

Ensuring Electricity for All: Overcoming Structural Disincentive

Round Table on 'Electricity for All: Approaches and Challenges'

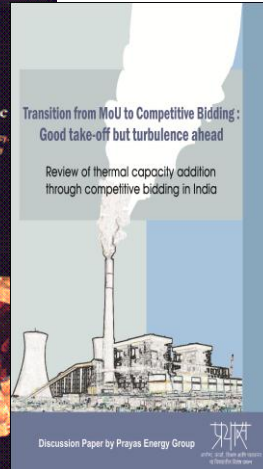
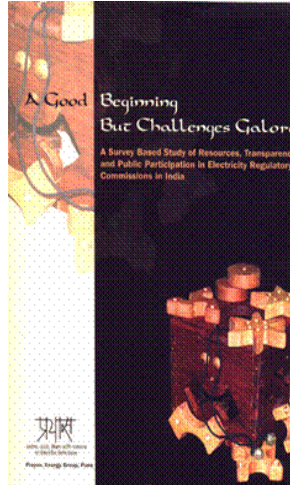
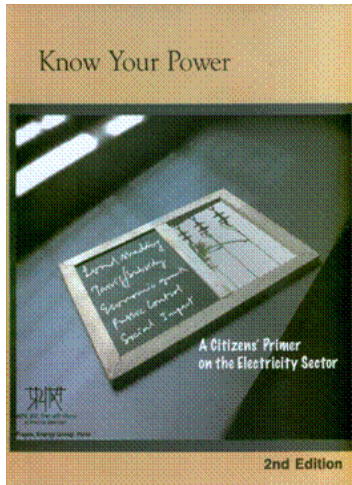
by

Pune International Centre & Prayas Energy Group

Pune, February 18, 2012

About Prayas ...

www.prayaspune.org/peg



'Prayas' means
'Focused Effort'

Based at Pune, India

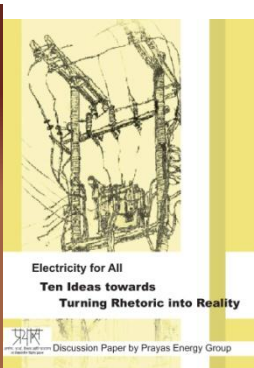
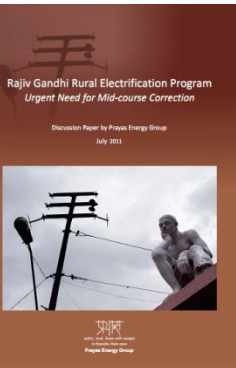
Research based, policy
advocacy Voluntary
Org.

Focus on protection of
"Public Interest" in
electricity sector

Activities:

- Research & intervention (regulatory, policy)
- Civil Society training, awareness, and support

Prayas Energy Group, India



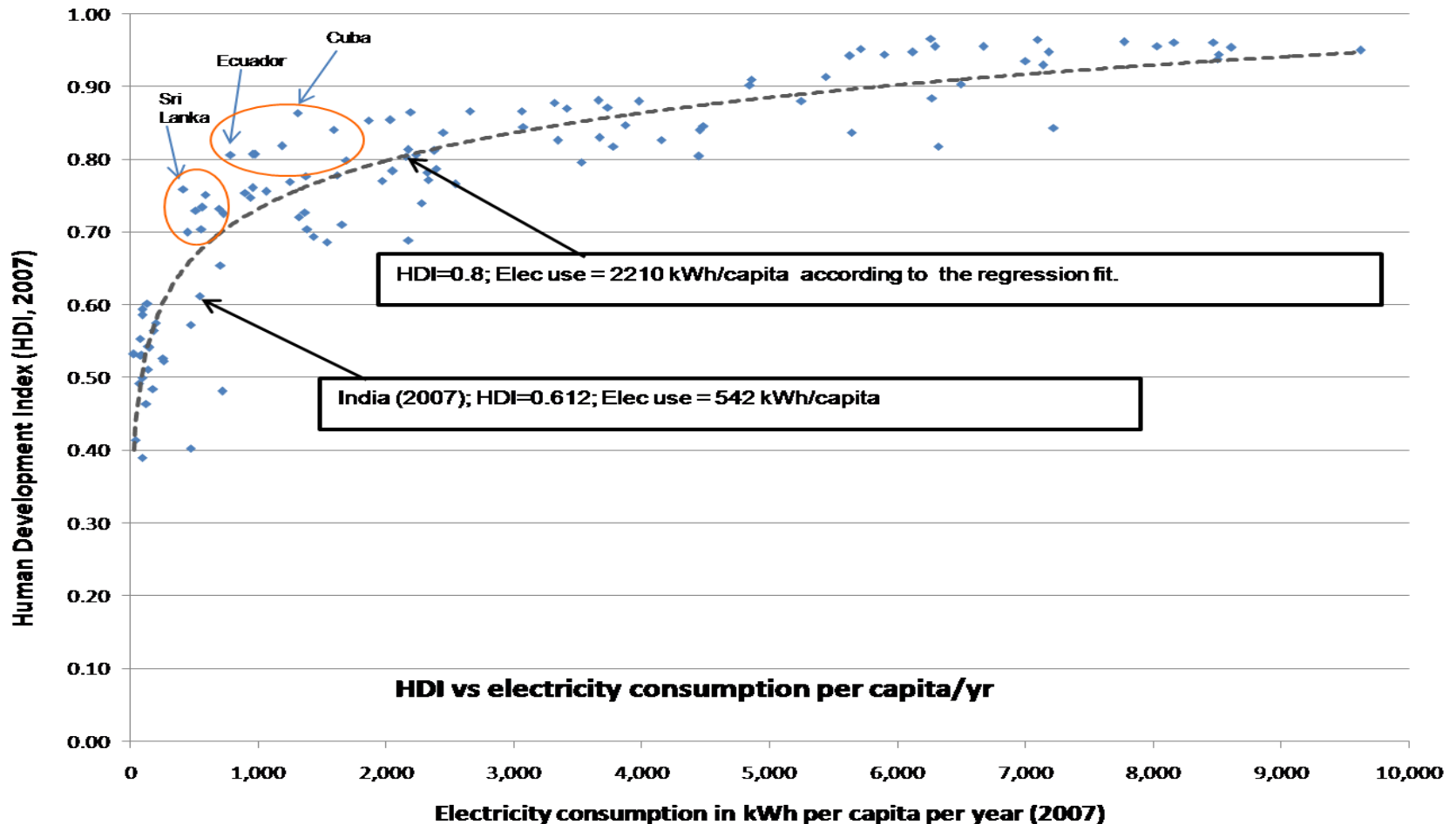
Outline

- Household electrification
 - National commitment and challenge
- Structural disincentive for Discom
- Approach to overcome the disincentive

Importance of Electrification

- Multiplier effect on economy
 - Promotes economic activities
 - Increases productive working hours of the day
 - Meets social needs, reduces expenditure on kerosene
- An investment to catalyse development
- Strong correlation between HDI and electricity consumption

Correlation between HDI & Electricity



Lessons from international experience

- Concerted and well coordinated drive lasting 5-10 years
 - Essential to cover all dimensions of the issue
- Supply as important as network
- Economic development follows
 - Productive end-use need not be the prime objective

Household Electrification in India

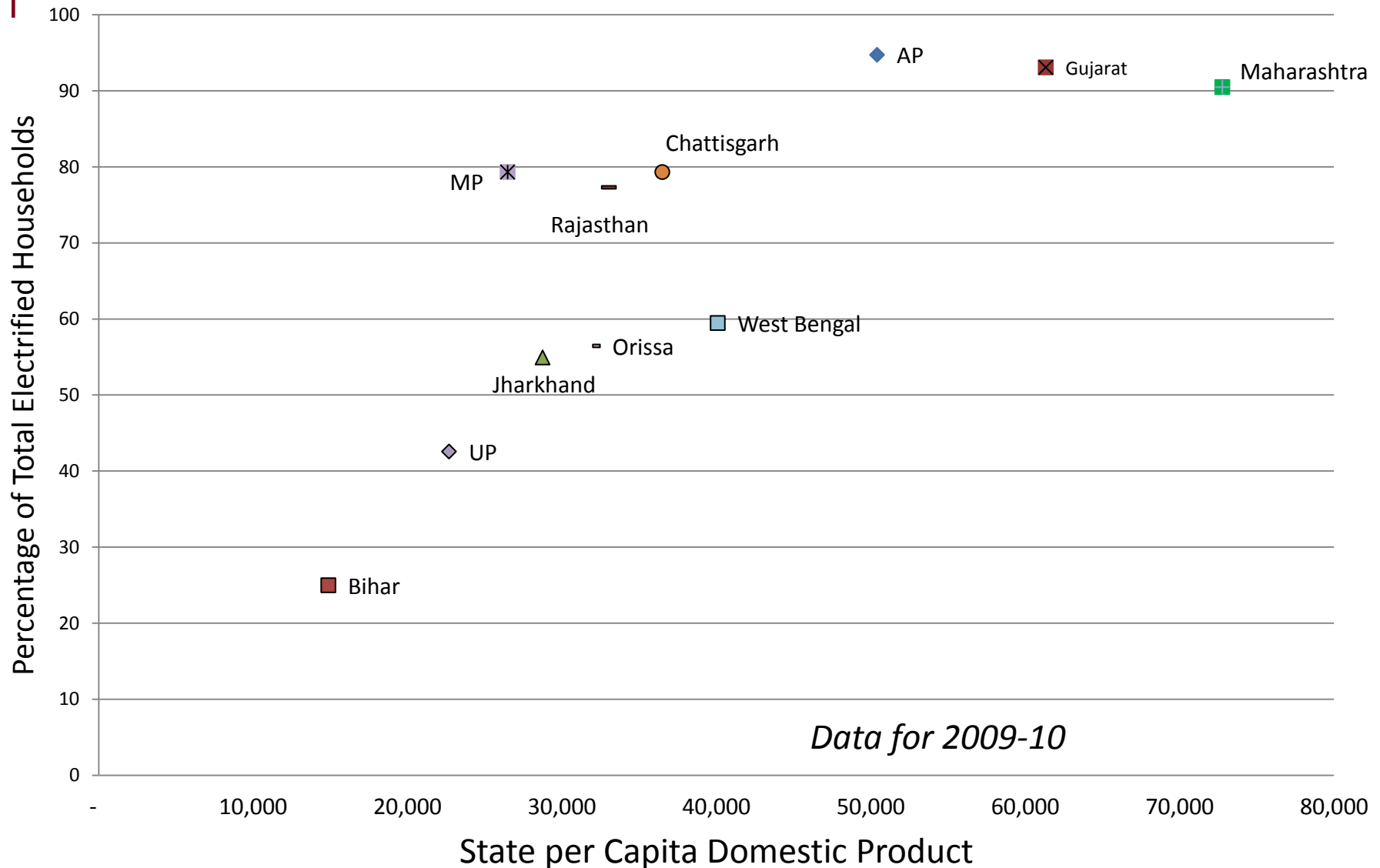
Commitment:

- National Electricity Policy 2005: “...the nation has set itself the target of providing access to all households in next five years.”
 - ensure minimum lifeline consumption 1 unit/household/day as a merit good by 2012

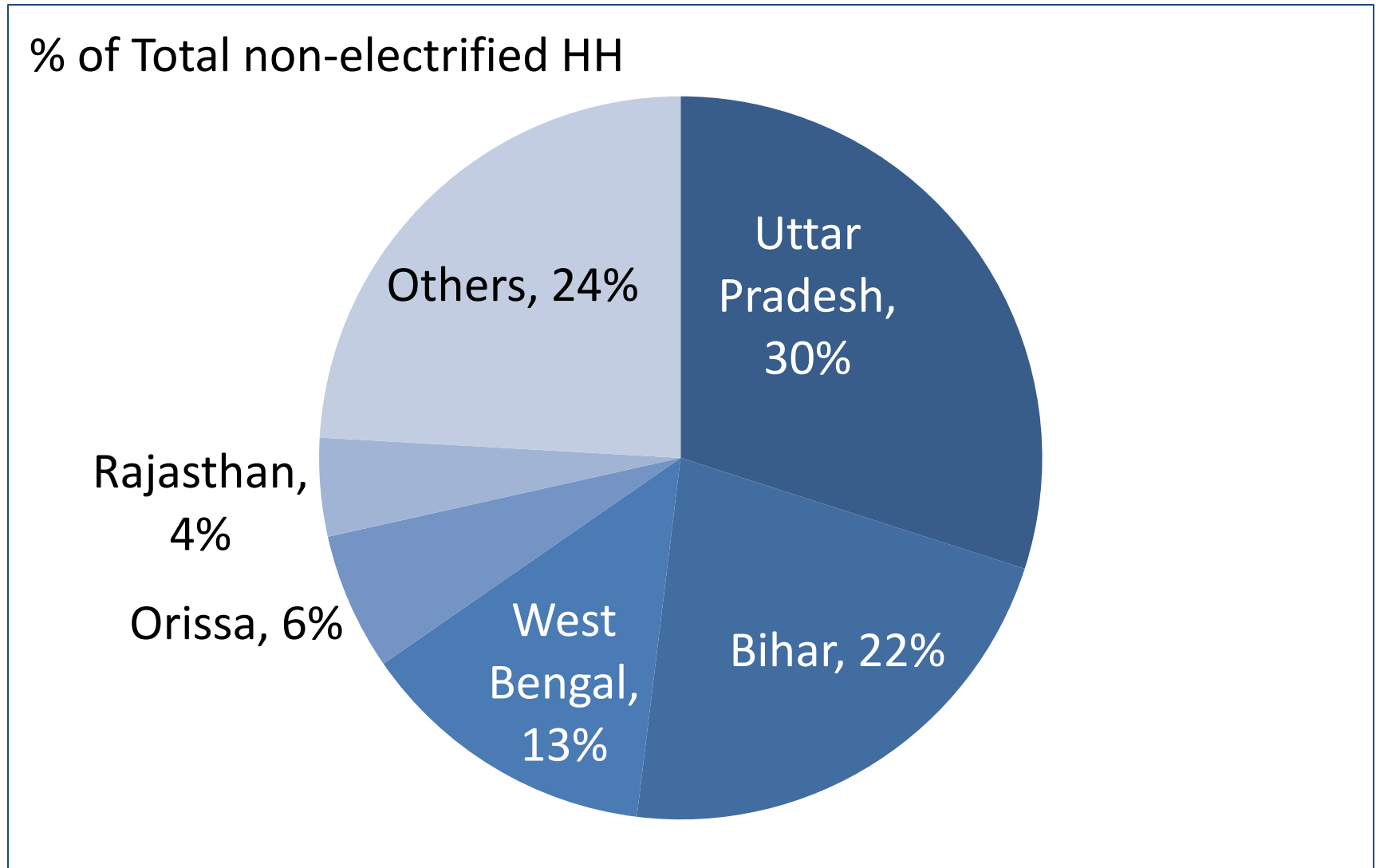
Challenge:

- Non-electrified population in India comparable to the size of USA (> 30 Cr people)
 - 1 out of every 5 persons in world without electricity access lives in India

Electrification & Economic Development



5 States account for > 75% of Non-electrified HH



Components of Electrification

1. Network infrastructure & providing connections – *RGGVY*
2. Operations & Maintenance
3. Supply of power

RGGVY: Major step forward

- Major GoI programme for rural grid extension
 - 90% capital subsidy, 10% loan from REC
 - Total investment of ~Rs. 70,000 Cr
 - Discom to ensure 6-8 hrs supply to newly connected HH
- Status - time and cost overruns, quality concerns
- Achievement:
 - 1.8 Cr HHs provided connection
 - Village electrification increased to 92%
- Key challenge:
 - How to ensure adequate hours of supply on these rural feeders?

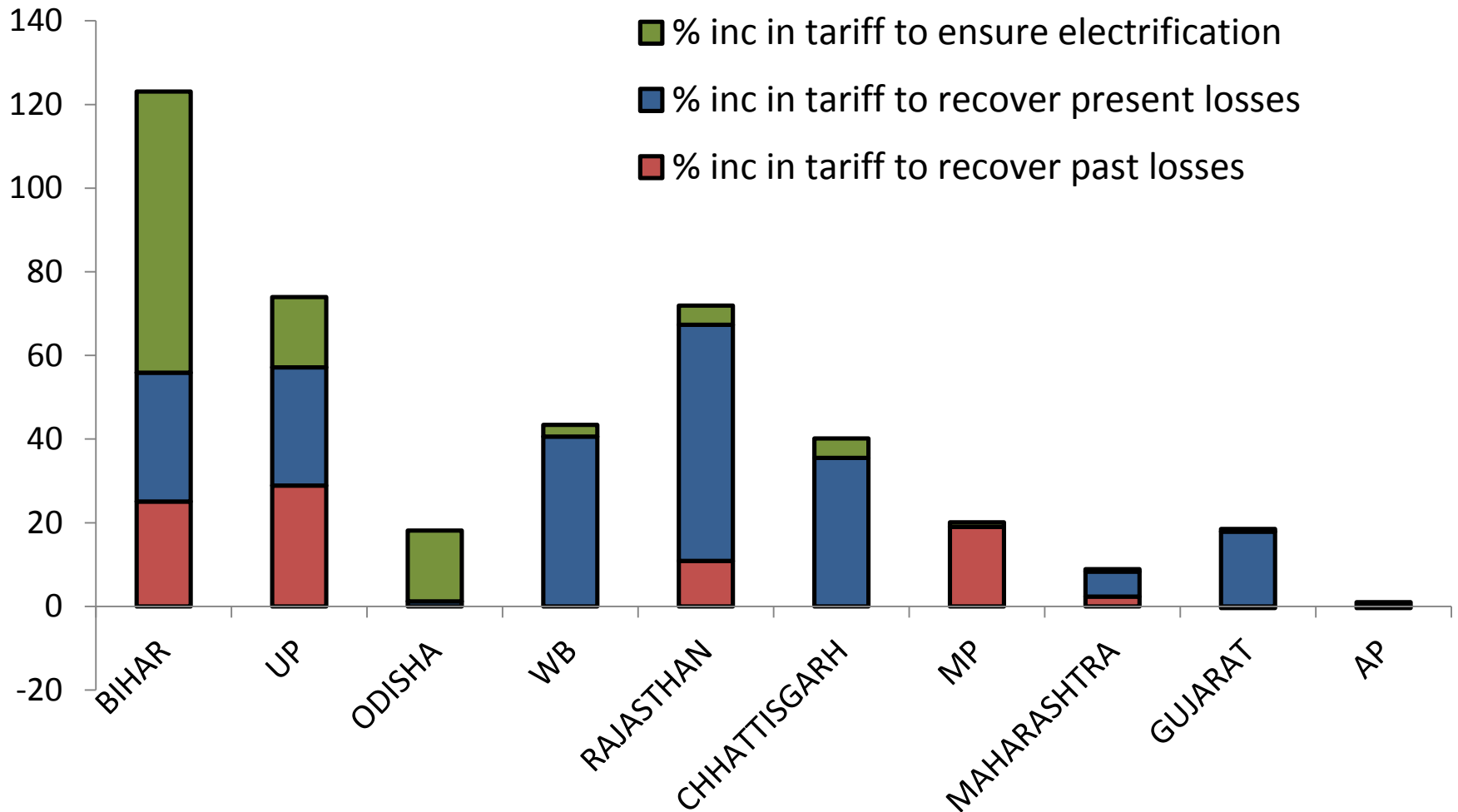
Structural disincentive to supply to rural households

Marginal Power purchase cost in Rs/u	3.5*
PP cost after accounting for Dist loss of ~20%	4.4
Distribution margin in Rs/u	1.0
Total cost of supply in Rs/u	5.4
Revenue from sale to electrified HH in Rs/u	1.5
Loss per unit	3.9

➔ Needs increase in overall tariff

**without accounting for the fact that this power will be required at peak hours and hence will be costlier*

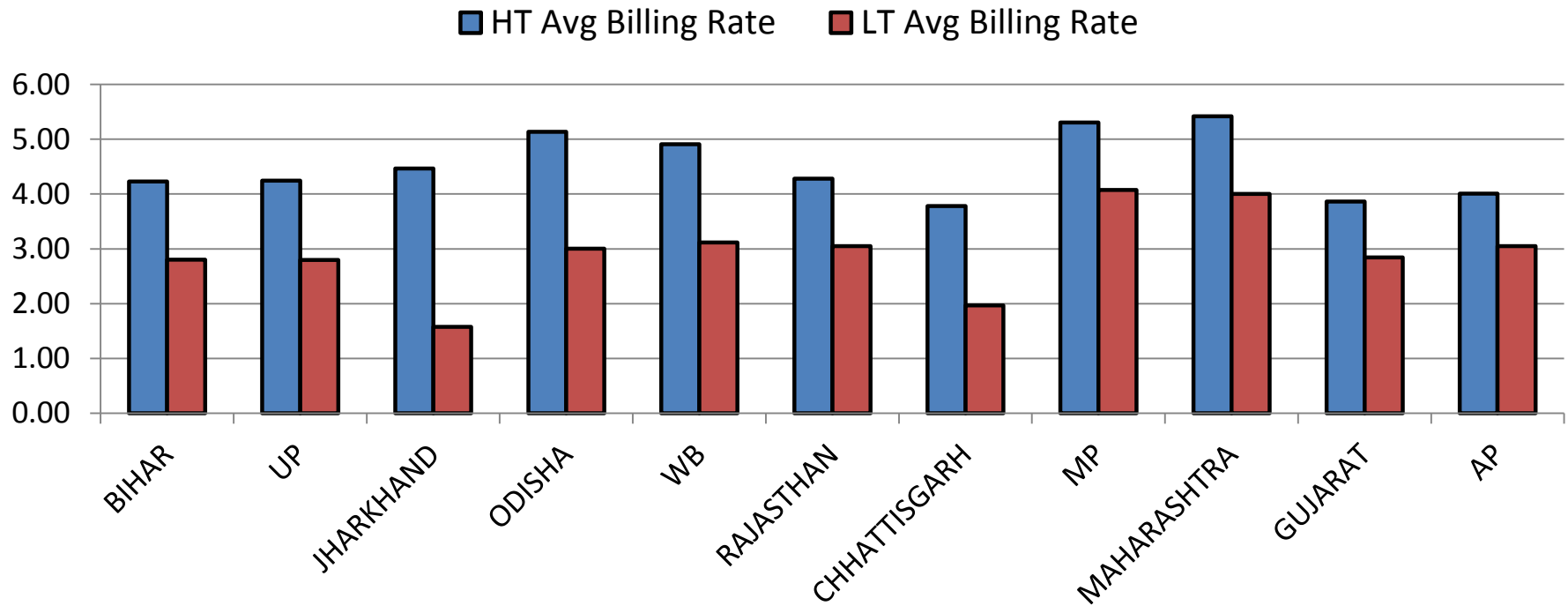
Impact of HH electrification on already precarious DISCOM finances



Data for past losses for Odisha and West Bengal not available

Impact of open access – additional challenge

- HT consumers: Significant share in total revenue, high ABR and collection efficiency
- Loss of cross-subsidy per unit may outweigh the gain of avoided power purchase cost, if any.



Implications of current scenario

- Discoms will avoid impractical tariff increase
 - Rural feeders will continue to get very limited supply
 - Electricity for All will not be achieved
 - Increase in rural loads (like agriculture) will worsen the structural disincentive
 - RGGVY investment of ~ Rs. 70,000 Cr. will not yield expected results

→ Hence need to restructure RGGVY

Restructuring RGGVY

- ✓ Ensure minimum lifeline supply to households
 - Remove structural disincentive
- ✓ Enable Discoms to better manage agricultural load
 - Partial support for feeder separation schemes

Potential ways to address disincentive

1. Cash transfer to consumers
2. Cash transfer to Discoms
3. Transfer of low cost power to Discoms

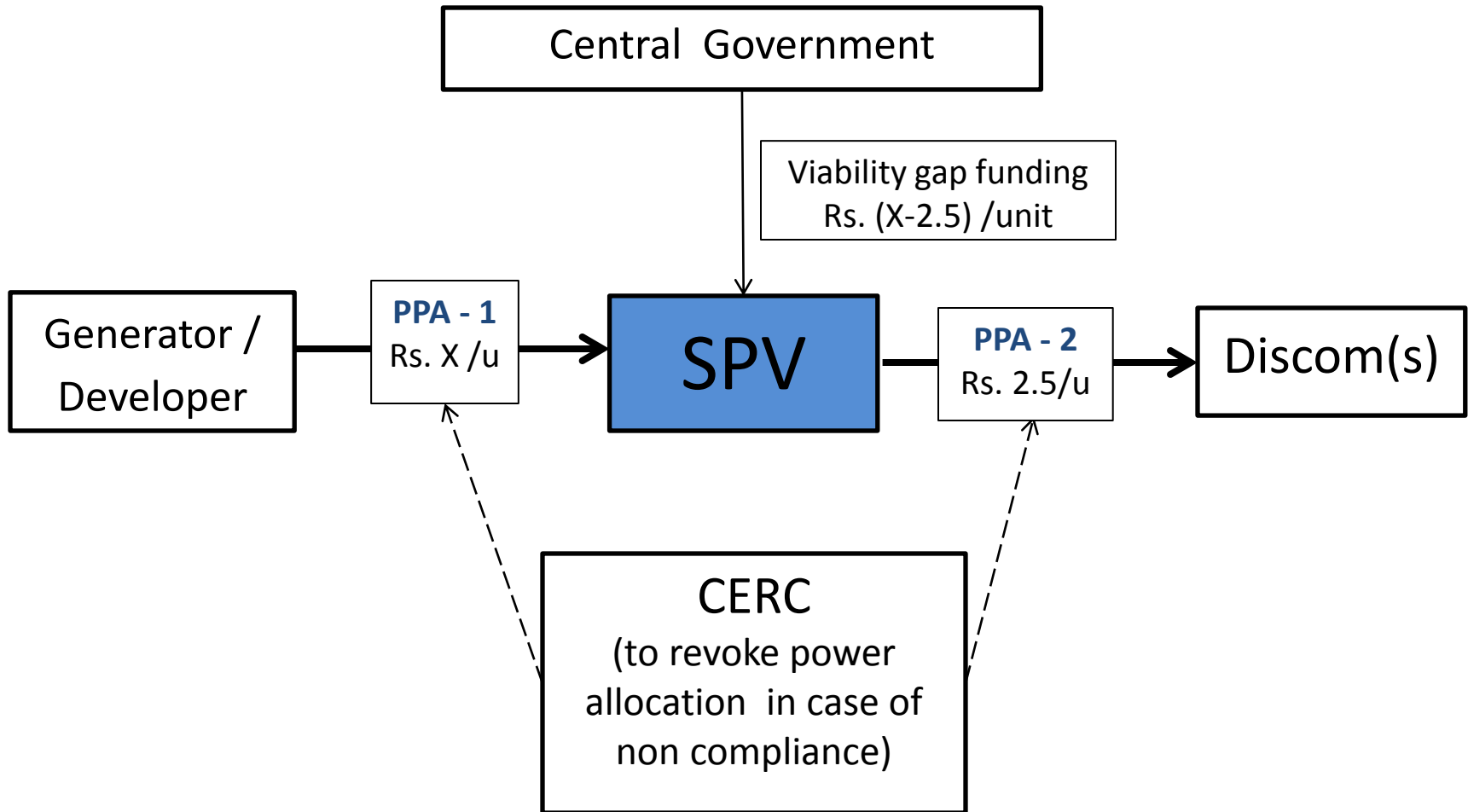
Cash transfers

- To consumers
 - Systems not yet established
 - Exclusion error could be high, if current targeting process is continued
 - Tough to withdraw subsidy in time-bound manner
- To Discoms
 - Difficult to limit fiscal burden incase power procurement cost is high
 - Tough to withdraw subsidy support, even if benefits are not provided to the target group

Transfer of low cost power to Discom

- Ensure availability of low cost (say Rs. 2.5 per unit) power to Discom
- Identify target areas and allocate power based on normative household consumption of 200 watt per HH
- Discom to ensure zero load shedding on LT feeders in identified areas

Schematic of proposed approach



Power procurement process

Option 1:

- SPV to procure power from market and supply it to Discom at fixed rate (Rs. 2.5 per unit)
- Govt to compensate for the gap (~ Rs.10,500 Cr per year, assuming discovered rate of Rs. 3.5 /u for capacity of 14 GW @ 85% PLF)
- PPA with Discom can have fixed and gradual increase in tariff to reduce the gap

Option 2:

- SPV to procure power from market through UMPP like approach based on captive coal allocation
- Tariff discovered can be ~Rs. 2.5/unit and hence low or no direct fiscal impact
- Needs coal equivalent of just 20% of the reserves allocated to captive users

Local generation options can also be considered under suitable conditions

Surplus from sale of additional units

Load	200 Watt
Generation requirement @ 85% PLF	4 units
Normative Household requirement per day	1 unit
Additional units for sale available to Discom	3 units

- Discom can sell additional units to higher paying consumers to further reduce the structural disincentive

Reduction in Structural Disincentive

Particulars	Current Scenario	Proposed Scenario
Marginal power purchase cost (Rs./ unit)	3.5	2.5
Power purchase cost after considering distribution loss of 20% (Rs. / unit)	4.4	3.1
Distribution cost / margin (Rs. / unit)	1	1
Total Cost of Supply (Rs./ unit)	5.4	4.1
Revenue from sale to electrified HH (Rs./ unit)	1.5	1.5
Loss to Discom (Rs./ unit)	3.9	2.6
<i>Surplus from sale of additional units (3 units x 0.8 Rs./ unit)</i>		2.4
Net loss to Discom (Rs./ unit)	3.9	0.2

Basis for Allocation of Power

- Option 1: Priority allocation to most backward districts
 - 170 most backward districts identified by Planning Commission can be considered for this purpose
- Option 2: Removing imbalance in central sector allocation
 - State-wise allocation based on current firm allocation of NTPC power and the level of household electrification within the states

Beneficiary states	Indicative MW Requirement	
	Option 1	Option 2
Total (<i>excluding NE states, Goa and J&K</i>)	~13700	~13800
5 states that account for > 75% of non-electrified households	~9000	~7300

Outcome of suggested approach

- Total capacity allocation required ~ 14,000 MW
- Gol support under RGGVY of Rs. 10,500 Cr per year/ Nil
- Strong accountability based on contractual arrangement:
 - Withdrawal of power allocation in case of non-compliance
 - Time-bound and reducing fiscal impact
- Benefits:
 - 70 million HHs-25% of population 24x7 supply
 - Will incentivize supply to other productive load (LT industry, PHCs, small commercial etc.)
 - Deepen national electricity market

Immediate possibilities

- NTPC Allocation of ~4000 MW from the total unallocated share of ~5500 MW
- Procurement through competitive bidding from projects in advanced stages of completion (not tied up through PPAs)

Summary

National Goal of electricity for all: “minimum lifeline consumption of 1 unit/household/day as a merit good by year 2012”

<u>Scheme will achieve</u>	<u>Key Decisions</u>	<u>Necessary actions</u>
<ol style="list-style-type: none">100% HH connectionsZero load shedding for 70 Million HH ~25% of populationEncourage economic activities in backward areasUtilize idle capacity/resources <p>Fiscal impact of ~ Rs. 10,500 Cr pa / Nil</p>	<ol style="list-style-type: none">Defining basis for allocation<ul style="list-style-type: none">- Backward District based approach- State-wise approachDeciding the power procurement process<ul style="list-style-type: none">- Bidding based procurement with or without coal allocation	<ol style="list-style-type: none">Restructuring of RGGVY under 12th planStronger mandate for SERCs to oversee RGGVYState Govt to empower SERC for monitoring and enable Discoms to ensure compliance100 x 100 connection drive by Discom and support for APL connections

Thank you!

Prayas Energy Group

Shantanu Dixit- shantanu@prayaspune.org

Sreekumar - sreekumar@prayaspune.org

www.prayaspune.org/peg