



sharing of Inter-State Transmission charges and losses

Regulations 2020

National Load Despatch Centre

Salient Features of New Regulation

- Computation of transmission charges on Monthly basis
- Post facto computations
 - Billing Period: Month for which computations shall be done
 - Month following billing period: Month in which computations shall be done.
 - Billing month: Month for which bills to be raised
- Transmission charges to be notified by National Load Despatch Center (NLDC) by 25th of each month following billing period
- Ceased the existing Validation Committee
 - Projected Generation and demand data not to be used
 - Computations based on actual Mega Watt (MW) Power flows

Salient Features of New Regulation

.....(2)

- Load flow Base Case to be tuned to “Peak block” time
 - Peak block is the block in which sum of net Inter-State Transmission System (ISTS) drawals by all States is maximum during the month
- Components of transmission charges:
 - National Component
 - Regional Component
 - Transformers Component
 - AC System Component
- Transmission charges for Long Term Access (LTA)/Medium Term Open Access (MTOA)
- Transmission charges for Short-Term Open Access (STOA) transactions

Salient Features of New Regulation

....(3)

- No slab rates, aggregate nodal charges to be considered
- No computation of loss slabs
- Calculation of all India average ISTS losses on weekly basis
- No ISTS loss applicable on injection schedules including collective transactions
- No transmission charges and losses applicable on Solar and Wind generation on fulfilling certain conditions
- Transmission deviation charges to be paid for the deviations from contracted power

Salient Features of New Regulation(4)

➤ Transmission deviation charges to be paid for the deviations

□ Deviation:

- For generator, net metered ex-bus generation exceeds sum of LTA/MTOA and STOA in a time block;
- For a state, net metered ex-bus generation/drawal exceeds sum of LTA/MTOA in a time block;
- For any drawee DIC, a regional entity other than distribution licensees, net metered drawal exceeds the sum of LTA/MTOA and STOA in a time block;

Salient Features of New Regulation(5)

- Transmission Deviation rate:

$(1.05 \times \text{transmission charges of a state in billing month})$

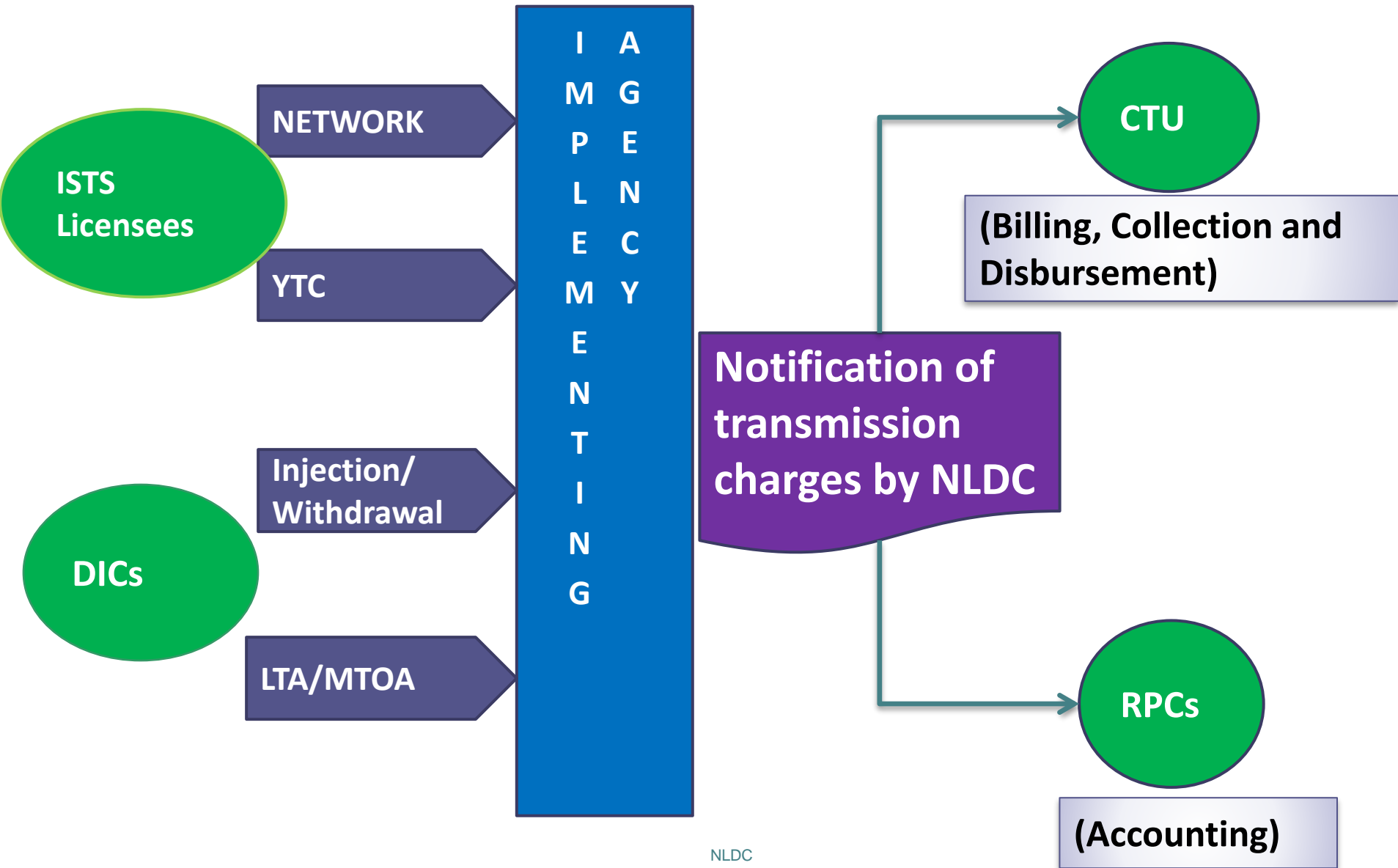
$(\text{LTA} + \text{MTOA}) \times 2880$

- RPC shall prepare RTAs for DICs
- Marginal participation factors of less than 0.0001 shall be taken as zero

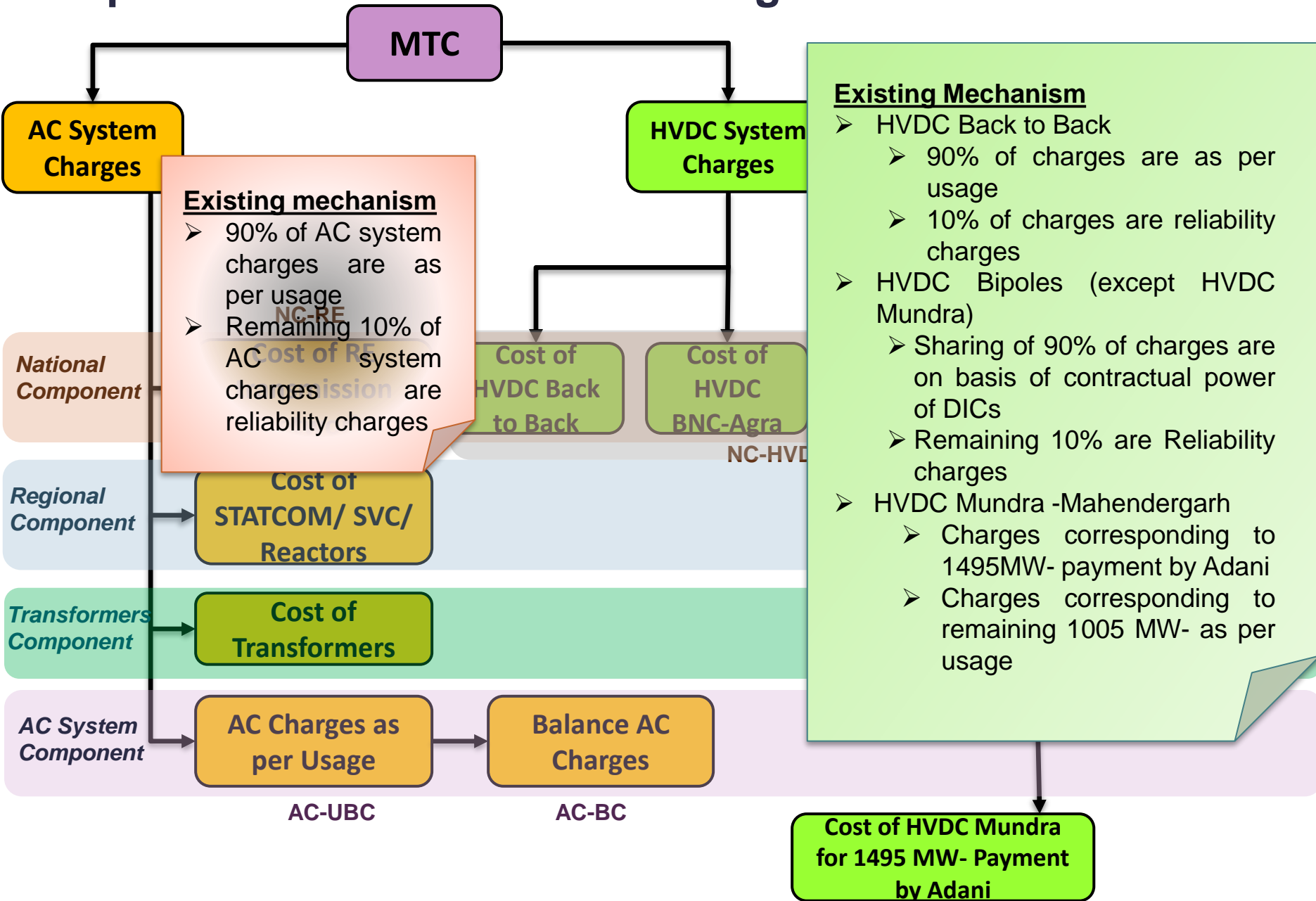
Salient Features of New Regulation(6)

- Implementing Agency is responsible for development and maintenance of the software for implementation of these regulations.
- Design of interactive query by NLDC to show case computation results
- Transition period to new mechanism
 - Bills for the previous two months i.e. first and second month, shall be based on earlier mechanism

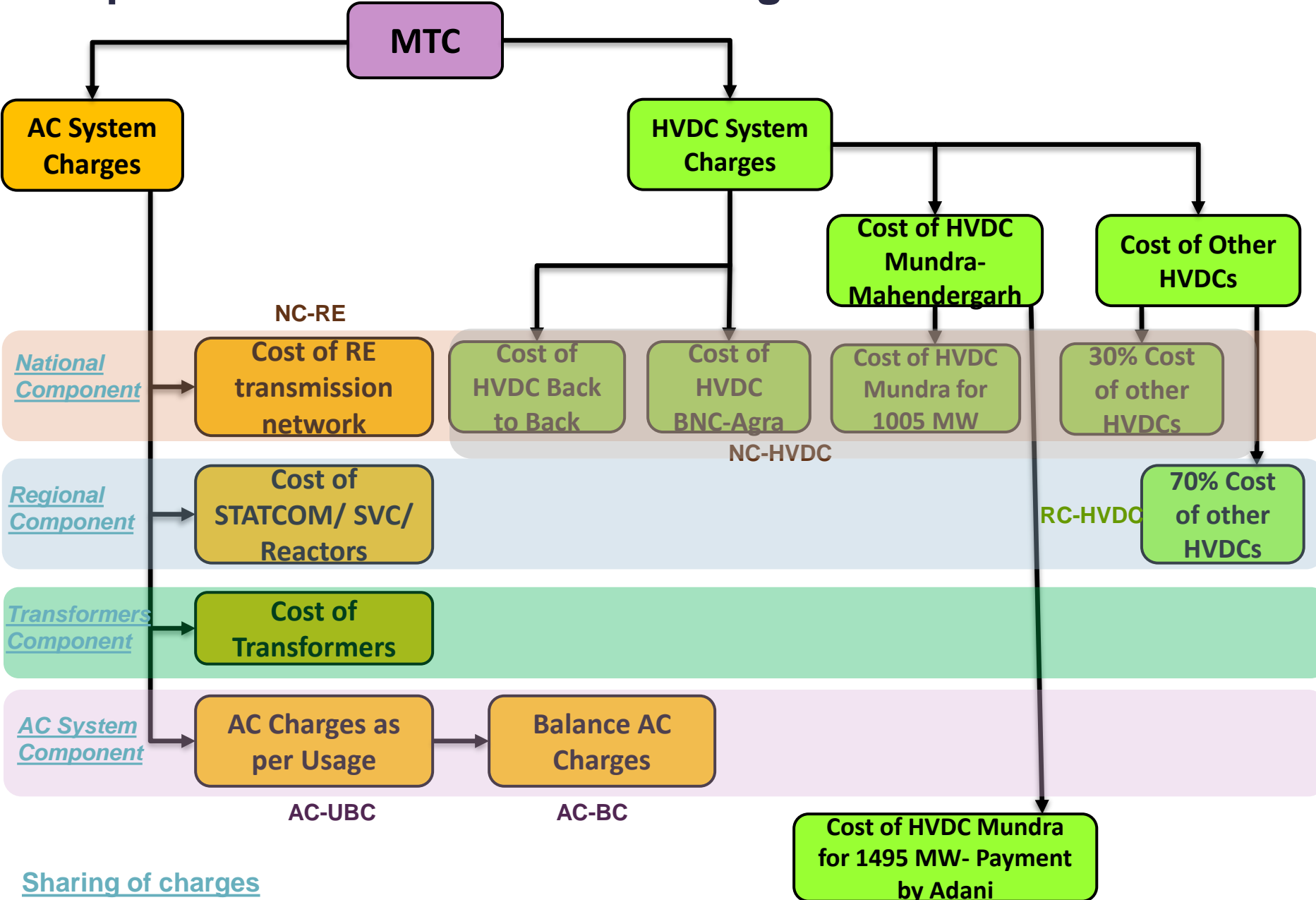
Framework: Sharing of ISTS charges



Components of Transmission Charges



Components of Transmission Charges



Transmission charges for STOA

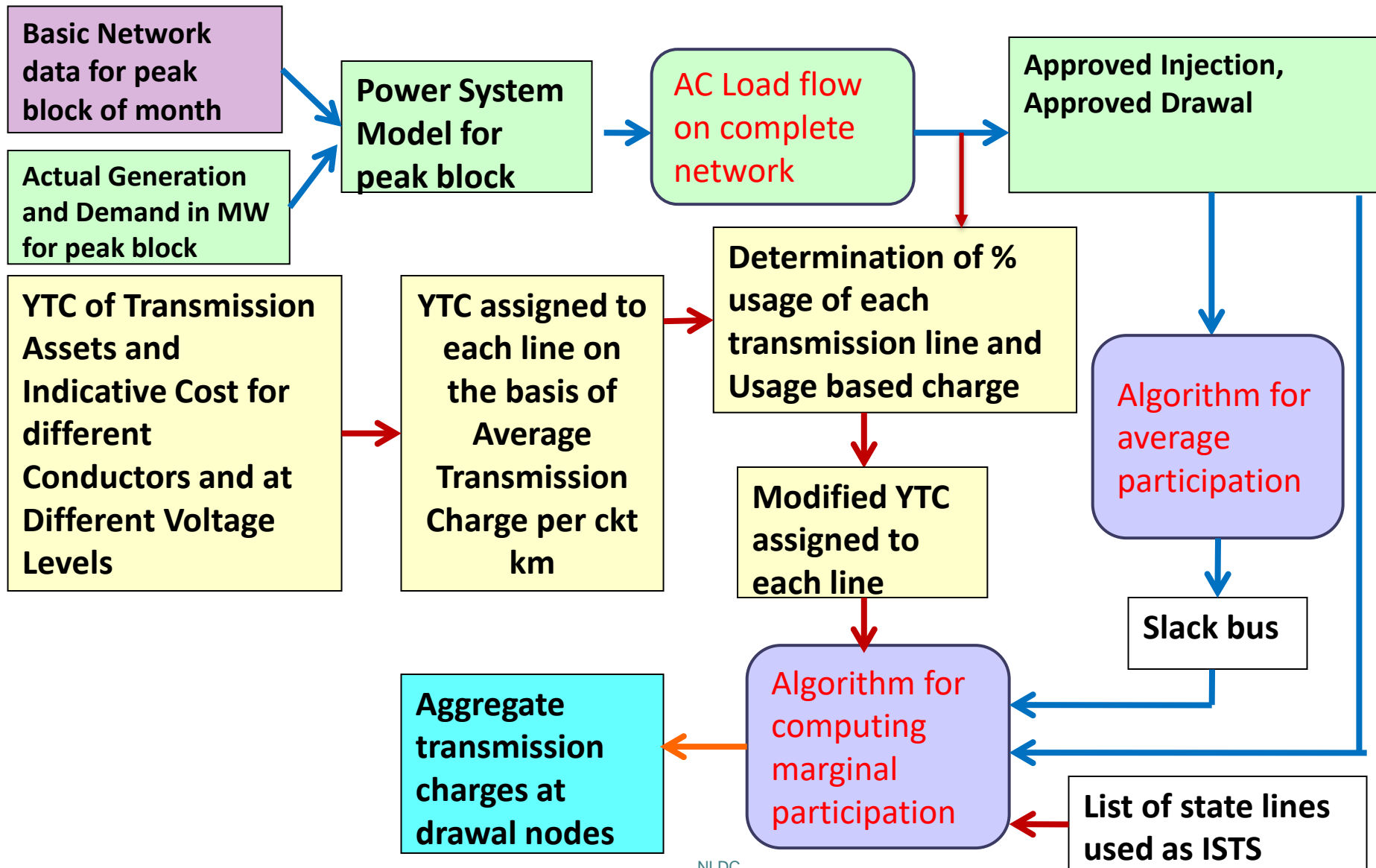
- Payable by generating stations and embedded entities located in the State, as per the last published STOA Rate for the State;

STOA Rate for the State (in Paise/kWh)

$$= \frac{\text{Transmission charges of the State for the billing month (in rupees)}}{(7200 \times \text{LTA/MTOA of the State for the corresponding billing period})}$$

- No Transmission charges for STOA to be paid by Distribution Licensees (having LTA/MTOA) for ISTS network
- No Transmission charges for STOA to be paid by Trading Licensees on behalf of Distribution Licensees (having LTA/MTOA) for ISTS network
- Reimbursement of Transmission charges for STOA paid by an embedded intra-State entity to the State
- Offset for Transmission charges for STOA against the transmission charges payable by the DIC for untied LTA

Computation flow chart for sharing of AC-UBC



Peak Case

- **Basic Network:** at 110 kV and above containing all the power system elements including generator and transmission system (as existing for the peak block of the month).
- Node wise actual demand and generation, in MW

Cut off date for transmission assets:

- Declared under commercial operation and in use on or before last day of the Billing period.

Dedicated Transmission Lines:

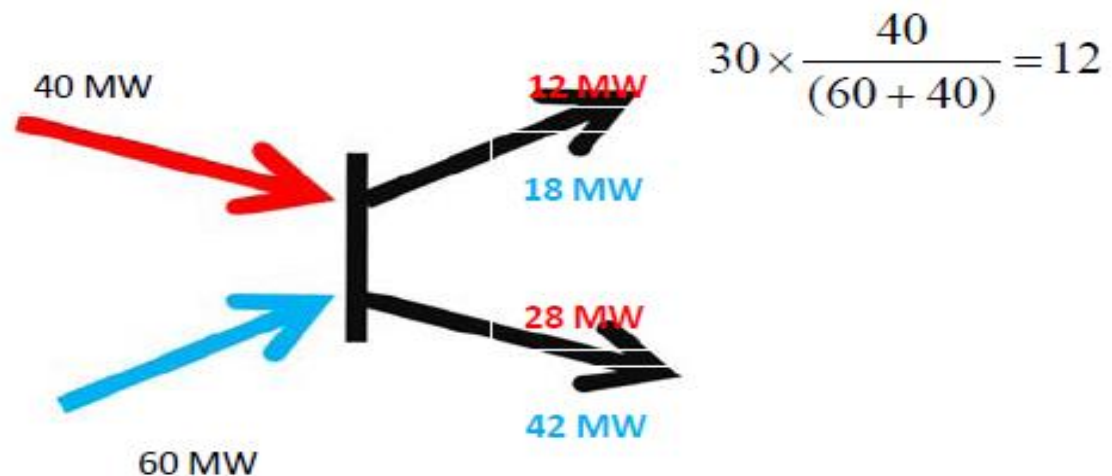
- Owned and operated by the ISTS Licensees only

Hybrid Methodology

- Hybrid of
 - Average Participation
 - Marginal Participation
- Average Participation
 - Used to identify slack (responding) buses for each node
- Marginal Participation
 - To compute the participation factor of each node on each line.

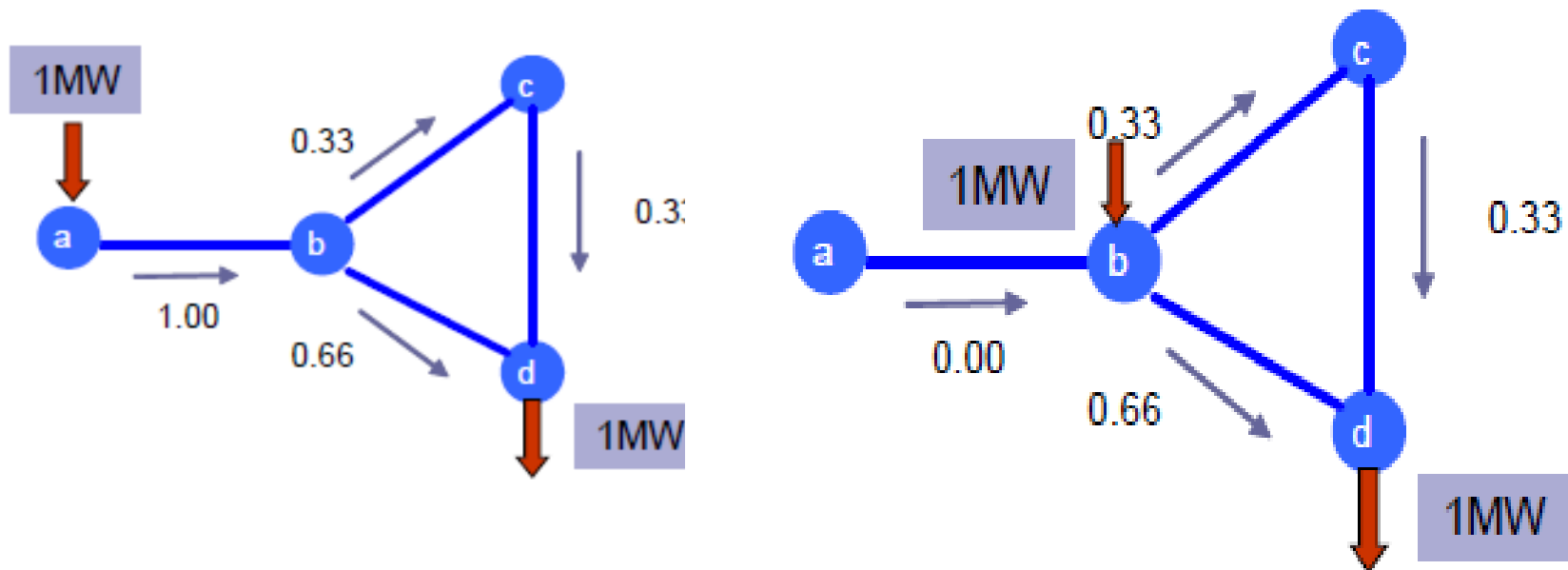
Average Participation

- Tracing of Power
 - Load Tracing
 - Generator Tracing

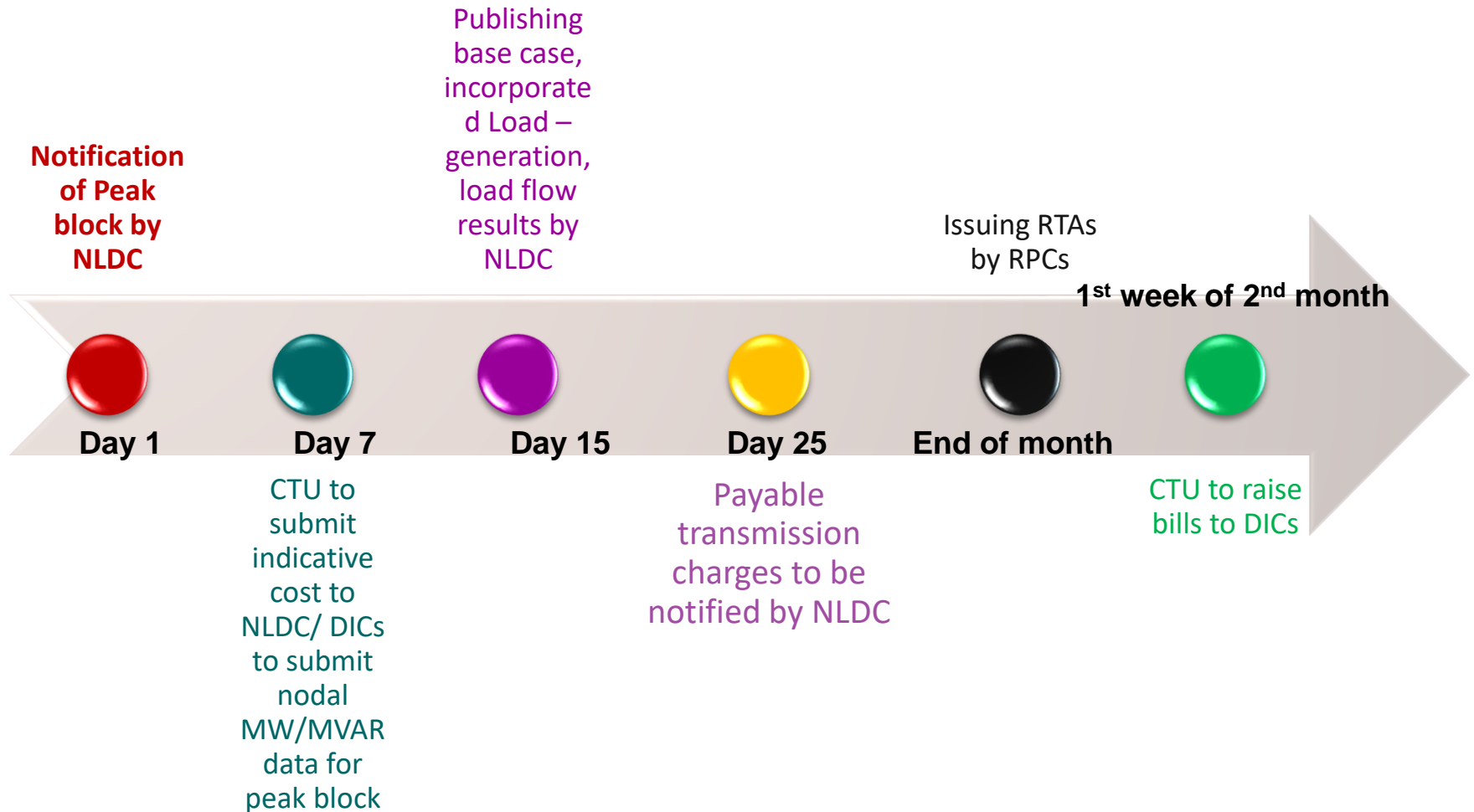


Marginal Participation

- Marginal Participation
 - The charges are based on incremental utilization of network assessed through load flows.



Timelines for computations, billing and accounting



Specific Cases

- ❑ No Transmission Charges for Solar and Wind based generating projects (On fulfilling certain conditions)
- ❑ Transmission Charges to be paid by Generator for delayed capacity, if associated transmission system has achieved Commissioning Date of Operation (COD) on time.
- ❑ In case of LTA of new generator granted to ISTS, generator has to pay 10% of transmission charges of home state if COD delayed
 - ❑ Reimbursed to the DICs in proportion to their shares under the First Bill in the following month
- ❑ Operationalization of part LTA of a generator in case of COD of some of transmission elements of an associated transmission system

Specific Cases

- ❑ Transmission Charges to be paid by ISTS Licensee to generator proportionate to Long Term Access for the transmission system which is delayed, if generating station or unit(s) thereof has achieved COD on time
- ❑ Transmission charges for dedicated transmission line constructed by an ISTS Licensee shall be paid by generator to the licensee in proportion to the Connectivity granted and for which LTA is not operational.
- ❑ Generators to pay for drawing start up power @ transmission deviation rate of home state
- ❑ When generating station connected both to ISTS and State Transmission Utility (STU) network, ISTS transmission charges and losses applicable only on quantum of LTA/MTOA connected through ISTS



Thank You

Components of Transmission Charges

(1) National Component : NC for RE + NC for HVDC

▪ National Component-Renewable Energy (NC-RE):

Transmission charges for transmission systems developed for renewable energy projects as identified by the Central Transmission Utility

▪ National Component-HVDC (NC-HVDC):

- ✓ 100% transmission charges for “Back to Back HVDC”
- ✓ 100% transmission charges for Biswanath Chariali/Alipurdwar– Agra HVDC
- ✓ 30% of transmission charge for all other HVDC
- ✓ Proportionate transmission charges of Mundra–Mohindergarh HVDC corresponding to 1005 MW capacity



(2) Regional Component:

- **Regional Component of HVDC**

- ✓ 70% of transmission charges of HVDCs except those covered under National component and proportionate transmission charges of HVDC Mundra-Mohindergarh towards 1495 MW.

- **Transmission charges for STATCOM, SVC, Bus Reactor etc.**

- ✓ Transmission element(s) identified by Central Transmission Utility being critical for providing stability, reliability and resilience in the grid



(3) Transformers Component:

- ✓ Transmission charges for inter-connecting transformers planned for drawal of power by the State
 - List of such transformers for each State shall be provided by the Central Transmission Utility
 - In absence of separate Transmission charges, indicative capital cost to be provided by the Central Transmission Utility.



(4) AC System Component:

- ✓ Transmission charges excluding that of considered for National component, Regional Component and Transformers Component.
- **Usage Based Component (AC-UBC):**
 - ✓ **Modified Line-wise Transmission Charges:** Charges to a line is to be allocated as per the loading w.r.t Surge Impedance Loading (SIL) of the line.
 - ✓ **Node wise charges:** calculated as per Hybrid Methodology, using modified line-wise transmission charges
 - ✓ Aggregated transmission charges at drawal nodes within the geographical boundary of the State to determine the allocation of charges for the State under AC-UBC
- **Balance Component (AC-BC):**
 - ✓ Balance transmission charges for AC transmission system after apportioning the charges for AC-UBC



Sharing of different Components of Transmission charges

(1) National Component:

- a) To be shared by the drawee DICs in the ratio of their quantum of LTA+MTOA
- b) To be shared by Injecting DICs with untied LTA capacity in the ratio of their untied LTA capacity.

(2) Regional Component:

- a) To be shared by the drawee DICs in the ratio of their quantum of LTA+MTOA
 - b) To be shared by Injecting DICs with untied LTA capacity in the ratio of their untied LTA capacity.
- **For Mundra-Mohindergarh HVDC, proportionate transmission charges towards 1495 MW shall be borne by M/s Adani Power (Mundra) Limited or its successor company.**

Sharing of different Components of Transmission charges ...(2)

(3) Transformers Component:

- ✓ To be borne by the State in which Inter-Connecting Transformers (ICTs) are located

(4) AC System Component:

▪ Usage Based Component (AC-UBC):

- ✓ To be shared by DICs corresponding to their respective usage of transmission lines
- ✓ Injecting DIC with Long Term Access to target region with untied LTA capacity shall be apportioned charges under AC-UBC

▪ Balance Component (AC-BC):

- ✓ To be apportioned to all drawee DICs in the ratio of their quantum of LTA+MTOA
- ✓ And injecting DICs with untied LTA capacity in the ratio of their untied LTA capacity

