

CHAPTER - 2

Audit Framework

2.1 Scope of Audit

The performance audit covers all activities from conceptualisation to implementation of selected major transmission projects executed by PGCIL between April 2007 and March 2012 along with the status of augmentation to the transmission network made by PGCIL up to March 2013. In the wake of the incident of Grid disturbance on 30 and 31 July 2012, the aspect of Grid management by POSOCO, which is mandated with the responsibility to ensure integrated operation of the national grid, was also included in the scope of audit.

2.2 Audit objectives

Audit objectives of the performance audit were to assess whether: (i) projects were conceptualised and identified properly, expeditiously and in consultation with all related parties; (ii) the system of procurement of goods and services was economic, efficient and effective; (iii) projects were executed economically, efficiently and effectively; and (iv) proper system existed for ensuring effective and efficient Grid management including Grid Security and Grid Monitoring.

2.3 Audit criteria

Audit criteria adopted for the performance audit included: (i) Electricity Act, 2003; (ii) National Electricity Policy, 2005; (iii) Regulations issued by the Central Electricity Regulatory Commission (CERC) relating to transmission and grid management including Indian Electricity Grid Code (IEGC); (iv) CEA's Technical Standards; (v) CEA Transmission planning criteria; (vi) National Electricity Plan; (vii) CEA Reports including Load Generation Balance Review; (viii) XI and XII Plan documents and Mid-term Appraisal of XI Plan; (ix) Report of the Working Group on Power for XI⁹ Plan; (x) Memorandum of Understanding signed by PGCIL with Ministry of Power (MOP); (xi) Works & Procurement Policy and Procedure (WPPP) of PGCIL; (xii) Feasibility Reports and Detailed Project Reports of selected transmission projects in the audit sample; (xiii) Minutes of meetings of Standing Committee for power system planning, Regional Power Committees (RPC), Board of Directors (BOD) of PGCIL, Project Sub-Committee and other Board level committees of PGCIL, Project Review Meetings and meetings with contractors, vendors, sub-vendors; (xiv) Bidding Documents and evaluation reports; (xv) Reports of Grid Disturbances (GD) of 30 and 31 July 2012 by PGCIL and POSOCO submitted to CERC, Record of Proceedings before CERC and CERC Order dated 22 February 2014 on GD¹⁰; (xvi) Report of the Expert Committee constituted by MOP to investigate GDs of July 2012; (xvii) Report of the US-Canada Power System Outage Task

⁹ Working Group on power was constituted by Planning Commission in April 2006 to formulate power programme for XI Plan with Secretary (Power) as Chairman of the Working Group and Member (Planning) of CEA as Member Secretary.

¹⁰ Accessed from website of CERC

Force on the blackout of August 2003; (xviii) Manuals and operating procedures formulated by POSOCO; (xix) Operational and other feedback sent by POSOCO to CEA and PGCIL; and (xx) Published papers by power system experts.

2.4 Audit Methodology

An entry conference was held with the Management of PGCIL on 24 July 2012, wherein scope, objectives, audit criteria and audit sample were discussed. A meeting was also held on 9 November 2012 with the Managements of PGCIL and POSOCO apprising them of coverage of the aspect of Grid Management in the performance audit. Relevant records in PGCIL and POSOCO were examined and discussions held with the senior management from time to time during August 2012 to August 2013 for firming up audit conclusions. The draft performance audit report was issued to Managements of PGCIL and POSOCO for their comments on 18 January 2013. The draft report was updated after considering replies of PGCIL and POSOCO and revised (November–December 2013) based on further examination, especially of various aspects of Grid Management. As the draft report covered various technical issues, extensive discussions were held by Audit from time to time with the senior management of PGCIL and POSOCO to firm up audit observations and conclusions. The draft report was issued to MOP on 7 January 2014. A Pre-exit Conference was held with the managements of PGCIL and POSOCO on 12 February 2014 wherein audit findings and conclusions were discussed. After receipt of MOP's reply dated 31 March 2014, to the draft Report, an Exit Conference was held with MOP and managements of PGCIL and POSOCO on 15 April 2014. Representatives from CERC and CEA also attended the Exit conference wherein audit findings and suggestions for improvement proposed in the draft report were discussed. MOP's views on the recommendations contained in the draft report were also obtained during the meeting and duly incorporated in this report.

2.5 Audit Sample

A representative sample of 20 transmission projects representing 14 *per cent* in terms of number and 37 *per cent* in terms of value of the projects planned and executed by PGCIL during April 2007 and March 2012, as detailed in **Annexure-2.1**, was taken based on materiality and coverage of all Regional Offices of PGCIL. All 424 contracts pertaining to above selected 20 projects awarded up to March 2012 by the corporate office of PGCIL were examined. Besides, a representative sample of 10 *per cent* of the contracts locally awarded by the concerned Regional Offices in connection with execution of above 20 projects was also selected for examination on the basis of materiality¹¹. Further, relevant records pertaining to Grid Management including Grid Security and Grid Monitoring for the period April 2007 to March 2014 were also examined in POSOCO and corporate office of PGCIL.

2.6 Audit findings

Audit findings are discussed in subsequent chapters under the following headings:

Chapter 3: Planning and Project Conceptualisation

Chapter 4: Targets and achievements

¹¹ Top 10 *per cent* contracts in terms of value (60 contracts)

- Chapter 5: Investment Approval and Project Funding
- Chapter-6: Project Implementation and Execution
- Chapter-7: Grid Management
- Chapter 8: Monitoring system
- Chapter 9: Conclusion and Recommendations

2.7 Acknowledgment

The cooperation extended by MOP and Managements of PGCIL as well as POSOCO in facilitating smooth conduct of performance audit is appreciated and acknowledged.