# 14th Capacity Building Programme for Officers of Electricity Regulatory Commissions

## Regulatory Approach to Tariff Setting in the Power Sector – Power Procurement and Renewable Energy

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# Transition to Retail Competition: Regulatory Framework for Electricity Distribution

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# Background

## Provision of "Choice" under the Electricity Act, 2003

The distribution companies in India manage businesses of two different natures:

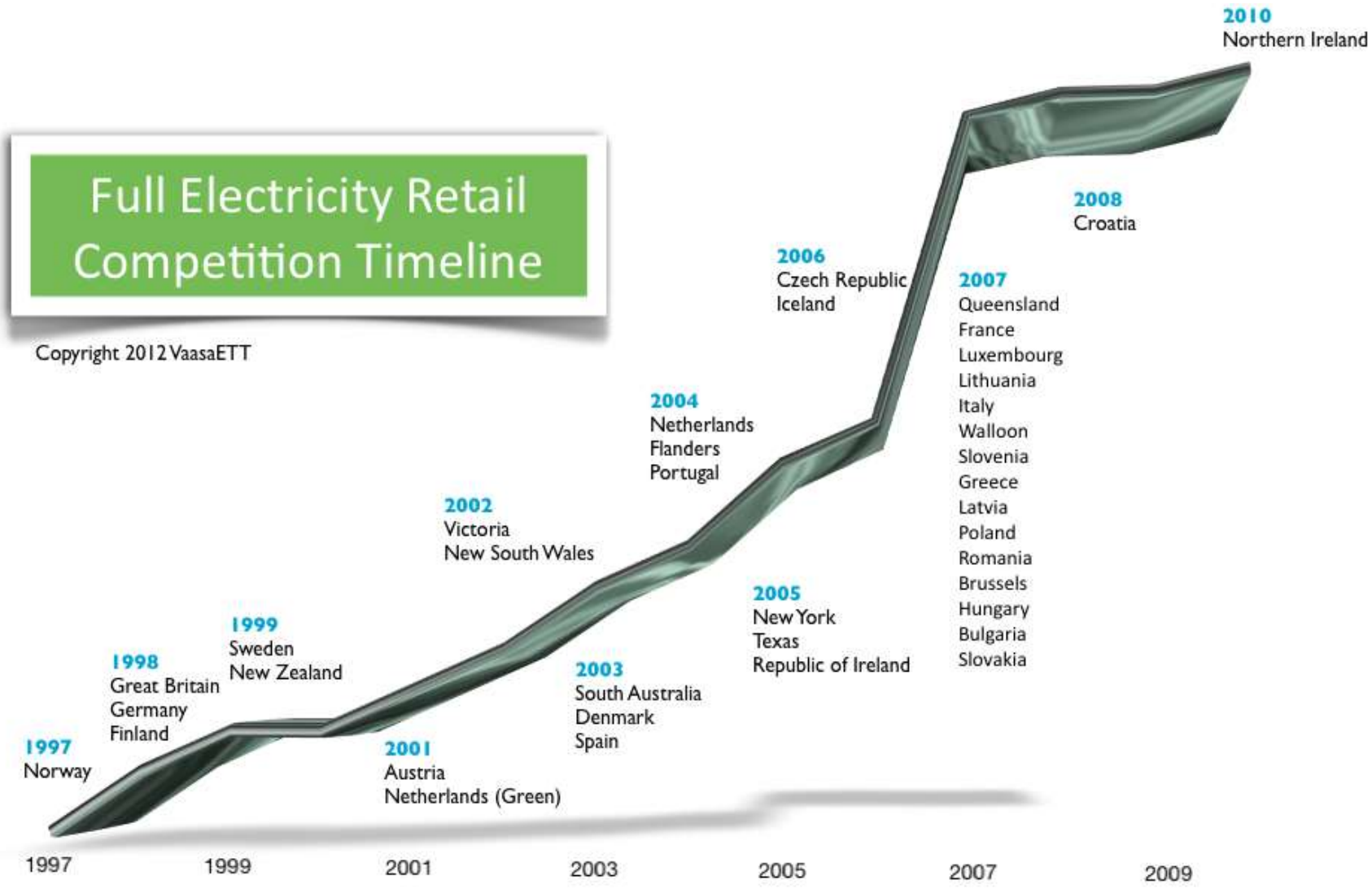
- Carriage / Distribution business
- Content / Retail supply business

The Electricity Act, 2003 laid down the foundation for introducing competition at the consumer end through open access and provision for parallel licensees. The Act recognizes Transmission and Distribution as two distinct activities and also provides for multiple distribution licensees in the same area of supply. *However, it did not provide for separate licenses for distribution and for supply*

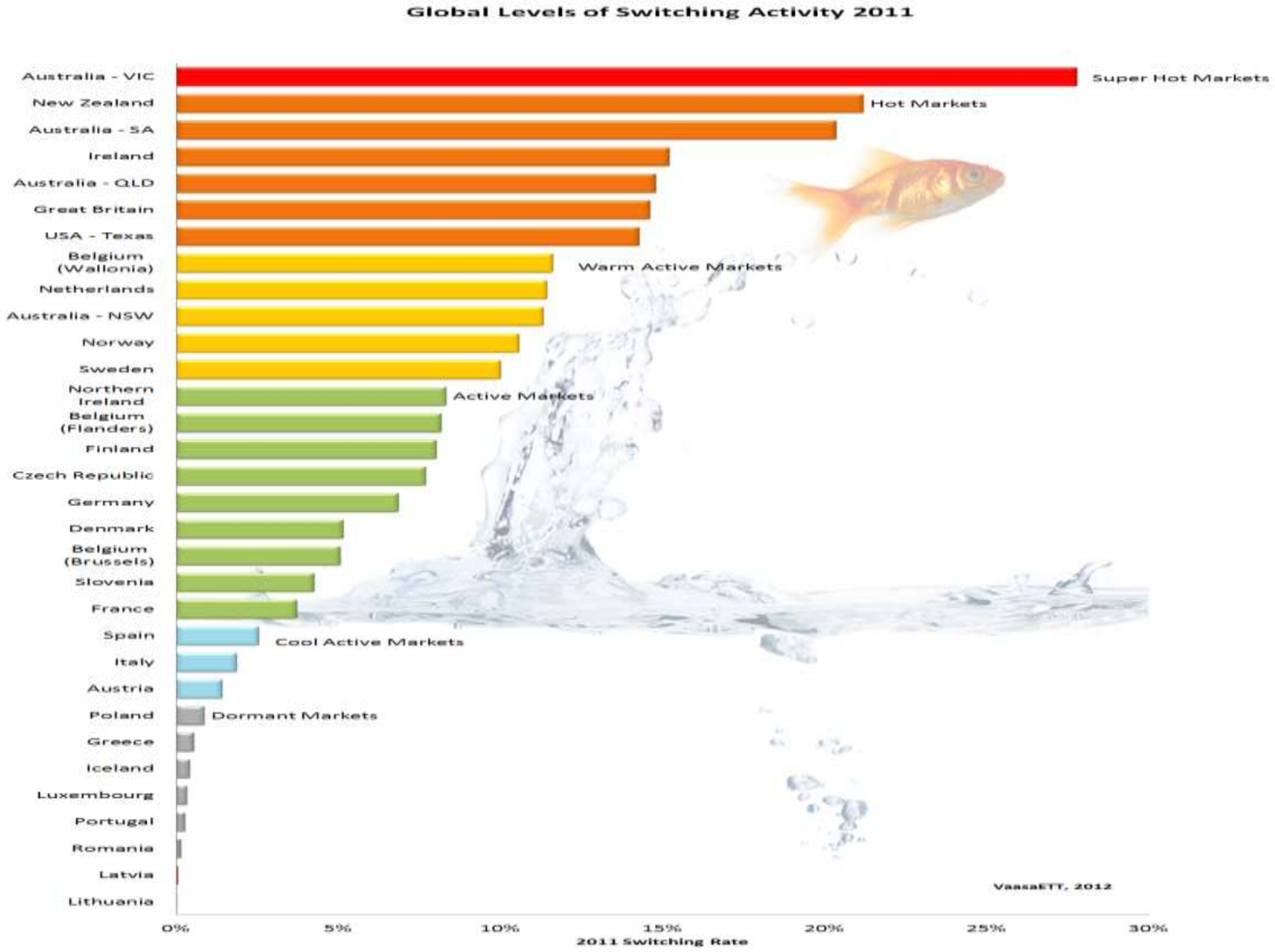
## Constraints in exercising "Choice"

1. Open access is the principal method of competition in India
2. Open access has not taken off very successfully due to the below reasons:
    - Indian tariff structures inherently have high cross-subsidies built in
    - In the absence of proper data from State, cost of supply cannot be properly determined which affects the estimation of cross subsidy surcharge
    - Unavailability of voltage wise data on cost and distribution losses, leads to allocation of costs and losses between the wheeling and retail supply functions on the basis of assumptions.
    - Possibility of existing distribution licensees losing their high-paying and cross subsidizing consumers causes roadblocks to open access
    - Only large players can avail open access. It does not offer genuine choice to all consumers

# Retail Competition: Global Trends



# Retail Competition: Global Trends



# FoR Study on "Introduction of Competition in Retail Sale of Electricity"

The Forum of Regulators carried out a study on "Introduction of Competition in Retail Sale of Electricity" with an objective to study national and international experiences in introducing competition in retail supply of electricity and develop a roadmap for introduction of competition in the retail electricity segment of India.

The following recommendations were proposed by the study:

1. India must look at the past international experience from all the nations that have already embarked their journey of retail sector reform and are in different phases of their reform trajectory as well as its own market and socio-economic conditions

2. Pre-conditions to be met by India includes:

- Wholesale market reforms with sufficient buyers/sellers,
- Availability of untied capacity, absence of market power, governance and market rules, cost-reflective tariffs across various voltage levels and also dealing with cross subsidies,
- Sustainable sector viability,
- Treatment of existing financial losses,
- Treatment of existing distribution losses,
- Suitable supply infrastructure (selective load relief, need for independent/dedicated feeders, cost sharing of new metering
- Ownership segregation between wire and supply businesses etc.

3. For India, time is now ripe to build consensus on this matter and mobilize regulatory opinion as well as legal/judicial approval for separate Distribution (wire) and Retail Supply functions, and gradually introduce competition in the retail sector of electricity.

# FoR Study on "Roll out Plan for Introduction of Competition in Retail Sale of Electricity

## Stage 1: Functional Separation

During this stage (with a time-line of 1-2 years), the current discoms would be segregated into distribution and retail supply companies clearly defining their roles and responsibilities while equipping them with sufficient financial and human resources to take on their roles.

Activities undertaken in this stage include defining functional entities, their roles and responsibilities, allocation of financial losses, transfer of existing PPAs, consumer interface, CGRF mechanism, standards of performance, universal service obligation, tariff determination mechanism, balance sheet segregation, human resource planning and other appropriate technical studies etc.

## Stage 2: Preparation for Competition

After completion of stage-1, (after 2-3 years, steps would be taken to make the market conducive for retail supply competition, while removing the entry barriers for new retail supply companies, thereby creating a level playing field for all.

Various activities under this stage inter alia include allocation of technical and commercial losses, reduction of cross-subsidies, up-gradation of metering, consumer database etc.

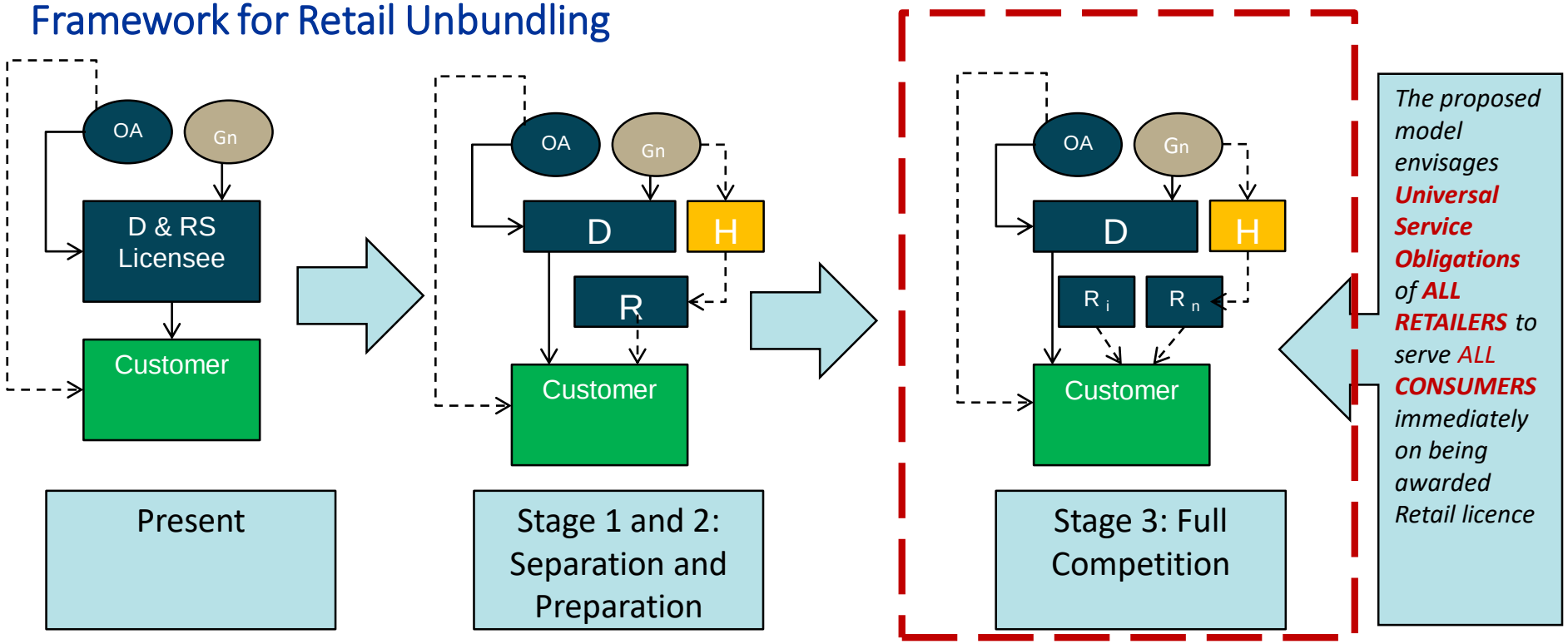
## Stage 3: Onset of Competition

After completion of stage-2, new retail supply companies would be given licenses to facilitate the retail consumer with choice.

Various activities under this stage inter alia include allocation of existing PPAs, consumer switching mechanism, procurement of new PPAs, balancing and settlement, tariff determination, provider of last resort, extension of universal service obligation etc.

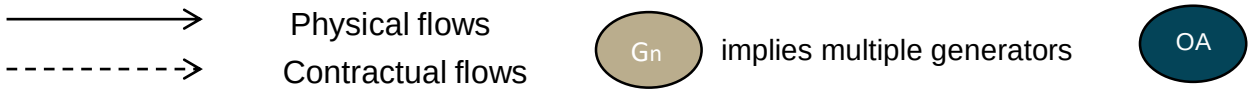
Variants of roll-out plan were proposed based on loss reduction and power procurement as drivers of efficiency and competition. In each of the approaches, pros and cons in respect of various critical issues were detailed and recommendations made.

# Framework for Retail Unbundling




## Key Steps in Evolution of Competition

1. Amended EA for separation of functions and introduction of multiple Retailers (R ) within one year
2. Formation of independent Holdco (H) to house/allocate existing PPAs and undertake other critical functions
3. Solicitation and licensing of new Retailers within one year
4. Open Access (OA) – continues, with clarification as per interpretation by the MoP
5. Market based transactions by all entities continue as per present practice
6. To reduce the number of organisations operating infrastructure, State Governments can consider separate / multiple Distribution Licences in a state being held by one distribution company



# Expert Committee Views (2019)

1

## Uniform Implementation Methodology

- In the report by FOR, two main scenario namely (i) high T&D losses and (ii) low distribution losses have been identified.
- The imperative of the Committee was on providing choice of supplier to the end consumer.
- It was suggested that irrespective of AT&C loss levels, uniform implementation methodology should be recommended.

2

## Ownership of meter vs Responsibility of metering, billing and collection

- The Committee decided that after separation of carriage and content, the meter at consumer premises shall be owned by the Distribution Licensee.
- However, the responsibility of metering, billing and collection, etc., will be of the respective supply licensee

3

## Responsibility of the technical losses

- The Committee felt that the Distribution Licensee should be made responsible for the technical losses.
- Anything which is not metered shall be attributable to the Distribution Licensee and will be the cost to the DISCOM.
- In order to bring further financial discipline, all discoms should be encouraged to be listed at the stock exchange within a defined time frame, say 4-5 years

# Expert Committee Views

4

## Universal Service Obligation (USO)

- It was underlined that Universal Service Obligation (USO) to connect will be with the Distribution Licensee and USO to supply electricity shall be on all the Supply Licensees within their licensed area

5

## Single vs Multiple Distribution Licensee

- The Committee discussed that it is preferable that only one Distribution Licensee shall be allowed in one geographical area to avoid duplication of network. Multiple distribution licensees may be allowed only if there is no duplication of network

6

## Past Period Losses and Universal Charge (UC)

- It was decided that all the past period losses, i.e., technical, commercial, regulatory assets, etc., shall be with distribution licensee only and shall not be transferred to intermediary company. However, Universal charge (UC) shall be recovered from all consumers for the regulatory assets, cross subsidy, etc

# Expert Committee Views

7

## Customer Interface

- In order to ensure seamless interaction for redressal of consumer grievances, the Committee felt that the consumer interface is required to be with the supply licensee only. However, third party metering issues can be taken up during the next list of reforms.

8

## Cherry Picking of Customers

- In order to negate cherry picking of consumers by the supply licensees, it was recommended that a mechanism can be identified where the choice to customers to choose their electricity supplier can be allowed up to certain there should number of consumers; say 1 MW or 5 MW. However, for consumers above the threshold limit, existing arrangements may be continued.

# Functional Segregation & Institutional Arrangement

1. Due-Diligence of financial statements of incumbent distribution company
2. Splitting of Discom into DNC, DNO, ISC and creation of IC
3. Transfer of Assets & Liabilities, Delineation of Roles & Responsibilities
4. Enabling regulatory framework for transition of business operation
5. Functions of Distribution Network Company (DNC)
6. Functions of Incumbent Supply Company (ISC)
7. Functions of Distribution System Operator (DSO)
8. Functions of Intermediary Company (IC)
9. Asset & Liability transfer to ISC and IC
10. Metering Infrastructure and Processes
11. Billing and Settlement Systems
12. Tech Advances and Standard Reference Architecture
13. Human Resource Plan
14. Listing of DNO on stock exchange

*DNC: Distribution Network Company, DNO: Distribution Network Operator, ISC: Independent Service Provider, IC: Independent Company*

# Electricity Amendment Act, 2021 brings a paradigm shift

**1. Context**

- Key Amendments
- Objective

**2. Construct of the Proposed Model**

- Area of Operation
- Power Purchase Management
- Tariff & Cross Subsidy Management
- Network Management
- Energy Accounting (Metering, Billing & Collection)
- Consumer Management
- Exit Management

# Context

The Electricity (Amendment) Bill 2021 proposes **distribution of electricity to be a delicensed activity** by allowing two or more DISCOMs registered with State Electricity Regulatory Commission (SERC) to supply electricity in designated area of supply either using its own distribution system or by using the distribution system of another DISCOM

**Key Amendments Proposed**

| | |
|---|---|
| **Addition** | ***24 A(1)-Distribution company:*** *'Any company which fulfills the prescribed qualifications and has registered itself with the Appropriate Commission may supply electricity to consumers in its area of supply either using its own distribution system or using the distribution system of another distribution company provided that it complies with the provisions of th.is Act and the rules and regulation made there under'* |
| **Deletion** | ***Section 14 (Grant of Licensee) of the E'Act 2003***: *'The Appropriate Commission may, on an application made to it under section 15, grant a license to any person – (b) to distribute electricity as a distribution licensee..'* |

The proposed amendments aims to:

- ✓ **Provide choice to customers to select supplier**
- ✓ **Allow entry of new players and bring competition in electricity distribution**
- ✓ **Improve efficiency, reduce costs and provide better services**
- ✓ **Drive innovation in service and bring customer centricity in utility operation**

# Construct of the Proposed Model

**The Construct comprises 7 Key Elements**

- Area of Operation
- Power Purchase Management
- Tariff & Cross Subsidy Management
- Network Management
- Energy Accounting (Metering, Billing & Collection)
- Consumer Management
- Exit Management

# Possible Framework: Area of Operation

**Principles:**

- Contiguous area with a balanced consumer mix (comprising both cross subsidized and cross subsidizing consumers)
- Avoid possibility of cherry picking
- Ease of administration, allocation of losses

## Minimum Area for Introducing Competition

**Options:**

- **Full DISCOM**: Full area of operation of the Incumbent Distribution Company (IDC)
  - Large area comprising several urban and rural pockets
  - Ease of administration as assets, costs are already accounted for full area
  - Can be managed by bigger and experienced players
- **One Revenue District:**
  - Mid size area with a mix of urban and rural areas
  - Manageable by mid size players with experience in consumer engagement
- **One Municipal Corporation:**
  - Smaller in areas comprising primarily urban centers population
  - Manageable by small players with no prior experience in the sector

# Possible Framework: Power Purchase Management

**Principles:** Protecting the interest of gencos. having existing PPAs with DISCOMs (ii) Provide choice to DISCOMs to procure power from other sources to optimize their costs

## Treatment of existing PPAs

**Options 1: Allocation amongst the Distribution Companies (DC):**

- An **Intermediary Company (IC)** to be established to manage existing PPAs (divested on to IC) through:
  - ✓ Allocation of Fixed Cost (FC) of PPAs basis load served by Distribution Companies (DC)
  - ✓ Manage Merit Order Dispatch(MoD) basis energy demand
  - ✓ Determine pooled Variable Cost(VC) for scheduled volume-subject to true up to account for variation
  - ✓ Dynamic allocation to reflect changes during consumer switching
- SERC to review sharing of power from existing PPAs periodically

**Option 2**: **Incumbent Distribution Company (IDC) to inherit all PPAs**

- IDC to retain all PPAs. Evolving market to provide flexible platforms to procure and sell of surplus power
- Other DCs to procure from alternate sources/market

## Power procurement outside the existing PPAs

- DCs to have choice to procure from alternate sources/market to optimize costs
- DCs to comply with their respective Renewable Purchase Obligation (RPO) targets

# Possible Framework: Tariff & Subsidy Management

**Principles:** Capping consumer tariff to protect interest of consumers and preventing Distribution Companies (DCs) from making abnormal profits (ii) Protecting the interest of rural poor/BPL consumers through cross subsidization

## Determination of Ceiling Tariff

- Consumer wise ceiling tariff (fixed for 2-3 yrs. subject to formulaic adjustments to reflect wholesale price variation)
- DCs to charge at or below ceiling tariff
- Ceiling tariff to be determined basis (i) **Sales,(ii)T&D losses (iii) Power Purchase Cost (PPC) (iv) Incremental PPC of DCs (v) Distribution Cost (all DCs) (vi) Reasonable Return** (all DCs)

## Management of Subsidy & USO Fund

**Universal Service Obligation (USO) fund to manage Cross Subsidy**

- An entity designated to manage USO fund and its allocation to DCs. Options can be:
  - ✓ A state govt. nominated company
  - ✓ Fund administrator (clearing house) appointed by state gov
  - ✓ Intermediary Company (which is proposed to manage the allocation of existing PPAs)

**Computation of cross subsidy claims (surplus/deficit)**

- SERC to set consumer wise ceiling tariff (within +/- 20% of ACS for resp. DC)
- Differential Amount(DA)= Annual Revenue Requirement (ARR) - Expected Revenue from Charges (ECR)
  - If DA>0-amount equivalent to DA transferred from USO fund to DCs' account
  - If DA<0-amount equivalent to DA transferred from DCs' account to USO fund

# Possible Framework: Network Management & Energy Accounting

**Principles:** (i) Protect the investments made by the DCs in the distribution network ensuring reasonable recovery of costs (Capex, O&M etc.) incurred by DCs in the network (both old and new assets) (ii) Ensure transparent energy accounting and audit without manual intervention

## Network Management and Cost Recovery

### Pooled Planning of Distribution Network

- Consolidated Investment/Capex Planning (DCs to prepare and submit their capex plan)
- **Multi party capex approval committee** (with regulatory presence)

### Pooled ARR based cost recovery

- Voltage wise pooled ARRs of network assets
- Wheeling charge (INR/kWh) at different voltage levels
- Maintenance of pool account for settlement and recovery of costs- *Managed by an entity*

## Energy Accounting

### Metering by an Independent Agency

- Transfer of existing meters to the MC
- Responsible for (i) Installation & maintenance of meters (ii) Proving new connection (iii) Manage customer switching
- Alignment of metering equipment, recording and monitoring mechanisms across the supply chain

### Centralized Energy Accounting

- **Common Backend Infrastructure Facility (CBIF)** to centrally manage meter data, billing, energy audit etc.

# Possible Framework: Consumer & Exit Management

**Principles:** (i) Protect the rights of consumers and enable provision of high standards of service (ii) Protect the interest of consumers, DCs and other stakeholders when a DC discontinues operation and at the same time provide seamless exit procedure to the DC.

## Consumer Management

### Obligation to Connect

- DC receiving the connection request by the consumer to provide connection & supply
- Network development (connection lines etc.) basis inter se coordination amongst DCs

### Supplier of Last Resort (SoLR)

- A DC designated by the commission for the area of supply
- Other options- (i) Incumbent DC (ii) DC with maximum sales in the area

### Switching of Consumers

- SERC to specify rules, protocols for switching, and customer information standards etc.

## Exit Management

### Principles to laid out for the exit of DCs-

- Minimum period of supply
- Minimum intimation period for exit notice
- Fulfillment of requisite conditions before exit- clearing of dues, furnishing of data & information etc.
- Protection of investments made by DCs
- Safeguarding interest of consumers

# In summary

1. Competition in distribution/supply is an important economic choice that needs to be carefully exercised
2. The timing may be right in terms of supply availability, more acceptable T&D loss levels, etc. and the general move to get away from over-regulated structures
3. International experience in introduction of retail competition is positive, but indicated need for attention to detail and careful transition management
4. Appropriate regulations to be framed to ensure that the players are capable and credible
5. PPA allocation mechanism through Holdco to be kept simple and as per defined rules
6. Upon changes in laws and regulations, new retailers can either be solicited or can apply suo-moto
7. Transparent, rule based USO charges for relevant customer categories (including OA customers) to ensure that the Retailers are competitive without creating undue barriers for other modes like OA
8. Fair and reasonable PoLR rules and processes critical for consumer protection
9. Service quality deviations to be penalized and proceeds to flow into USO fund. This will ensure better quality/reliability while simultaneously reducing the USO charge levels
10. A large number of implementation issues would need detailed formulation of rules and regulations and also institution of effective AS markets.
11. Detailed amendments and rules under the Act need to be framed to ensure smooth transition to new regime

# Thank You