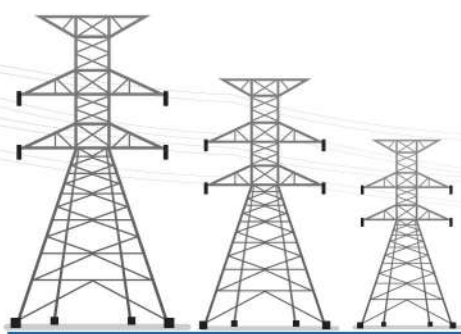
TATA CLEANTECH CAPITAL LIMITED

Indian Renewable Open Access Landscape

Market Trend and State Comparatives



JUNE 2021

About TCCL

~ 10.1 GW

Renewable capacity financed

> 240

Projects financed

15.8 million tons

Annual carbon emission averted

Tata Cleantech Capital Ltd (TCCL) is a joint venture between Tata Capital Limited and International Finance Corporation, Washington D.C. (World Bank Group). TCCL is registered with the Reserve Bank of India ("RBI") as a Systemically Important Non-Deposit Accepting Non-Banking Financial Company and commenced its operations in 2013.

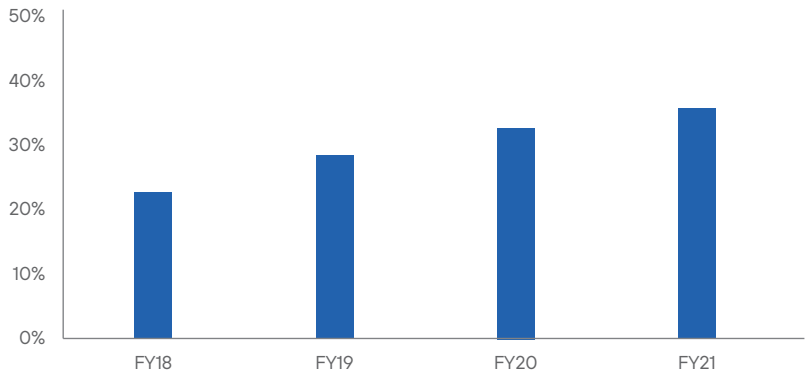
As India's only private sector financial institution focused solely on the green finance space, it offers end-to-end business solutions in the clean technology space. TCCL is engaged in the business of offering finance and advisory services across renewable energy, energy efficiency, waste management, power transmission, water, energy efficiency and electric mobility.

TCCL is the first Indian company and the first Private Sector Climate Finance Institution in the Green Bank Network. It is also the first private sector company globally to partner with the Green Climate Fund ('GCF') to develop the solar rooftop market through a USD 100 million credit line. TCCL has played an instrumental role in expanding the pool of cleantech investors in India, by partnering with various classes of marquee domestic and international investors.

TCCL has delivered significantly higher ROE than industry while maintaining the best in class asset portfolio and is rated AAA by CRISIL.

TCCL has developed in-depth understanding and expertise of policies, regulations and market fundamentals in Open Access market. Coupled with agility, real time updates and market tracking, TCCL has become one of the leading players in primary debt financing of Renewable Open Access projects in India. Its expertise lies in ability to structure Open Access renewable energy projects and to make them more bankable.

Market share of TCCL in primary underwriting of renewable Open Access projects



Note: TCCL's share is based on sanctioned capacity of TCCL

For more information, please refer **www.tatacapital.com/tccl**

Acknowledgement

The contents in this report was strengthened with the insights contributed by leading industry experts. We would like to express our sincere gratitude to them for sharing their subject-matter expertise and critical feedback. We are grateful to our reviewers as enlisted here for the support extended to the report:

Amplus Solar

- Alok Verma
- Ritu Lal
- Sanjeev Aggarwal

AMP Energy

- Pinaki Bhattacharyya
- Rajni Bhandari
- Shriprakash Rai

Fourth Partner Energy

- Saifuddin H Dhorajiwala
- Tarang Bhatt
- Vishal Vijay Toro
- Vivek Subramanian

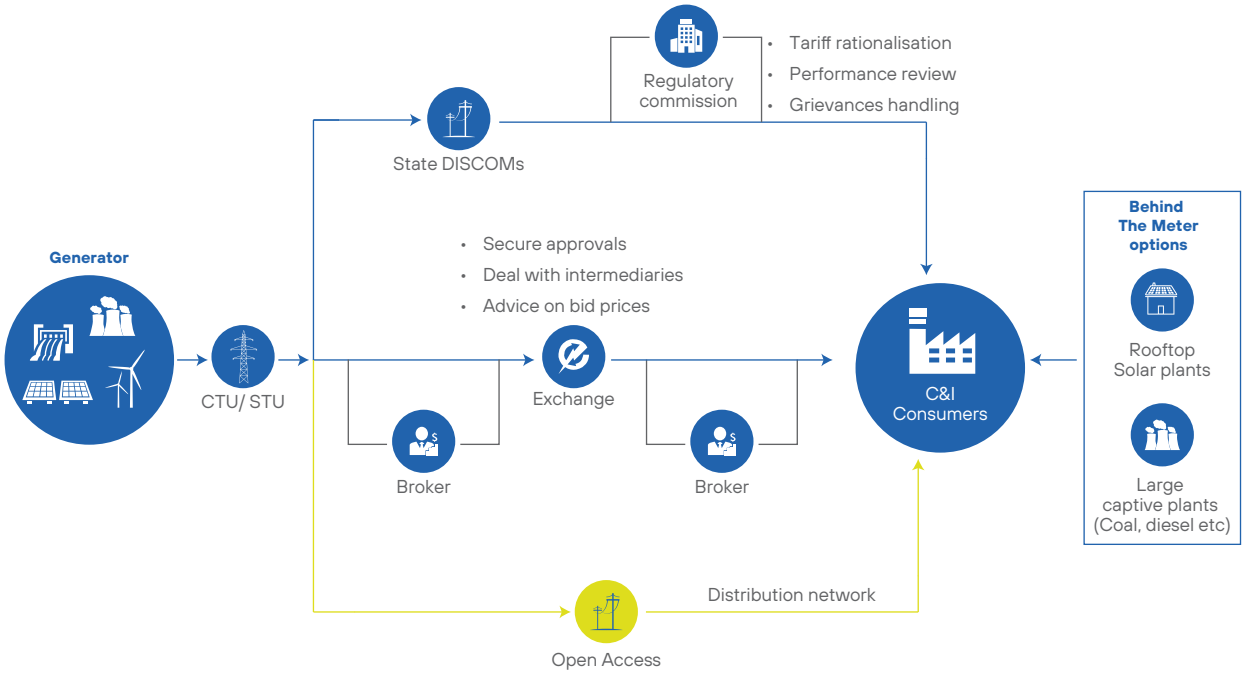
1. Power procurement in the context of corporate off-takers

Globally, commercial and industrial (C&I) consumers, or corporates, account for 64% of the total electricity consumption[1]. Electricity makes up a considerable share of the operating expenses not only for industrial consumers, but also for commercial consumers such as data centres and malls. Resultantly, such corporate clients are always on lookout for possible ways to reduce their hefty electricity cost.

Selecting from amongst the various electricity procurement options available, would depend on the company's sustainability strategy, its location, aggregate electricity consumption and the local regulation. Some of the options available are:

- **Electricity Distribution Company (DISCOMs)** – It is the most traditional, and prevalent, method. Under this the DISCOMs act as a mediator between the generator and the consumers. The DISCOMs are the supplier of last resort owing to their extensive reach and the support of local regulations. However, the tariffs may not be most competitive
- **Open Access** – Consumer can procure electricity from an off-site generating plant by using the transmission and distribution infrastructure of the DISCOMs. Under this model, the DISCOM provides a non-discriminatory access to its infrastructure. However, the use is subject to charges and regulations. This model has two sub-segments:
  - **Wholesale market** – It operates through a market platform where multiple buyers and sellers come together to buy and sell electricity at market determined prices based upon demand and supply. However, the arrangements under this market are predominantly for a short-term duration only
  - **Bilateral Market** – As opposed to the wholesale market, the buyer and seller can enter into a mid-term to long-term contract on a mutual agreed basis
- **Behind The Meter options** – Rooftop solar and large coal or diesel based captive plants are the most commonly used behind the meter options. Under this, corporates can consume the produced electricity at the point of generation, thus minimizing any Transmission or Distribution (T&D) losses.

Figure 1: Power procurement options for Commercial and Industrial consumers

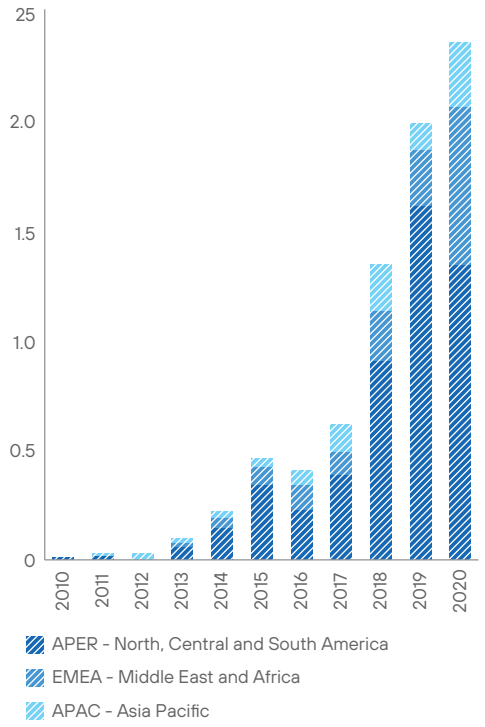


1. International Energy Agency (IEA) as on 2018

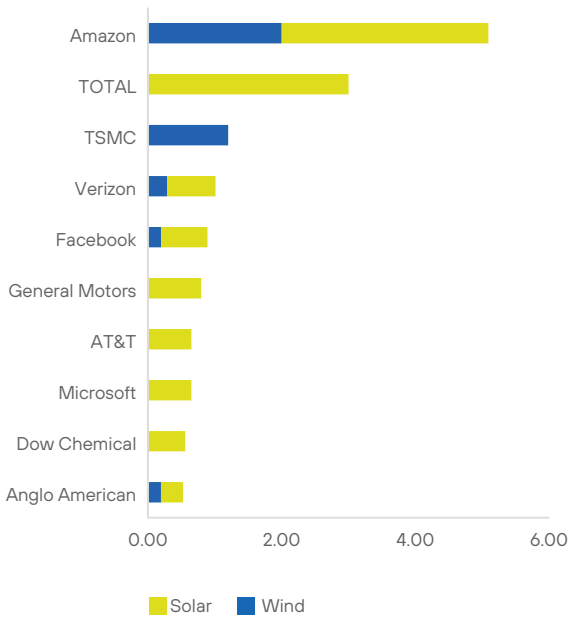
Globally, the corporate PPA (Power Purchase Agreement) market is more matured in the US and in the European countries. This is largely owing to the trends of early industrialisation in such economies. During 2020, despite COVID-19's impact, corporate renewable procurement increased by a solid 18%. In the US alone, the announcements of procurement were to the tune of 11.9 GW. The European as well as Asia Pacific, markets also showed healthy growth in 2020. In addition to the improved economics of the business, the growing conscious decision of large corporates such as Amazon, Microsoft and TSMC led to reduce their carbon footprint was also a driver for this stellar market growth.

Figure 2: Global renewable capacity addition in the corporate PPA segment

Region wise global corporate PPA volumes, GW



Top corporate renewable offtakers globally 2020, GW



Source: BNEF

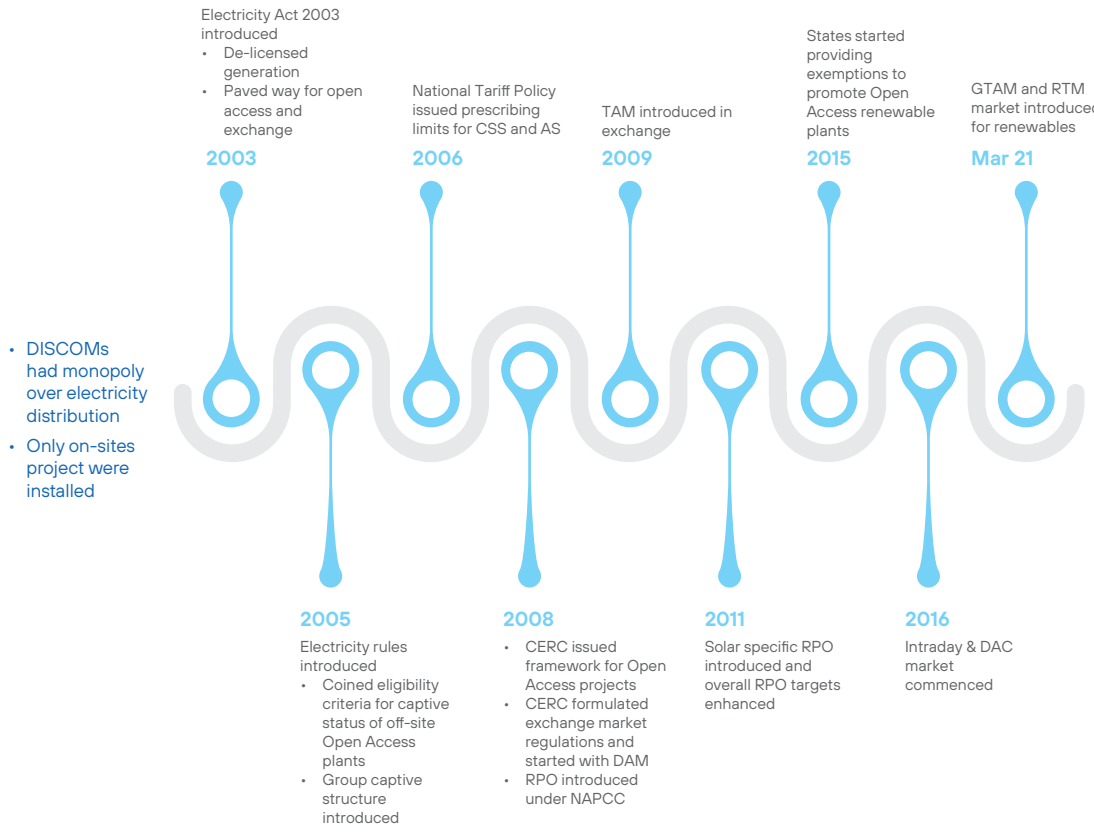
Note:

1. Data is reported in GW DC capacity
2. Onsite PPA and Australia sleeved PPAs (under this intermediary utility company handles the transfer of money and power to and from a project on behalf of the consumer) are not included
3. Pre - market reform Mexico PPAs are not included, and APAC numbers are estimated

2. Indian Open Access market

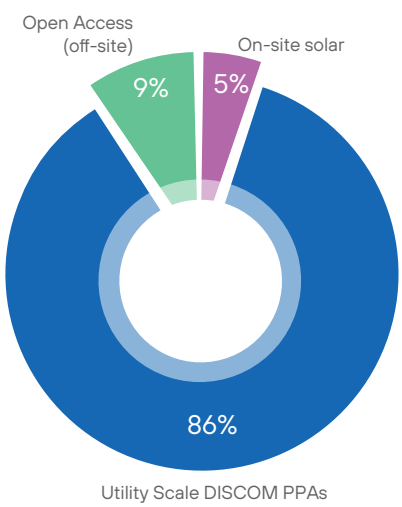
Moving to India, the concept of power procurement through an off-site generating plant was introduced only in 2003 via the inclusion of "Open Access" under Section 2 (42) of the Electricity Act 2003. Since then, a series of regulatory orders and formulation of the exchange market have opened up the Open Access market. In-line with India's commitment towards fighting climate change, Renewable Purchase Obligation (RPO) was introduced under National Action Plan for Climate Change (NAPCC). Under this the obligated entities, DISCOMs and corporates procuring power from outside the DISCOM's network (through open access of behind the meter captive plants), were mandated to ensure minimum renewable consumption.

Figure 3: Open Access market development chronology



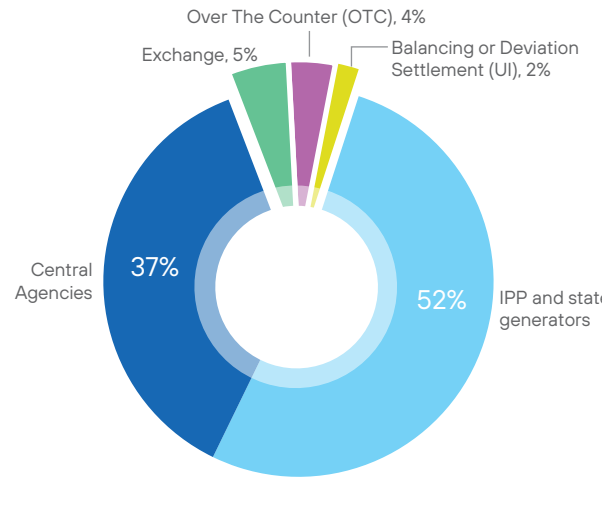
AS - Additional Surcharge; CSS – Cross Subsidy Surcharge; DAM – Day Ahead Market; GTAM – Green Term Ahead Market; RTM – Real Time Market; TAM – Term Ahead Market

Nascent Open Access market in India, Dec'2020



Source: TCCL Research

Power supply arrangements, Dec'2020



Source: IEX

Declining costs and Go-Green initiatives are accelerating the shift from coal to renewables

Historically, India's corporate market had been dominated by coal-fired power plants. But with technological advancements, the renewable energy sector has become increasingly cost competitive. In addition to cost competitiveness, the shift towards renewable power was also accentuated due to the Go-Green initiatives by the corporates and a faster installation time.

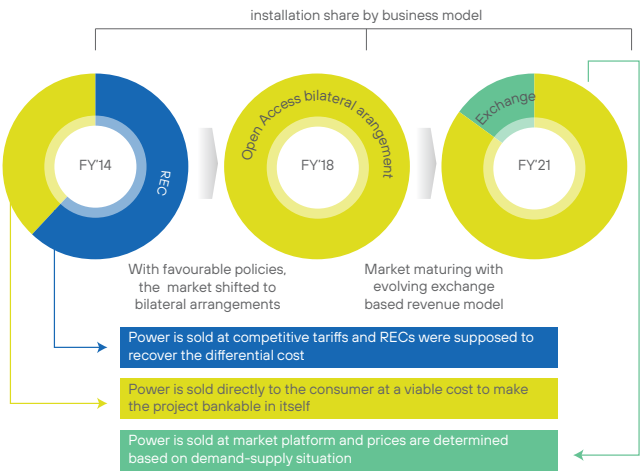
Despite the shift, the Open Access renewable market is still in a nascent stage in India as the bulk of the renewable energy installation still caters to the DISCOM backed PPAs. Since India's corporate consumes over half of the total electricity generated, the adoption of renewable Open Access plants would be crucial for driving the next level of India's energy transition!

3. Business model evolution

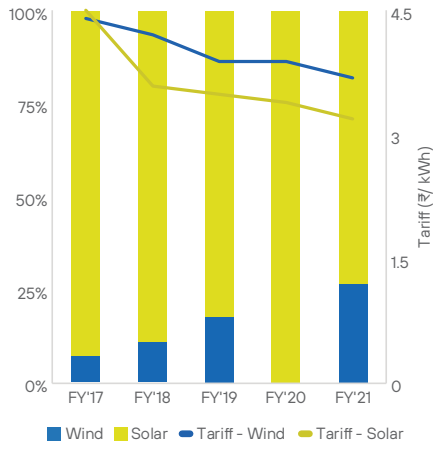
Wind power plants already started becoming cost competitive with the conventional plants along with the advent of Open Access market. However, at the time, solar tariffs were significantly higher and unable to attract meaningful attention on a standalone basis. To make solar projects bankable an exchange tradable Renewable Energy Certificate (REC) mechanism was introduced under bilateral market to recover the cost differential. But unfortunately, the REC market fizzled due to the high cost differential and poor RPO implementation. However, following a steep reduction in costs coupled with emergence of favourable policies, a more sustainable bilateral arrangement business model evolved for solar, similar to wind. But with the rapid technological advancement, the solar sector outpaced wind and became preferred choice.

Figure 4: Evolution of Open Access business models for renewables

Solar Projects



Annual share of installation | Tariff



Wind Projects

Open Access bilateral arrangement

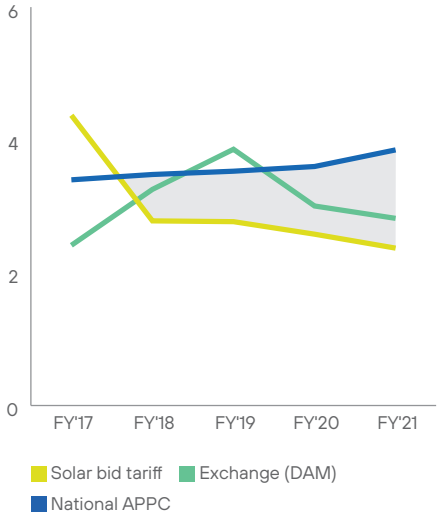
With rapid technological advancement and falling tariff, the solar sector outpaced wind and became preferred choice

Source: TCCL Research

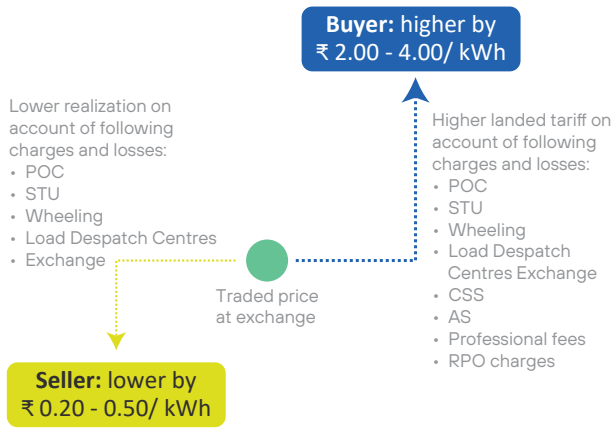
The Open Access market is witnessing a new trend in the form of exchange-based business model, similar to that seen in the developed markets. The new trend is emerging at an opportune time since the market clearing tariffs at the exchange are more attractive than those arrived in the competitive bids and still lower than the Average Pooled Purchase Cost (APPC). Further, the market clearing price in GTAM is ~₹ 0.30-0.40/ kWh higher than DAM.

Figure 5: Price trend under exchange market

Solar bid tariff versus Exchange (DAM) price trend, ₹/ kWh



But tariff realizations are lower for sellers and higher for buyers than the exchange traded price



PoC: Point of Connection; STU: State Transmission Utility

Source: TCCL Research, IEX & CERC

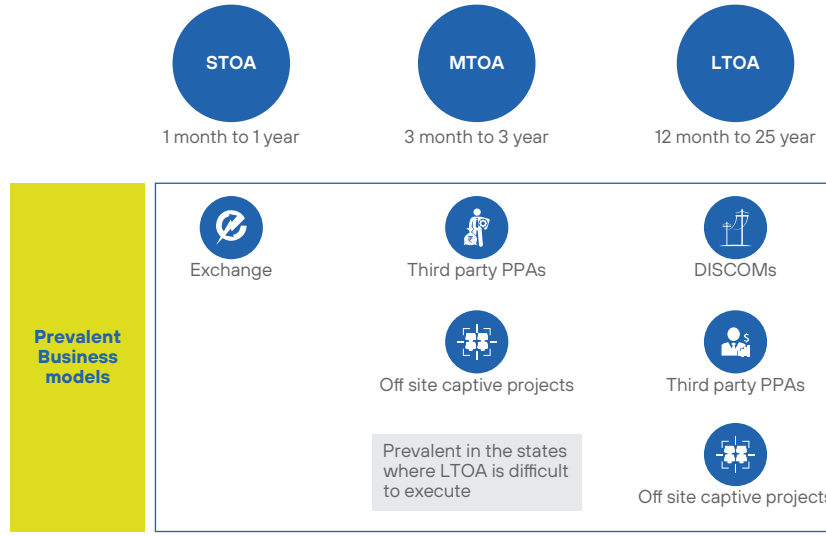
4. Connectivity arrangements for Open Access projects

As per Central Electricity Regulatory Commission (CERC), the power projects are provided interstate connectivity under Short Term Open Access (STOA), Medium Term Open Access (MTOA) and Long Term Open Access (LTOA). The projects under LTOA are provided a dedicated network infrastructure and are accorded priority while scheduling. In the absence of a LTOA, the projects can wheel power only if transmission bandwidth is available after taking into account the power from LTOA based projects. Power from the projects having LTOA gets first preference followed by MTOA and then STOA.

Transmission and wheeling charges for MTOA and STOA are on per unit basis, hence, 4-5 cheaper than that of LTOA for renewable projects

For LTOA, the transmission and wheeling charges are on capacity basis apportioned over the projects' lifetime. The charges for MTOA and STOA are on per unit basis and hence, are significantly cheaper than that of the LTOA. This is particularly true for renewable energy plants where the utilization of the transmission grid is barely 20%-30% and as a result, the charges for MTOA and STOA are 4-5 times cheaper than that of the LTOA. However, there is a huge risk of power curtailment on the MTOA and STOA projects, in case of unavailability of transmission bandwidth.

Figure 6: Connectivity arrangements for Open Access plants



Source: CERC

As electricity is a concurrent subject, intrastate connectivity for Open Access projects have to follow the regulations defined by State Electricity Regulatory Commissions (SERCs). The arrangements depicted in figure above are only guidelines and SERCs are empowered to change the tenure.

5. Predictable and unpredictable charges drive the Open Access market

While the captive and third-party models are the most popular, there are various charges and losses which drive the bankability of these projects. The guiding principles for the calculation of these charges are defined by the CERC. However, the State Electricity Regulatory Commissions (SERCs), in consultation with the DISCOMs and other stakeholders, are responsible to determine the values.

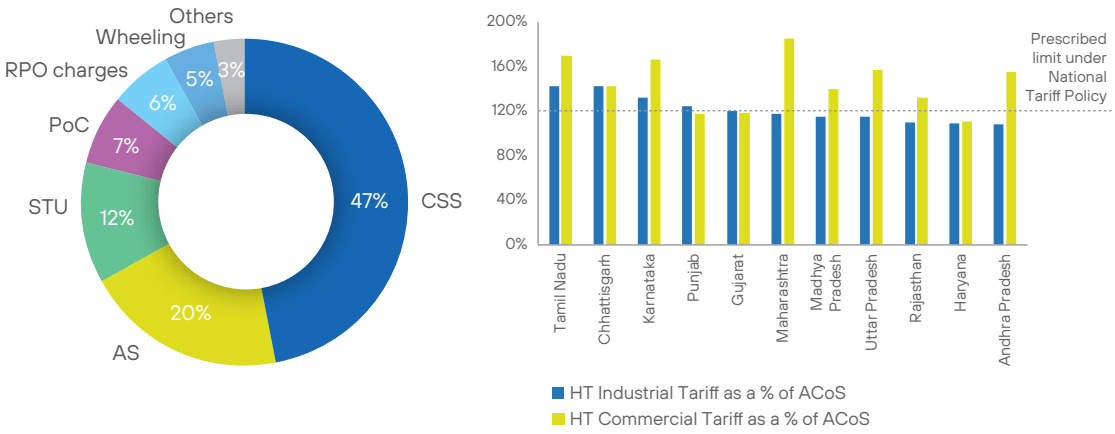
Figure 7: Definition of Open Access charges

1 Wheeling/distribution charges	Calculated by dividing annual distribution cost by distribution capacity of the network	2 Transmission/ STU charges	Calculated by dividing annual transmission cost by transmission capacity of the network
3 Wheeling/distribution losses	Obtained by calculating total losses in distribution network in units and converting it into ₹ equivalent	4 Transmission/ STU losses	Obtained by calculating total losses in transmission network in units and converting into ₹ equivalent
5 Cross subsidy surcharge	S= T-(C(1-L/100)+D+R); T-tariff, C- weighted avg. cost of power, L-loss and D-wheeling charge, R-regulatory assets carrying cost	6 SLDC/RLDC charges	₹ 1,000-2,000/day payable to RLDC/SLDC whose network is used. Charges include scheduling & accounting
7 Additional surcharges	Calculated on per kW basis by dividing stranded capacity charges and Open Access scheduled energy	8 Banking changes	Based on regulatory orders
9 UI charges	Charges paid by the consumer in case of over drawl or under drawl based on quantity of over and under drawl	10 Others	Based on regulatory orders. These charges include application fees, electricity duty, reactive charge, deviation settlement etc.

Source: CERC

For subsidising agricultural and residential consumers, the C&I consumers are charged a higher tariff through the levy of Cross Subsidy Surcharge (CSS). Since, it accounts for the highest share in landed tariff, CSS can potentially alter project viability. The National Tariff Policy along with the proposed amendment to the Electricity Act 2003, mandates rationalisation of tariffs and keep the retail tariffs across consumer categories within +/-20% of the Average Cost of Supply (ACoS) i.e. a cost reflective tariffs with a reduction in cross subsidies. However, the on-ground realities are yet to comply towards this direction.

Figure 8: Tariff cross-subsidisation level and share of CSS on landed tariff



Note: Buyer connected with state DISCOM at 33 kV in Gujarat

Source: TCCL Research & respective SERCs

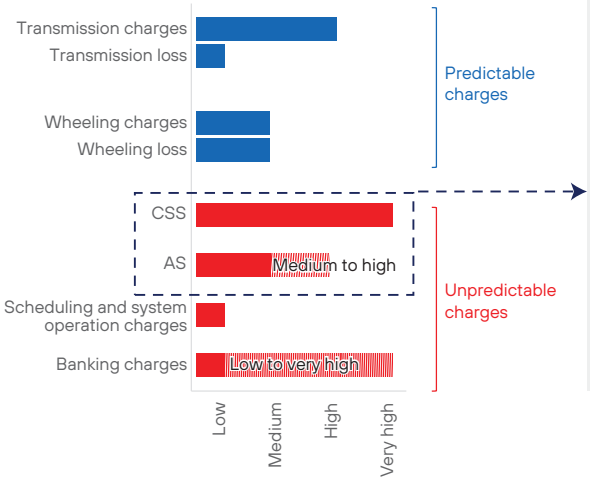
Open Access projects require long term visibility on applicable charges and losses to maintain projects bankability. The transmission and wheeling charges have a transparent methodology for calculation and long-term certainty. However, cross subsidy surcharge and additional surcharge have no such certainty, resultantly keeping the projects' bankability in a grey area. The Captive and Group Captive model enjoys the CSS and Additional Surcharge (AS) exemptions under the Electricity Act, 2003, which makes it more sustainable than the other.

Restriction around drawl during ToD and settlement period can significantly impact project bankability

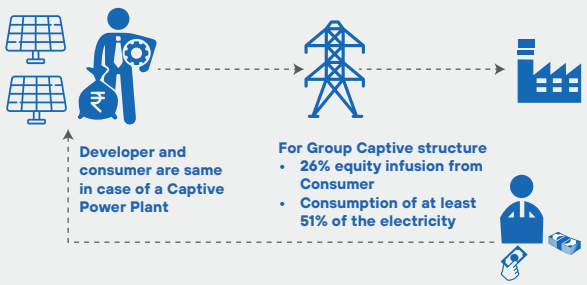
By nature, solar and wind power are infirm and non-dispatchable. Hence, these plants have higher dependence on the grid to bank the unused power. The use of banked power is subject to SERC's regulations and applicable charges. Though, banking charges may seem small, but the restrictions around drawl during the Time of Day (ToD) hours, settlement period and dynamic regulations have the potential to negatively impact the project bankability.

Figure 9: Applicable charges and their trajectory

Charges applicable on Open Access projects

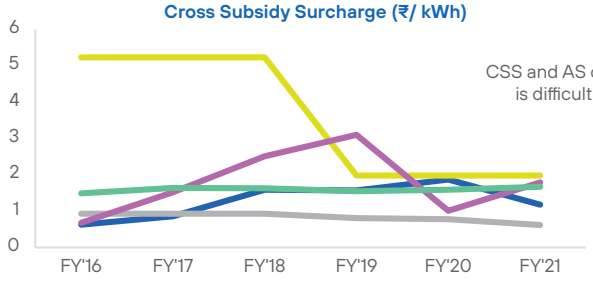


Depiction of captive model



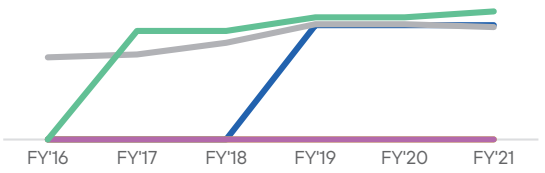
Captive structure (including Group Captive), defined under Section 38, 39, 40 and 42 (2) of Electricity Act 2003, exempts consumers owning Open Access projects from payment of CSS and AS

Cross Subsidy Surcharge (₹/ kWh)

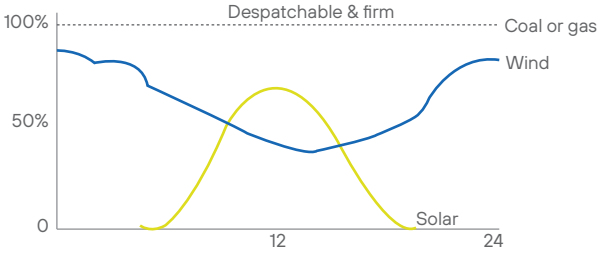


CSS and AS charges trend is difficult to predict

Additional Surcharge (₹/ kWh)

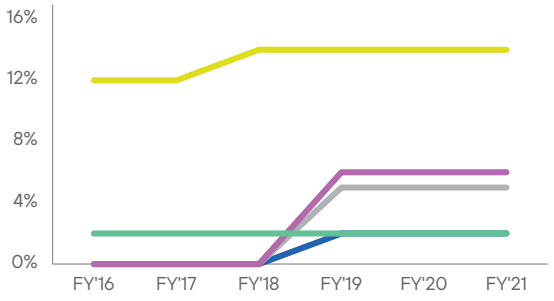


Need of banking for solar and wind

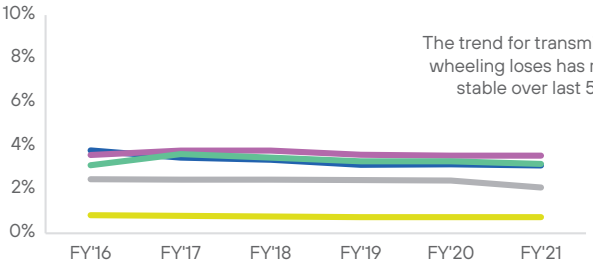


Banking arrangement becomes tricky with restrictions around drawl during the ToD slots hours, settlement period and changing regulations

Banking charges

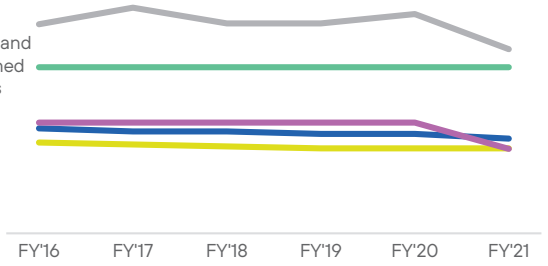


Transmission losses



The trend for transmission and wheeling loses has remained stable over last 5 years

Wheeling losses



Karnataka | Tamil Nadu | Haryana | Uttar Pradesh | Maharashtra

Source: TCCL Research, CERC & respective SERCs

6. State's regulatory framework for Open Access

RE100[2] has cited India as the sixth most challenging market globally for the corporate sourcing of renewable energy. The major barriers include fragmented policy and the fact that the regulatory framework differs from state to state across India, as well as uncertain charges and taxes regarding the procurement of renewable power[3].

Figure 10: Exemptions scenario across the states

State	Exemption on charges	Banking provisions		
		Banking permitted	Settlement period	Treatment of unadjusted units
Andhra Pradesh	NA	X	NA	NA
Chhattisgarh	o Transmission, wheeling, AS and SLDC charges exempted o CSS exempted for solar projects o However, tenure is not specified	√	3 months	Lapse
Gujarat	o 50% exemption on CSS and AS for third party for 25 years o Electricity Duty (ED) exempted for 25 years	√	1 month	Settlement at ₹ 1.75/ kWh
Karnataka	75% exemption on AS, but tenure is not specified	√	6 months	Lapse
Madhya Pradesh	NA	X	NA	NA
Maharashtra	ED exempted for captive for 10 years	√ (only for captive)	1 month	Lapse
Rajasthan	o Wheeling charges applicable on per unit basis rather than contracted capacity for projects less then 25 MW o ED exempted for 7 years	√	12 months	Lapse
Tamil Nadu	o 50% exemption on transmission and wheeling charges o CSS exemption of 30% for solar and 40% for wind o However, tenure is not specified	X	NA	NA
Uttar Pradesh	o 50% exemption on wheeling charges for 25 years o ED exempted for 10 years	√ (only for captive)	Carry forward allowed for 6 months	Lapse

Source: TCCL Research & respective SERCs

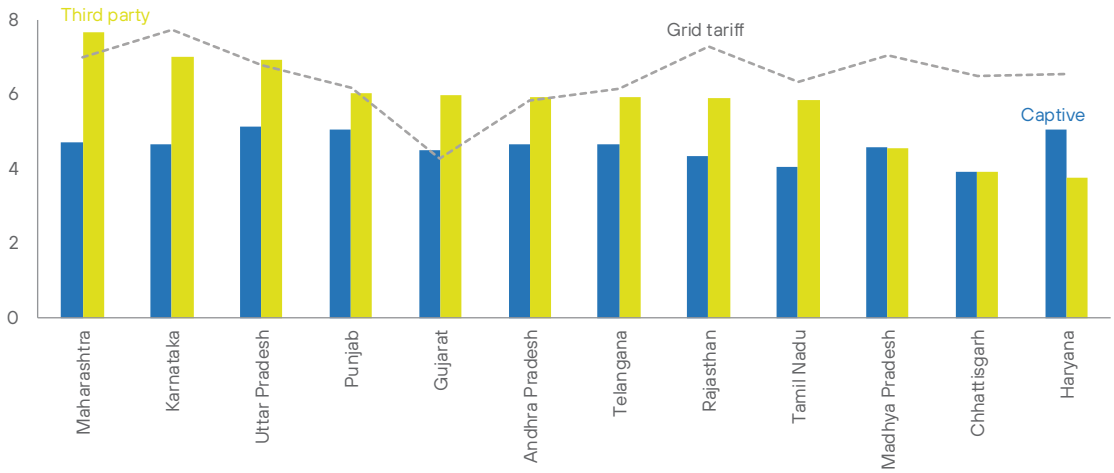
Note:

1. Settlement of banked energy usually happens as per the ToD slots
2. The payments of unadjusted units remains a contentious issue. There are limited instances of payments actually received for unadjusted units in the past. Multiple states have removed settlement provision in last few years
3. In addition to the prescribed regulations, there are multiple procedural hurdles in many states
4. The table is as per the regulatory provisions applicable as on June 2021

The difference between the grid tariff and landed tariff determines the commercial viability of a project. Moreover, this difference varies across the states with variation in terms of exemptions and charges. Also, the selection between the captive and third party models depends on this price difference.

2. The global initiative of companies who have committed to 100% renewable energy usage 100
3. RE 100, "Annual Report - December 2019"

Figure 11: State wise landed tariff, ₹/ kWh



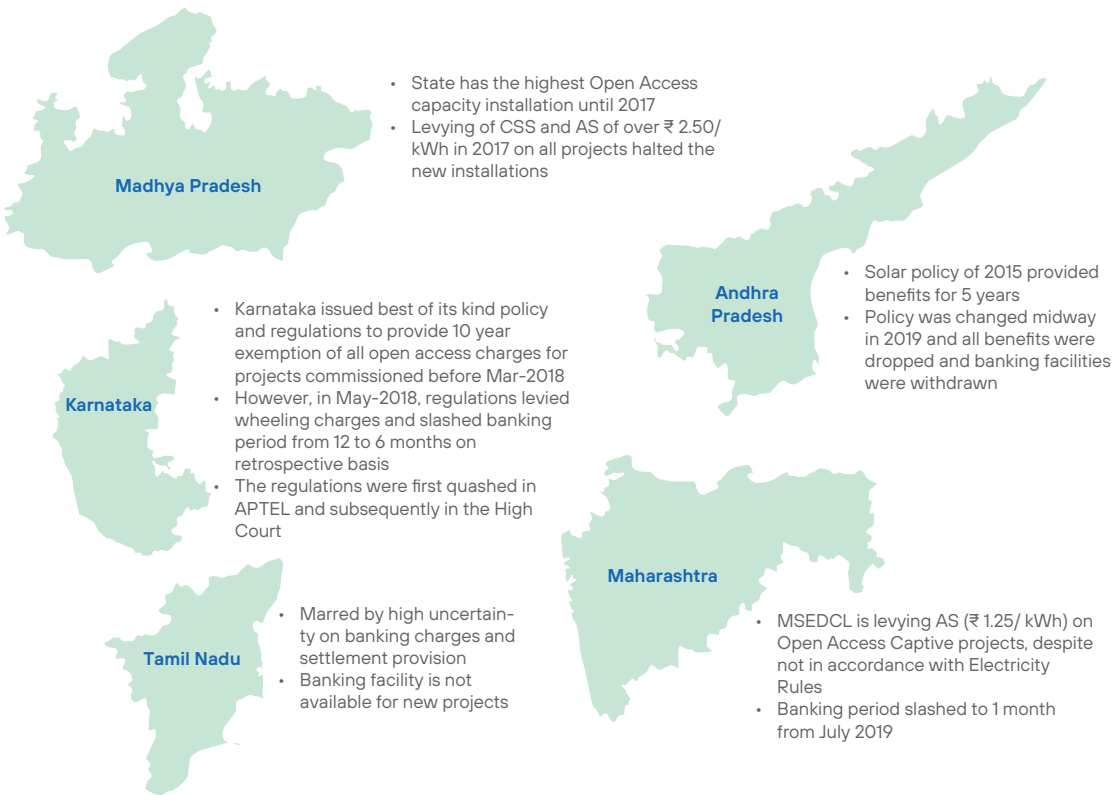
Source: TCCL Research & respective SERCs

Assumptions

1. CUF of 16% and generation tariff assumed as ₹ 3.50/ kWh across the states
2. Off-taker withdrawal voltage at 33 kV
3. Energy charges are shown for HT Industrial consumers at 33 kW and above for FY'21

In India, since the corporate consumers are the higher paying consumers for the DISCOMs, the adoption of Open Access projects increase the losses for those DISCOMs who have weaker financials. This inadvertently creates a huge resistance from the DISCOMs to allow the exemption of charges or engage in Captive and Group Captive Open Access projects where they cannot levy CSS and AS. Due to this pressure, there have been multiple instances of various states revising their regulations even during the policy periods.

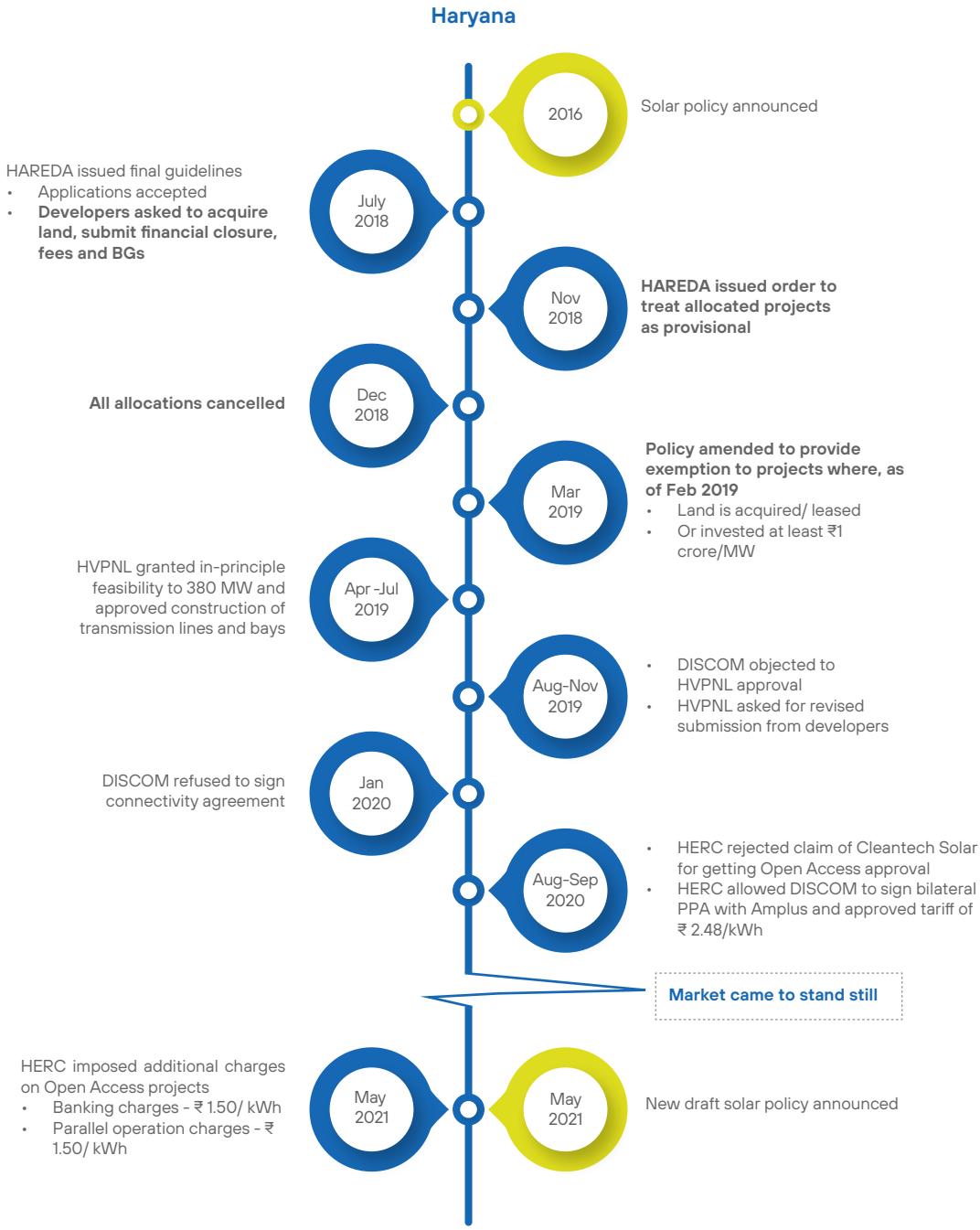
Figure 12: Changing regulatory landscape across states



Source: TCCL Research

A case worth mentioning is of Haryana, which showcases a complete disconnect between policy and the regulations. Despite, launching one of the best Open Access policy in 2016 and creating euphoria across the industry, the state failed to convert this into actual installations. Even for those projects that were installed, they may not be classified as Open Access project in future.

Figure 13: Chronology of Haryana's Open Access market development

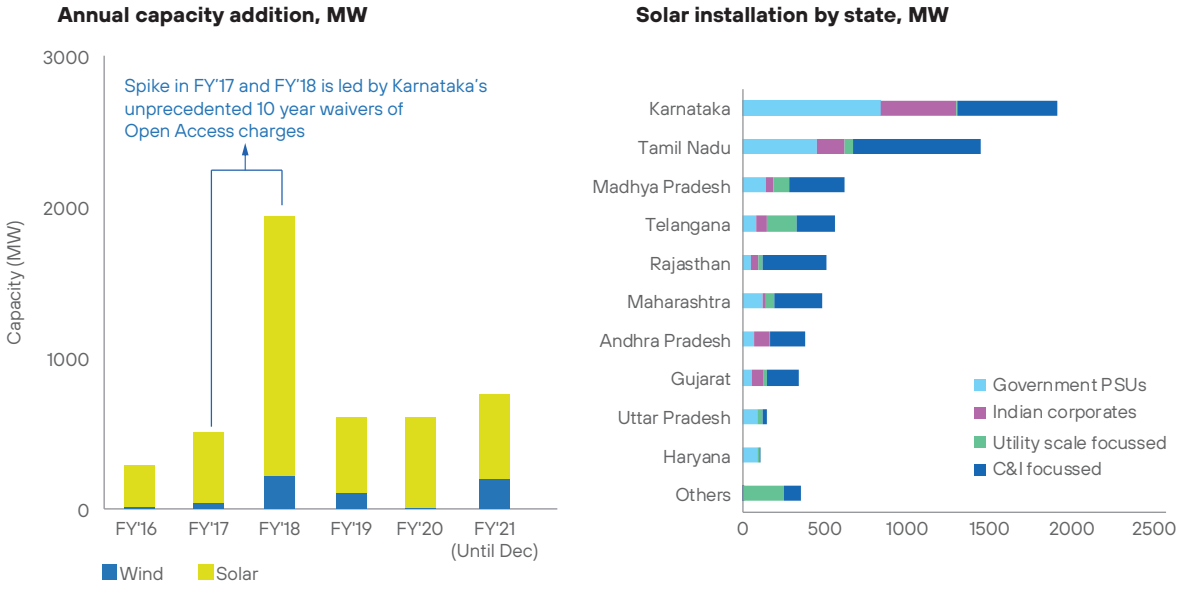


Source: TCCL Research

7. Competitive landscape

Capacity installation under Open Access has been irregular due to the high dependency on regulations. Until FY2017, Madhya Pradesh, Maharashtra and Rajasthan were the leading states in the country for Open Access projects. However, the business environment changed with the introduction of Karnataka's policy that offered a 10 year waiver. Andhra Pradesh, Telangana and Tamil Nadu also had launched favourable policies.

Figure 14: Trend in capacity installation

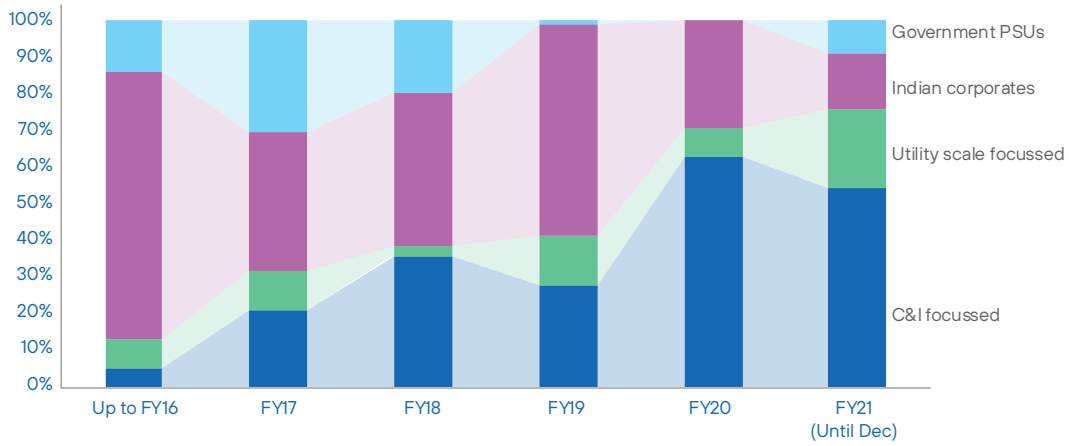


Source: TCCL Research

Indian Corporates dominate the Open Access market, in terms of project installations. There are a few projects that have been set up by large corporates to meet their captive requirements. But these represents only a small fraction of the market. The bulk of the projects set up by the Indian Corporates are based on the lure of higher returns, on the back of accelerated depreciation benefits.

Although, the smaller C&I focussed players were active in this space for a long time, but the Open Access market started evincing the interests from Private Equity (PE) backed, C&I focussed players and large utility scale focussed companies only after Karnataka announced its 10-year exemption. Since then, the market share of both C&I and utility focussed companies has been increasing.

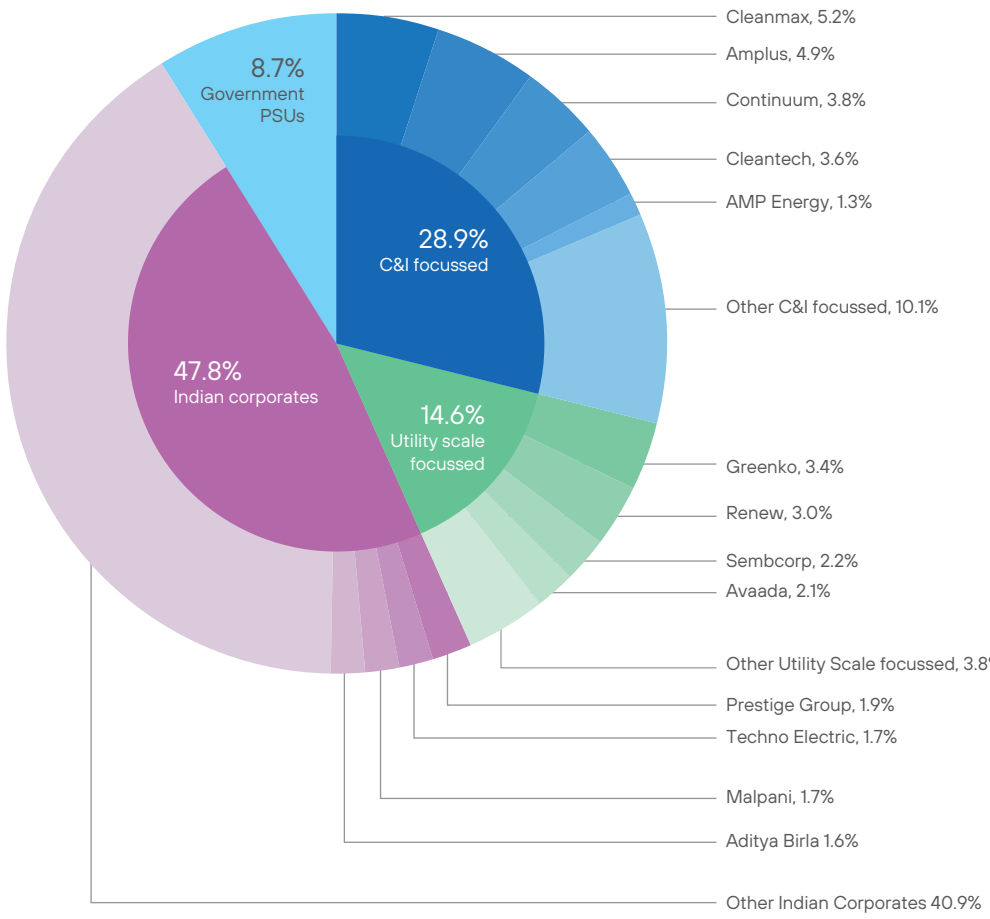
Figure 15: Market segmentation trend



Source: TCCL Research

With the opening up of the market, the C&I and utility scale focussed companies became the largest players. Of the 8 largest companies, 4 are specialized C&I focussed companies while 4 are utility focussed companies.

Figure 16: Developers market share, Dec 2020



Source: TCCL Research

Figure 17: Annual ranking trend of developers

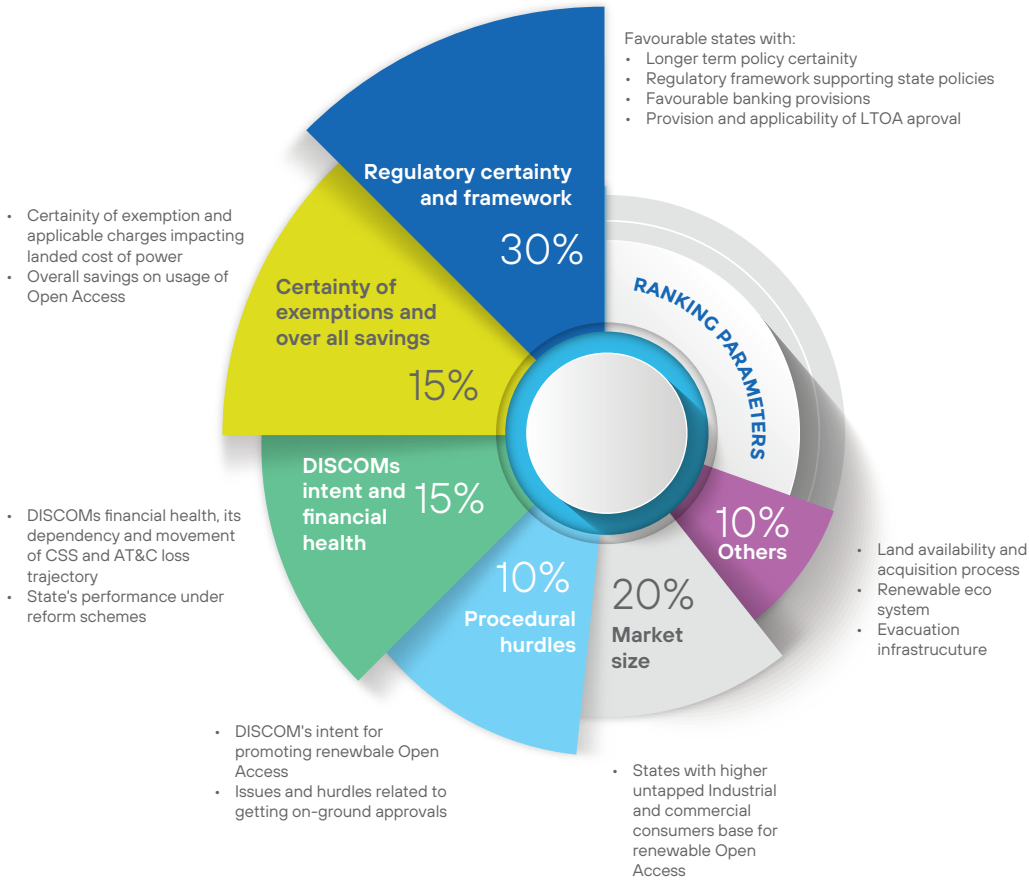
		Up to FY16	FY17	FY18	FY19	FY20	FY21 (Until Dec)
C&I focussed	Cleanmax		3	2			1
	Amplus		8	1		2	
	Continuum			10	1	3	3
	Cleantech					1	6
	AMP Energy						5
	Atria		7	8			
	Hinduja						2
	Vibrant		4			10	
Utility scale focussed	Greenko	4	1				
	Renew		2	3			
	Sembcorp	1	6				
	Avaada			4			
Indian corporates	Prestige Group			6	2		
	Techno Electric	2					
	Malpani	3					
	Aditya Birla				3	4	
	Embassy Services			5			

Source: TCCL Research
Note: Government PSU projects are not considered for ranking

8. Open Access market attractiveness index for states

Given the nature of the industry, a lot will continue to depend on the local regulations. To ascertain which are the key states leading the growth of the Open Access segment, TCCL has developed a ranking matrix. The ranking parameters are bucketed into regulatory certainty, DISCOMs intent and financial health, certainty of exemptions, market size, and other aspects.

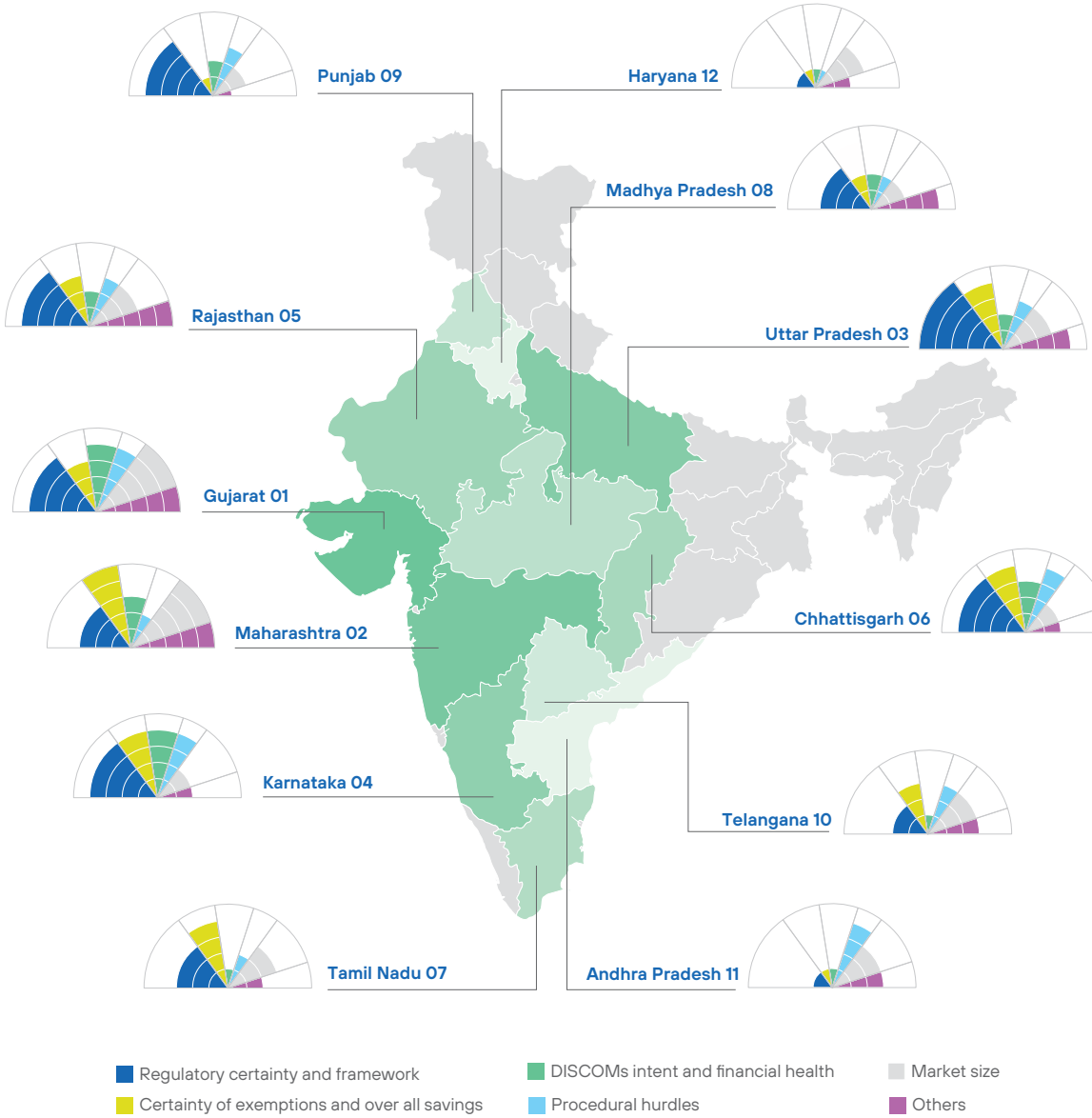
Figure 18: Annual ranking trend of developers



Source: TCCL Research

Figure 19: Ranking of the states

It is highly likely the capacity addition for renewable Open Access projects would be centred in top 7 states



Source: TCCL Research
Note: Ranking is as per existing regulations and market fundamentals as of June 2021

9. Risk perception and debt financing landscape

It is only recently that the Open Access markets has started witnessing long term PPAs. However, the risk perception of these projects is still significantly higher than the DISCOM PPA based projects.

Figure 20: The lenders' perspective on the risks associated with financing utility scale, Open Access and rooftop projects

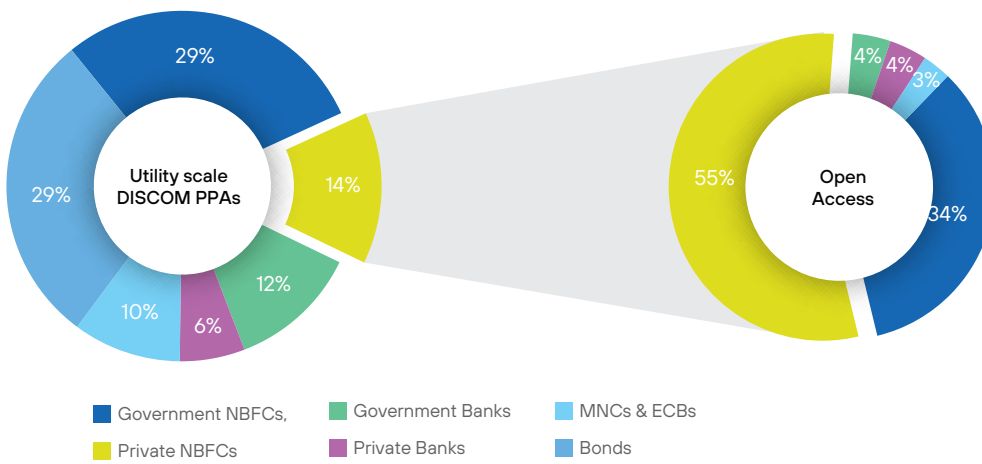
		DISCOM PPA	Open Access
Land acquisition	• Local issue and title transfer		
Execution delays	• Engineering and designing • Equipment procurement and installation		
Scale and operations	• Technician and labour availability at site • Spares and downtime		
Asset and performance	• Generation and degradation risk • Asset security and repossession		
Grid access and congestion	• LTOA and grid interconnection arrangements • Grid congestion		
Payment from offtaker	• Periodic payment of power generated*		
Contract renegotiation	• Tariff and contract terms renegotiations for 25 years**		
PPA tenure	• PPA longevity in proportion to plant life of 25 year		
Regulatory	• Regulatory changes for long term visibility		

*NTPC and SECI are considered as offtakers for utility scale
**Andhra Pradesh PPA renegotiation issue is not considered as the matter is subjudice

Source: TCCL Research

Due to the high risk perception, the participation of banks is miniscule in the Open Access market, as against in the utility scale DISCOM segment. The Private NBFCs owns the largest portfolio of debt financing of Open Access projects. In primary underwriting, the share of private NBFCs would be north of 60%.

Figure 21: The infrastructure lending market



Source: TCCL Research
Note:
1. The market shares are estimated and based on available data
2. Financing of Government PSU owned projects are excluded from this analysis

The debt financing landscape in the Open Access market has been similar to that of the DISCOM PPAs, during the evolutionary stage. Since the regulatory climate is still evolving, it requires an in-depth market understanding to tap this segment. The primary reason for strong dominance of private sector specialized NBFCs in the Open Access segment is they have the domain expertise and better monitoring frameworks in place. Going forward, as the sector matures, increased participation by the banks as well as emergence of other financial instruments would propel debt financing further in this segment.

10. Way forward

Till date, the Open Access renewable market growth has remained stunted due to continued regulatory uncertainties, deteriorating financial health of the DISCOMs and their dependence on CSS, and fluctuating banking arrangements rules.

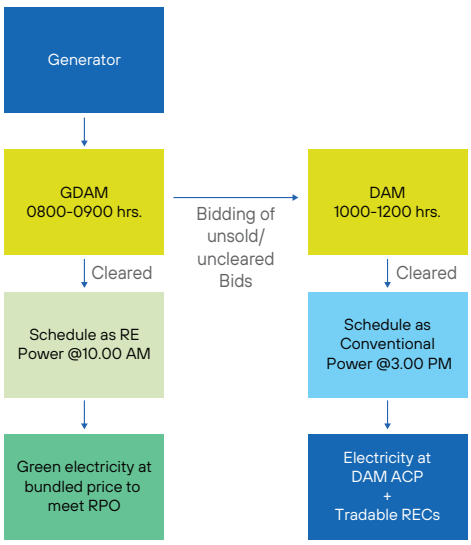
Going forward, the following changes are expected, which would augur well to scale up the market.

More projects based on revenues from the exchange

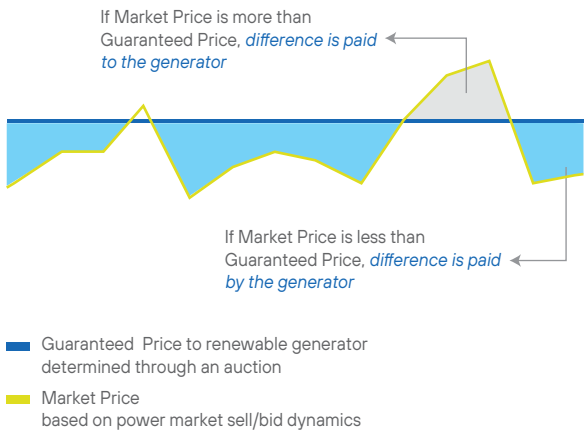
Transactions at the exchange have grown over the year, but it is mostly dominated by conventional power. Against the push towards green, power exchange has started with the GTAM market. And to facilitate the sale of unsold renewable power, the exchange is likely to introduce – Green DAM (GDAM) and Contract for Difference (CFD) mechanism. The seller will then be empowered to sell the uncleared power in DAM and claim REC in GDAM. These markets will protect the generators' revenue loss and will make revenue from the exchange more reliable.

Figure 22: Upcoming markets under the exchange to boost renewable

Proposed Timelines under GDAM



CFD mechanism protecting generator revenue



Source: IEX

Adoption of wind-solar hybrid and storage-based projects

Wind-solar hybrid projects have an added advantage as they can operate throughout the day. This results in better utilization of the grid infrastructure and reduced dependency on banking facilities. Under Open Access, a few wind-solar projects are already installed, while more are in the pipeline. However, the growth of this segment is dependent on the near-economic parity between the solar and wind tariffs, else the benefit of grid utilization cannot be compensated by an increase in tariff of one source over the other. As on date, Gujarat and Karnataka have seen maximum action on this front owing to the abundance of both wind and solar resources.

Storage-based renewable projects can address uncertainty pertaining to banking

The withdrawal of the banking provision is a key cause of concern for project viability. However, declining cost of storage is expected to lead a paradigm shift on conceptualization of Open Access projects with following differentiations:

- Developers would be able to match the demand profiles precisely, thus mitigating banking risks
- Developers can take advantage of tariff arbitrage in ToD slots - peak and off peak
- Although wind-solar hybrid plants enjoy better grid utilization, it also leads to power throttling when both the solar and wind plants are generating simultaneously. The declining cost of storage could address this issue
- Ancillary services, or creating spinning reserves from the private generators, is another market under development in India. The CERC has released draft Ancillary Services Regulations in June 2021 for better frequency control, voltage and reactive power support and maintaining generation and transmission reserves. As and when this market becomes operational, it will offer another revenue stream for storage-based projects

Proposed amendments under the Electricity Act, 2003

The Open Access segment is still in a nascent stage, largely due to adversarial position taken by the state-level DISCOMs. In its current form, the proposed Amendments to the Electricity Act include several reforms aimed to transform the ailing distribution sector. It would also usher in the restructuring required to boost the Open Access segment.

Figure 23: Proposed Electricity Act 2003 Amendments and Open Access

Key Amendments	Impact on Open Access projects
Determination of CSS • In line with National Tariff Policy as opposed to discretion of SERCs	• Reduction of CSS in line with tariff policy • Ability to predict the charges for Open Access projects
Tariff determination for consumers • To be based on actual cost of DISCOMs • Subsidies won't be considered as it has to be borne by state governments	• DISCOMs wouldn't be dependent on C&I consumers to make up for losses • DISCOMs turning profitable would lead to a reduction in procedural hurdles
Improved regulatory framework • Bolstering of APTEL • Enhanced penalties on non-compliance	• Enhanced regulatory certainties for Open Access projects • Dissuade repeat of policy flip flops, as mentioned in Figure 12 and 13
Fortify RPO implementation • Penalty for failure to comply with RPO of ₹ 0.50 – 2.00/ kWh	• Improved demand for short term renewable power from the exchange and long term renewable PPAs under Open Access

In essence, the proposed Amendments aim to address the issues faced by the DISCOMs, which alienate them from supporting Open Access projects. However, the Amendments may still undergo some changes before it becomes part of the Act due to pressure from states. But even in diluted form, these Amendments hold significant potential to unleash growth in the Open Access segment.

Glossary of Terms

- ACoS: Average Cost of Supply
- ACP: Area Clearing Price
- APPC: Average Pooled Purchase Cost
- APTEL: Appellate Tribunal For Electricity
- AS: Additional Surcharge
- AT&C: Aggregate Technical and Commercial
- BG: Bank Guarantee
- C&I: Commercial and Industrial
- CERC: Central Electricity Regulatory Commission
- CFD: Contract for Difference
- CSS: Cross Subsidy Surcharge
- CUF: Capacity Utilization Factor
- DAC: Day-ahead Contingency
- DAM: Day Ahead Market
- DC: Direct Current
- DISCOM: Distribution Company
- ECB: External Commercial Borrowing
- ED: Electricity Duty
- GDAM: Green Day Ahead Market
- GTAM: Green Term Ahead Market
- GW: Gigawatt
- HAREDA: Haryana Renewable Energy Development Agency
- HERC: Haryana Electricity Regulatory Commission
- HT: High Tension
- HVPNL: Haryana Vidyut Prasaran Nigam Limited
- IEX: Indian Energy Exchange
- IPP: Independent Power Producer
- LTOA: Long Term Open Access
- MNC: Multinational Company
- MSEDCL: Maharashtra State Electricity Distribution Company Limited
- MTOA: Medium Term Open Access
- MW: Megawatt
- NA: Not Applicable
- NAPCC: National Action Plan for Climate Change
- NBFC: Non-Bank Financial Institution
- NTPC: NTPC Limited
- OTC: Over The Counter
- PE: Private Equity
- PoC: Point of Connection
- PPA: Power Purchase Agreement
- PSU: Public Sector Unit
- REC: Renewable Energy Certificate
- RPO: Renewable Purchase Obligation
- RTM: Real Time Market
- SECI: Solar Energy Corporation of India
- SERC: State Electricity Regulatory Commission
- STOA: Short Term Open Access
- STU: State Transmission Utility
- T&D: Transmission and Distribution
- TAM: Term Ahead Market
- TCCL: TATA Cleantech Capital Limited
- ToD: Time of Day

Disclaimer

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