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16/09/19  
Chij (CO)

To,  
Sanoj Kumar Jha  
Secretary  
Central Electricity Regulatory Commission

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**Subject:** Stakeholder response to the “Draft Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of trading licence and other related matters) Regulations, 2019”

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Respected Sir,

Please find attached the note as a response,

**To:** “Draft Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of trading licence and other related matters) Regulations, 2019”

**Notification:** No. ECO- 14/06/2019-CERC

**Dated:** 24th July, 2019

I, Vishal Mehta, Managing Director and Partner at BCG, submit this response as a delegated authority of the board, on behalf of “**The Boston Consulting Group (BCG)**”. The registration for the organization was initiated on the SAUDAMINI e-portal under the **username “BCGIndia”** on 16<sup>th</sup> September, 2019.

The suggestions made in the attached document have been prepared keeping in consideration the development of the overall power sector in India. Hence, the best interest of a) End customers of power b) Other key stakeholders in the power sector (DISCOMs, Generators etc.), has been kept in consideration. We have also considered the implications of the regulation on the present and future state of Indian market. We are cognizant of the fact that overall power market design is being changed and suggest one should take a holistic view, which includes stakeholders such as traders and exchanges as well. Publically available information from CERC, legal cases, annual reports, BCG analysis & select inputs from power traders has been used to develop the response document. We request CERC to consider our point in view in shaping the aforesaid regulations for power trading in India

Regards,



Vishal Mehta  
Managing Director and Partner  
The Boston Consulting Group

## Response to CERC regulation

This note is a response to 'Draft Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of trading license and other related matters) Regulations, 2019 (Public Notice No. ECO- 14/06/2019-CERC Dated 24th July, 2019)'. The suggestions made in this document have been prepared keeping in consideration the development of the overall power sector in India. Hence, the best interest of a) End customers of power b) Other key stakeholders in the power sector (DISCOMs, Generators etc.), has been kept in consideration. We have also considered the implications of the regulation on the present and future state of Indian market. We are cognizant of the fact that overall power market design is being changed and suggest one should take a holistic view, which includes stakeholders such as traders and exchanges as well. Publically available information from CERC, legal cases, annual reports, BCG analysis & select inputs from power traders has been used to develop this response document. We request CERC to consider our point in view in shaping the aforesaid regulations for power trading in India.

### 1. Design principle

#### 1.1. Overall design philosophy

The suggested overall design philosophy for the regulation is as below:

- **Affordability of power** for customer – Ensure overall power purchase cost are optimized
- **Sustainability of business** – Support commercial viability of key stakeholders in sector

Role of traders in the market is to support:

##### a. **Affordability:**

- i. Optimize **merit order across states and between untied/ unscheduled** power capacities

- ii. **Product innovation** - Traders have been at the forefront of innovating solutions for all stakeholders – which have helped meet customer specific requirements
  - iii. **Advisory** – Traders also play an active advisory role to support DISCOMs, helping them solve power sourcing problems or optimize costs
  - iv. Traders help **open access customers** meet their power requirements at lower cost
- b. Ensure **sustainability** of DISCOMs and Gencos, traders play an active role in providing credit support to them and also support in match-making between these different stakeholders

Hence, we believe the focus of regulations should be to enable traders with tools and resources, to ensure they play a very active role in bringing the market towards overall efficiency. Below are some aspects of the trading regulations which might work contrary to these suggested design principles - as they impact sustainability of the traders (or specific products they offer) and flexibility of solutions traders offer. Hence they are likely to reduce/ stagnate trader activity and number of traders – which will eventually impact affordability of power and sustainability of other stakeholders.

Area	Details
Trading margins	<ul style="list-style-type: none"> <li>• Capping margins for traders and that too as low as 1 paise/kwh in certain cases</li> <li>• Consideration that limited risk is carried by traders</li> </ul>
Banking of electricity	<ul style="list-style-type: none"> <li>• Disallowing traders to participate in banking of electricity</li> </ul>
Topics not addressed	<ul style="list-style-type: none"> <li>• No mention of financial products</li> <li>• Traders not allowed to take positions as margins capped</li> </ul>

## 2. Trading margins and payment guarantee

### 2.1. Indian power market structure and maturity of trading market

Indian electricity value chain has parts which are nomination based/ near monopoly and parts which are competitive. For, e.g. power generation earlier had a cost plus regulated tariff and subsequently converted to competitively bid tariffs as competition increased and to arrive at a fair price. Whereas, aspects like transmission and distribution (and sale to customer) – are near monopolies in their areas, hence the need for tariff regulation.

**Table 1 Electricity value chain**

Player	Price regulation?	Market concentration
 Fuel	✗	High
 Generation	✗	Multiple players
 Transmission	✓*	Monopoly
 Power trading	✓	Multiple players
 Distribution	✓	Monopoly

\*Transmission gradually moving to TBCB;

Trade restrictions and market concentration are inversely related. Margins are capped at points where monopolies exist due to either legacy (distribution) or naturalistic (transmission) reasons. With a similar rationale, as power trading is a competitive business (with low barriers for entry and multiple active players), regulating the margins (margin cap) for this business is not in-line with the objective of the regulation and principles followed for other stakeholders in the power value chain.

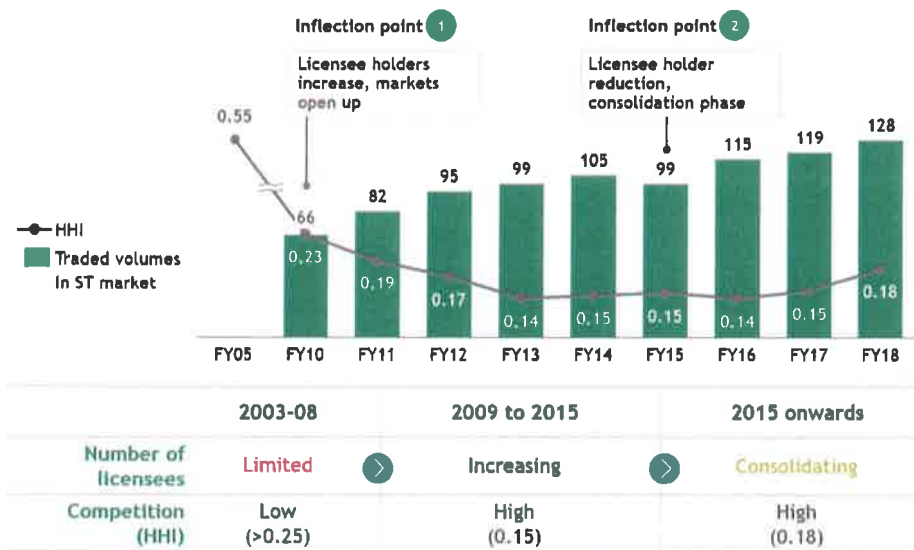
**Need for trading margin capping in Indian market has come down as the market has matured**

A key driver for introduction of trading margins was the low maturity - limited competition, low liquidity and limited data transparency of the power trading market. However since then there has been a substantial change in the Indian power trading market.

The power trading industry has since seen a full cycle:

- a) Nascent stage (Year 2003 – 08): Limited players in the market (high HHI 0.55 in FY05)
- b) Transition stage (Year 2008–15): Multiple trading licenses rolled out & market competition increased
- c) Mature stage (2015 onwards): High competition, low profitability, consolidation & revocations

**Figure 1 Competition in Indian power trading market (HHI & liquidity: 2010-2019)**



1. Based on available data from CERC MMC reports

The HHI has decreased significantly from a monopolistic 0.55 in FY05 to a stable and competitive 0.15 since the last 5-6 years. As noted in CERC’s market monitoring cell reports, an HHI of <0.15 indicates a competitive market, 0.15 to 0.25 denotes a moderately competitive market and >0.25 denotes a high concentration market. The total number of power trading licenses issued has also increased more than 3 fold from 28 to 79 in the last 10 years (FY8 to FY18), with the number of active traders increasing from 12 to 28.

To support the growth of Indian power market further, in this mature stage of the market, it is suggested to allow traders to offer more products and tools, rather than curtailing their margins/ role.

2.2. Primary costs incurred by the trader

Traders incur multiple operational costs on a day-to-day basis, along with additional requirements for a) payment security and b) minimum net-worth. Following are the three primary cost heads incurred by a trader:

- a. Cost of operations
- b. Return on net-worth
- c. Cost for giving payment security to seller

a) Costs of operations

Based on the financials reported by trading entities, please find the below assessment which highlights the operating costs per unit of electricity incurred by traders.

**Table 2 Costs incurred by traders (paise/kwh) basis reported financials**

	FY15	FY16	FY17	FY18
PTC India				
Power traded (MU)	37137	42372	48320	57018

	FY15	FY16	FY17	FY18
Employee costs	0.54	0.60	0.59	0.53
SG&A costs	0.77	0.64	1.00	0.77
<b>Total</b>	<b>1.3</b>	<b>1.2</b>	<b>1.6</b>	<b>1.3</b>
NVVN				
Power traded (MU)	10421	12766	15861	17278
Employee costs	0.97	1.09	0.92	1.02
SG&A costs	0.61	0.77	0.71	1.26
<b>Total</b>	<b>1.6</b>	<b>1.9</b>	<b>1.6</b>	<b>2.3</b>
GMR energy trading co.				
Power traded (MU)	3819	5019	4723	6355 <sup>1</sup>
Employee costs	1.40	1.15	1.23	1.08
SG&A costs	3.27	2.45	3.10	4.62
<b>Total</b>	<b>4.7</b>	<b>3.6</b>	<b>4.3</b>	<b>5.7</b>
Tata Power trading co.				
Power traded (MU)	10432	17305	14583	12405
Employee costs	0.00	0.31	0.63	0.89
SG&A costs	2.02	1.45	0.88	1.43
<b>Total</b>	<b>2.0</b>	<b>1.8</b>	<b>1.5</b>	<b>2.3</b>

NOTE: Sourced from publically available annual reports; typical SG&A costs include communications, travel, electricity, rents, legal & consulting fees, bank charges, license fees etc. 1. Estimated for GMR basis FY17 reported volumes adjusted for increase in market share in ST market and volumes in ST market

Trader operating expenses (excluding surcharges and rebates) range from 1.3 p/traded unit for PTC to 5.7 p/unit for GMR energy trading co. (a Class II trader). The average SG&A and employee costs based on data for these four players in FY18 is 1.9 p/traded unit, weighted for traded volumes.

**b) Return on net worth**

**CERC requirement for minimum net-worth**

As per the draft CERC regulations on power trading, traders are required to maintaining a minimum net worth, considering an expected return of 15.5% post tax (as per CERC norms for Generators), the per unit value of RoNW is as follows:

**Table 3 Net worth requirements and fair value of returns on NW**

Category as per draft regulation	Net worth (in Cr Rs.)	Max tradeable volumes (MU)	Net worth per unit traded (in paise/unit)	Cost of NW per unit traded (in paise/unit)
	115	16000	7.19	1.66
	95	13000	7.31	1.69
	75	10000	7.50	1.74
II	35	5000	7.00	1.62
III	20	3000	6.67	1.54
IV	10	1500	6.67	1.54
V	2	500	4.00	0.93

**Note:** For tariff period of 2014-19, commission had recommended a post-tax Return on equity of 15.5% on equity investments in generation projects.

The cost of net worth at an annual post-tax return on net-worth rate of 15.5% (23.1% pre-tax) is estimated at ~1.7 p/traded unit. This in itself is higher than the proposed margin for back-to-back and non-escrow/LC covered trades as proposed by CERC in the same draft regulation

#### **Actual net-worth required for business operations**

While above calculations highlights the CERC norms for minimum net-worth required, in reality traders have to deploy additional net worth in order to fund the payment cycle in business. A comparative analysis of PTC and NVVN is done for 4 financial years from FY15 to FY18 based on publically available data:

1. PTC India LTD:



**Table 4 PTC India net worth comparison (FY15 to FY18)**

Item	Unit	FY15	FY16	FY17	FY18
Traded volumes	MU	37137	42372	48320	57018
CERC mandated net worth	Rs. Cr.	255.9	290.8	330.5	388.5
Implied returns for mandated net worth	Rs. Cr.	59.2	67.3	76.5	89.9
Actual net worth	Rs. Cr.	1184.5	1428.8	806.6	1474.9
Implied returns required for actual NW (net of WC returns)	Rs. Cr.	169.4	210.5	45.4	164.0
Balance to be funded by margins (net of return on mandated net-worth, row 3 above)	Rs. Cr.	110.2	143.3	-31.1	74.1
Balance to be funded by margins (per unit)	p/kwh	<b>2.97</b>	<b>3.38</b>	<b>-0.64</b>	<b>1.30</b>

2. NVVN:

**Table 5 NVVN net worth comparison (FY15 to FY18)**

Item	Unit	FY15	FY16	FY17	FY18
Traded volumes	MU	10421	12766	15861	17278
CERC mandated net worth	Rs. Cr.	77.8	93.4	114.1	123.5
Implied returns for mandated net worth	Rs. Cr.	18.0	21.6	26.4	28.6
Actual net worth	Rs. Cr.	205.8	232.1	310.2	311.3
Implied returns required for actual NW (net of WC returns)	Rs. Cr.	32.1	32.4	17.9	33.2
Balance to be funded by margins (net of return on mandated net-worth, row 3 above)	Rs. Cr.	14.1	10.8	-8.5	4.7
Balance to be funded by margins (per unit)	p/kwh	<b>1.36</b>	<b>0.85</b>	<b>-0.54</b>	<b>0.27</b>

Consequently, based on data of these two major power traders - the fair compensation allowable for additional net worth deployed for working capital returns is ~1.32 paise/kwh (weighted average of ~1.6 paise/kwh for PTC and 0.4 paise/kwh for NVVN)

**c) Cost of Letter of credit/escrow arrangements**

As per the draft CERC trading regulations Chapter V, clause 9.10,

The Trading Licensee shall make a payment guarantee to the seller for purchase of the agreed quantum of electricity through an escrow arrangement or irrevocable, unconditional and revolving letter of credit in favour of seller.

The following are the estimates for costs incurred by traders to open letters of credit as per draft norms

**Table 6 Cost of letter of credit arrangements as mandated by draft trading regulations**

Type of deal conducted by average trader	Cost of LC per traded power (in p/kwh)
Long term	0.56
Short term & medium term with contract value LC (Assuming average contract duration of 6 months)	1.66
Short term & medium term with biweekly bill value LC	0.16

**Total costs incurred by traders in power transactions**

Cumulatively, under the proposed regulations, the power trader will have to be compensated for the following cost buckets:

**Table 7 Cumulative cost heads for traders**

Particulars	Cost (paise/kwh)
Operational expenses compensation	1.9
Mandated net worth returns	1.7
Compensation for additional net worth deployed	1.3
Cost of LC/escrow arrangements	0.16 to 1.7
<b>Total</b>	<b>5 to 6.6</b>

Hence, even without considering the cost of LC, the cost of trading translates to an average of 4.9 p/unit and with the LC costs it increases to 5 to 6.6 p/unit.

Current proposed regulation of capping non-LC backed transactions at 1 paise/kwh does not justify the costs incurred by traders. It can consequently reduce competition in the market as traders (especially smaller ones) will not be able to sustain operation at these prices.

### 2.3. Other risks taken by power traders in India

Power trading companies undertake various risks in their operations across trading segments. While, a lot of these risks are covered through contracts with both buyer and seller, the liability on the trader is not fully absolved. Including - risks for payment delays, payment default, contract violation, open access risk, scheduling risk and risk of change in regulations. As a reference, total contingent liabilities for PTC's running cases in FY19 were ~526 crores. This in itself is ~130% of the total pre-tax profit of PTC. The outcomes of these cases can have a significant impact on the shareholder's net worth.

Further as required by CERC, if trader has to provide LC/Escrow security to the seller, any delays in payment by DISCOMs can potentially increase traders cost substantially (if the DISCOM disagrees to pay the surcharge, which has happened in the past).

### 2.4. Back-to-back

We believe,








- i) All trading contracts, despite having agreements with both buyer and seller, have inherent risks as highlighted in section 2.3 above. So while a trader might not be taking price risk, the implications of this risks on a trader can be substantial on a trader (e.g. as high as 100+ Cr for some orders).
- ii) Most legal issues/regulatory challenges take years to conclude. They might have liability on the trader as well. The trader is expected to be a party, hold liability and pay legal fees for the entire duration of these ongoing legal cases

iii) Even for contracts which have similar terms with buyer & sellers, costs incurred for such transactions would still be in line with those mentioned in Section 2.2 above

Hence, we believe the regulator should not treat any trading contracts as though they have a limited risk associated in light of past experiences of traders and let market forces determine ideal pricing for contracts based on associated risks.

## 2.5. Benchmarks - Global benchmarks

**Figure 2 Comparison of trading margin cap & maturity of other developed economies**

	Margins in OTC capped?	Legislation for power market reform	Exchange establishment	Retail competition introduction
 USA : California	No	1990	1997	2001
 Australia : Victoria	No	1980s	1994	2001
 New Zealand	No	1980s	1996	1999
 UK	No	1980s	1999	1998
 Norway	No	1990	1993	1997
 Spain	No	1994	1997	2007
 India	Yes		2008	Awaited

Trading margins are not capped in other developed geographies.

## 2.6. Benchmarks – Other industries

Unlike proposed power trading cap, there exist no caps on trading margins in other key India energy commodities

Commodity trading	Margins capped in OTC trading
Gas	No
Coal	No
Oil	No

## 2.7. Suggestion

We suggest CERC to undertake the following changes:

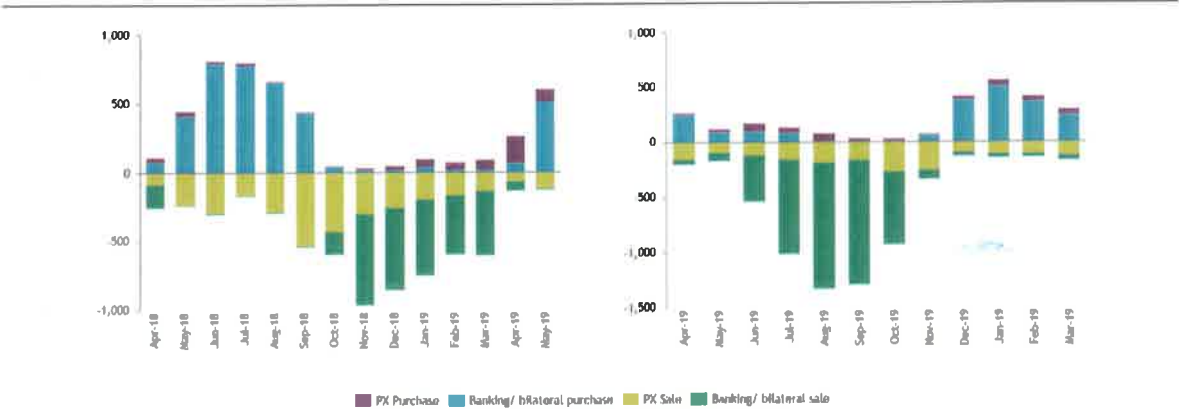
- i. Remove capping of trading margins. As,
  1. Trading market in India is matured with low HHI, large numbers of players and competitive margins
  2. Procurers of trading services are large entities with significant buying power & market knowledge
  3. Traders already provide services at rates lower than the margin cap at competitive rates and do not make supernormal profits
- ii. We suggest CERC to remove clause capping margin on back-to-back transactions, as
  1. Cost incurred by traders are higher than the norms defined
  2. Value of risk taken by traders in such contracts are also high, given the size of risk and time taken for their resolution (especially long term contracts)
- iii. Further we suggest CERC to continue to push initiatives for increasing transparency and security of trades executed / trading services procured by DISCOMs.

## 3. Energy banking

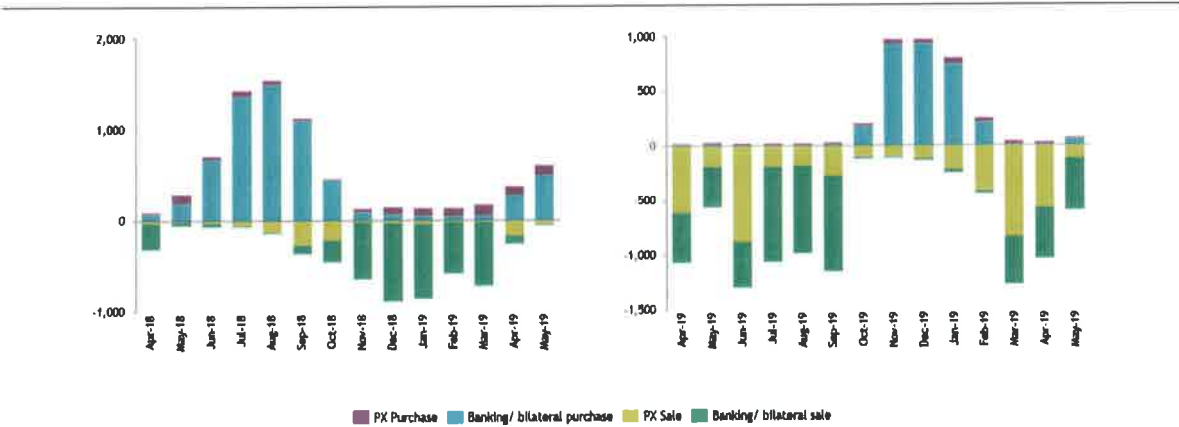
### 3.1. Need for energy banking in the near term in the Indian market

Nearly 90% of power sourced by DISCOMs is through long term contracts. Given different load profiles of DISCOMs during the year and during the day, the blocked long term capacity is not always fully utilized as per the overall merit order. States optimize within their contracts, but there isn't full optimization across states. Substantial seasonal differences in load requirement also exist across utilities across the country, which can potentially be balanced via banking transactions.

**Figure 3.1 States needing in summer (e.g Delhi) Fig 3.2 States supplying in summer (e.g HP)**



**Figure 3.3 State needing in summer (Haryana) Figure 3.4 State supplying in summer (MP)**

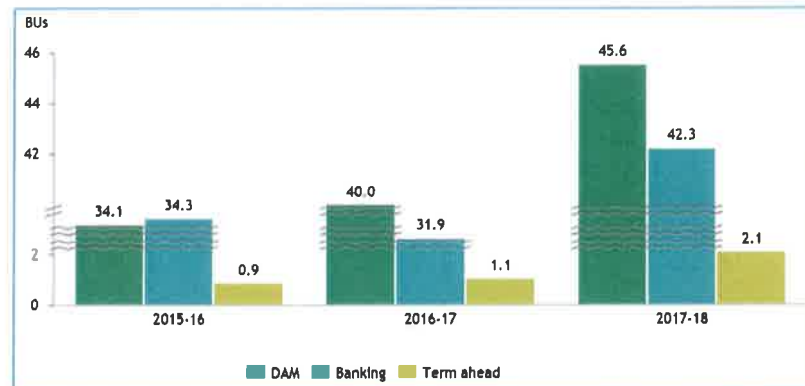


In the current market, without tools/products like banking, this is likely to result in inefficient scheduling in the overall consumer context for India, as highlighted in the present gap in actual/ideal merit order.

**3.2. Energy banking in Indian context – Alternate methods still developing**

Some alternate solutions to banking, like term ahead market on exchange, are still developing and need time to mature. For e.g., **volumes in term ahead market** on exchanges are still low.

**Figure 4 Term ahead market volumes on exchange vs. banking market volumes**



Source: CERC (MMC)

**Day-ahead market** while liquid, is not as secure as banking in terms of certainty of the price the DISCOM is likely to get for a regular basis. Also, DISCOMs would require immediate liquidity for funding power purchase through DAM. Similarly, **bilateral transactions**, with more certainty of near term prices than DAM, might not be able to meet the specific requirements of individual DISCOMs (specific buy/sell requirements of DISCOMs) and might turn out to be a more expensive solution as well.

### 3.3. Role of traders in energy banking

Traders provide power procurement support to DISCOMs in multiple ways in banking transactions:

- a. **Credit financing for open access and other charges:** Given financial situation of DISCOMs, traders facilitate banking by providing payment support for open access charges
- b. **Market mapping and innovative solutions:** Traders support in complexity matching, supply aggregation, provision of market knowledge etc.

- c. **Other support:** Traders support in counterparty risk management (collateral for banking – large duration of open position) and energy settlement

### 3.4. Risk to banking without traders

If banking is allowed, but traders not allowed to play a role in banking, un-regulated businesses can spring up as potential alternatives (eg: financing companies) to fill the trader's gap. Such alternative practices may not come under the preview of CERC or any other regulator, and there is a potential to compromise system transparency and efficiency. Commission should hence allow for consideration to recognize banking activity under ambit of the trading license. As appropriate alternatives become viable and financial state of DISCOMs improve, banking volumes may naturally lose share because of market forces.

### 3.5. Suggestions

- If banking is allowed, traders should be allowed to play an active role in it, given -
  - i) Credit support provided by traders to DISCOMs
  - ii) Market making expertise and product structuring done by traders, given their extensive experience and market knowledge
  - iii) Trader support in scheduling/ counter-party risk mitigation
- If banking is allowed, but traders not allowed to take part, then other non-regulated entities are likely to enter the trade -- lead to completely un-regulated market practices (with limited CERC oversight)
- Process should be made more transparent in line with DEEP portal to facilitate transparency in contracts



#### 4. Conclusion

The trading regulation should be designed keeping in mind the design principles (affordability and sustainability), considering both historical trends and the future envisaged for the market.

Hence, we believe,

- i) Indian trading market has already seen a cycle of growth and consolidation, and is already competitive. Capping trading margins goes against the current & envisaged Indian power market structure. Allowing margin determination by market forces would lead to a more competitive power market and eventually increase overall system efficiency.
- ii) An active wholesale market supported by traders and brokers having multiple products (e.g. financial derivatives) and market determined prices (margins not capped) is the norm in developed power markets. In Europe especially, the regulatory strengthening has been more towards ensuring transparency and credit worthiness/ minimizing default risks. It has not focused on capping margins explicitly. It is suggested that Indian regulations for power trading also consider introduction of new products, market determined pricing, transparency and trade security on similar lines, rather than capping margins.

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