Regulatory treatment of time and cost-overruns: Units 3 to 6 of Chhabra TPS

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In January 2020, the Rajasthan Electricity Regulatory Commission (RERC) approved[3] the provisional capital cost and tariff for the recently commissioned Unit 5 and Unit 6 of Chhabra Thermal Power Station (TPS). Unit 5 was delayed by 18 months and Unit 6 by 27 months as compared to the scheduled Commercial Operation Date (CoD) for the project. Such delays result in cost overruns which increase the project's fixed cost. Units 3 and 4 of Chhabra TPS whose final capital costs were approved by the Commission less than a year ago in March 2019[4] also faced similar delays.

To better understand the reasons for the delay in commissioning as well as the regulatory accountability for such delays, this article traces the key observations in RERC orders regarding the final capital cost approval for Units 3&4 as well as the provisional capital cost approval for Units 5&6.

As the project execution of Units 3&4 and Units 5&6 were planned together, RERC decided that the final approval of costs would take place once both units are commissioned and in the interim, provisional approvals will be provided to enable timely recovery of costs.

1. Overview of delayed plants

Rajasthan Rajya Vidyut Utpadan Nigam Limited (RUVNL), the state owned generating company currently owns and operates the Chhabra TPS in Baran district. Units 3 to 6 together account for about 1,820 MW, which is 21% of RUVNL's total capacity. Table 1 provides an overview of the projects.

Table 1: Overview of project execution

Parameters	Unit 3	Unit 4	Unit 5	Unit 6
Capacity	250 MW	250 MW	660 MW	660 MW
Board Approval	12.12.2006		31.12.2008	
Scheduled CoD	19.08.2011	19.10.2011	27.09.2016	26.12.2016
Actual CoD	19.12.2013	30.12.2014	31.03.2018	02.04.2019
Extent of Delay	28 months	38 months	18 months	27 months
Time between CoD and board approval	7 years	8 years	9 years	10 years
BTG contract award	Bharat Heavy Electricals Ltd.		Larsen & Toubro Ltd.	
BoP contract award	Indure Private Ltd.			
Original cost estimate (RVUNL) (Rs. Crore)	2,200		7,910	
Revised cost estimate (RVUNL) (Rs. Crore)	3,285		9,134	
% Increase in costs	49%		15%*	
IDC claimed by RVUNL (Rs. Crore)	710		2,381	
Increase in IDC as compared to original estimates	4.7 times		1.6 times	

Notes: The cost estimates for Unit 5 and 6 are provisional based on RUVNL's claims.

Source: Prayas (Energy Group) compilation from various RERC orders.

These units took 7 to 10 years to complete after board approval as compared to the average of 5 to 6 years. The table also lists the companies to which the Boiler Turbine Generator (BTG) contract and the Balance of Plant (BoP) contracts were awarded. For delays attributable to the contractors, the generator can claim liquidated damages (LD) as per specifications of the contract, part of which is passed onto consumers in a cost-plus project. Cost impacts due to time overruns are typically compensated by revising the interest during construction (IDC) which is also to be recovered from consumers. The IDC claimed by RUVNL is about 4.7 times higher for Units 3&4 and 1.6 times more for Units 5&6 than the IDC in the original cost estimate.

The final capital cost for Units 3 and 4 were approved by RERC in November 2018, almost four years after Unit 4 and five years after Unit 3 were commissioned.

2. Reasons for delays and regulatory treatment of cost impact for Units 3 and 4

While scrutinizing the capital costs for Units 3&4, RERC, in its order decided to:

- disallow controllable costs, i.e., costs due to delays which could have been avoided by RVUNL,
- allow uncontrollable costs, i.e., costs due to delays clearly outside RVUNL's control,
- share cost impacts due to partially controllable factors equally between generator and consumers

This approach is in line with the framework specified by the Appellate Tribunal for Electricity (APTEL) in its judgment in Appeal No. 72 of 2010. In the context of this framework, the reasons for delay in execution of the BTG and BoP works for Unit 3 and 4 detailed by RVUNL as well as the Commission observations for the same are summarised in Table 2.

Table 2: Reasons for delay for Units 3, 4 and Commissions treatment

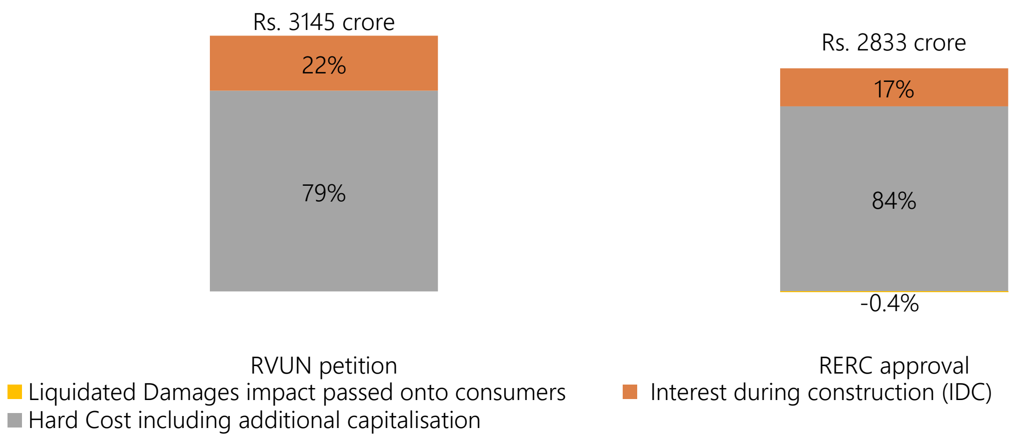
Reason for delay	Rationale by RVUNL	RERC observations
Imposition of election code of conduct in Rajasthan	Two month delay in awarding BoP contract as the Election Commission directed deferment till the completion of polling.	Partly uncontrollable
Poor road conditions, heavy rainfall	Heavy rains damaged the Kawai-Dharnawada road in 2011 obstructed the receipt of material. All construction work stopped for more than 4 months. The road had to be reconstructed. Delay also attributable to rainfall in 2013 and 2014. This lead to a total delay of 24 months.	Delay due to rainfall partly uncontrollable. Poor road conditions not treated separately
Issues with power evacuation	Restriction imposed on evacuation of power as RVPN[5] , the transmission company, was unable to finish planned capitalisation on time. This led to a six month delay.	Uncontrollable for RUVNL
Delays by BTG and BoP contractors in achieving project milestones and delays in payment	RVUNL in its petition for provisional tariff approval explicitly highlighted that some delays were due to the inefficiencies of BTG and BoP contractors. These include lack of skilled manpower with BoP contractor, co-ordination issues, delay in approval of drawings by consultant, issues with availability of fronts at site, delays in supplying equipment and materials by BoP contractor. Delays due to cash-flow issues and delays in payments to vendors were also cited.	Controllable, disallowed cost recovery during provisional capital cost approval.

Source: Prayas (Energy Group) compilation from various RERC orders.

RERC's assessment was based on detailed data submitted by RVUNL (in compliance with the Commission's directions) on activity-wise schedule and actual completion of works, package-wise reasons for delay, correspondence with contractors, exact delays due to rainfall and historical regional rainfall data. These submissions are not available in the public domain. In its order, the Commission did not detail the insights from evidence presented by RUVNL.

Despite its observations, the Commission decided not to separately estimate period of delay and cost impacts due to each controllable/ uncontrollable factor. Instead the Commission considered the entire period of delay to be due to partly controllable factors[6]. In this context, the Commission decided to allow sharing of cost impacts (especially for IDC and LD) equally with consumers as outlined in the APTEL judgment. About 13% of the capital costs claimed was disallowed by the Commission. The final capital cost approved by the Commission along with the contribution of IDC and LD is shown in Figure 1.

Figure 1: Capital cost and IDC approved by RERC for Units 3 and 4



Source: Prayas (Energy Group) compilation from RERC order dated 08.03.2019 for Petition No: RERC/1334/18

It is difficult to ascertain if such a treatment has resulted in RUVNL being held adequately accountable for delays. This is because some factors such as election schedules and successive years of heavy rainfall could have been anticipated and planned better by RUVNL. It is perhaps likely that a disaggregated assessment of costs and a detailed analysis of schedule of events by the Commission could have further reduced the cost impact on consumers.

3. Capital cost approval for Unit 5 and 6

In case of the provisional approval of capital cost for Unit 5 and Unit 6, RUVNL claimed that the delays were due to uncontrollable factors including issues with land acquisition (3 months), delays in obtaining environmental clearance (EC) (22 months) and equipment failure (11 months).

It is interesting to note that the delay in obtaining EC was due to issues with the coal source. RUVNL planned to get coal from Parsa East and Kante Basan coal block in Chhattisgarh which was allotted to the generator in 2007. The allotted mines were to cater to 2,460 MW of Suratgarh and Chhabra TPS, both owned by RUVNL. However as per the mining plan, the mines could only cater to 1,980 MW. Due to lack of clarity for 660 MW, the EC for Chhabra Unit 6 was delayed substantially. Subsequently, the clearance was given after the mining plan capacity was revised by 5 MTPA and RUVNL proposed the diversion of coal from Kota TPS (to meet demand in case of delays in obtaining EC for the enhanced mining capacity)[7]. Such steps could have been taken earlier by RUVNL to prevent the delays.

The Commission stated that it would revise IDC only after detailed costs are submitted for final cost approval. In the interim, no additional IDC due to delays were approved and thus Rs. 1,247 crores was provisionally disallowed by RERC.

Given that Unit 6 has also been commissioned, it is imperative that the final cost approval takes place soon rather than after a significant delay like in the case of Unit 3 and 4.

It is hoped that Commission conducts a detailed assessment of reasons for time and cost overruns, keeping in mind steps (or lack thereof) taken by RUVNL to prevent delays while determining the final capital cost for these units.

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[2] This article is part of an ongoing series called Power Perspectives which provides brief commentaries and analyses of important developments in the Indian power sector, in various states and at the national level. The portal with all the articles can be accessed here: https://prayaspune.org/peg/resources/power-perspective-portal.html. Comments and suggestions on the series are welcome, and can be addressed to powerperspectives@prayaspune.org.

[3] Order dated 06.01.2020, Petition No: RERC/1516/19, available at: https://rerc.rajasthan.gov.in/rerc-user-files/tariff-orders

[4] Order dated 08.03.2019, Petition No: RERC/1334/18, available at: https://rerc.rajasthan.gov.in/rerc-user-files/tariff-orders

[5] Rajasthan Rajya Vidyut Prasaran Nigam Limited (RVPNL) is the state-owned transmission company.

[6] This was clarified in the order in Petition No: RERC/1478/19 (review petition by RVUNL on Petition No: RERC/1334/18)

[7] The EC for the enhanced mining capacity was eventually given in July 2019.