

ORISSA ELECTRICITY REGULATORY COMMISSION

**BIDYUT NIYAMAK BHAWAN
UNIT-VIII, BHUBANESWAR - 751 012**

**Present : Shri B.K. Das, Chairperson
 Shri K.C. Badu, Member
 Shri B.K. Miora, Member**

Case No. 33/2009

M/s. OPTCL, Bhubaneswar

.... **Petitioner**

For the Petitioner: Mr. Ananta Rao, CGM(IT), OPTCL &
 Mr. N.R. Mandhata, GM (R&T), OPTCL

**In the matter of : Investment proposal for implementation of Enterprise
 Resource Planning (ERP) system, Wide Area Network
 (WAN) and Data Centre on availing loan assistance
 from PFC Ltd.**

Date of Hearing : 30.08.2009

Date of Order : 13.11.2009

ORDER

1. OPTCL has decided to switch from conventional IT to comprehensive & integrated IT solution by minimizing investment on Wide-Area-Network (WAN) to render service to the three entities i.e. OPTCL, SLDC and GRIDCO and hence, the ERP model has been initiated. The three entities need the basic essential infrastructure in terms of Data Centers, WAN and Integrated Business Information System as part of Enterprise Resource Planning (ERP) solutions. This model also covers areas like Operations and Maintenance, Project Constructions, Finance and HR along with certain specialized applications like SCADA, interfacing software for Energy Accounting and Settlement, Load Forecasting, Energy Billing for wheeling as well as supply and Energy Trading. The system will provide reliable and online information on flow of energy and accounts thereof to authorities like OERC and Department of Energy, Govt. of Orissa.
2. OPTCL has decided to embark on the implementation of an ERP system that will cater to all the business functions and to some extent the technical function of the Corporation. The implementation of ERP system will enable Business Proces Re-engineering of the Corporation. This will mean changes in procedures, workflow and decision making process. The process will enable the corporation to bring in the increase in productivity and increase in efficiency of operation.
3. For implementation of Intra-State Availability Based Tariff (ABT) the 15 minutes energy flow data in and out of OPTCL's EHT grid shall be obtained online from the ABT

compatible energy meters (0.2 class accuracy) installed in various substations and the on line data will be stored in the Disc Drive of SLDC,. SLDC has to provide the copies of the energy data to the OPTCL and GRIDCO for accomplishing the implementation of ERP solution. This exercise can only be accomplished through development of IT infrastructure, planned as part of the ongoing ERP project. In addition this infrastructure will also facilitate monitoring of construction work of EHT network for its timely completion and O&M thereof, procurement of electrical material, inventory management, asset accounting, financial accounting, project costing etc. The ERP process would help in human resources management to keep the organization lean & efficient for the operation of the organization.

4. Mr. M. Ananta Rao, CGM (IT), OPTCL submitted that the cost of the project is estimated to be Rs.40.631 crore which will be spent over a period of 5 (five) years starting from FY 2008-09. The year-wise capital expenditure has been projected as under:

FY 2008-09 - Rs.4.180 Crore
FY 2009-10 - Rs.31.931 Crore
FY 2010-11 - Rs.1.500 Crore
FY 2011-12 - Rs.1.520 Crore
FY 2012-13 - Rs.1.500 Crore

Besides the above capital expenditure, the R&M expenditure of Rs. 47.859 crore for 5 years towards maintenance of ERP system has also been projected. Year wise projection of revenue expenditure is as under:

FY 2008-09 - Rs.0.566 Crore
FY 2009-10 - Rs.9.99 Crore
FY 2010-11 - Rs.12.094 Crore
FY 2011-12 - Rs.12.1745 Crore
FY 2012-13 - Rs.13.0345 Crore

OPTCL stated that the afore mentioned expenditure towards R&M would be met out of the total R&M expenditure approved /to be approved by the Commission in the annual ARR and Transmission Tariff Order.

5. After hearing the petitioner on 23.06.2009, Commission inquired about the status of the project OPTCL submitted that the works on the Data Centre was nearing completion. Due to the prevailing code of conduct on account of General Election the award of the contract to the successful bidder is being delayed and the same will be issued shortly. Presently, the communication system of ERP is designed with VSAT network. The Commission enquired how the existing optical fiber network will be utilized and about the high component of O&M expenses at about Rs.13 crore/annum as against completion cost of project of Rs. 40 crores. It was stated by OPTCL that the major part of O&M expenses are towards the leasing charge of the VSAT channel. The Commission wanted the full breakup of O&M component along with extent of benefit that DISCOMS would get by this investment. OPTCL was also asked to submit the quantitative cost-benefit analysis of the above investment.
6. In compliance of the above, OPTCL has filed its reply on 28.08.2009 which is summarised below.

(i) **Reduction of Project Cost from 40.69 crores to 17.79 crores**

(a) **WAN Implementation Strategy**

In the recent filing, OPTCL has modified its initial proposal of implementing the WAN (Wide Area Network) using VSAT network. It has now proposed execution of WAN project in two phases. In the 1st phase, networking of all Data Centres, Zonal IT Centres, Field Units, Sub-Station and Tie-Line points etc. have to be connected through MPLS (Multi Protocol Label Switching) connectivity and only 9 (nine) nos. VSAT (Very Small Aperture Terminal) connectivity have been proposed for back up connectivity for all Zonal IT Centres and Data Centres. If need arises, all the sub-stations and tie-line points etc. shall be provided with back up connectivity through VSAT in the 2nd phase after evaluation of performance of 1st phase. OPTCL has also categorically stated that **it may not embark upon the second phase at all, in the event of Telecom, OPTCL coming up with OPGW (Optical Fibre) scheme covering all the sub-stations.**

The Board of Directors has decided to award the 1st phase of WAN on turnkey basis to BSNL at an estimated cost of **Rs.6.289 crore** to be spent in FY 2009-10.

(b) ERP Implementation Strategy

In the recent filing by OPTCL, there is no major policy shift on the aspect of ERP implementation strategy. Software Requirement Specification (SRS) in respect of all the functions of OPTCL and Energy Solutions shall be finalized first which will work as basis for all other ERP and ERP related activities. The contract, to be issued to Infosys Technologies Ltd., shall include the SRS exercise which will act as blue print for information solutions. Further, M/s Infosys shall provide ERP Licences, implement ERP, render ERP training, migrate legacy data and render ATS / AMC (Annual Technical Service / Annual Maintenance Contract) towards ERP Licenses and ERP Implementation work.

The capital cost of the project is **Rs.6.207 crore** which will be spent over a period of next three years starting FY 2009-10.

(c) Data Centre(s) Implementation Strategy

Establishing Data Centre is an important part of overall IT Business Plan of OPTCL and it will help implementing the ERP applications.

OPTCL has submitted that two components of the IT Business Plan i.e., ERP and WAN have since been finalized by the Board of Directors (BOD) of OPTCL and hence complete details could be submitted to the Commission for approval. However, detailed expenditure towards establishment of the OPTCL Data Center is yet to be submitted. The data center expenditure is estimated to be Rs.5 crore and a flat 10% of the equipment cost shall be the AMC charges.

(ii) **Substantial Reduction in Repair & Maintenance (R&M) Expenses**

In the revised submission, OPTCL has substantially reduced the R&M expenses from Rs.13 crore per annum to **Rs.10.317 crore up to the end of FY 2012-13**. The R&M expenses towards WAN, ERP and Data Centre are projected to be Rs.6.40 crore, Rs.2.42 crore and Rs.1.50 crore respectively for the period from FY 2009-10 to FY 2012-13.

(iii) **Proposed Expenditure in the current Business Plan period**

As proposed by OPTCL, the overall expenditure towards Capital and R&M in the current Business Plan period (i.e. from FY 2008-09 to FY 2012-13)

for implementation of WAN, ERP and Data Centre, is given in the following table.

<u>FINANCIAL YEAR</u>	<u>CAPITAL EXPENDITURE</u> (in Rs. Crore)				<u>R&M EXPENDITURE</u> (in Rs. Crore)			
	Data Centre	WAN	ERP	Total	Data Centre	WAN	ERP	Total
2009-10	5.000	6.289	1.211	12.500	-	0.960	0.365	1.325
2010-11	0.300	-	2.953	3.253	0.500	1.815	0.155	2.470
2011-12	-	-	2.043	2.043	0.530	1.815	1.067	3.412
2012-13	-	-	-	-	0.530	1.815	0.825	3.170
TOTAL	5.300	6.289	6.207	17.796	1.560	6.405	2.412	10.377

(iv) **Applications & Beneficiaries**

The setting up of the Wide Area Network, Data Centres and Enterprise Resource Planning systems is an endeavour to switch from conventional legacy IT to comprehensive and integrated IT solutions, which will primarily render services to the three organizations viz., OPTCL, SLDC and GRIDCO. The implementation of these systems also helps in providing reliable and online information to authorities viz., OERC and Deptt. of Energy, Govt. of Orissa.

(v) **Activities and Timelines**

(a) **WAN Implementation**

OPTCL proposes to implement MPLS VPN in 138 locations out of which 26 locations require 64 kbps bandwidth and the rest 122 will work with 128 kbps. MPLS is the latest of the WAN technology currently being used. The advantage of MPLS over the Point to Point leased line is that the MPLS network uses highly redundant network backbone. Moreover, 9 sites (8 Zonal IT centres and OPTCL headquarter) will be connected over VSAT.

The implementation of this WAN project is scheduled to be completed by **January, 2010.**

(b) **ERP Implementation**

The ERP implementation entails the following activities:

- Preparation of SRS (System Requirement Specification)
- Gap Analysis
- Legacy Data Migration & Preparation of Master Data
- First rolling out of the ERP as per Gap Analysis
- Testing
- Training
- Sign-off

OPTCL proposes to roll out the first version of ERP (as per Gap Analysis) by April 2010 and sign off the project by **31st March 2011.**

(c) **Data Centre Implementation**

OPTCL proposes to establish three data centres, one each for OPTCL, SLDC and GRIDCO. This is targeted to be completed by Jan-Feb 2010.

(vi) **Cost-Benefit Analysis**

A. Operational Benefits

Cost Reduction

- Labour cost reduction: the automation and removal of redundant processes or redesign of processes will lead to part time staff reduction in tasks in each business areas including: Maintenance, administrative processes, purchasing, financial and training & human resources.
- Inventory cost reduction in management, relocation, warehousing and improved turns.
- Administrative expenses reduction in printing papers and supplies.

Cycle time Reduction. Measurable cycle time reduction can be found in three kinds of activities that support customers, employees and suppliers.

- Customer support activities in billing, production, delivery and customer service.
- Employee support activities in reporting, month-end closing, purchasing, HR and payroll and business learning.
- Supplier support activities in speedy payments and combined multiple orders with discounts gained.

Productivity improvement. Energy transmitted per employee or labor cost is bound to increase significantly.

Quality improvement. On one hand, there will be reduction in error rate, duplication and on the other, improvement in accuracy and reliability.

Customer service improvement. Through Business to Business portals, the constituents / stake holders can be served better.

B. Managerial Benefits

Better resource management

- Better asset management for improved cost, depreciation, location, custodian, physical inventory and maintenance records control.
- Better inventory management for improved inventory turns, stock allocation, quick and accurate inventory information, just-in-time replacement and having a variety of options dealing with various requests.
- Better Energy Transmission management for optimized Supply Chain and Energy Generation Schedules.
- Better workforce management for improved manpower allocation and better utilization of skills and experience.

Better decision making

- Improved operational decisions, efficient processes and quick response to work changes and customer demands.
- The information needs of all stake holders i.e. the Regulators, Govt., Discoms (Bills) etc. can be consistently and automatically met through ERP solution. The operational data generated through ERP is stored in a data warehouse and mined for business intelligence.

Better performance control

- Financial performance control by lines of business, by customers or by other considerations
- Overall operational efficiency and effective management

C. Strategic Benefits

Support current and future Business Growth plan in

- Transaction volume, processing capacity and capability
- New business services, new divisions or new functions in different regions
- Industry's rapid changes in competition, regulation and markets. ERP enables an organization to respond to internal and external changes quickly at lower costs and provide range of options suitable to change requirements.

Build Business innovation by:

- Enabling new market strategy
- Building new process chain
- Creating new business

Build cost leadership by achieving economies of scale through streamlined processes or shared services.

Build external linkage with customers, distributors and related business stake holders.

D. IT infrastructure Benefits

IT cost reduction in:

- Legacy system integration and maintenance
- IT expense and staff for developing and maintaining the system
- System architecture design and development
- Disparate information reconciliation and consolidation
- Technology R&D

Increased IT infrastructure capability:

- Streamlined and standardized platform
- Database performance and integrity
- IS management transformation and increased IS resource capability
- Continuous improvement in system process and technology
- Global maintenance support

Flexibility:

- Adaptable to modern technology
- Expandable to the stakeholders
- Expandable to a range of applications
- Customisable and configurable
- Global platform with global knowledge pipeline
- Database performance

E. Organisational Benefits

Changed culture with common vision

- Consistent vision across different levels of organization
- Interdisciplinary thinking, coordinate and harmonise differences and interdepartmental processes
- Efficient interpersonal communication

Empowerment

- Users have ownership of the system; work autonomously
- Users have value-added responsibility, accountability
- Employee's skills broadened; they are more into problem-solving
- Middle management are no longer doers but planners

- Greater employee involvement in business management

Better Employee morale and satisfaction

- Increased employee satisfaction with better decision making tools
- Increased employee efficiency in field operations and services
- Better morale with smarter system performance and more involvement

(vii) **Extent of Benefits to Discoms**

OPTCL, being an important **Power** Utility in Power Supply Chain, IT facilities along with certain views of the database, can be shared by its Supply Chain Entities also subject to security measures in place. The possibility of sharing 24x7 Data Centre facility by Supply Chain Entities can also be explored in future, on cost sharing basis, thus bringing down Total Cost of Operation per utility. Discoms can directly avail such services from OPTCL for better management of their utilities. The repository of data thus planned will be invaluable and will act as a single reliable and coherent source for all data needs of the sector including that of regulatory.

7. During the hearing of this case on 30.08.2009, the Commission, while accepting the investment proposal in principle, made the following observations.

- While implementing the project, the OPTCL should start with establishing mechanism to collect the data online from twenty-three inter-connection points on a priority basis. This data is of paramount importance as it constitutes around 80% of the volume of power transmitted in the network.
- For faster and proper energy accounting and settlement, the energy data should be made available to the Discoms, preferably at the DSOCC (Distribution System Operation Control Centre). In this regard, the Commission directed the OPTCL to provide suitable connectivity at DSOCC of Discoms, may be, through extension of MPLS connectivity to these centres. As OERC and Deptt. of Energy, Govt. of Orissa are important beneficiaries of the project, the Commission felt that MPLS VPN connectivity should be extended to them with suitable access permission.
- The timelines for each of the activity in ERP implementation need to be specified.

8. In compliance of the above, OPTCL has filed its reply on 23.09.2009 which states the following:

- OPTCL will build online data capture facility at interconnection points on a priority basis.
- MPLS VPN connectivity will be extended to four Discoms, Deptt. Of Energy, Govt. of Orissa and OERC.
- OPTCL has submitted the detailed activities with regard to implementation of ERP system comprising of the following three phases.

Phase 1: It covers modules viz; **FA, MDM Billing & Settlement, Core HR, Sel. Services of HRMS, iRecruitment**

Phase 2: It covers modules viz; **EAM, INV, PO, AP, AR, Project Management, Costing, Billing, Payroll, OTL**

Phase 3: It covers modules viz; **iSupplier, iExpense, iProcurement, Sourcing, Cash Management, Quality,**

**Reports, OLM, Performance Management,
Compensation Workbench**

The total project has been planned to be completed in **15 months (64 weeks)** time period.

9. The ERP project comprises of four mandatory components namely, Data Centre, ERP, WAN and FMS. The detailed cost benefit analysis submitted by OPTCL based on discounted cash flow approach reveals that the NPV of the project is positive indicating that it is a worthwhile proposal for investment where benefits in financial terms to be accrued upto the year 2021-22 have been estimated to be higher than the costs to be incurred in implementing the project.
10. After hearing the petitioner and perusal of the records and also the details of cost benefit analysis submitted by OPTCL in written form, Commission approves the investment proposal for implementation of ERP, WAN and Data Centre on availing loan assistance from PFC Ltd. or from other sources or from internal resources as per requirement and availability. The timeline and activities for ERP implementation as proposed by OPTCL is also approved and is given as Annexure to this order.
11. **Working Group**
This project has the potential to become an enabler for the whole power sector of Orissa and its success will have far-reaching impact on the sector. However, the Commission feels that key to its successful implementation lies in the manner of co-ordination amongst the stake holders especially amongst OPTCL, SLDC and Gridco. Therefore, the Commission directs the OPTCL to constitute a Working Group with two members each from OPTCL, Gridco, SLDC and one member each from Cesu, Nesco, Southco, Wesco, Deptt. of Energy, GoO and OERC. This Group should meet once in two months to discharge the following functions:
- oversee the implementation of the project
 - resolve issues as and when they occur
 - co-ordinate on behalf of their organisations
 - recommend any change / suggestion in project schedule, budget or any other matter of significance for necessary approval by the authorities.
 - certify that the project has been duly delivered.
- This Group will appraise the Commission of the developments by forwarding the copy of the proceeding of the meeting held once in every two months as stated above. The proceeding must clearly indicate the responsibilities of the authorities/officials and the timeline for compliance by them.
12. Accordingly the case is disposed of.

Sd/-
(B.K. MISRA)
MEMBER

Sd/-
(K.C. BADU)
MEMBER

Sd/-
(B.K. DAS)
CHAIRPERSON