Trends and Way Forward in the State Electricity Sectors, 2021

An Experience Sharing Workshop

5th & 12th October, 2021 | Virtual workshop

Prayas (Energy Group)

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Power sector policy making: Reflections on recent proposals

4th CSO Experience sharing Workshop 2021

5th Oct 2021

Maria Chirayil

Prayas (Energy Group)

www.prayaspune.org/peg

A fast changing power sector

- Transition away from coal is underway in the Indian power sector → driven by global trends, climate concerns, technological advancement, and growing scale, falling costs, and policy push for RE
- Move towards digitalisation, decentralisation → aspects of the transition

- Institutions need to evolve to address these emerging challenges
- These changes are disruptive → potential for positive change → address socio-environmental issues, leverage techno-economic options, strengthen accountability systems

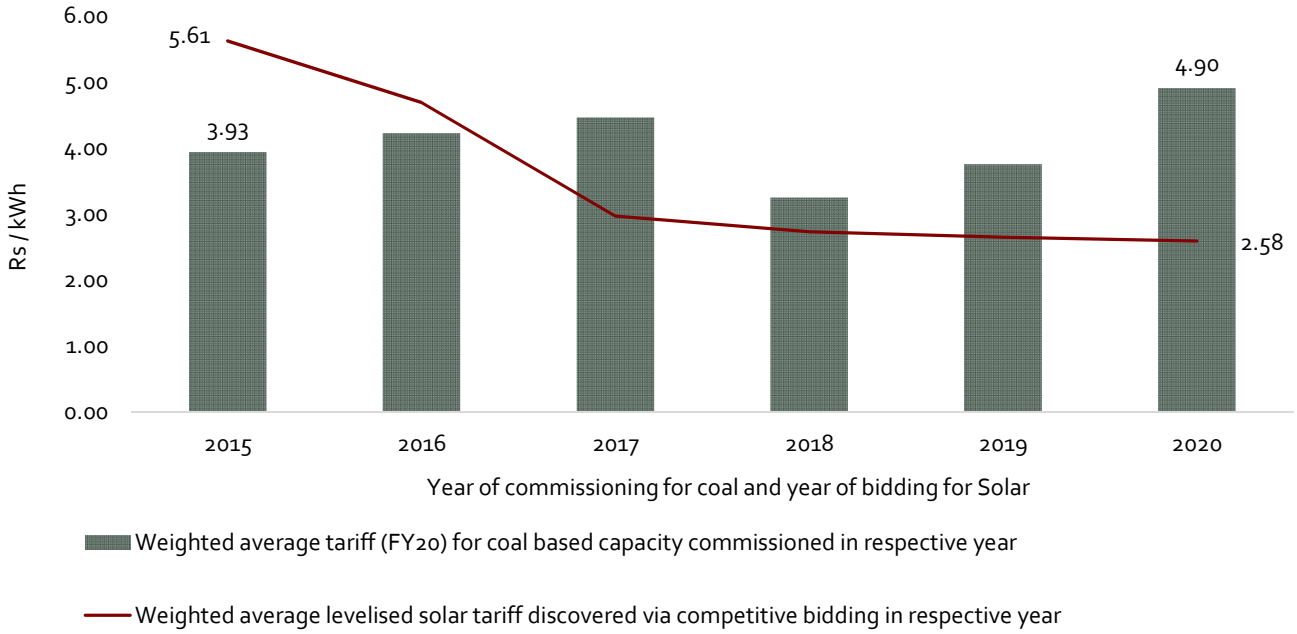
- Several structural and policy changes are already underway to address some of these issues
- Discussion and deliberation on these changes and their potential impact on the power sector is crucial

Outline

- Technology and market changes
  - Supply side
  - Demand side
- National level DISCOM schemes
  - 3 lakh crore scheme
  - KUSUM
- Proposed structural changes at the national level
  - Privatisation
  - Delicensing
  - MBED
- Sector governance
  - Jurisdictional challenges
  - Uncertainty in finalisation

Technology and market changes: supply side

Variable charge for recently commissioned coal power plants compared to average **levelized solar tariffs** discovered in the year of commissioning of the coal plant

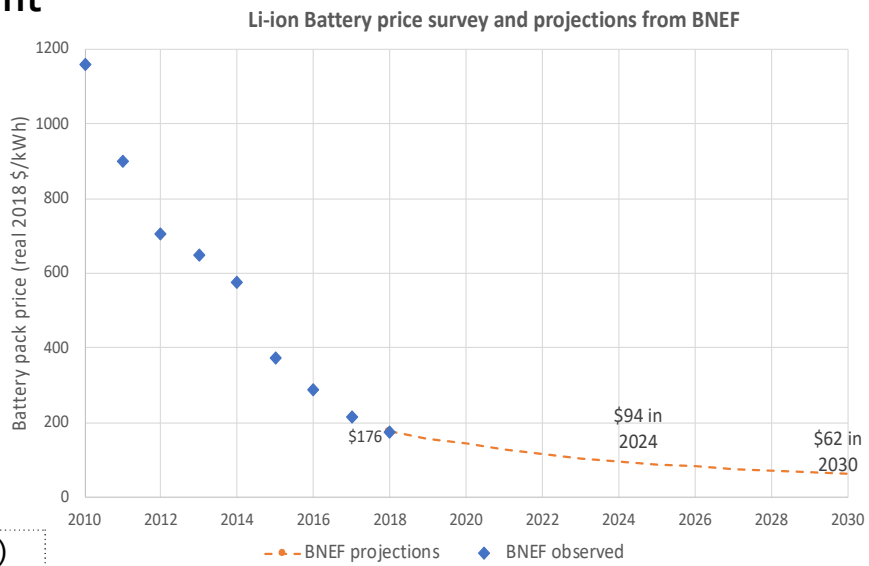


Source: Prayas analysis based on MERIT database, CEA documents, regulatory orders, Lok Sabha Q&A, MNRE Demand for Grants, SECI results and various newspaper articles

- Ambitious RE capacity addition targets: 450 GW by 2030, states have ambitious RPOs
- Role of RE generation in states is growing → Kar (35%), TN (18%), Guj (15%)
- Emergence of RTC bids (combined with other technology)
- Green procurement options in power exchanges to encourage meeting RPO
- Contractual issues, payment disputes with RE in states
- Move towards HPO for new large hydro projects → unnecessary given high costs?
- New emerging alternate sources like → green hydrogen for RPO

Technology and market changes: supply side

- **Affordable RE along with storage → disruptive to future procurement**
- Substantial reduction in storage prices → 80-90% since 2010
- 4-6 hours of storage system is found to be cost-effective in 2030
- Cost estimates warrant a closer examination of future investment decisions



- **This notwithstanding, coal will be a major player in the interim**

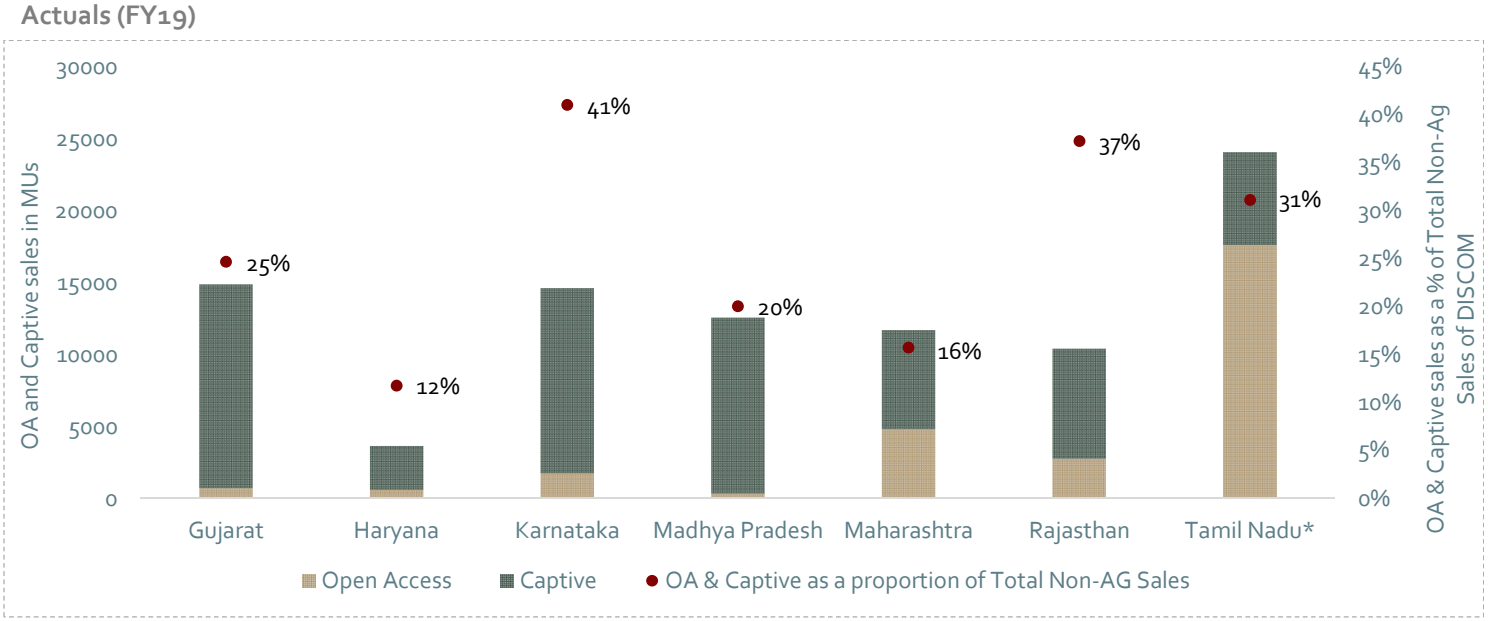
	Generation share (2021)	Generation share (2031)
Coal	79.9%	52.3%
RE	9.8%	38.7%

Source: PIER projections, Forthcoming, Prayas (Energy Group)

- Addressing emissions is crucial, PCE → deadlines were deferred → no clarity on cost impact and implementation
- Regulatory uncertainty → Sec 62 TPPs in CERC Tariff Regs (Feb 2021), Sec 63 suo-motu order (Aug 2021)

Technology and market changes: demand side

- Sales migration (OA+ Captive) as a share of total DISCOM Non-Agricultural Sales at 26% (FY19)
- RE more favourable than coal → modular, low gestation, minimal price escalation risk → migration is more lucrative and implementable
- RE Captive more than RE OA → 22% growth in captives sales at the national level FY16-FY19, limited data for OA



Source: PEG compilation from tariff orders, additional surcharge petitions and CEA general review.
**The OA numbers for TN are for FY20, as FY19 numbers are unavailable.*

- Reduction in cross subsidy for DISCOMs → Cross subsidy revenue → 5% of ACoS (national level)
- States give industrial subsidy → Punjab, Haryana, MH
- Industrial tariffs < ACoS → Raj, MP, TN
- Falling cross subsidy, attempts to keep tariff affordable → dependence on state subsidy

Losses before the sector

- 4 major bailouts since 2001 (averaging 2% of GDP)
- Annual losses of distribution utilities at Rs.50-60k crores
- Working capital short-term borrowing is rising @ 5% p.a
  - Rs. 75k crores in FY18
- Liquidity infusion at Rs. 90,000 crore in 2020
- DISCOM losses at Rs. 4.5 lakh Crore

2001: State Electricity Board Bailout

2003: Transfer scheme during unbundling of utilities

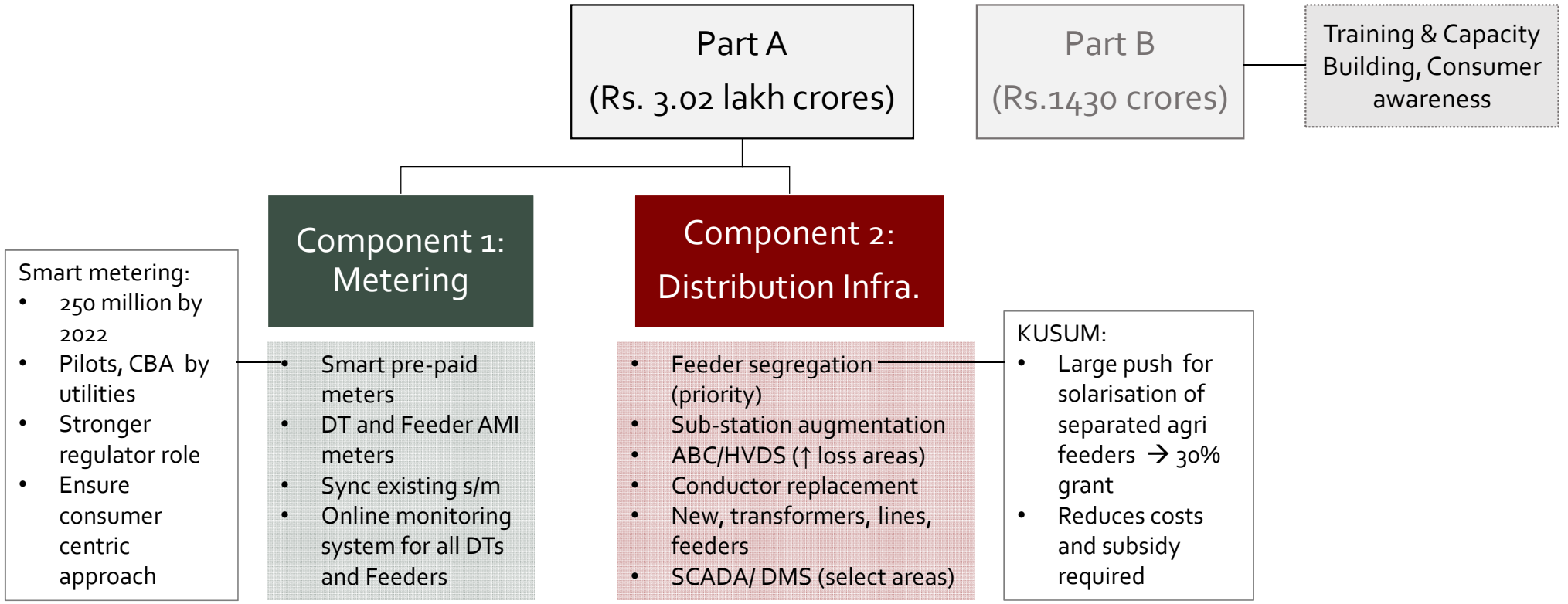
2012: Financial Restructuring Plan

2015: Ujjwal DISCOM Assurance Yojana

2022/23: Plans for another bailout??

National level DISCOM schemes

- Revamped reforms-linked results-based distribution sector scheme



Proposed structural changes

- Privatisation:
  - No deliberations even with failed experience in Odisha, challenges in Mumbai and Delhi
  - Without moving away from cost-plus regulation,

  change in ownership→ public monopoly to private monopoly

- Delicensing:
  - Proposed in draft E Act 2021 and draft NEP
  - Basis for allocation of existing long-term contracts→ Costs? Vintage? Sales? Revenue?
  - Cost plus regulation to continue → low lying equilibrium
  - USO → unclear, network duplication? Metering? Cross subsidy?

Table 1: Rising costs and power procurement trends of private utilities

State	DISCOM	% of total long term capacity power contracted from sister concerns	Average cost of supply (ACoS)	ACOS of neighbouring State-owned utility/ies
Delhi	TPDDL	0.1%	8.12	7.08
	BYPL	19%	7.22	7.03
	BRPL	2%	7.41	7.08
West Bengal	CESC	100%	7.52	7.22
Gujarat	TPL-A ,TPL-S	100%	7.36	6.02
Maharashtra	AEML	100%	8.42	7.51
	TPC-D	100%	7.93	7.51
Uttar Pradesh	NPCL	100%	7.51	7.03

Source: Prayas (Energy Group) compilation

- Market Based Economic Dispatch:
  - Move away from current contract-based state level scheduling to dispatch of capacity at national level
  - Pooling of capacity to discover market clearing price, difference between market price and contract price to be adjusted through additional payments
  - Potential savings → estimated at 4-15% (without details on calculations and assumptions)
  - Proposal could have significant impacts, risks, and implementation issues

- Limited consultation with states → uncertainty on uptake

Sector governance

- Concurrent jurisdiction of the electricity sector
  - Recent years → increased tendency to centralise decision making in electricity governance
  - Provisions in draft Electricity (Amendment) Bill, 2020 → greater central influence on regulatory institutions
  - Dilutes state level distinctions and offers one size fits all prescription → prepaid smart meters, DBT for subsidy
  - Centre's role → guiding framework for smooth transition, optimal utilisation of existing generating capacity, promotion of markets, addressing geographically skewed nature of RE
  - State's should address governance weaknesses, and adopt a more accountable approach in providing affordable, reliable power

- Decisions are increasingly passed via Rules instead of Acts → less consultative → Consumer Rights Rules (December 2020), Late Payment Surcharge Rules (August 2021), Green OA Rules (August 2021), Proposal to bring 33kV under STU (September 2021)
- Piecemeal approach to addressing structural issues → NEP, NTP and EAct amendments must be synchronous and cognizant of sector changes
- Uncertainty in the sector → States not on board → crucial policies (EAct, NTP, NEP) not amended to reflect sector changes→ decision making mostly through litigation → move away from mandates to incentives

Thank you

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Agricultural Supply :
Recent Developments in Maharashtra

Trends and Way Forward in the State Electricity Sectors
Fourth Experience Sharing Workshop
Organised by Prayas (Energy Group), Pune

5th October 2021

Topics

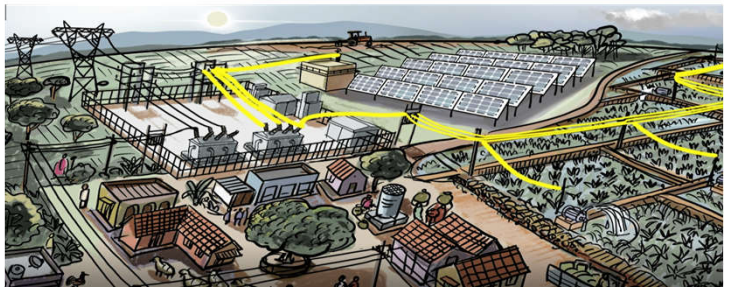
- Solar Feeder Approach

- Estimation of agricultural sales

Solar Feeder Approach …1

The idea

- 1-10 MW solar plant at 11 kV feeder level for agriculture
- Implemented in areas with dedicated agri. feeders
- Plant built, maintained by developers→ 25 yr. fixed price contract
- Developers selected via competitive bidding approach



Win-win approach

- Day-time reliable power for the farmers
- Reduces cost: Solar < Rs. 3.5/unit, power purchase @ Rs.5/unit
- Subsidy saving for the state government
- Utilities can meet renewable obligation

For more details: https://www.prayaspune.org/peg/resources/solar-feeder.html

Solar Feeder Approach …2

- **Implementation**
  - Scheme discussed and approved by government and MSEDCL in 2016 / 2017
  - More than 20 regulatory orders since then
    - Approval of bidding process, documents and capacity
    - Tariff adoption
    - Change in hours of supply
  - 4000 MW in various stages of procurement in Maharashtra, 1800 MW under construction
    - Plants within existing sub-stations, Within 1 – 5 km of sub-stations, MSGENCO plants
    - Sub-station wise capacity published and adoption of ‘open, continuous tendering’ process
  - Government Policy Target – 5000 MW solar feeder capacity ➔ ~ 14 lac pumps / 30 % of total pumps in coming four years

Solar Feeder Approach …3

- Solar Feeder Approach is part of KUSUM Scheme of GoI and several states are implementing it.
  - Part of Component A and Component C
  - 30% CapEx grant by Central Government
  - Over 10,000 MW capacity being planned under KUSUM
  - States such as Rajasthan, Madhya Pradesh and Haryana have issued feed-in tariff orders

- National level potential of 80 GW to 100 GW

Topics

- Solar Feeder Approach

- Estimation of agricultural sales

Working Group for Agriculture set up by MERC

- **Estimation of agricultural demand- a vexed issue over decades**
  - Significant unmetered consumers→ norm-based demand estimation
  - Over-estimation of such consumption → underestimation of losses

- **Highlighting issue in multiple regulatory processes over the years**
  - Analysis based submission along with other CSOs since 2000
  - Highlighting issues with disaggregated data submitted
    - 'negative' losses at feeder level
    - drought prone areas with ↑ consumption than water rich areas
    - 35% increase in agricultural sales in 1 year without satisfactory reasons

- **GoM's AG Fact Finding Committee, 2015**
  - Shri. Hogade and Shri. Ashish Chandarana

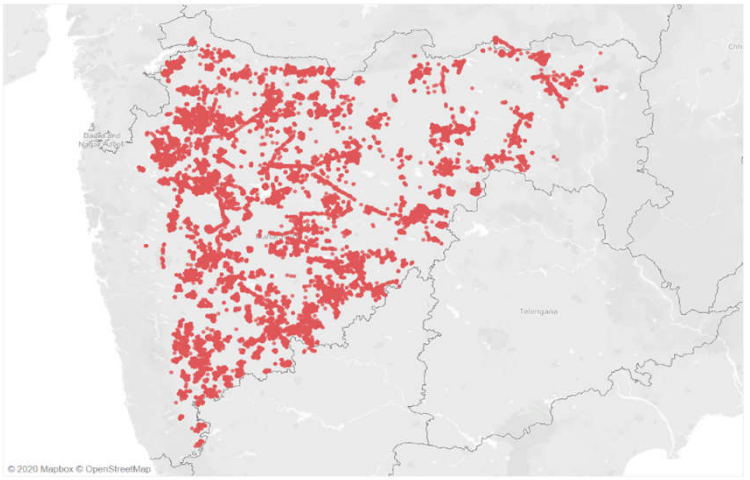
- **Part of Working Group (WG) Efforts**
  - WG set up by Maharashtra Electricity Regulatory Commission Nov. 2018
  - PEG was part of the WG

Methodology (Dual Approach)

- **Extensive farmer Survey**
  - Survey of 1.33 lakh consumers in state (3.2% of total AG consumers)
  - Survey conducted during peak rabi season (Sept 2019 to Feb 2020)
  - Mobile app based data collection along with geo-tagging

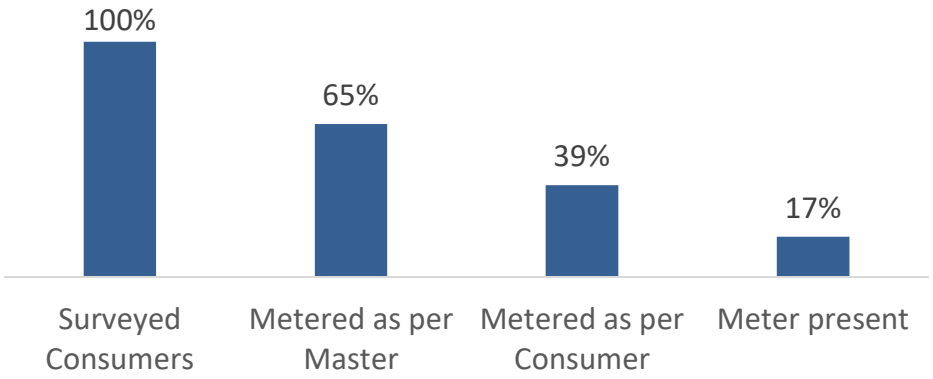
- **Assessment of feeder-wise AMR data**
  - AMR/MRI data for 502 feeders provided by MSEDCL
  - Feeder selection based on stratified random sampling

- **Public consultation on methodology**
  - Methodology incorporated comments from public and experts



Results and Insights

- **Poor metering status**
  - Meters present for only 27% metered AG consumers
  - Where validation was possible > 50% readings incorrect

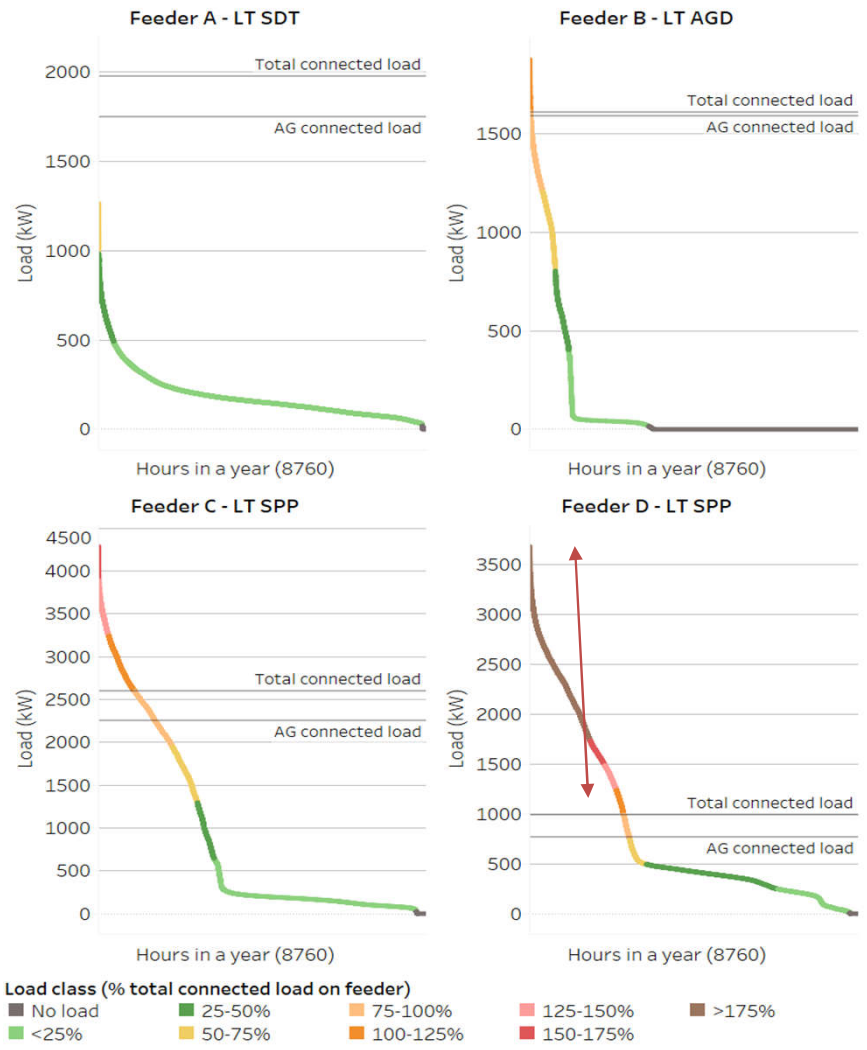


- **Excess loading of feeders**
  - Analysis of AMR/MRI data shows that 30% to 45% of feeders have load> connected load on feeder.
  - Indicates presence of excess load by consumers/ high unregistered load/ issues with consumer mapping

- **High levels (~ 18%) of technical loss on feeders- need for analysis and investment**
  - Possibly due to feeder loading pattern, larger number of DTs on feeders and feeder length

For more details: https://www.prayaspune.org/peg/publications/item/457

AG Feeder Loading Pattern



Estimation of agricultural demand

- **Working group estimation**
  - Agricultural sales at 23,500 MU in FY19 (10,000 MUs lower than DISCOM estimates)
  - Implies distribution losses at 22% (7.3 percentage points higher than 14.7% claimed by MSEDCL)
  - Consumption norm @ 1093 units/HP/yr

- **Commission's re-estimation of sales and losses based on working group report**
  - *'....Commission has considered estimation of AG sales of **25,380 MU** upon applying range adjustment factor of +/-8% as against recommendation of AGWG of +/-4%'*
  - This approved consumption norm is 1181 units/HP/yr (MERC earlier allowed 1515 units/HP/yr)
  - Distribution loss approved is 20.54% which is 5.84 percentage points higher than MSEDCL claims

- **Continued adoption of AMR/MRI metering readings for agricultural demand estimation**
  - Commission approved broad methodology and framework for future demand estimation
  - DISCOMs to web-publish feeder-wise AMR/MRI data by 7th of every month and address difficulties in feeder metering and consumer mapping

MSEDCL has filed appeal against the MERC order in APTEL

For more details

About Solar Feeder Approach

- https://prayaspune.org/peg/maharashtra-solar-feeder.html
- https://prayaspune.org/peg/resources/power-perspective-portal/267-agriculture-solar-feeders-in-maharashtra.html
- https://www.prayaspune.org/peg/resources/power-perspective-portal/221

About Agricultural Sales Estimation

- https://www.prayaspune.org/peg/publications/item/457 Working Group Report
- https://www.prayaspune.org/peg/resources/power-perspective-portal/266-state-overview-maharashtra.html

Thank you!

Agricultural and Electricity

Some experiences from Andhra Pradesh and Telangana

M. Thimma Reddy,

Peoples' Monitoring Group on Electricity Regulation

September 2021

Importance of well irrigation

- In Andhra Pradesh about 16 lakh hectares of gross area is irrigated under wells. This accounted for 50% of the area irrigated in the state.
- In Telangana about 18 lakh hectares of gross area is irrigated under wells. This accounted for 80% of the area irrigated in the state.
- Contribution to rural livelihoods
- Food security
- Raw material for agro based industries

- At the same time quantum of electricity consumed by irrigation wells and increasing subsidy burden have become contentious

Electricity consumption in Agriculture in AP

Year	Total supply (MU)	Agriculture		T&D Losses	
		MU	%	MU	%
2015-16	49,302	10,629	21.56	5,623	11.41
2016-17	52,141	11,669	22.38	5,232	10.03
2017-18	55,824	10,828	19.40	6,138	11.00
2018-19	60,897	12,012	19.72	6,340	10.41
2019-20	62,510	11,364	18.18	6,574	10.52

Reasons for increased agriculture consumption - AP

- Steady increase in the number of agriculture services. Number of agriculture services increased 6% annually.

- The number of low-tension agriculture connections increased from 14 lakhs in FY16 to 18 lakhs in FY20

- Power supply to agriculture increased from 7 to 9 hours from FY20.

Electricity consumption in Agriculture in Telangana

Year	Total supply (MU)	Agriculture		T&D Losses	
		MU	%	MU	%
2015-16	48,576	11,190	23.04	7,926.	16.32
2016-17	52,178	14,374	27.55	8,449	16.19
2017-18	57,644	18,240	31.64	7,083	12.29
2018-19	62,029	20,839	33.60	4,460	7.19
2019-20	64,826	17,958	27.70	5,824	8.98

Reasons for increased agriculture consumption - Telangana

- Increase of agriculture connections from 19 lakhs in FY 2016 to 23 lakhs in FY 2020
- Power supply to agriculture increased from 7 to 9 hours from April 2016.
- Telangana government announced 24 x7 agriculture supply from January 2018.
- 24 x7 power supply to agriculture did not have expected impact. While power consumption increased by 27% during the FY 2017-18 it increased by 14% during the FY 2018-29. During the next FY it declined by 14%.

HT Agriculture/Lift irrigation - Telangana

Year	MU
2015-16	704
2016-17	1,347
2017-18	1,860
2018-19	2,858
2019-20	5,399

Estimation of electricity consumption in agriculture sector - 1

- As LT agriculture services are not metered estimation of electricity consumption by pumpsets has become a contentious issue.

- To improve agriculture consumption estimates APERC introduced in 2003 a sample methodology on the advise of Indian Statistical Institute (ISI), Hyderabad. Under this meters were installed on the LV side of sample DTRs feeding exclusively agriculture load. Agriculture consumption arrived with the help of these DTR meters was applied to all DTRs feeding agriculture.
- This sampling methodology was not implemented properly. In 2016-17 ARR filings APSPDCL stated that only 14% of the meters provided valid data. In the FY19 ARR filings APEPDCL has asked for time to fully implement it.
- Even after a decade of introduction of the ISI methodology it is difficult to say how far the four DISCOMs have followed it. In their ARR each DISCOM presents data related to agriculture consumption differently. They do not specify the number of DTRs from which valid data were collected.
- The way ISI methodology was implemented raised doubts about the reliability of agriculture consumption estimates.

Estimation of electricity consumption in agriculture sector - 2

- TSERC commissioned a consultancy project by Administrative College of India (ASCI) in 2017 to develop a better method to estimate agriculture consumption.
- This methodology was to be adopted by the DISCOMs after TSERC approval.
- But there has been no tariff revision process after that.
- The result of the study is not in the public domain.

Overestimation of agriculture consumption

- In the year 2006-07 No. of wells according to DISCOMs were 22,96,996. No. of wells according to MI Census were 22,00,361. Out of this 2.33.987 wells were out of use.
- In 2013-14 according to DISCOMs there were about 14 lakh agriculture services in residual AP. According to MI Census there were 9,88,185 wells and about 15% of them were not in use.
- According to Geotagging programme of agriculture services taken up in AP there were 15,04,565 services. Out of these information of 14,73,797 services was updated. Out of them 1.50,816 services were found to be non-functional.
- DISCOMs not adhering to No. of hours of electricity supply to agriculture services.

Electricity Subsidy - AP

Year	Rs in Crore
2015-16	3,600
2016-17	3,289
2017-18	3,700
2018-19	6,030
2019-20	7,064

Electricity Subsidy - Telangana

Year	Agriculture (Rs. in Cr)	Domestic (Rs. in Cr)	Others (Rs. in Cr)	Total (Rs. in Cr)
2015-16	2,635	1,592	30	4,257
2016-17	3,305	1,256	23	4,584
2017-18	3,236	1,541	20	4,797
2018-19	4,687	1,254	32	5,973
2019-20				8,290*

Subsidy Payments

- AP: During the FY 19 GoAP did not release subsidy of Rs. 2,925 Crore. During the FY 20 GoAP did not release subsidy of Rs. 4,516 Crore.

- Telangana: According to a Power Finance Corporation Report during the FY 18, FY19 and FY 20 each year GoTS paid Rs. 1,000 Crore less than the promised subsidy

DBT for agriculture subsidy

- **AP**
- APERC in the Tariff Order for the Year 2019-20 referring to the draft amendments to National Tariff Policy directed that subsidy to some consumer categories be implemented under DBT mode.
- GoAP issued a Govt Order on 01-09-2020 to implement DBT scheme to pay agriculture subsidy in order to be eligible to receive financial support from GoI. Pilot project to be taken up in Srikakulam District. GoAP is claiming success in the pilot with 98.6% of farmers agreeing to the DBT scheme.
- Tenders were floated by the 3 DISCOMs in the state to procure 17 lakh agriculture smart meters for DBT.
- But no information is available on progress in the pilot on DBT Scheme

- **Telangana** did not make any attempt to take it up.

Issues facing DBT for agriculture subsidy

- Cumbersome process and high transaction costs
- Total value of bids floated by APDISCOMs for smart meters is Rs. 1,700 Crore. By disbursing subsidy in time, the GoAP can save this money.
- In case the state govt does not credit money in to farmers' accounts in time, farmers may not be able to pay the bills in advance.
- Is it possible to disconnect agriculture services due to lay in bill payments?
- Issue of title to agriculture lands and sharecropping/ land lease

Solar feeder/ Solar power for agriculture

- Solar power generation suits agriculture operations
- Significant decline in solar power tariff
- KUSUM …
- **AP:** Though it recognized the significance of solar power to meet agriculture needs as well as bringing down power procurement costs it laid emphasis on solar parks/mega solar plants. Feeder level solar plants or grid connected solar pump sets do not figure.
- It floated bids and selected successful bidders to set up 6,400 MW capacity solar power plants to meet agriculture needs, but this process was stayed by the AP High Court
- SECI offered AP 9,000 MW solar power and the same was accepted by GoAP.
- **Telangana :** There is no proactive response from GoTS
- TSERC approved tariff for feeder based solar plants under KUSUM. But no bids were floated to set up feeder based solar plants.

Conclusion

- Important to measure quantum of power consumed by irrigation pumpsets. Metering DTRs serving agriculture services is a better alternative .
- Subsidy payment – Regulatory Commissions to play proactive role to see that the state governments disburse subsidies to DISCOMs in accordance with tariff orders.
- States with huge agriculture loads like AP and Telangana shall dovetail solar power generation in to agriculture operations. This also will help to address the issue of surplus power available during daytime due to increased solar power generation.

THANK YOU

Energy transition: challenges and issues

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Prayas (Energy Group)

Trends and Way Forward in the State Electricity Sectors
Fourth Experience Sharing Workshop
Oct 12, 2021

Energy transition

- Moving away from fossil fuels towards renewables
- Driven by economics, environmental concerns, policy measures …

- Transition already underway in the electricity sector
  - Share of coal in electricity capacity and generation slowly falling
- Likely acceleration of transition in the transport sector
  - Ethanol Blending Programme and Electric Vehicle economics + policies in many states

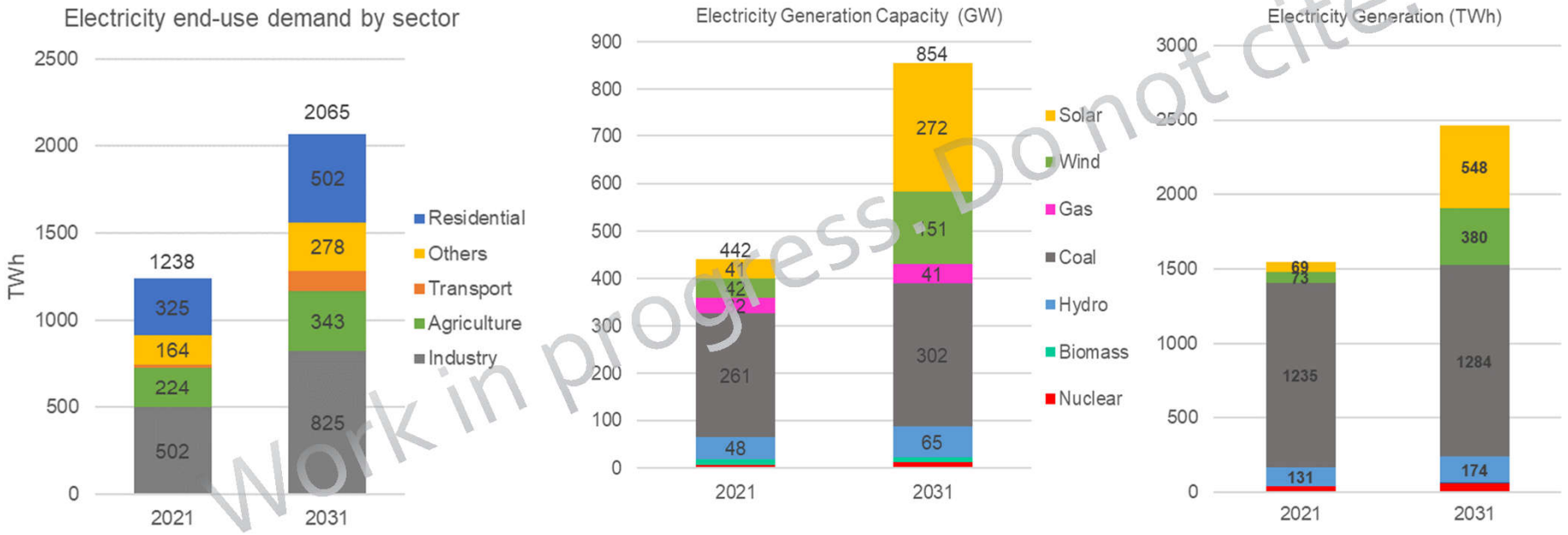
- Some insights and implications for electricity from a modelling exercise

PIER: Perspective on Indian Energy based on Rumi

- PIER: An energy systems model built on the open-source platform Rumi
  - To be made publicly available soon [Please do not quote these numbers yet]

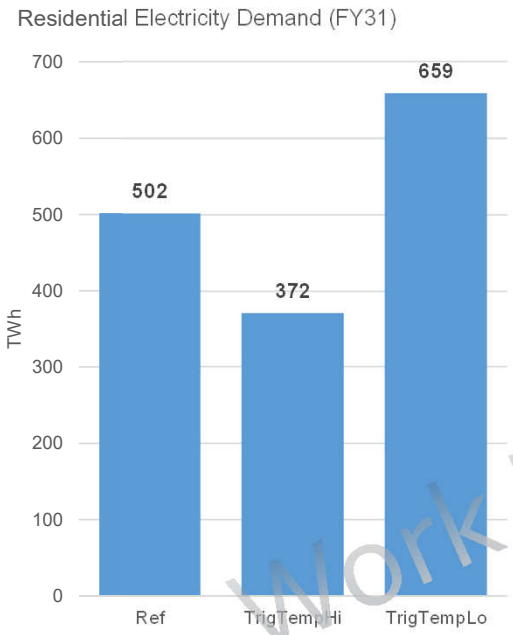
- Estimates electricity demand (and other energy demand) up to FY31
- Finds cost-optimal supply mix to meet the demand
- Currently, detailed bottom-up modelling of residential sector demand
  - By state, urban-rural geography and expenditure quintile
- Impact of covid-19 factored in
- Whole country modelled – hence results presented include captive capacity
- Only a few high level results presented

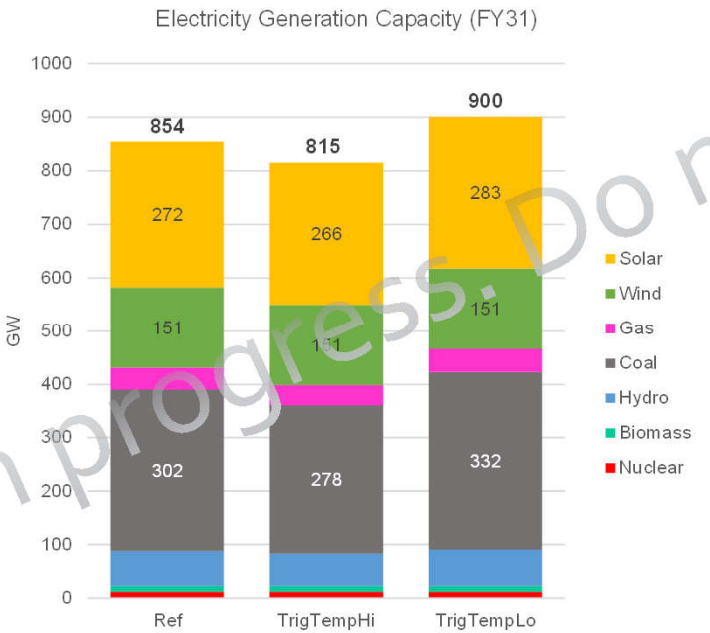
Electricity demand, capacity and generation

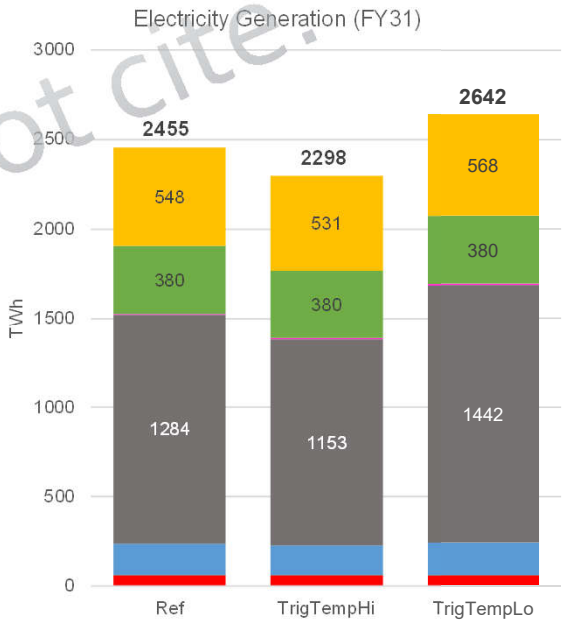


- Capacity: coal goes up from ~260 GW to ~300 GW; solar + wind go up from ~80 GW to ~420 GW
- Generation: Coal remains nearly flat – almost all incremental generation from solar + wind
- In FY31, coal still has largest share: 52%; solar + wind: 38%
- ~100 GWh of storage by FY31 including ~75 GWh of battery storage

Behavioural change: can be a big factor



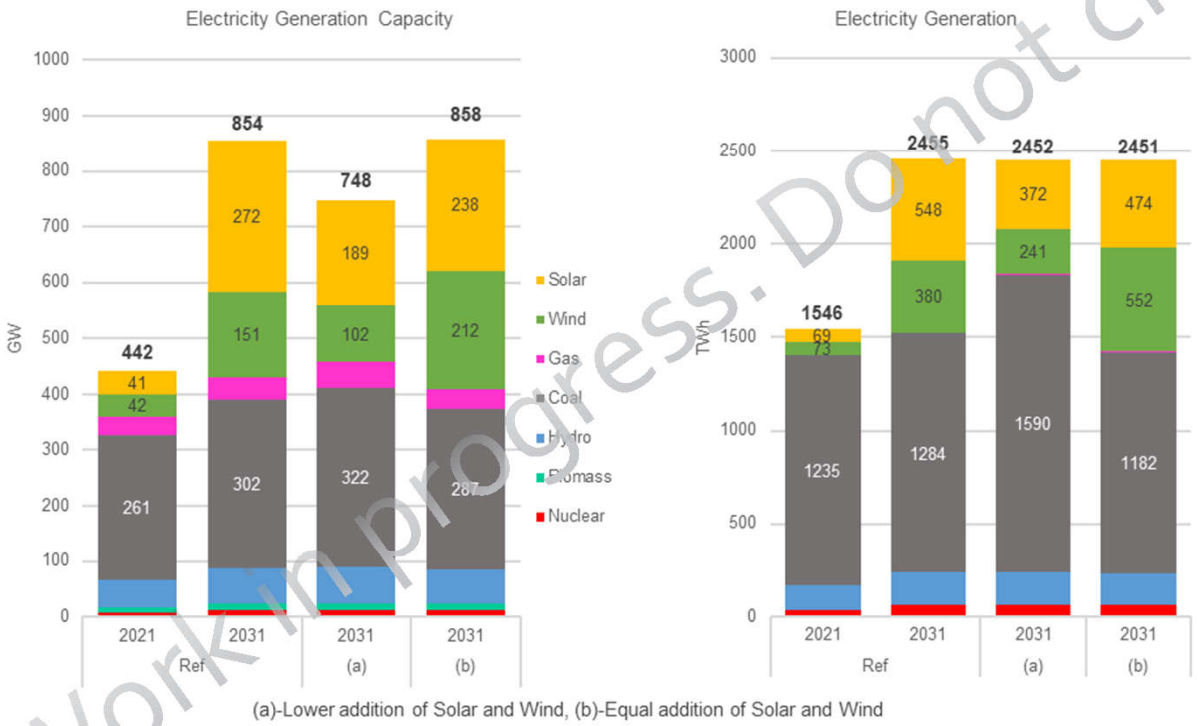




What if people turned on fans / coolers / ACs at 2 ºC higher / lower temperatures?

- Massive impact on residential electricity demand – 25% lower or 30% higher than Ref in FY31
- Impacts capacity and generation mix significantly
- 25 GW less or 30 GW more coal; 6 GW less or 10 GW more solar in FY31

Renewables capacity addition



(a)-Lower addition of Solar and Wind, (b)-Equal addition of Solar and Wind

What if we can only add 50% as much solar + wind

- In Ref, addition at 2.5x historical best
- Coal capacity in FY31: 20 GW higher
- Generation from coal in FY31: ↑ 300 TWh
- Generation shares in FY31: coal 65%; solar + wind 25%

Equal addition of solar and wind

- 15 GW lower coal capacity and 27 GW higher solar + wind capacity in FY31
- Generation from coal in FY31: ↓ 100 TWh
- Coal generation share 48%; solar + wind generation share 42%

Takeaway messages

Need for caution re coal capacity addition beyond that in pipeline

- Risk of stranded assets

However, this is contingent upon …

- Achieving required renewables capacity
- Avoiding real or perceived shortages through aggressive early retirement

Consumer behaviour (and energy efficiency) can have a huge impact

- Huge impact not only on demand but also on the supply mix

Worth revisiting the role of solar and wind

- Greater share of renewables at roughly similar cost

THANK YOU

Prayas (Energy Group)

Energy Transition Challenge and the Public Interest Agenda

Environmental and Social Impact Issues

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Transition and Persistence

- Key element of energy transition is shift away from coal as source of primary energy in power generation
- But coal will remain significant at least for 10 years if not more
- Given this, social, environmental and health impacts of coal remain a critical concern in spite of the transition
- Risk of losing sight of these issues when looking at the new developments in transition

Addressing Environmental Impacts of Coal

- Several laws and regulations to address environmental – and through that – health impacts of coal
- 2015 norms are most discussed
- But there are also other norms, other concerns
- Fly ash problem and the Fly Ash Notification 1999 (as Amended from time to time)
- Impact of mines – OB dumps, acidified waters, depleted ground water

2015 Norms

- 2015 Norms brought emission limits, water consumption limits and zero waste water discharge
- Limits introduced for the first time for SO2, NOx, Mercury emissions; and made more stringent for PM
- Set specific water consumption norms for the first time
- Mandated zero waste water discharge for new (post Dec 2016) TPPs
- Mandated conversion of once thru cooling to circulating cooling for all inland TPPs

2015 Norms – A Saga of Delay, Dilution, Gross Non-Compliance

- Original notification required implementation by 2017 (two years)
- Little effort by any TPP to implement norms
- On contrary, persistent attempts to present excuses for delay, push for dilution and push back deadline
- No attention to water norms, main focus on emission norms
- SC seized of the matter in 2017
- In 2017 extension of deadline to 2022, comittment to SC

2015 Norms – A Saga of Delay, Dilution, Gross Non-Compliance

- SO2 norms equated to installation of FGD
- Still little progress on implementation
- As of Sept 2021: FGD commissioned 6 units/438 total planned (2160 MW/167922 MW); Bids Awarded 157/438 units (69260/167922 MW)
- In the interim, dilutions in water use norms, in NOx norms
- In April 2021, deadline further extended to 2025 (for most plants), criteria of location introduced, fines introduced
- New proposal in June 2021 by CEA – Extend deadline to 2035 !

2015 Norms - Failure of All Key Agencies

- TPPs – Little action, lobbying for delays and dilution
- CEA, MoP – supporting the same
- MoEFCC / PCBs– no attempt to enforce norms, agreeing virtually to all dilutions, delays
- Electricity Regulatory Commission – Very late in taking up issue of cost recovery –Amendment in Tariff Regulations in Feb 2020 for Sec 62 TPPs; Order of 13 Aug 2021 for Sec 63 Plants
- SC – Not heard the matter for a long time

Fly Ash Notification 1999

- Fly ash is the biggest waste from TPPs (~226 million tons in 2019-20)
- Contains heavy metals, other pollutants
- Biggest pollution hazard in power plant vicinities
- Responsible for air pollution (particulates), dust, water pollution, soil pollution, damage to crops
- Fly Ash Notification 1999 (amended) requires all TPPs to achieve 100% utilisaiton in 4 years of commissioning
- Large number of plants violating this, gross non-compliance (90 TPPs out of 197 who gave info were in violation)

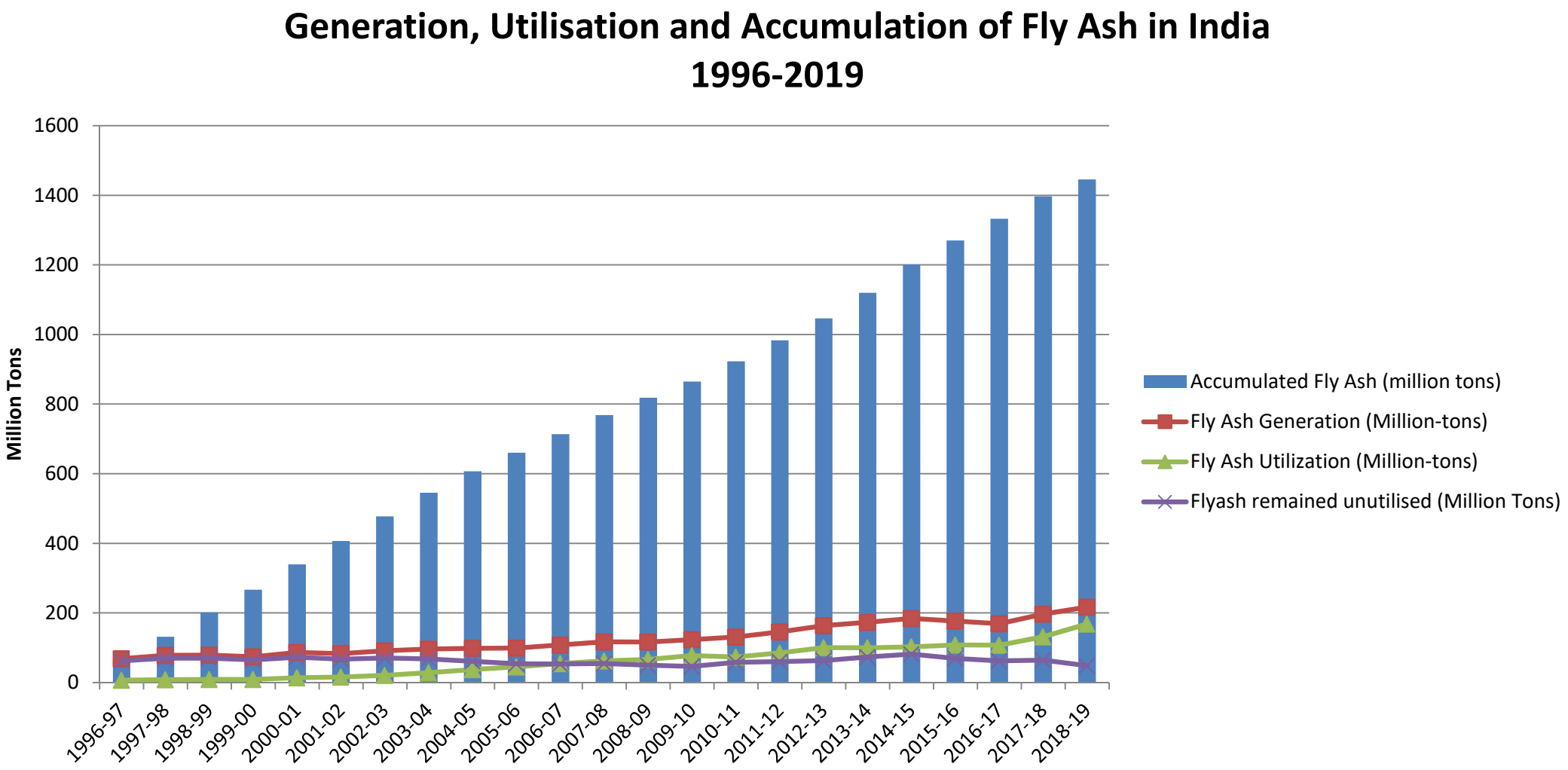
Rampant Pollution Persists

- Due to all this, rampant pollution persists around TPPs and even at large distances
- Pollution of air, water, soil impact people's health, livelihoods, agricultural production , cattle, flora-fauna, fish
- Need to address the pollution and health impacts urgently
- In addition to current and ongoing pollution, issue of legacy pollution and impacts

Legacy Issues

- Due to non-utilisation of ash, millions of tons of ash is added to the ash ponds and ash dumps in the country every year
- 1.5 BILLION TONS of ash already accumulated
- This ash is continues to pollute air, water, soil

Legacy Issues



Legacy Issues

- Overburden dumps, Washery Rejects Dumps - Leaching of contaminants, Dust pollution, Spontaneous combustion
- Abandoned / Exhausted mines with acidified mine waters

- Depleted ground water aquifers, polluted rivers and streams
- Communities with serious health disorders

Legacy Issues

- Need comprehensive policy and plan to address legacy issues as part of transition
- Draft Fly Ash Notification 2021 mandates addressing legacy ash issue
- Latest initiative of Ministry of Coal for “Repurposing of Closed Mine Sites With focus on Socio-Economic Aspects” (Oct 2021)
- Draft “Environmental Guidelines for Decommissioning a Coal/Lignite-Fired Power Plant” by CPCB in NGT OA 30/2021 (July 2021)
- Welcome first steps but need broader involvement of affected communities, civil society groups, and effective implementation

Bring RE Under EIA/SIA Scrutiny and Regulation

- RE is now represents interventions on a large scale
- Need to avoid mistakes that led to unchecked and massive impacts of earlier energy sources
- Bring all RE under Social Impact Assessment, Environment Impact Assessment regulation
- Strategic or Sectoral Impact Assessment is a must before rolling out the program further
- Can flag if not avoid issues like threat to GIB in Rajasthan and Gujarat leading to SC ordering transmission lines to be laid underground (high voltage lines subject to expert committee report)

Thank you