mix of reasons, including strong promoter backing, an established operational track record in a few cases and adequate liquidity in the form of Debt Service Reserve Account (DSRA). This indicates that despite an increasing trend witnessed in the open access charges, the sale of power via open access route continues to be remunerative as it is at a discount to the grid tariffs. The net tariffs for third party players were in the range of Rs. 4-5.5/Kwh.

In FY2021, a few players have faced challenges in terms of reduced offtake from players in the Hotels and Information Technology (IT) Parks segment, given the impact of the Covid-19 pandemic. However, they have been able to tie up with new customers in the open access route, (albeit, at lower tariffs in some case) to tide over the temporary deficit. Further, their debt servicing capability has not been materially impacted. The upgrades during 11M FY2021 were because of improved liquidity position owing to creation of the DSRA, commissioning of projects and improved asset diversity and elongation of debt repayment tenure for a co-obligator structure. While downgrade of one rating was due to deterioration of the credit profile of the parent, ICRA has placed 'Negative' outlook on one of the ratings as the group captive structure could not be adhered to, due to the reduction in offtake from one of the captive counterparties due to the impact of the pandemic. This will be closely monitored by ICRA. The downgrades in the earlier years were due to the weakened liquidity position and suboptimal operational performance due to issues with O&M players.

# EXHIBIT 9: ICRA rated renewable companies in the open access segment across rating categories



<sup>^</sup>As on March 22, 2021; Source: ICRA Research



EXHIBIT 10: Rating Movements in ICRA's Portfolio of Renewable- Open Access Players

Source: ICRA Research; \*11M FY2021



# **ABOUT ICRA**

ICRA Limited (formerly Investment Information and Credit Rating Agency of India Limited) was set up in 1991 by leading financial/investment institutions, commercial banks and financial services companies as an independent and professional investment Information and Credit Rating Agency.

Today, ICRA and its subsidiaries together form the ICRA Group of Companies (Group ICRA). ICRA is a Public Limited Company, with its shares listed on the Bombay Stock Exchange and the National Stock Exchange.

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The international Credit Rating Agency Moody's Investors Service is ICRA's largest shareholder. The participation of Moody's is supported by a Technical Services Agreement, which entails Moody's providing certain high-value technical services to ICRA. Specifically, the agreement is aimed at benefiting ICRA's in-house research capabilities, and providing it with access to Moody's global research base. The agreement also envisages Moody's conducting regular training and business seminars for ICRA analysts on various subjects to help them better understand and manage concepts and issues relating to the development of the capital markets in India. Besides this formal training programme, the agreement provides for Moody's advising ICRA on Rating-products strategy, and the Ratings business in general.

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