

## Executive Summary

### Why did we select this subject for Audit?

The installed capacity of nuclear power plants in India was 6,780 MW as on March 2017. As per Draft Electricity Plan released (December 2016) by Central Electricity Authority, Ministry of Power, Government of India (GoI), nuclear power projects capacity would be enhanced by 2,800 MW during 2017-2022 and by another 4,800 MW during 2022-2027. Thus, GoI estimates addition of 7,600 MW of nuclear power by end of 2027, an increase of 112 *per cent* over the present installed capacity. This indicates significance attached to nuclear power in fulfilling the energy needs of the country. At present Nuclear Power Corporation of India Limited is the only company producing nuclear power in India. The Company with Russian collaboration is setting up nuclear power plant at Kudankulam in a phased manner. Units I and II have already started operations and in remaining four units either work is in progress (Units III and IV) or yet to start (Units V and VI).

The initial estimated cost of the Kudankulam Nuclear Power Project (KKNPP) Units I and II was ₹ 13,171 crore in 2001 which gradually rose to ₹ 22,462 crore in 2014. There were major delays in start of commercial operations of Units I and II by 86 and 101 months respectively due to delayed supply of equipment/working documents by overseas collaborating partner, changes in design, additional works, erection delays etc. These factors not only delayed commercial operations of the units but also increased cost of the KKNPP. There were also concerns regarding financial management, compliance of safety parameters, tariff fixation process etc. Accordingly, this Performance Audit was conducted to examine the above issues.

### What were our audit objectives?

The performance audit was conducted to assess whether:

- NPCIL exercised prudent financial management during implementation of KKNPP.
- The tariff was fixed in accordance with applicable Regulatory Rules and Act.
- The project was implemented in an economic and efficient manner.

### What did our performance audit reveal?

The major observations pertaining to this performance audit are as below:

#### Financial Management

The scheduled date of completion was postponed from 30 October 2007 to 31 December 2011 for Unit I and 30 October 2008 to 31 December 2012 for Unit II, *inter alia* due to delayed completion of different activities, of which many were attributable to the M/s Atomstroyexport (ASE), a company responsible for undertaking the Russian scope of work. However, there was no revision of schedule of repayment of the Russian credit. This resulted

in start of repayment of Russian credit, before revenue generation, causing an additional interest burden on NPCIL to the tune of ₹ 449.42 crore.

*(Para 2.1)*

NPCIL had to resort to external borrowings at a higher interest rate due to non-provisioning for erection reserve supply contracts while availing Russian credit, which was available at a cheaper rate. This resulted in additional interest cost amounting to ₹ 76.02 crore.

*(Para 2.2)*

NPCIL availed term loan of ₹ 1,000 crore from HDFC Bank Limited in violation of CVC's guidelines on tendering.

*(Para 2.4)*

### **Tariff and Revenue Generation**

NPCIL, while fixing tariff for power, did not consider two components, i.e., 'interest on foreign debt' and 'interest on domestic borrowings', though these were actually incurred and paid. This resulted in short realization of revenue to the tune of ₹ 90.63 crore during pre-commercialization period.

*(Para 3.1)*

NPCIL did not include a component of 1.5 paise per KWh in tariff towards Self Insurance Fund of Hot Zone Assets of Atomic Power Plants in respect of electricity generated during pre-commercialization period and sold to State Electricity Board and had to forego revenue to the tune of ₹ 7.04 crore.

*(Para 3.2)*

Unit I of KKNPP was shut down from 24 June 2015 to 31 January 2016 for 222 days as against the planned period of 60 days. This was due to decision of NPCIL to shut down the plant and execute the refuelling work on its own without evaluating its technical competency. The extended shutdown resulted in revenue loss of ₹ 947.99 crore to the NPCIL.

*(Para 3.4)*

### **Project Implementation**

Unit I and Unit II of KKNPP started commercial operation after a delay of 86 months and 101 months respectively. The delays were primarily due to shifting of work from Russian scope to Indian scope; in execution of work and in submission of working documents/supply of equipment/materials by ASE; delays due to design changes; erection delays and additional works. The delay in completion have also resulted in cost overruns. NPCIL did not initiate any claim for recovery of additional expenses of ₹ 264.79 crore which were caused due to delayed completion of works by ASE.

*(Paras 4.1.1 and 4.1.2)*

### Russian Scope of Work

As against the original value of USD 29 million (₹ 131.66 crore), NPCIL incurred an amount of USD 50.91 million (₹ 231.13 crore) for supply of same equipment in a rearranged contract leading to extra expenditure of ₹ 99.47 crore.

**(Para 4.2.1)**

No claim was raised by NPCIL, on ASE, for turbine of Unit I which was damaged due to manufacturing defects and ₹ 12.76 crore was incurred on repairs and replacement of turbine rotors. It also resulted in non-generation of electricity and consequently loss of revenue amounting to ₹ 53.73 crore.

**(Para 4.2.3)**

NPCIL neither assessed the extra payment/loss due to non supply/defective supply of materials by ASE nor did it initiate any action for recovery/adjustments for the same.

**(Para 4.2.4)**

NPCIL did not raise/pursue claims for liquidated damages worth ₹ 463.08 crore from ASE even though during the same time, it was borrowing funds and paying interest to discharge debt obligations including from ASE.

**(Para 4.2.5 (a))**

### Indian Scope of Work

The work of erection and commissioning of Nuclear Steam Supply System and Turbo Generator was shifted from the Russian scope to the Indian scope for achieving the stated purpose of optimization of man power cost by way of reduction in man-months of Russian specialist for supervision at the site. This was done without any cost-benefit analysis, which not only resulted in delays in completion of the project but also ended up in NPCIL incurring an extra expenditure of ₹ 706.87 crore for the work.

**(Para 4.3.1)**

NPCIL incurred an extra amount of ₹ 8.37 crore towards shipment charges calculated on the basis of improper assumption.

NPCIL compensated a sea route transporter by reimbursing wharfage charges and additional handling charges amounting to ₹ 7.08 crore, which was unjustified as the terms of contract provided for such charges to be incurred by transporter himself.

NPCIL failed to provide the minimum stipulated inducement quantity to the transporter for shipment and incurred an avoidable amount of ₹ 11.72 crore towards dead freight.

**{Paras 4.3.2 (a), (b) and (c)}**

NPCIL did not ensure reasonability of the rates of third party supplies {worth USD 191 million (₹ 899.95 crore)}, made by ASE, for the plant. Further, an amount of USD 19 million (₹ 92.04 crore) towards 10 per cent interest free advance was paid by NPCIL to ASE for the

third country supplies without ascertaining the existence of similar provisions in the sub-contracts entered by ASE with third country suppliers.

(Paras 4.4.1 and 4.4.2)

NPCIL, on 31 December 2014, declared commercial operation of the Unit I of KKNPP which was six months before receiving the license from AERB for regular operation of the plant.

(Para 4.6)

## What do we recommend?

### Financial Management

- 1) In all cases of rescheduling of commissioning dates, the repayment schedule for Russian credit may also be revised accordingly.
- 2) Loans from banks may be availed in a transparent and documented manner following the extant rules and regulations.
- 3) NPCIL should have effective monitoring/ feedback mechanism to monitor issues like long pending insurance claims.

### Tariff and Revenue Generation

- 4) All cases of infirm tariff fixation may be processed by NPCIL according to prefixed criteria to avoid discretionary adhocism in decision making for the same.
- 5) For all future planned shutdowns NPCIL may do a competency analysis by mapping with a structured breakdown analysis, to take timely decision, if required, for engaging external consultants to avoid prolonged shutdown and consequential revenue loss.

### Russian Scope of Work

- 6) Future delays should be avoided by sequencing the supplies with the various stages of production.
- 7) Interest of NPCIL should be protected in all contract renegotiations by ascertaining the quantitative benefits flowing out of such negotiations.
- 8) NPCIL should take timely action for recovery/ adjustment for non/defective supply of material by ASE.
- 9) Liquidated damages should be claimed in an accurate and timely fashion.

### Indian Scope of Work

- 10) Cost benefit analysis should be invariably conducted before agreeing to a shift in scope of work from Russian side to Indian side and *vice versa*.
- 11) Work orders should not be awarded on a single tender basis unless they qualify for the same as per NPCIL manual and CVC guidelines.

- 12) NPCIL should award work to existing contractors after proper rate analysis to obtain competitive rates.
- 13) Agreements for execution of work order should invariably be entered into by NPCIL with the contractor before award of the contracts.
- 14) NPCIL should prepare schedule of rates, at least, for the works of routine nature like construction of pump house, tunnel, chlorination plant etc with a view to have better estimation of rates for awarding contracts.

### **Third Country Contracts**

- 15) With regard to the contracts for supply of equipment by third country, NPCIL should consider participating in joint evaluation of bids, with a view to ensure price reasonability of the contract(s).

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