# Common Regulatory Issues & Best Practices in Power Sector and Other Infrastructure Sector

**1st Capacity Building Seminar – FOIR Center, Goa**

**9th January 2020**

# Agenda

| Sl. No | Topic |
|---|---|
| 1 | Context Setting |
| 2 | Common Regulatory Issues |
| 3 | Overview of Indian Power Sector |
| 4 | Regulatory/ Policy Challenges in Indian Power Sector & Best Practices |
| 5 | Overview of Airport Sector |
| 6 | Annexure |

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# Context Setting

# The Infrastructural Challenge

- India needs to spend **7-8%** of its **gross domestic product (GDP)** on infrastructure every year, which translates into an annual infrastructure investment of **$200 billion**.

- Present spending rate is around **$ 100 billion** translating to sizeable shortfall in infrastructure additions.

- **Private investment** into building a robust physical and social infrastructure is key to putting India in a high growth trajectory that will make it a **$5 trillion economy** by **2024-2025**

- **340 infra projects** show cost overruns of **₹3.3 lakh crore** (June 2019)

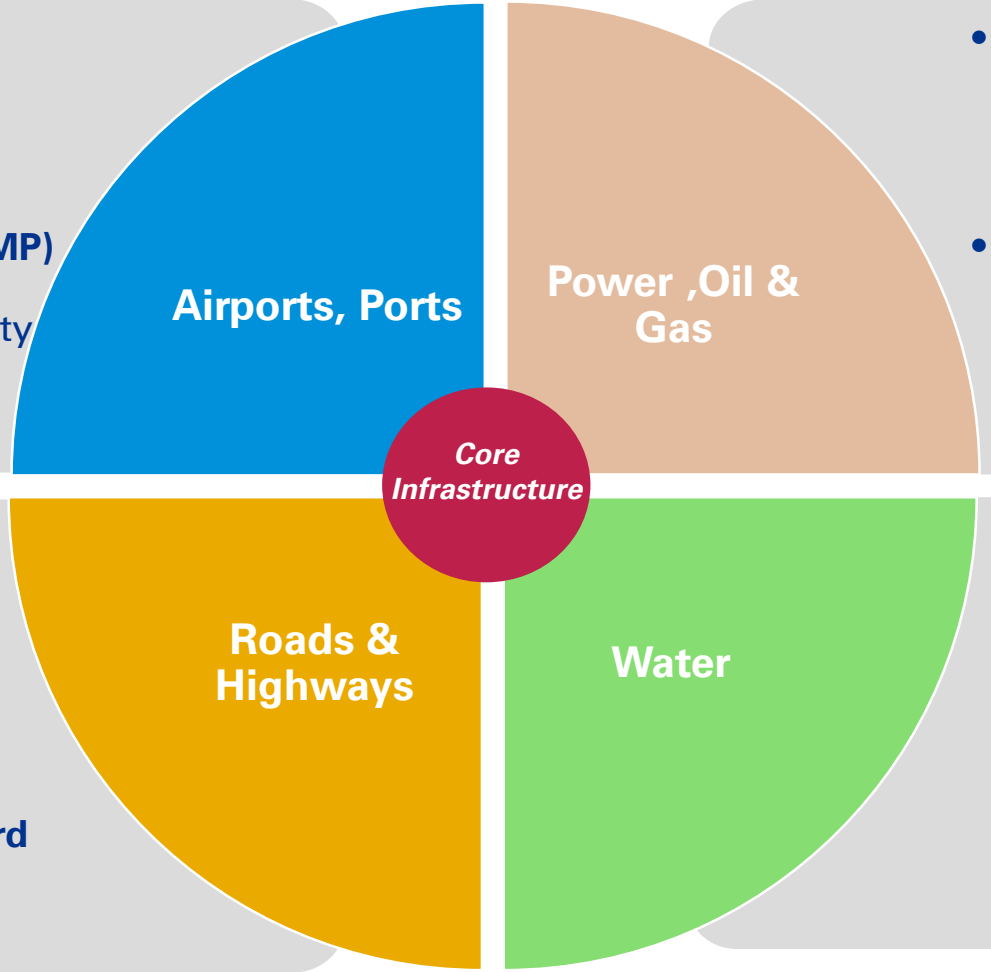
- Myriad of challenges pertaining to **financing large projects**, **land acquisition** and **environment clearances**, and **high costs** incurred because of delays in project implementation

Need for **institutional mechanisms** to resolve **pending disputes** in a time-bound manner is a key focus area including establishing of **appropriate regulatory frameworks** for enhanced governance

Reference: Economic Survey 2018-19 and press article

# Regulators in Core Infrastructure Sectors

- The **Airports Economic Regulatory Authority of India (AERA)** was established under "The Airports Economic Regulatory Authority of India Act, 2008" (the AERA Act)
- **Tariff Authority for Major Ports (TAMP)** was constituted in April 1997 to provide for an independent Authority to regulate all tariffs, both vessel related and cargo related




- **State Electricity Regulatory Commissions (SERCs)** established for Intra-state matters and Central Electricity Regulatory Commission(CERC) looks into Inter-state issues
- The **Petroleum and Natural Gas Regulatory Board (PNGRB)** was constituted under The Petroleum and Natural Gas Regulatory Board Act, 2006.

- **National Highways Authority of India was set up by an act of the Parliament, NHAI Act, 1988**.
- Ensure contract awards and procurements conform to the best **industry practices, transparency of process**, adoption of **bid criteria to ensure healthy competition in award of contracts**, implementation of projects conform to best quality requirements

- While the water regulatory laws have been passed in some states, implementation is low (e.g of functioning regulatory authority - **Maharashtra Water Resources Regulatory Authority- MWRRA**)
- At the central level – Central Water Commission- Focus on technical and project execution aspects

# Key Challenges – Core Infrastructure Sectors

## Energy/ Power Sector

- Promoting better Renewable Grid integration
- Improving asset utilization through emerging technologies - Digital
- Faster response time for consumer complaints
- Operational challenges in running city gas distribution (CGD) networks

## Water Resourcés

- Experience of regulation and tariff setting in water sector is yet to gain momentum
- Few states have Water Regulatory Commission e.g. - Maharashtra

## Airports and Port Sectors

- Inadequate capacity in Runways and Aircraft handling
- Congestion in parking space and terminal buildings - Airports
- Draft constraints, Berth Productivity and Rail/Road connectivity.

## Road Sector

- Land Acquisition, financing, Operation & Maintenance ( O & M) and revival of old projects.
- 5.5 million km road network transports 64.5% or two thirds of all goods in the country and 90% of India's total passenger traffic uses this road network to commute.
- While, India's road network (including national highways etc) grew by just about a third in the last decade, vehicle registrations have increased by almost three times. **Leading to higher incidence of Road Congestion**

# Common Regulatory Challenges/ Issues

# Approach to tariff determination in various sectors

## Tariff determination approaches in power sector

### Cost plus model

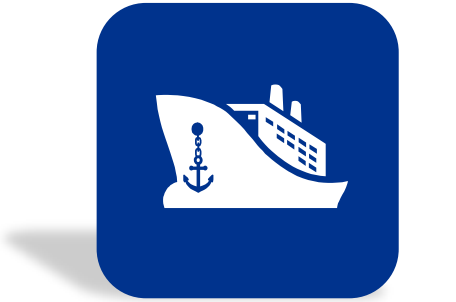
- Under Section 62 of the Electricity Act, 2003
- Developers are compensated for their costs plus a regulated return, **ensuring viability of project**
- Major players in the sector covered under a cost plus approach include **transmission utilities such as PGCIL and generation entities such as Central Generating Stations, State Generating Stations.**
- **Safeguards the interest of Investor**

### Competitive bidding

- Under Section 63 of the Electricity Act, 2003
- Tariff quoted by the bidder at the time of bidding is locked in for a period of 25 years
- Aggressive bidding coupled with inability to pass through uncontrollable costs threaten asset viability
- Handful of developers such as **Lanco, GMR Power, GVK Power**, Reliance infra etc, are saddled with stressed assets
- Very few developers manage with commercial viability – **RENEW Power, Greenko, Adani**

**It is important to balance the interest of consumers and protect the investor - for sustainable growth of the sector**

# Approach to tariff determination in various sectors



**Ports**

- Tariff structure at major ports is fixed by TAMP – Cost plus approach
- Minor ports are allowed to fix tariff based on market forces
- Tariff differential between a major port and neighbouring minor port has resulted in losses for major ports

**Airports**

- Recent transition to bidding based on 'per passenger fee' from older revenue sharing
- New model provides more certainty as tariff is pre-determined unlike revenue sharing model
- Adani Enterprises won the bid to operate 6 airports based on this model in late 2019


**Highways**

- 'Toll-operate-transfer' mode introduced in 2018
- 'Win-win' model compared to PPP
- GoI absorbs risks relating to land acquisition/construction delays while unlocking capital for further capacity expansion

**Too early to comment on the experience of bidding in Airport Sector**

# Forms of Regulation - Regulatory Frameworks

**Two Basic forms of Economic Regulation followed globally**

**Rate of Return** (or) **Cost of Service Regulation**

This regulation involves **two basic steps** –

1. Identifying allowed costs and investments
2. Setting an allowed rate of return for the utility

**Mechanism/ Examples**

1. TS – 14% Return on Regulated Rate Base for Distribution Business

**Key Challenges** –

1. Encourages overinvestment in Fixed Assets
2. Little incentive to reduce cost
3. Impede technical innovation
4. Suffers from Asymmetrical Information
5. High cost of Administration

**Performance Based Regulation** (or) **Incentive Regulation**

**Key steps**-

1. Set a baseline revenue requirement
2. Set the adjustment factors
3. Design of control mechanisms

**Mechanism/ Examples**

1. Price Cap Regulation
2. Revenue Cap Regulation
3. Sliding scale

**Key Challenges** –

1. Productivity gains may be difficult to measure
2. Regulators may be tempted to make frequent adjustments
3. Quality of service de-gradation. (safe-guards for quality needs to be built)

# Audience Interaction – Views from Audience

1. What do you think are the key challenges which a regulator faces today?

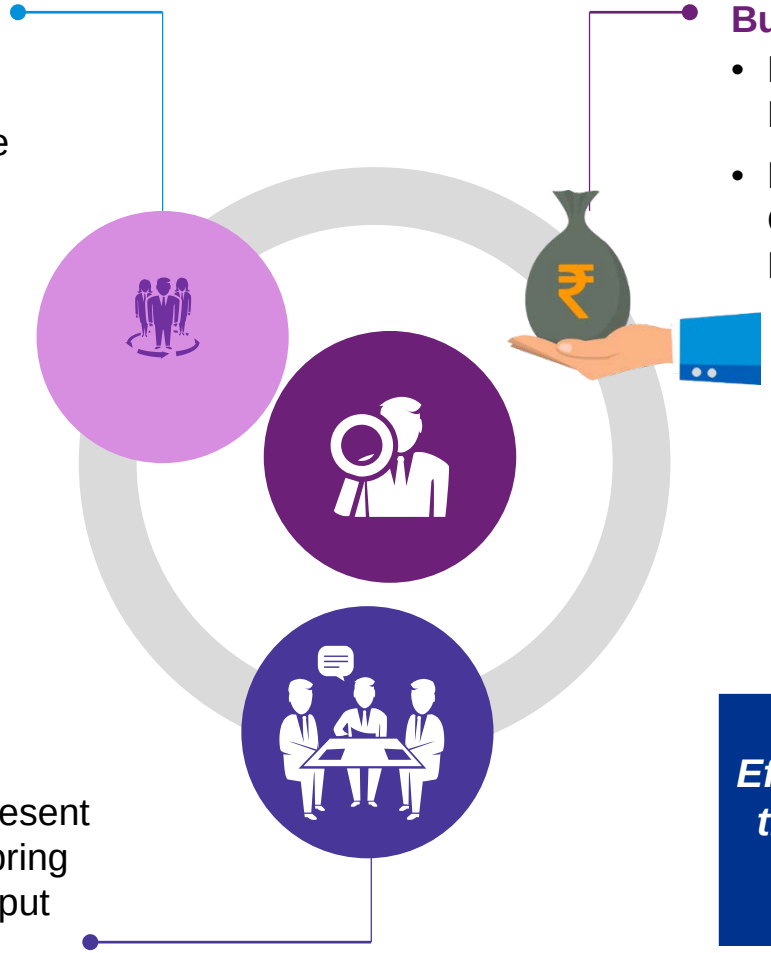
2. How successful are the Independent Regulatory Commissions in India?

3. Do you think a regulator should play a bigger role in utility governance from what is happening currently? Or should it be left to the discretion of utilities?

# Challenges faced by Regulators - Present Scenario In India

## Independence

- Degree of independence of the Regulators
- Usually bureaucrats appointed by State Government



## Budget and Expenditure

- Mostly Licensee fee is a key mechanism for supporting Regulatory Authorities in India
- However in some cases, Regulator dependent on the Government Budget allocation – Hinders functioning of Regulator

## Staff Capabilities

- In many cases staff deputed from Government departments
- Limits the ability to tap expertise present across a wider pool – essential to bring quality and depth of analysis to be put forward to the Regulators

***Effectiveness of Regulatory Oversight depends on the extent to which the highlighted concerns are addressed***

# Governance related issues (1 of 2)

**Financial Independence/ Autonomy**:

- **Primary source of income** for the **SERC's** include **grant from the state government** and their own revenue generated through **fees for annual license, fees for fling application** etc.
- Share of State Government funding as percentage of SERC's income for the states

| Sl No | Name of the Regulatory Commission | State Government funding as a % of income of SERC |
|---|---|---|
| 1 | Maharashtra | 0% |
| 2 | Gujarat | 0% |
| 3 | Andhra Pradesh | 34% |
| 4 | Goa & Union Territories | 52% |
| 5 | Jharkhand | 58% |
| 6 | Karnataka | 72% |
| 7 | Meghalaya | 80% |

**Source**: Mercados Report 'Power Sector Operations and Impact on State finances August 2014

**Many of the SERCs are still dependent upon the state governments for meeting their expenditures. Most states governments have not established SERC funds, limiting the financial autonomy of regulators**

# Governance related issues (2 of 2)

## Staffing

- Inadequate staffing is adversely impacting the performance of Regulatory Commissions. The table below gives a population served per staff for few countries globally are shown below-

| Sl No | Name of Country | Name of the Regulatory Commission | Population served per staff (In Lakhs) |
|---|---|---|---|
| 1 | United States of America | Federal Electricity Regulatory Commission (FERC) | 2.11 |
| 2 | Australia | Australian Energy Regulator | 1.83 |
| 3 | United Kingdom | Office of Gas & Electricity Markets (OFGEM) | 0.87 |

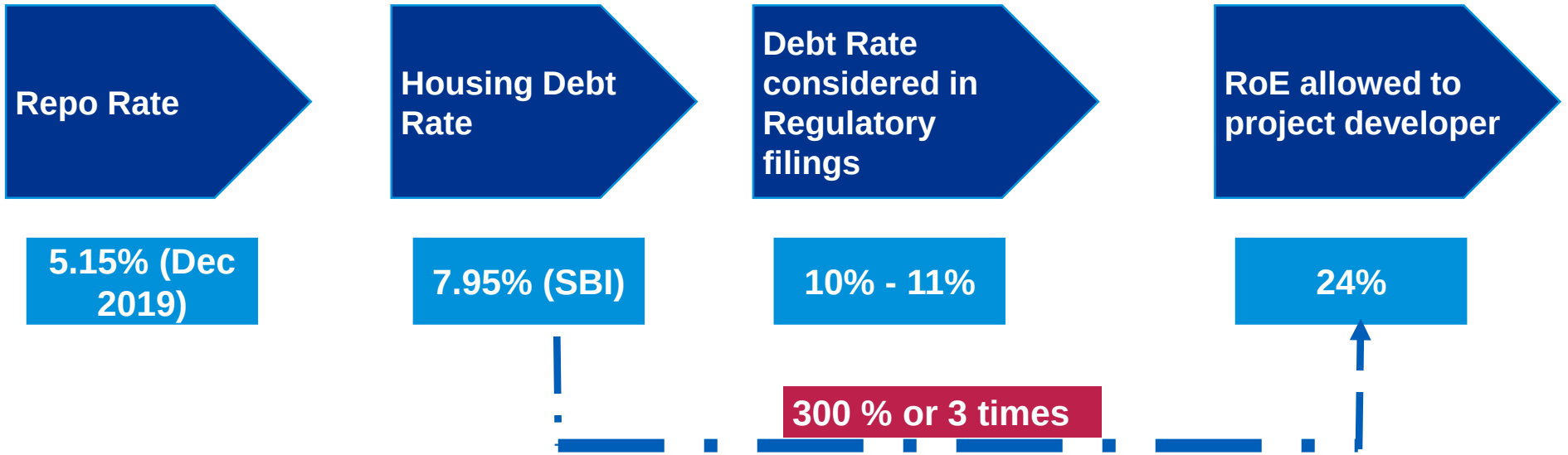
| Sl No | Name of State | Population served per staff (In Lakhs) |
|---|---|---|
| 1 | West Bengal (WBERC) | 15.75 |
| 2 | Rajasthan | 12.48 |
| 3 | Karnataka | 12.23 |

**Source**: Mercados Report 'Power Sector Operations and Impact on State finances August 2014

- **Important to technically strengthen the State Commission's through adequate staffing and in house development/ acquisition of technical skills in SERC's**
- **In India, many of the staff are on Deputation basis. This limits the institutional memory & internal capacity building of ERCs**

# Finance related issues (1 of 2)

Under the current regulatory regime, **Return on Equity (RoE) is fixed at 24% pretax** and it is **independent of Debt Rate and returns in market -**




- Prevailing home loan interest rate during 2009-10 was **around 13%.** This has decreased to **below 8%** currently
- While a fixed rate of RoE will promote certainty in investments, calibrated approach needs to be taken for deciding the Return on Equity (RoE).

**The above point illustrates the divergence in approach. In a regulated regime a developer is entitled to *higher returns irrespective of the market conditions*, in a competitive bidding scenario, *aggressive quotes giving poor returns***

# Finance Related Issues (2 of 2)

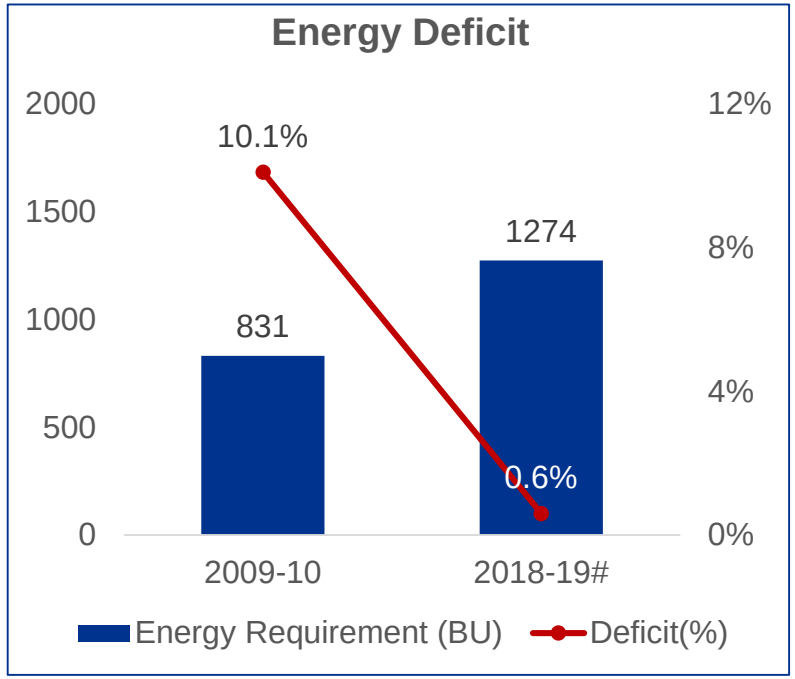
| | Current treatment | Suggested treatment |
|---|---|---|
| Return on Equity | Fixed at 15 - 16% (post tax) irrespective of market returns or Cost of debt | To be determined yearly based on prevailing interest costs, market return, risk rating and expected returns from alternate investment |
| Depreciation | Linked to loan repayment – leading to higher loading on cost in initial years | Aligned with asset life/ asset usage |
| Loan tenor | Fixed at 12 years irrespective of actual terms | Linked to actual loan schedules |

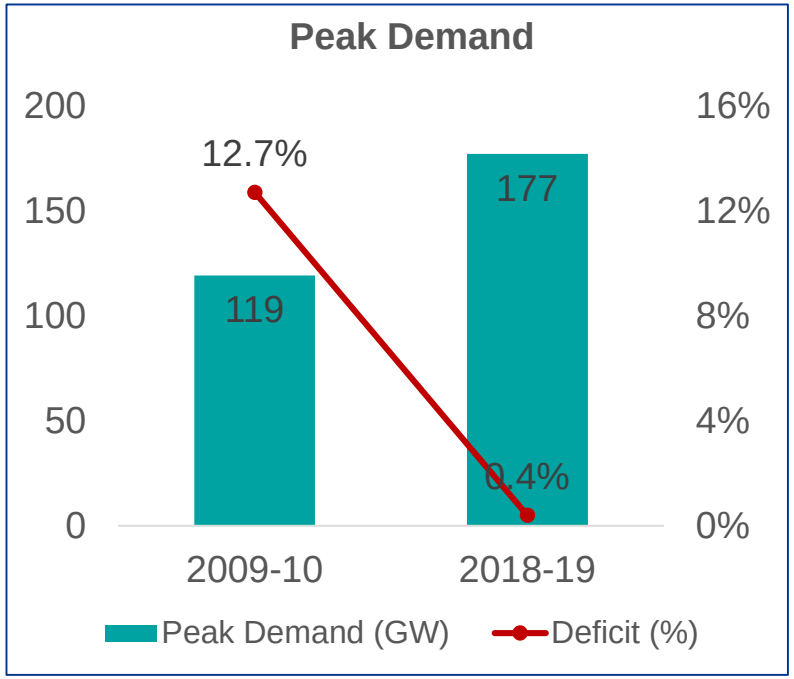
***Explore adopting a Regulated Rate Base approach with ROCE***

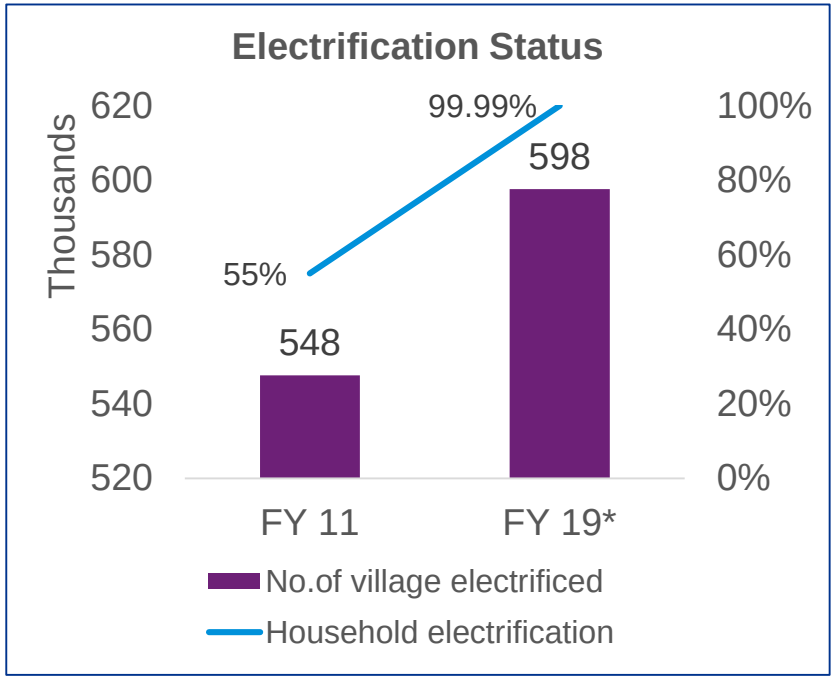
# Regulatory Issues/ Challenges & Best Practices in Indian Power Sector

# Overview of the Indian Power Sector

# India's Power supply position has improved significantly in the last decade and is well on its way to achieve universal energy access



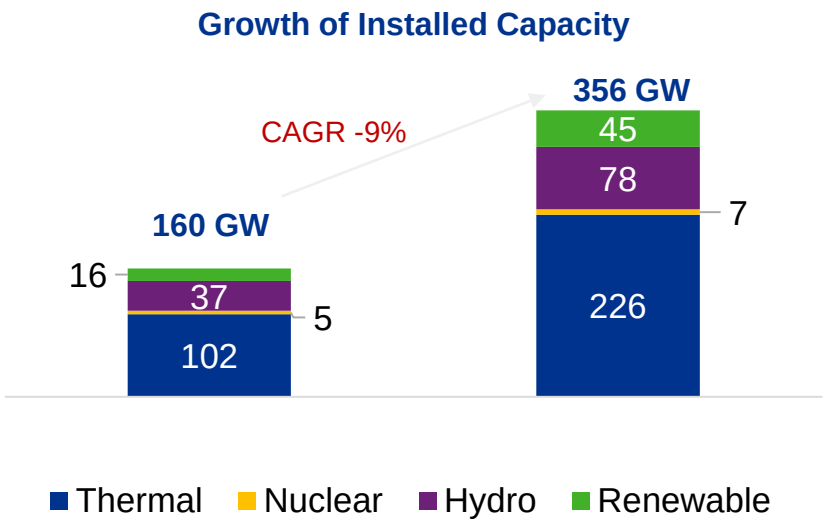



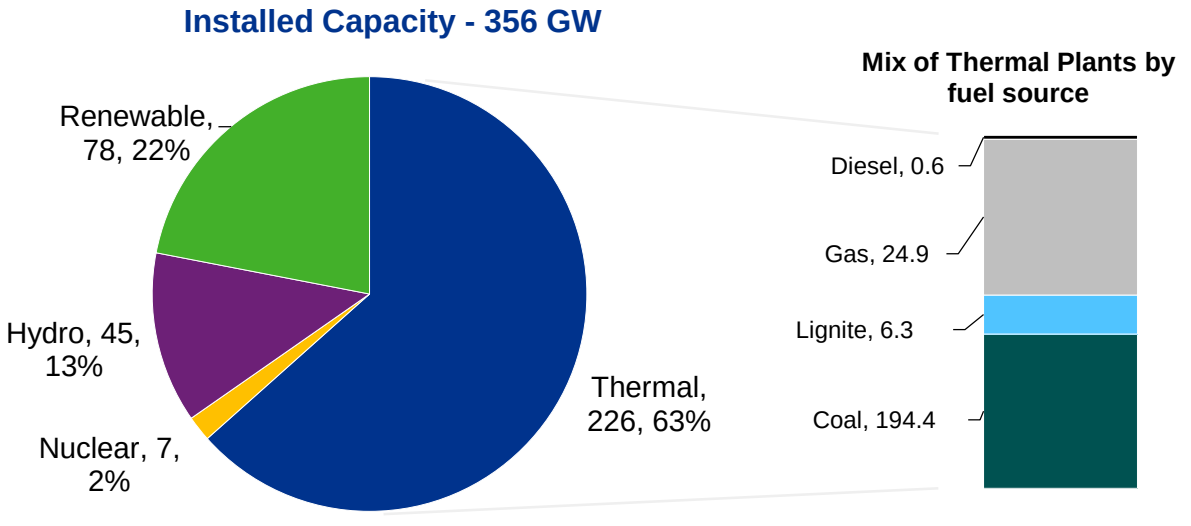

*Source: Planning commission report 2014-15, Saubhagya portal, CEA executive summary*

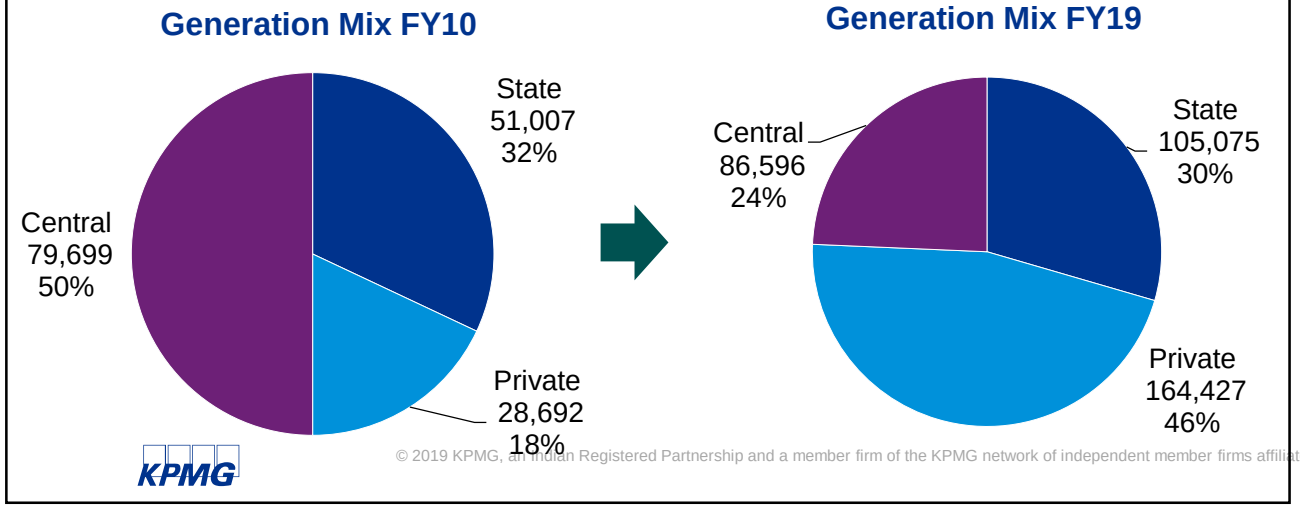
***Driven by***

- ***Rural Electrification programs*** - Deendayal Upadhyaya Gram Jyoti Yojana (DDUGVY , Saubhagya)
- ***Improvement in network infrastructure***- Integrated Power Development Scheme (IPDS)
- ***DISCOMS revival*** - Ujwal DISCOM Assurance Yojana (UDAY ), FRP I

# The generation capacity has more than doubled since 2010 with an increased participation from the private sector



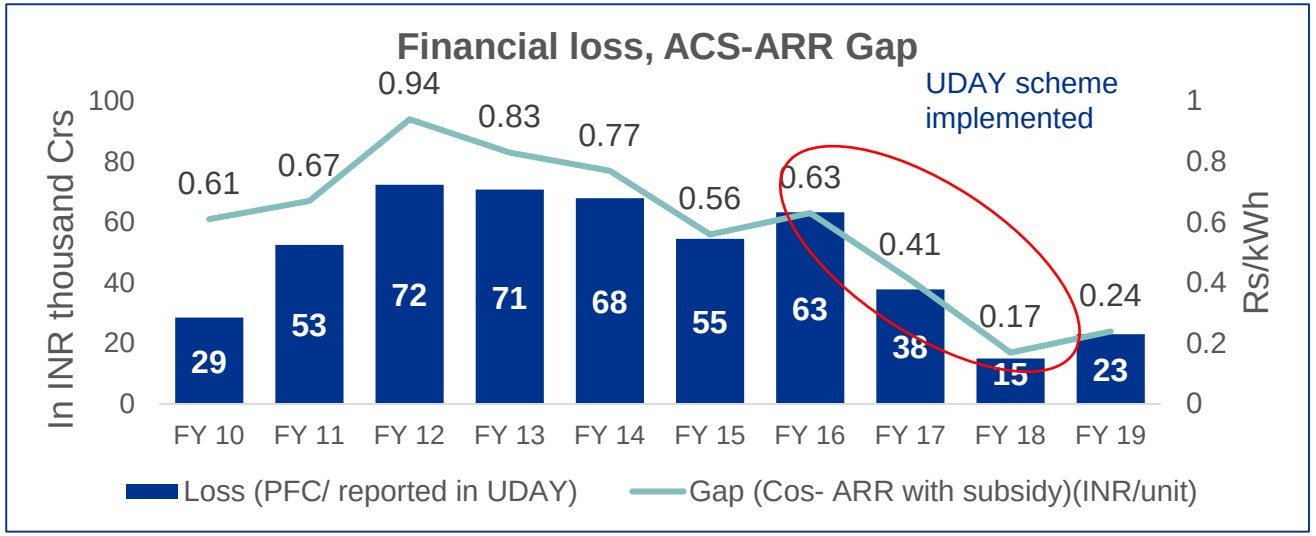



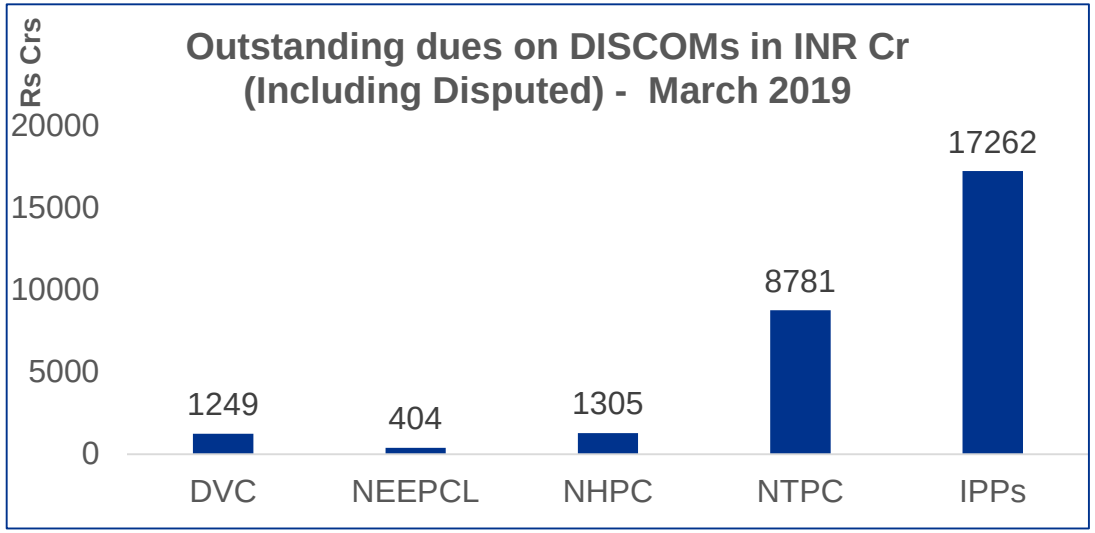




- India ranks 5th in terms of installed power generation capacity in the world
- The growth has been fueled by large private investment in generation from 29 GW in FY10 to 164 GW in FY19
- Electricity consumption per capita is at 1149 kWh, which is less than 50% of global average
- Total GHG emissions* from electricity production is 2,234 MtCo2

* As on 2017

# However the financial performance of distribution utilities continues to be a key concern which will have an adverse impact on the entire value chain



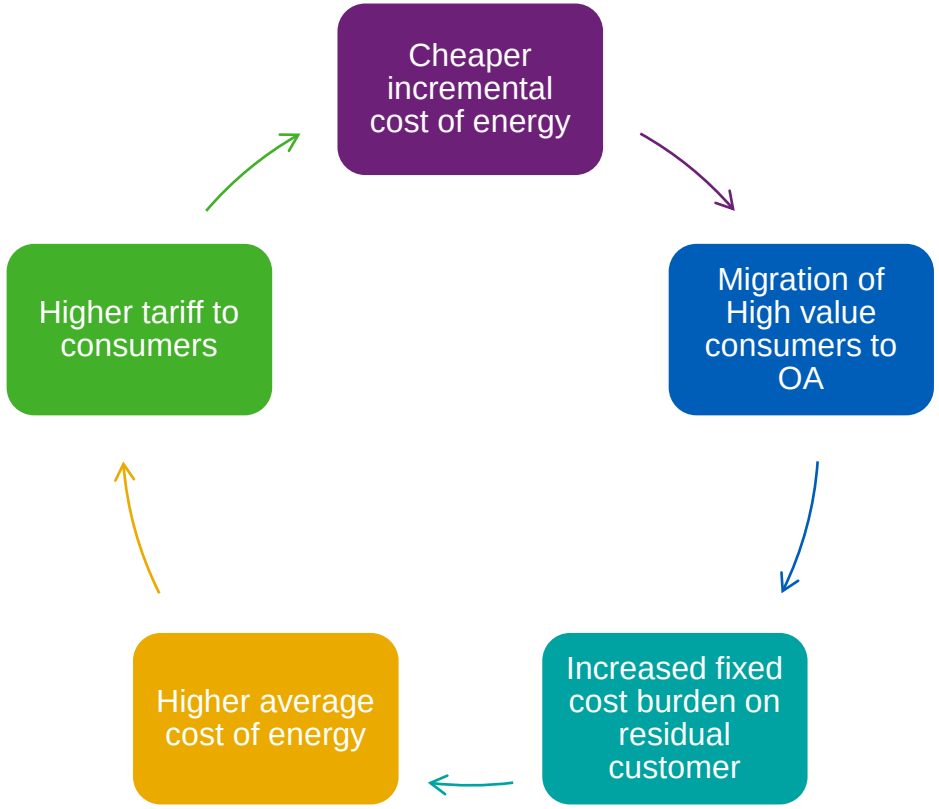

***Source: PFC reports, UDAY portal***

**March 2019, Source: PRAAPTI – the data is for participating GENCO's only**

- **Accumulated losses** of DISCOM have cast a doubt on the their financial viability going forward
- Tariff hike are not reflective of input cost increases and in some cases are not done at all
- Operational improvements possible however structural solutions will also be needed to ensure benefits are sustained in the long run

- The high payables are due to
  - **Under Recovery** of cost through tariff's
  - **Non-payment of dues** by Government agencies
- Total Payable days on average are at 90 days
- For some states and generators it has reached 9 months
- Payable are especially high for **IPP's which might result in increase of NPA's**

# With fallings cost of incremental energy (driven by renewables) and distorted tariff's - DISCOMs are going into a death spiral




- Loss of High value cross subsidizing consumers
- Residual consumers are usually low value and high default consumers, further worsening discom financials
- Increased costs to ensure grid stability
- Cross subsidy surcharge and additional surcharge do not sufficiently cover loss of revenue & fixed charges incurred by DISCOMS
- Increased cost of energy for residual consumers leading to increased migration to OA

***Tariff rationalization with the aim to accurately reflect fixed cost Vs variable cost incurred by DISCOM in the tariff charged to customers need to be explored to safe-guard DISCOMS against growth of OA***

# Key Regulatory/ Policy Challenges - Power Sector (1 of 3)

**Non-timely ARR filing**

- In certain instances, no filings are done for the Financial Year
- What should be the role of regulator in such cases? , Suo-motto tariff determination ? – Seen in few instances (Ex. TNERC)

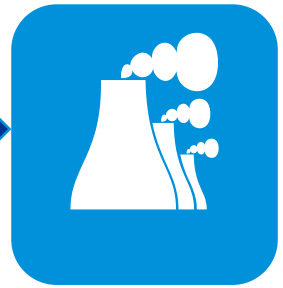
**Mechanism for Fuel Surcharge Adjustment (FSA) or True-up**

- **Fuel Surcharge Adjustment (FSA)** pass through ideally on a **quarterly basis** improves the cash flow position of the discom
- However there is no uniform approach across states. In some instances, **FSA regulations** have been repealed, resulting in adverse environment for discoms (ex. TS ). **True-up** regulations should also **cover loss of revenue** due to **adverse sales**

**Additional Surcharge**

- Ideally designed to compensate discom to recover the **fixed costs** of assets stranded due to open access
- However no unified approach. **Energy basis** or **demand basis**?

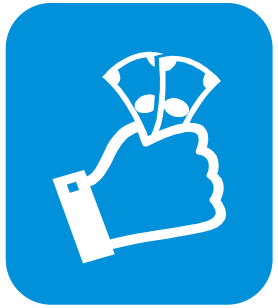
**Coal Pricing**



- Power purchase cost constitutes more than **70%** of the cost of the discom
- Transparency in coal pricing would have knock-on effects in improving the efficiency in power sector
- **Coal and transport regulator** to define norms of performance & ensure compliance related to cost of production & transport leakages

# Key Regulatory/ Policy Challenges - Power Sector (2 of 3)

**Cost Reflective Tariffs**



- More than 40% of the costs incurred by discom is fixed in nature.
- However on the revenue side, only 20% is fixed in nature (FC & VC Rationalization) **(Illustration FC & VC Rationalization)**
- This adversely impact the working capital requirements of the discom
- Allowing **inflation-linked** tariffs. (**Illustration in Annexure)**

**Supporting Renewables**

- Variable nature of the renewable energy poses grid management challenges
- How to determine Banking Charges / Balancing cost ?
  - Balancing and settlement mechanisms
  - Gross/ net metering mechanisms

**Approach to Returns**

- Re-evaluate regulated returns provided to GENCO's & Transmission utilities
  - Move from **RoE** to **ROCE** based returns for tariff determination
  - Link **RoE** to market returns (similar to PPF returns) – (**Covered in Common Regulatory Issues)**

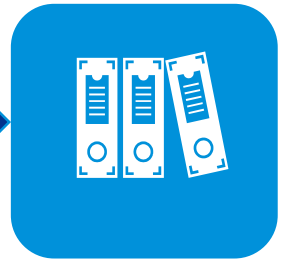
# Key Regulatory/ Policy Challenges - Power Sector (3 of 3)

**Penalties for Non- Compliance SOP, RPO**

- Compliance measures needs to be strengthened on **Standards of Performance (SoP)** and **Renewable Purchase Obligation (RPO)**

  **E.g. Redemption of RECs is at 70%** as on Dec 17. We are seeing increasing trend in REC redemption in more recent months

**Accrual Vs Cash Basis**



- From an accounting perspective, revenue is treated on a cash basis whereas cost incurred is treated on accrual basis.
- However to some extent additional cost will be recovered based on regulatory principles. This can be recognized in the accounts on accrual basis. (This **is done in AP Discoms**) – **Detailed Slide**

# Some Key Regulatory Best Practices – Power Sector (1 of 3)

| Sl No | Initiative Name | Key Rationale | Implementation Examples |
|---|---|---|---|
| 1 | Tariffs Based on Cost to Serve | **Cost to Serve (CoS)** is end-to-end cost incurred by utility for delivering a unit of energy to consumer premises.<br>❖ Tariffs fixed based on CoS will serve as a **good economic signal** to a consumer<br>❖ While the current National Tariff Policy (NTP) mandates **'Average CoS'**, few SERCs have moved a step further and have insisted on filing of **'Category-wise CoS'**<br>❖ Helps in monitoring the **cross subsidy levels** | Consumer Category-wise cost of service filing is done in **AP** and **Telangana** |
| 2 | Rationalization of Tariff Structure | **Committee** constituted by **Ministry of Power (MoP)** has studied the tariff categories and slabs present across the DISCOMs. They have outlined measures for simplification of tariff categories with the following objectives<br>❖ Simplifying the tariff structures to improve **transparency** and possibly **enhancing operational performance** of the Distribution utilities, along with bringing in governance benefits<br>❖ Rationalization of tariffs - progressively reflect the actual cost of supply and incentivize efficiency<br>❖ Mix of revenue from **Demand Charges** and **Energy Charges** reflective of the cost structure of discoms | Few SERCs have drastically reduced the number of tariff categories and slabs e.g **Bihar Electricity Regulatory Commission** has reduced the number of subcategories from **74 to 34**. |

# Some Key Regulatory Best Practices - Power Sector (2 of 3)

| Sl No | Initiative Name | Key Rationale | Implementation Examples |
|---|---|---|---|
| 3 | kVAh based billing | Many of the State utilities are billing the consumers based on **KVAh instead** of the traditional with kWh based billing This practice has the following advantages.<br>❖ **kVAh billing** has an inherent mechanism to incentivize or penalize consumers according to their power factor.<br>❖ Is to encourage the consumers to maintain **near unity Power factor** to achieve loss reduction, improve system stability, power quality and improve voltage profile | AP, TS |
| 4 | Multi-year Tariff Framework | **Committee** constituted by **Ministry of Power (MoP)** Objective of Multi-year tariff framework is to bring the best from a Discom with an in-built mechanism for incentivizing good performance and some penalty for bad performance. The key benefits of MYT mechanism are –<br>❖ Certainty on the tariffs over the MYT control period of over 5 years, **thereby increasing investments** in the sector<br>❖ Greater **predictability to consumer tariffs** by restricting tariff adjustments to known indicators such as power purchase prices and inflation indices.<br>❖ Would result in **better quality of service** to consumers | AP, TS, Maharashtra |

# Some Key Regulatory Best Practices - Power Sector (3 of 3)

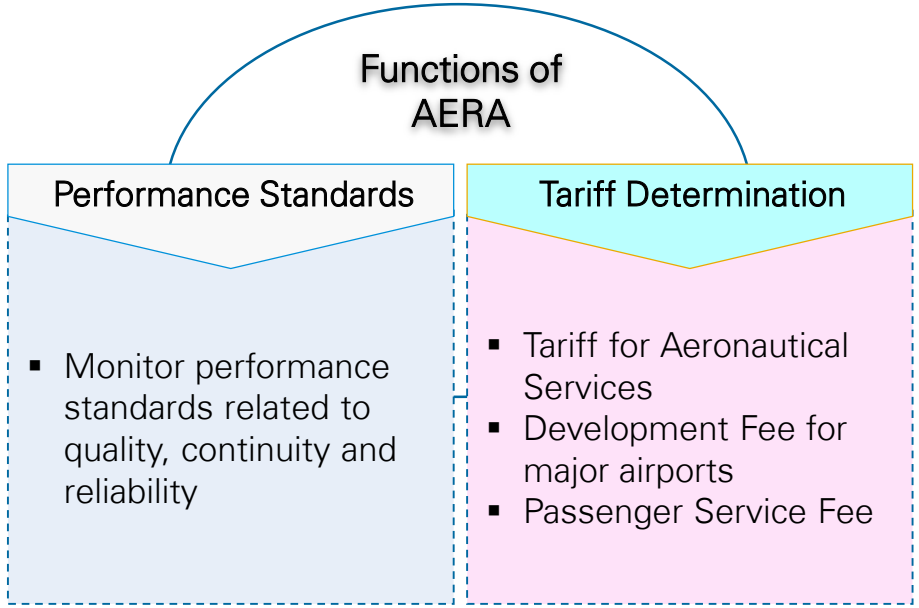
| Sl No | Initiative Name | Key Rationale | Implementation Examples |
|---|---|---|---|
| 5 | Smart metering and Smart Grid | These technology led initiatives hold a lot of promise for improving the performance of utilities and in providing best-in class consumer services. Some key interventions are as follows .<br>❖ **Real time energy audit** leading to improved efficiency<br>❖ **Better load management through real time pricing schemes** and introduction of voluntary schemes for consumers – load reduction<br>❖ Improved visibility on grid conditions and monitoring of the network<br>❖ **Regulatory mechanisms** need to be fine tuned for getting better outcomes | BESCOM, TS |
| 6 | Differential Retail Supply Tariffs | The quality of supply to consumers differs across the geographic region within a State. Hence it is pertinent that tariffs to consumers are reflective of the quality of supply<br>❖ The quality of supply to consumers differs across the geographic region within a State. **Hence it is pertinent that tariffs to consumers are reflective of the quality of supply/ Investments** | **Madhya Pradesh Electricity Regulatory Commission (MPERC)-** Rural and Urban Areas which is reflective of quality<br>**KERC-** BESCOM & other Discoms |

# Regulation in Airport Sector

# Airports Economic Regulatory Authority (AERA) Act, 2008

The Airports Economic Regulatory Authority of India (AERA) was established under "The Airports Economic Regulatory Authority of India Act, 2008" (the AERA Act)

The tariff for "Aeronautical Services" at a major airport* are determined by the Airports Economic Regulatory Authority as per the guidelines mentioned in the Section 13 (1) (a) of the AERA Act.





*Source: The Airports Economic Regulatory Authority of India Act ,2008*

** As per AERA Act 2008, A major airport means any airport which has, or is designated to have, annual passenger throughout in excess of one and a half million or any other airport as the Central Government may, by notification, specify as such;*

# Likely issues for determination of tariffs

**1. Type of Regulatory Till**
Reasonableness of tariffs?

**2. Regulatory Asset Base (RAB)**
- True-up of RAB for 2nd control period based on actual capitalization
- Reasonableness of CAPEX incurred and capitalized?

**10. Issues related to service providers**
Applicability of light touch
Pass through of revenue share/ royalty

**3. Fair Rate of Return**
Optimal capital structure?
**4. Depreciation**
Depreciation rates?
**5. Operation and maintenance expenditure**

**9. Miscellaneous**
Ring fencing of airport activities.

**8. Traffic forecast**
Historical analysis of segment wise traffic growth

**6. Taxation**
Tax for airport operations and aero activities under hybrid till
**7. Revenues from services other than Aeronautical services**
True-up of revenues from services other than aero services

# Regulatory challenges

## Specific challenges

- **Capex** cost **more than normative** norms of AERA for few of the airports. Higher cost has to be justified for inclusion in RAB.
- **CHQ expenses** shall be incurred for managing 6 airports. CHQ expenses can be **allocated to each airport** on cost or revenue basis. Preferred approach has to be determined. CHQ/ RHQ expenses were split on revenue basis for AAI airports.
- Instead of discounts on tariffs, **tariffs may be lowered for new routes** since discounts on tariffs are not considered as pass-through expenses.
- **Land cost treatment** has to be determined
- **Service quality monitoring** and its impact on tariffs

# Regulatory challenges

| | |
|---|---|
| Type of regulatory till | ▪ **Reasonableness of tariffs** – National Civil Aviation Policy states “in case tariff in one particular year or contractual period turns out to be excessive, the airport operator and regulator will explore ways to keep the tariff reasonable, and spread the excess amount over the future” |

| | |
|---|---|
| Miscellaneous | ▪ Isolation/**ring fencing of airport activities**<br>▪ Treatment of **investments into subsidiaries**<br>▪ Projection of **inflation**<br>▪ **Pre-funding** of future capital expenditure<br>▪ Treatment of **discounts and bad debts**<br>▪ **Quality of service and X factor** for second control period<br>▪ Allowing tariffs to **recover O&M expenses in case of low tariffs** |

# Thank you

# Annexure

# Key Regulatory/ Policy Challenges - Power Sector (Inflation linked tariff)

| Year | FY2018-19 | FY2019-20 | FY2020-21 | FY2021-22 | FY2022-23 | FY2023-24 | Y-o-Y Efficiency Target | Y-o-Y Efficiency % | Inflation % | Net impact% |
|---|---|---|---|---|---|---|---|---|---|---|
| **Fuel** | | | | | | | | | | |
| Coal cost (Paisa/KCal) | 0.0557 | 0.0561 | 0.0565 | 0.0569 | 0.0573 | 0.0578 | 0.05 | 2.18% | 2.91% | 0.74% |
| Transportation (Paisa/KCal) | 0.0455 | 0.0444 | 0.0433 | 0.0422 | 0.0412 | 0.0402 | 0.035 | 5.38% | 2.93% | -2.46% |
| **Generation** | | | | | | | | | | |
| AUX% | 7.50% | 7.16% | 6.83% | 6.52% | 6.22% | 5.94% | 6% | 4.56% | | -4.56% |
| SHR (kCal/Kwh) | 2450 | 2419 | 2388 | 2358 | 2328 | 2298 | 2300 | 1.27% | | -1.27% |
| Fixed cost (Rs/unit) | 1.25 | 1.31 | 1.37 | 1.44 | 1.51 | 1.59 | 1.15 | 1.61% | 6.61% | 5.00% |
| **Transmission** | | | | | | | | | | |
| Transmission Cost (Rs/unit) | 0.48 | 0.51 | 0.55 | 0.59 | 0.64 | 0.69 | 0.50 | -0.92% | 6.61% | 7.53% |
| T loss% | 4.00% | 3.76% | 3.54% | 3.33% | 3.13% | 2.95% | 3.00% | 5.92% | | -5.92% |
| **Distribution** | | | | | | | | | | |
| Distribution cost(Rs/unit) | 1.11 | 1.17 | 1.23 | 1.30 | 1.37 | 1.45 | 1.05 | 1.07% | 6.61% | 5.54% |
| AT&C loss | 19.05% | 18.61% | 18.18% | 17.76% | 17.35% | 16.95% | 17.00% | 2.30% | | -2.30% |
| Distribution loss | 16.50% | 15.69% | 14.93% | 14.20% | 13.51% | 12.85% | 13.00% | 4.88% | | -4.88% |

Our assumptions

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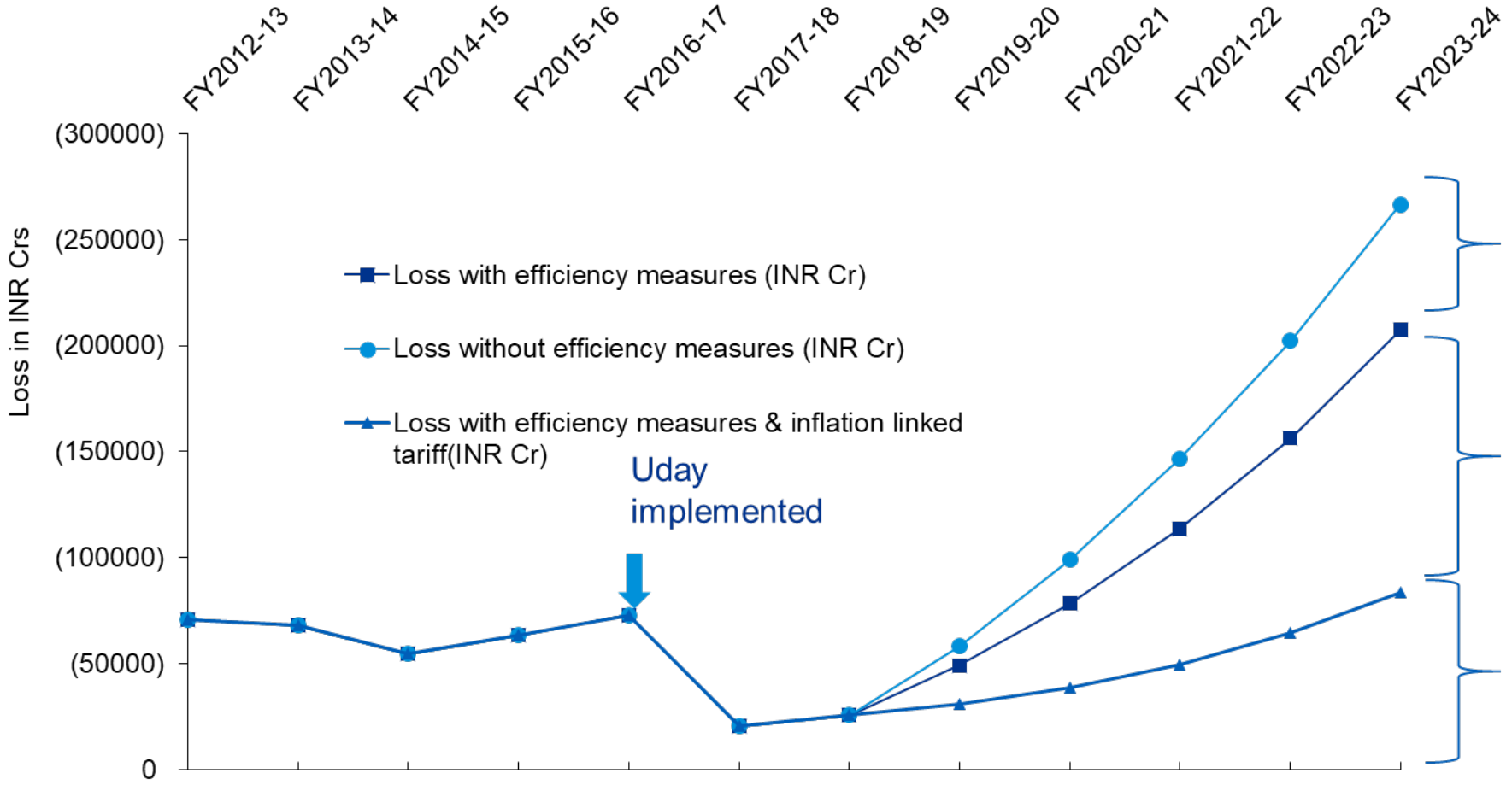
# A inflation linked tariff increase coupled with efficiency improvements across the value chain can marginally offset the projected losses of DISCOM.




Loss reduction potential through Efficiency improvements

Additional Loss reduction due to inflationary linked tariff increases

Bridging this gap requires long term planning and sustainable measures



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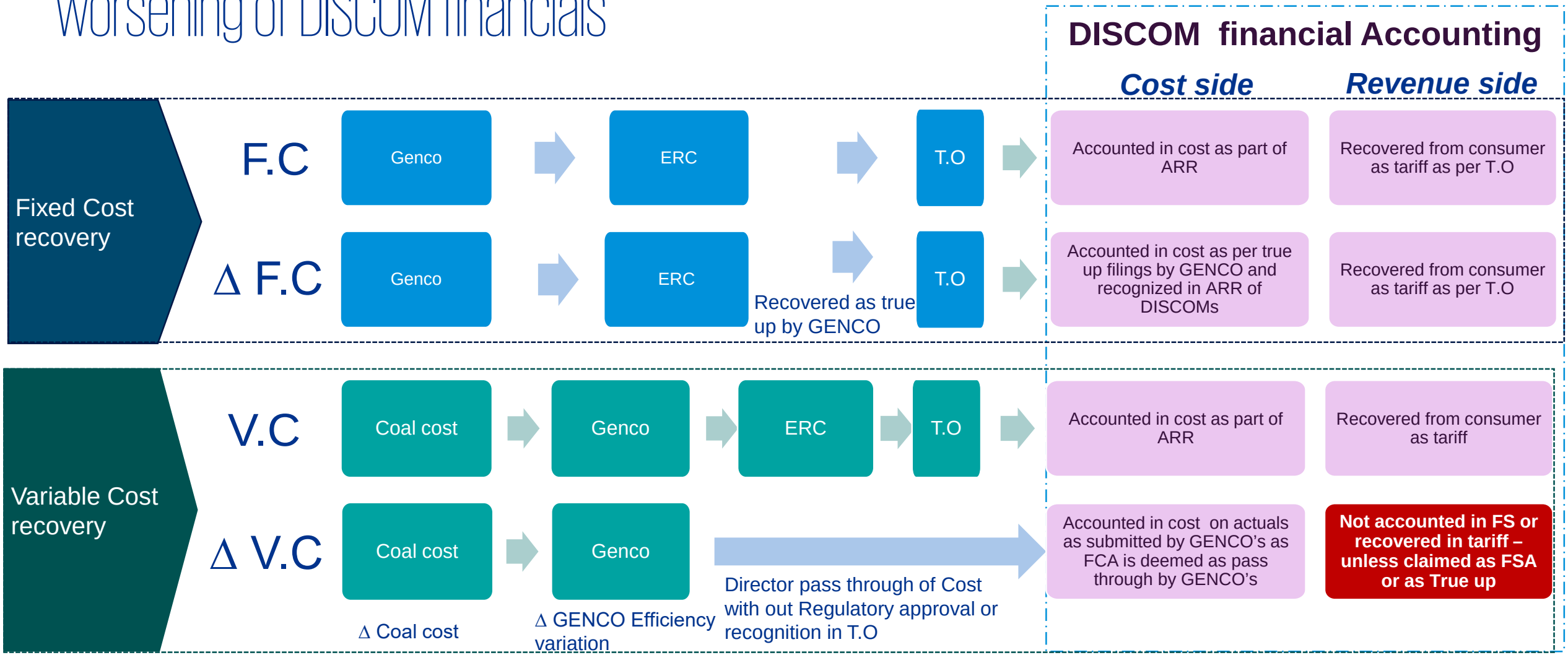
# FCA VS FSA -Mix of Accrual & cash based accounting is leading to ambiguity & worsening of DISCOM financials




***FSA & FCA have to treated similarly both from a regulatory perspective and accounting perspective to ensure consistency and accurate accounting***



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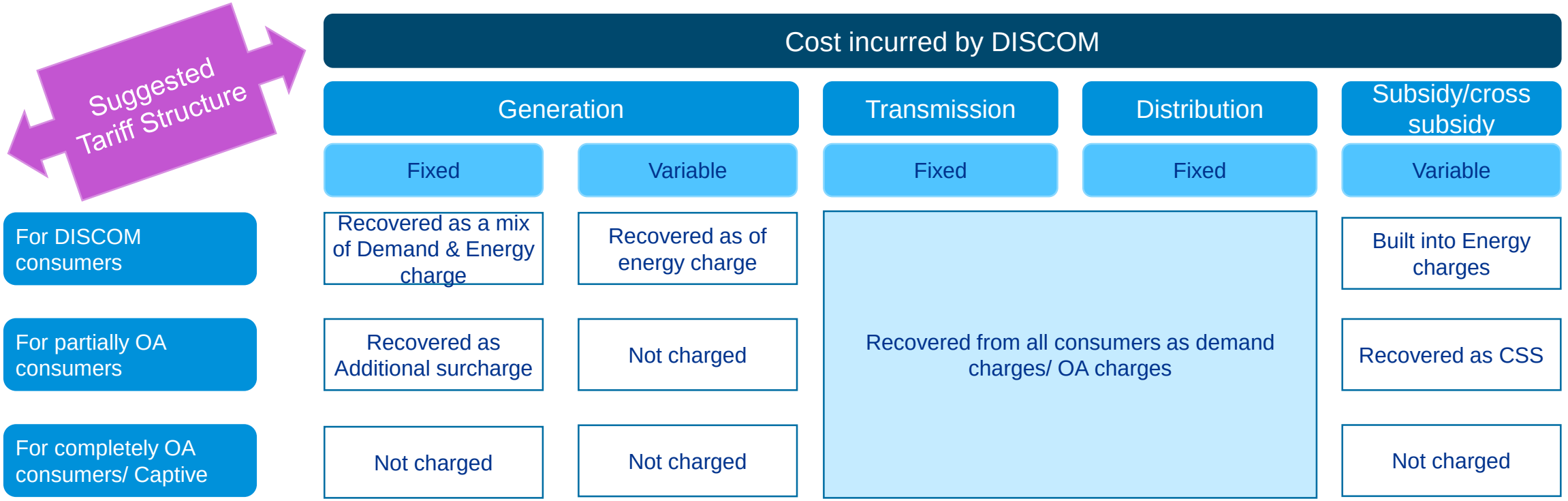
# Rationalization of fixed and variable tariffs to mirror costs incurred by DISCOM will lead to better allocation of costs & improved financials for DISCOMS

- Current tariff's not reflective of costs incurred by DISCOM - 40% of Cost is fixed against 20% recovery
- Incremental Energy Cost cheaper → leading to OA migration → leading to increased burden of fixed cost on residual consumers → leading to Higher OA migration





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