

POWER SECTOR BRIEFING

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AP govt undermining climate and air pollution goals by targeting renewables, ignoring more costly, polluting coal

New analysis by Center for Financial Accountability shows that the Andhra Pradesh government appears to be singling out renewable energy projects in the guise of lowering electricity purchase costs, while ignoring higher cost coal power plants.

The Andhra Pradesh government is attempting to renegotiate renewable energy PPAs to secure lower tariffs, on the grounds that the rates being paid are far above recent low bids for wind and solar energy. The projects in question predate the existing reverse auction bidding regime which has seen rapid declines in tariffs. The average tariff for the renewable projects in question comes out to Rs. 4.54/kWh, while the state government is asking for a reduction in tariffs that will bring the average from these projects down to 2.39/kWh.¹

However, the AP government's targeting of RE developers appears to be selective – thermal power plants (predominantly coal) that have equally high or even higher tariffs are not facing the threat of revocation or renegotiation of their PPAs, exposing the state government to charges of anti-RE and pro-coal bias.²

An analysis of data contained in the FY2020 tariff order from APERC shows that the state is projected to purchase 5223.25 million units of electricity from thermal power stations at rates above Rs. 4.54/unit, in some cases as high as 11.68/unit. In total, the state is projected to spend over Rs.3,000 crore on such expensive thermal power in FY2019-2020, at an average of Rs 5.75/kWh.

¹ Centre for Energy Finance http://cef.ceew.in/master_classes/80#

² The new government has made charges of corruption, but provided no evidence. If corruption is substantiated through a proper investigation that would be valid reasons to invalidate any PPA irrespective of source of energy.

Key details:

- AP is set to purchase 5223.25 million units of electricity from thermal power stations at rates above Rs. 4.5/unit, in some cases as high as 11.68/unit.
- The state will spend over Rs.3,000 crore on such expensive thermal power in FY2019-2020, at an average of Rs 5.75/kWh.
- Fixed cost charges for coal power is draining DISCOM coffers despite surplus power situation in the state.
- 60% of AP power purchase is above Rs.3/kWh - more expensive than new renewable energy generation.
- Replacing this costly thermal generation with renewables at or below Rs 3/kWh would yield an annual savings of nearly 4,000 crores.

Table 1: Thermal power plants with tariffs above Rs. 4.54/kWh

<http://aperc.gov.in/admin/upload/TOFY2019-20.pdf>

Name of Plant	Dispatch	Fixed Cost Rs/kWh	Variable Cost Rs/kWh	Total Rs/kWh	Total cost (cr)
Kudgi	391.67	8.1	3.58	11.68	457.43
RTPP III	587	4.62	3.14	7.76	455.7
RTPP II	1472.87	1.99	3.14	5.13	754.91
NTPC Simhadri II	894.61	2.25	2.68	4.93	440.61
RTPP I	1877.1	1.61	3.14	4.75	892.48
Total	5223.25				3001.13
Average Rs/kWh				5.75	

The APERC tariff order projects the dispatch of 391 MU from NTPC's Kudgi power station, at a total tariff of Rs 11.68/kWh, totaling over 450 crores in purchase cost. This is a per unit cost far in excess of the RE projects under discussion. Similarly, the AP DISCOM will purchase 1472 and 587 MU from the APGENCO owned RTPP Stage II and III respectively, at a tariff of 5.13 and 7.76 – amounting to over 1200 crores. NTPC's Simhadri Stage II plant will dispatch 894 MU at a tariff of Rs 4.93/kWh for a total cost of 440 crores.

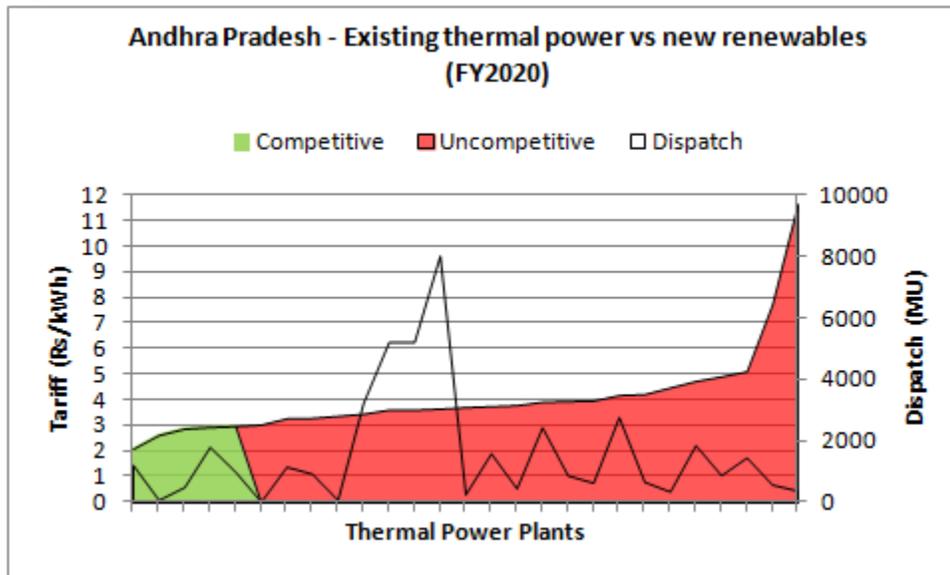
High fixed costs for coal plants are draining state finances despite power surplus

Despite the state of Andhra Pradesh having a “surplus power” position, it is locked into a high fixed cost burden with several TPPs. This ensures that the state has to pay the total fixed costs irrespective of the amount of power purchased. Given the over capacity in the power sector, the precarious financial condition of DISCOMs and the rapid growth of low cost RE, there is a

strong case to be made against mandating a fixed cost component to any new PPAs signed with coal power plants.

The AP government is demanding that the renewable developers in question lower their tariffs substantially, and is seeking an average tariff of 2.39/kWh. However, even assuming an average new solar / wind tariff of Rs 3/unit, 60% of AP's **existing** power purchase per the FY2020 tariff order comes in as more expensive than new renewable energy. **(Figure 1, Table 2)** Yet the state government is threatening a few RE projects and not considering ways to reduce its dependence on even higher cost thermal power.

Figure 1:



Source: APERC Tariff Order FY2019-2020,

Greater RE penetration key to lowering electricity costs

Wind and solar PPAs are inherently deflationary as there is little or no price indexation over the lifetime of the contract. Thermal power on the other hand is subject to the usual inflationary pressures – the APERC same tariff order notes that the AP DISCOM had asked for a standard 3% rise in variable costs due to inflation. With coal prices and rail freight charges rising, and the need to comply with the Supreme Court directives on installing pollution control equipment, the cost of coal power will only increase.

Solar and wind prices have fallen rapidly in the last 3 years - future projects are likely to come in at tariffs of 2.75 or lower, providing a route by which DISCOM can replace a large proportion of more coal power with cheaper renewables. In this context, moves against the RE sector can prove counterproductive in the long term.

Gradually replacing the purchase of all thermal power costing above Rs 3/kWh with new renewable energy at or below the same price, would yield savings of 3,892 crores per annum. In

other words, the state of Andhra Pradesh is paying nearly 4,000 crores more each year to purchase polluting thermal power, mostly from coal, than it would if it replaced this quantum of generation with new Renewable Energy.

Even as the AP government is seeking to renegotiate renewable PPAs on the grounds of cost, it is set to increase its purchase of additional expensive electricity from coal. The third unit (800MW) of the Sri Damodaran Sanjeevaiah Thermal Power Plant is under construction and projected to be commissioned this year. The CEA is projecting³ a cost escalation of 40% from the original estimate of Rs 4276 crores, which would make the project one of India's most expensive, at 7.5 crore/MW. The first two units are already selling power at Rs. 3.63/kWh and are blending 70% washed coal from Talcher with 30% imported coal. According to its Environmental Clearance,⁴ the third unit will use 100% imported coal with Sulphur and ash content of less than 0.8 and 16% respectively. This will imply a significantly higher variable cost and higher overall tariff.

Conclusion

Keeping electricity costs low for consumers is an important objective. However, that objective is defeated if the state government takes decisions that scare away investment in new renewable energy projects, or undermines confidence in the sanctity of contracts.

The key to lowering the cost of electricity lies, among other things, in replacing more expensive generation with cheaper sources. There is no dispute that new renewable energy now provides the cheapest source of electricity, at <3/kWh as opposed to at least 4.5/kWh or more for new coal power projects. By driving away the RE industry, the AP government is in fact condemning the state to higher electricity prices, apart from the other negative consequences of an over-reliance on coal.

Facilitating the expansion of the RE industry, investment in storage, efficiency and demand side management are better avenues to invest in to improve DISCOM finances and lower consumer electricity costs.

Table 2: Thermal power plants with tariffs above Rs. 3/kWh

Name of Plant	Dispatch	Fixed Cost	Variable Cost	Total Rs/kWh	Total cost (cr)
Sembcorp Energy	1609.25	1.81	1.96	3.77	607.43
Vallur TPP	650.58	1.79	2.2	3.99	259.78
Lanco Kondapalli Gas I	1171.82	0.96	2.33	3.29	385.53
Tuticorin	887.47	1.58	2.39	3.97	352.14
SPGL	944.08	.92	2.39	3.31	312.49

³ http://www.cea.nic.in/reports/monthly/broadstatus/2019/broad_status-05.pdf

⁴ <http://environmentclearance.nic.in/writereaddata/Form-1A/EC/070220151letter25-2012.PDF>

NTTPS IV	3250.08	1.06	2.41	3.47	1128.29
APGPCL-I	32.48	2.41	0.64	3.05	9.91
NNTPS	362.59	2.01	2.49	4.5	163.3
KSK Mahanadi	2791.47	1.6	2.6	4.2	1173.76
Damodaran Sanjeevaiah TPP I	5244.5	1.02	2.61	3.63	1903.75
Damodaran Sanjeevaiah TPP II	5244.5	1.02	2.61	3.63	1903.75
NTTPS I	2693.17	1	2.67	3.67	
NTTPS II	2693.17	1	2.67	3.67	
NTTPS III	2675.56	1	2.67	3.67	2956.91
NTPC Simhadri Stage I	2458.63	1.26	2.68	3.94	968.37
NTPC Simhadri Stage II	894.61	2.25	2.68	4.93	440.61
NLC Stage I	271.37	0.85	2.88	3.73	101.27
NLC Stage II	463.34	0.93	2.88	3.81	176.53
Srivathsa	91.85	0.48	2.91	3.39	31.16
RTPP I	1877.1	1.61	3.14	4.75	892.48
RTPP II	1472.87	1.99	3.14	5.13	754.91
RTPP III	587	4.62	3.14	7.76	455.7
RTPP IV	682.35	1.1	3.14	4.24	289.32
Kudgi	391.67	8.1	3.58	11.68	457.43
Total	39441.51				15724.82
Grand Total Dispatch (net, all sources)	65758.92				26430.7
Average Rs/kWh				3.98	

(Source: APERC Tariff Order for FY2019-2020)

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