

Dated: 06-12-2022

To,
Chief Engineer (IRP)
Central Electricity Authority

Subject: Comments - Draft National Electricity Plan Vol.I: Generation

Dear Sir/Madam

Re: CEA-PI-11-12/1/2019-IRP Division

I am writing in response to your call for comments on the draft National Electricity plan (Vol-I Generation), hereon referred to as the draft Plan, published in September 2022. To begin with, please allow me to commend the work done by the draft preparation committee in putting together such an exhaustive plan with revised power sector targets for FY 2027 and FY 2032. This was much required as India's power sector development strategy needed to be reassessed post-pandemic and also, in light of the ongoing global energy price crisis.

Thank you for the opportunity to comment on the draft Plan. I have consolidated my feedback below:

1. It appears that the projections are not completely aligned with India's previous 2030 targets of 450 GW renewable energy (excluding large hydro) and 500 GW of non-fossil capacity. If we interpolate the installed capacity targets of the draft Plan to FY 2030 (assuming an average annual growth rate for each resource between FY 2027 and FY 2032), there would likely be shortfalls of about 58 GW and 17 GW on these targets respectively. These shortfalls would be even higher if we compare with the targets set in the CEA's previous modelling in Optimal Generation Capacity Mix (OGCM) report (please see table below). Would that mean that FY 2030 national targets for RES and non-fossil capacity are now going to be reduced? If so, it will create policy uncertainties, send negative signals to the growing RE market and our international targets might lose credibility. If not, it would mean that RE growth rate would slow down in the FY 2030-32 period which is also not ideal.

Fuel	NEP14			OGCM
	Mar-2027	Mar-2032	Mar-2030	Mar-2030
Coal	239	249	245	267
Gas & Oil	25	25	25	24
Nuclear	14	22	18	17
Large hydro	60	83	73	64
Small hydro	5	5	5	5
Solar	186	333	264	300
Wind	81	134	109	140
Bio	13	15	14	10
RES (excluding large hydro)	285	487	392	455
Non-fossil	358	592	483	536

2. It is unclear from the draft Plan how peak demand growth was modelled by the Electric Power Survey (EPS) sub-committee. It has been estimated to reach 363 GW in FY 2032, from 203 GW in FY 2022. This indicates an average annual growth rate of 6%, which is much higher than the average yearly growth rate of 4.6% seen in the last 10 years. For context, since FY 2012 peak demand grew by more than 4% in a year only three times - FY 2022 (6.7%), FY 2019 (7.8%) and FY 2015 (9%). So, it would be useful to provide an explanation on how peak demand was estimated and on what basis, especially given that it has been projected to grow at a much higher rate than ever before.

This is important because any slight over-estimation of peak demand will lead to a considerable overestimation of total coal power capacity needed by FY 2032 and will commit way more resources and time on new coal capacity which India might not even need. For example, even if we assume that peak demand increases at a slightly lower annual growth rate of 5%, it will touch 331 GW in FY 2032, which is about 32 GW lower than the projection in the draft Plan. That would mean coal-capacity needed by FY 2032 would be about 38 GW lower (assuming a plant availability factor of 85% during peak demand hours) than the 249 GW projected in the draft Plan. In other words, on-grid coal power capacity needed in FY 2032 would be around 211 GW, which is the same as the current installed capacity.

So, it is absolutely critical that the peak demand estimates are as accurate as possible in order to avoid over-sizing the power system. Our [recent report](#) even showed that about 27GW of proposed coal power plants in pre-construction stages in India may already be surplus to the requirement and end up becoming zombie plants for the government.

3. Future electricity demand growth is uncertain and in such cases it would be useful to consider different scenarios. In the absence of scenario-level modelling, one possible strategy the drafting committee can consider to control for uncertainty especially in the peak demand growth is to conduct periodic stock-taking and revise coal capacity targets every few years. The committee can consider introducing a temporary stay on the new coal power plant proposals beyond those already under construction. Then the peak demand estimates could be reassessed every 3 years and coal capacity targets could be revised according to the need. This would help in ensuring that the power developers and electricity market are not distracted from the country's longer term RE targets and allow the government to have better visibility on how battery storage technology grows in India. Also, RE power plants have lower gestation periods for commissioning ([around 18 months](#)) and the prices are deflationary in the long run, so RE+storage might be easier and cheaper to build compared to coal power plants, during the latter half of this decade.

Once again, thank you for your time and consideration. I would be more than happy to be contacted to explain any of the comments in more detail.

Thank you.

Warm regards,

Aditya Lolla.

Senior Electricity Policy Analyst - Asia, Ember| aditya@ember-climate.org.uk