



Detailed Project Report for  
Unified Geographic  
Information System  
Solution Implementation at  
Uttar Pradesh Power  
Corporation Limited  
(UPPCL)

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Submitted to:

Uttar Pradesh Power Corporation Limited

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## 1 Background

Uttar Pradesh being the one of the largest states in India is also one of the most populous state of the country with its administrative capital Lucknow. With the levels of literacy rate of around at 70 % the state has abundant availability of quality human resource. It has the abundance of potential as destination for investments in manufacturing, tourism and Infrastructure services. There is no independent verification has been done by EY.

Power sector is the critical infrastructure element required for the smooth functioning of the economy. Efficient, reliant and sustainable power is essential to stimulate growth and prosperity in the state. The availability of the reliable, quality and affordable power can ensure growth of all sectors of the economy being it agricultural, industrial and others. Towns of Kanpur, Varanasi, Allahabad, Gorakhpur, Meerut, Aligarh, Moradabad, Muzaffarnagar, Saharanpur and Jhansi are known for their industrial importance in the state as well as at the national level.

Uttar Pradesh was one of the first state to embark upon economic and structural reforms in power sector. GoUP had taken key structural reforms and created entities , Uttar Pradesh Power Corporation Limited (2000) , Kanpur Electricity supply Company , KESCO (2000) , Purvanchal Vidyut Vitran Nigam Limited , PuVVNL - Varanasi (2003) , Madhyanchal Vidyut Vitran Nigam Limited , MVVNL- Lucknow (2003) , Paschimanchal Vidyut Vitran Nigam Limited , PaVVNL - Meerut (2003) and Dakshinanchal Vidyut Vitran Nigam Limited , DVVNL- Agra (2003).

UPPCL has the following major online systems in place-

- **Urban Online Billing:** To bring efficiency and transparency in operations, an online system for billing and collection consisting 17 modules is deployed in 168 towns across UP for a consumer base of 7.5 Million. The web applications have been hosted at on-premise Data Centre (DC) with replicated data in the Disaster Recovery Centre (DRC), and are accessed by various divisions, circle, sub-division and other offices situated at different locations in 168 towns across the state over WAN environment.
- **Mobile Applications:** Various mobile applications (e-Nivaran, e-Sanyojan, FAME) for urban and rural consumers have been developed for improving efficiency, revenue and easy functioning. These apps are integrated with urban and rural online billing systems and various payment service providers.
- **Customer Care Centre for urban Consumers:** Customer Care Centres for consumers are established in 4 Discoms to take care of the grievances and faster redressal. Consumer complaints are registered/tracked/resolved through 1912 (Toll Free Number). This system is integrated with urban online system and rural online billing system.
- **Web Self Service:** To facilitate its consumers UPPCL provides online payment, trust billing and load enhancement features to its users.
- **Prepaid Meter Online Recharge-** Integration is in place to do online recharge prepaid meter installed.
- **GIS and Network Analysis Solution** - GIS system is in place which includes asset mapping and consumer indexing. UPPCL also keeps updating the GIS database

through incremental surveys of consumers and assets to accurately carry out energy accounting. To complement the GIS, GIS based network analysis system is implemented to be able to accurately carry out network studies and optimise deployment of network elements.

- **Integrations with Other Government Portals/Apps** - Billing system has been integrated with Centre for E-Governance and (Customer service centers) CSCs for bill payment, Udyog Bandhu, CM Dashboard, Energy Audit Module etc
- **Other Integrations with UPPCL** - Official website of [www.uppcl.org](http://www.uppcl.org) has various integrations such as Energy Accounting Directory, Commercial Statements, Personal Information System, Jansunwai, Disciplinary Proceedings, Feeder wise Supply Hours, Daily Supply Hours, Court Case Monitoring etc.

### 1.1 About UPPCL

Uttar Pradesh Power Corporation Limited (UPPCL), is a company registered under the provisions of Companies Act 1956 / 2013 and is a fully owned entity of Government of Uttar Pradesh.

Besides being the holding company for Power Generation and Transmission entities, UPPCL is also the holding company for five DISCOMS namely Paschimanchal Vidyut Vitaran Nigam Limited (PVVNL), Purvanchal Vidyut Vitaran Nigam Limited (PuVVNL), Madhyanchal Vidyut Vitaran Nigam Limited (MVVNL), Dakshinanchal Vidyut Vitaran Limited (DVVNL) and Kanpur Electricity Supply Company (KESCO). These DISCOMs are responsible for supplying of electricity to the consumers and to maintain the 33/11, 11/0.433 KV, substations, 33/11 kV/LT network of the area, receiving electricity supply from higher voltage system, distribute it to its consumers, record their consumption, issue electricity bills according to applicable tariff and realize the revenue. Various divisions of the DISCOMs are also responsible to release new connections and from time to time extend and improve its distribution network and control the line losses of electricity, technical as well as commercial and various other related activities.

The Company is engaged primarily in the business of distribution of Electricity. It has been vested with the distribution assets, interest in property, rights and liabilities of the erstwhile UPSEB necessary for the business of distribution in its area of distribution comprising of all districts of Uttar Pradesh.

The above 5 Companies have been given the status of a Distribution licensee as per Section 14 of the Electricity Act 2003. In order to fulfill the obligations of the Distribution licensee as mandated under the provision of Uttar Pradesh State Electricity Reforms Transfer Scheme 2012 and Electricity Act 2003, the main objects to be pursued by the company are:

- To undertake the activities of distribution to all consumers irrespective of the voltage, provision, supply, wheeling, purchase, sale, import, export and trading of electricity, introduce open access in distribution as per the Electricity Act 2003 and/or the directions of the regulator.

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- To plan, develop, acquire, establish, construct, erect, lay, hire, lease, buy, sell, operate, run, manage, maintain, enlarge, alter, renovate, modernize, work and use a power distribution system network in all its aspects including amongst others various voltage lines and associated sub -stations, including distribution centers, cables, wires, accumulators, plants, motors, meters, apparatus, computers and materials connected with sub-transmission, distribution, supply of electrical energy, ancillary services, telecommunication and telemetering equipment.
- To tender, finalize and execute Power Purchase Agreements and other agreements for sale or purchase of electricity with generating companies, trading companies, other distribution companies, Central and State generating authorities, departments or companies, societies, other States, utilities, Independent Power Producers and other Persons.
- To undertake Rural Electrification schemes in the licensed area.
- Any other work incidental to the objectives & functions of the company.

The details of 5 DISCOMS are as follows;

| DISCOMS                                       | RAPDRP PART A            |                 | Non-RAPDRP              |                 |
|---|--------------------------|-----------------|-------------------------|-----------------|
|   | No. of Consumer Served * | District Served | No. of Consumer Served* | District Served |
| Dakshinanchal Vidyut Vitran Nigam Ltd (DVVNL) | 1093589                  | 19              | 3286962                 | 21              |
| Madhyanchal Vidyut Vitran Nigam Ltd (MVVNL)   | 1815243                  | 17              | 4126303                 | 19              |
| Purvanchal Vidyut Vitran Nigam Ltd (PuVVNL)   | 1229043                  | 19              | 5573860                 | 20              |
| Paschimanchal Vidyut Vitran Nigam Ltd (PVVNL) | 2421582                  | 13              | 3321032                 | 12              |
| Kanpur Electric Supply Company (KESCO)        | 601819                   | 1               | Not in scope            |                 |
| <b>Total</b>                                  | <b>7161276</b>           | <b>69</b>       | <b>16308157</b>         | <b>72</b>       |

**Table 1 : Details of Consumers and Districts**

\*As per 2018 data

| Discoms                                       | Zone      | Circle     | Distribution Division | SDO        | Test Division |
|---|-----------|------------|-----------------------|------------|---------------|
| Dakshinanchal Vidyut Vitran Nigam Ltd (DVVNL) | 6         | 28         | 77                    | 190        | 23            |
| Madhyanchal Vidyut Vitran Nigam Ltd (MVVNL)   | 6         | 29         | 105                   | 205        | 27            |
| Purvanchal Vidyut Vitran Nigam Ltd (PuVVNL)   | 6         | 30         | 96                    | 194        | 22            |
| Paschimanchal Vidyut Vitran Nigam Ltd (PVVNL) | 6         | 29         | 96                    | 195        | 28            |
| <b>Total</b>                                  | <b>24</b> | <b>116</b> | <b>374</b>            | <b>784</b> | <b>100</b>    |

**Table 2 - Details of RAPDRP PART-A and Non-RAPDRP Offices**

### 1.2 Mission of UPPCL

Uttar Pradesh Power Corporation Ltd. (UPPCL), with a vision to provide, uninterrupted power supply to every consumer of the state is now looking forward to increasing the

consumer base as well as increasing the revenue by incorporating new technology, process and procedure. The mission of Uttar Pradesh Power Corporation Limited (UPPCL) is to ensure reliable quality of power to its customers at competitive prices. The UPPCL is committed to achieving this mission through:

- Provide cost efficient good quality electricity to all categories of consumers for economic development/social uplift of the State.
- Make the energy sector commercially viable so that it ceases to be burden on the state budget; and
- Protect the investment of the consumers

## 2 Objective

To select a competent System Integrator (SI) to carry out the activities for design, development, deployment and operations of an updated GIS platform for viewing and accessing electrical network asset data of Non RAPDRP towns on digitized upgradable base maps of predefined scale for towns of PVVNL, DVVNL, MVVNL & PuVVNL Discoms of Uttar Pradesh.

## 3 Scope of Work

The scope of work under the project includes current GIS application migration to latest available version, software solution design, development and customization of a unified web-based GIS platform for Non-RAPDRP areas, accessible on desktop/palmtop/mobile devices.

The System Integrator (SI), will carry out the As-Is status study of current GIS application and migrate this to the newer version of the Esri ArcGIS / Arc FM software.

The System requirement specification (SRS) of GIS solution should functionally comply with "Section - G2: Technical specification requirements for Application Packages" for GIS based Asset Mapping & Customer Tagging of Non-RAPDRP scheme. The features and functionalities of solution will be as per the SRS of Non-RAPDRP along with any modifications/enhancements that need to be made based on the current requirements/business processes of the utilities.

## 4 Benefits

Some uses and advantages of GIS include:

- 1 Cost savings because of increased efficiency
- 2 Better and faster decision making
- 3 Better and permanent record keeping
- 4 Aids capital planning
- 5 Improved confidence in all aspects of utility management
- 6 Meet regulatory reporting compliance
- 7 Work order management decisions
- 8 Utility system maps with the option to have links to as-built drawings

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- 9 Integration with other system to ensure complete life cycle and business process monitoring.
- 10 Improved Asset Management
- 11 Cutting Costs by Going Paperless
- 12 Real-time insight
- 13 Instant feedback from the field
- 14 React instantly to a project issue
- 15 Maintenance, quality control, plan ahead

## 5 Costing

| Total costing of the project with details        |   |
|--|---|
| Name of the Project & Project No.                | GIS System Augmentation (For Rural-SW/HW)   |
| Brief Scope of Work                              | To carry out the activities for design, development, deployment and operations of GIS platform for Non-RAPDRP Towns   |
| Objective of the Scheme                          | Viewing and accessing electrical network asset data of Non-RAPDRP towns on digitized upgradable base maps of predefined scale for towns of PVVNL, DVVNL, MVVNL & PuVVNL Discoms of Uttar Pradesh. " |
| Date of Start of Project                         | To create a GIS Platform for viewing and accessing electrical network asset data of Rural Areas   |
| Scheduled Date of Completion                     | 2020  |
| Estimated Cost (Rs. Crs) at start of project     | 2025  |
| Cost Escalation / variation with reasons, if any | ₹ 32.29   |
| Proposed Funding (Equity, Loan, Grant details)   | NA  |
| Scheduled Date of Completion                     | Equity  |
| Delay & reasons, if any                          | 2025  |

## 6 Duration

The RFP was floated on behalf of all 5 DISCOM's by UPPCL for the selection of GIS Implementing vendor and the overall project duration is for **48 Months with 3 years operation, support and maintenance** after operational acceptance by UPPCL.