

Energy Distribution

# NS Envision™ Energy - ABT Online Energy Management System

CSPGCL



**Monitoring Operational Parameters of a Thermal Power Plant such as Reactive Power, Energy Loss, and Energy Consumption in Real-Time.**



Monitor Power Plant Operational parameters such as Reactive power, Energy loss, and Energy Consumption in Real-time.

[Chhattisgarh State Power Generation Company Limited, \(CSPGCL\)](#) is the electricity generation company of the Government of Chhattisgarh and is also the Load Dispatching Centre ensuring integrated operation of the power system in Chhattisgarh. CSPGCL adopted a frequency-based or [Availability based tariff \(ABT\) mechanism](#) in 2000. One of the primary challenges faced by the power generation industry is the issue of unscheduled deviation from the power generation schedule, which can result in considerable penalties in the form of [DSM \(Demand Side Management\)](#) or UI (Unscheduled Interchange) charges.

CSPGCL approached [NSP](#) for an Online Energy Management and Monitoring Solution that can monitor the generation parameters of their power plants and collate real-time data from all the ABT meters to streamline ABT calculation.

## Challenges

Power plants generate electricity from primary energy sources, which is then distributed to consumers. Generation and distribution are governed by various parameters and the pricing policy is supported by dynamic pricing based on availability (Availability based tariff (ABT)) and Demand side management (DSM) strategy. However, both generation and distribution are rife with challenges.

- The lack of advanced monitoring and measuring systems leading to suboptimal plant operations.
- Loss of productivity and efficiency is due to the non-availability of accurate and timely information on plant performance to the operators.

To address these challenges, the power plant management team decided to implement advanced monitoring systems that would enable real-time tracking of plant performance.

## Solution

The advanced monitoring system on the [NS Envision™](#) Platform to enable Real-Time Monitoring and Analysis of the generation plant's operations parameters such as reactive power [Auxiliary consumption](#), Energy losses, JMR, and distribution grid frequency was proposed. The data from the monitoring system was then processed using advanced algorithms to provide operators with real-time information on plant performance and to ensure that power generation is in sync with the scheduled demand.

The existing online ABT Monitoring System collects required data from the ABT energy meter using the Modbus-TCP (vendor-neutral communication protocols intended for supervision and control of automation equipment) to the database of the thermal power plant and GCC, Raipur.

The solution was designed to integrate the new ABT energy meter, which is installed at HTPS EXT, CSPGCL (1\*500MW) to the existing ABT monitoring system and display the stored data from the database as KPIs in the dashboard as real-time information on plant performance, operators were able to make informed decisions about plant operations.

## Benefits

The implementation of advanced monitoring systems led to significant improvements in the efficiency and productivity of the thermal power plant and also resulted in a significant reduction in unscheduled deviations and its corresponding penalties.

- Enabled instantaneous real-time data monitoring.
- Enabled participants to avoid deviation penalties.
- Local sub-station and central control center online monitoring through dashboards
- Integrated main, check, and standby meters.

## Stories

Before implementing the NS Envision™ ABT Online Energy Management System, ABT calculation and manual reports required lots of effort.

By bringing NS Envision™ ABT Online Energy Management System, we were able to display real-time data such as Day Data, Block Data, etc. The automated report generation facility helped easy access to historic data and eliminated time spent on manual report generation.



“NSP has completed the integration of the new Energy meter and its real-time Production KPIs at HTPS(1\*500MW), CSPGCL Korba plan for a generation”

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**Addl. Chief Engineer (O&M: GEN) CSPGCL**  
DAGANIA, RAIPUR





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## Address

98, NSP Square, BTM Stage 4th Stage, 8th Main,  
80 Feet Double Road, Vijaya Bank Layout, Bilekahalli,  
Bengaluru, Karnataka 560076

## Contact Details

Email: [reachus@nspglobaltech.com](mailto:reachus@nspglobaltech.com)

Call: +919353189566 | +91 9845661763

Website: [www.nspglobaltech.com](http://www.nspglobaltech.com)