Online Energy Management & Monitoring Solution

Overview

NS Envision- Online energy management Solutions designed specifically to address the current challenges of Power Generation Station, load dispatch centre (LDC) and generic ABT Systems such as
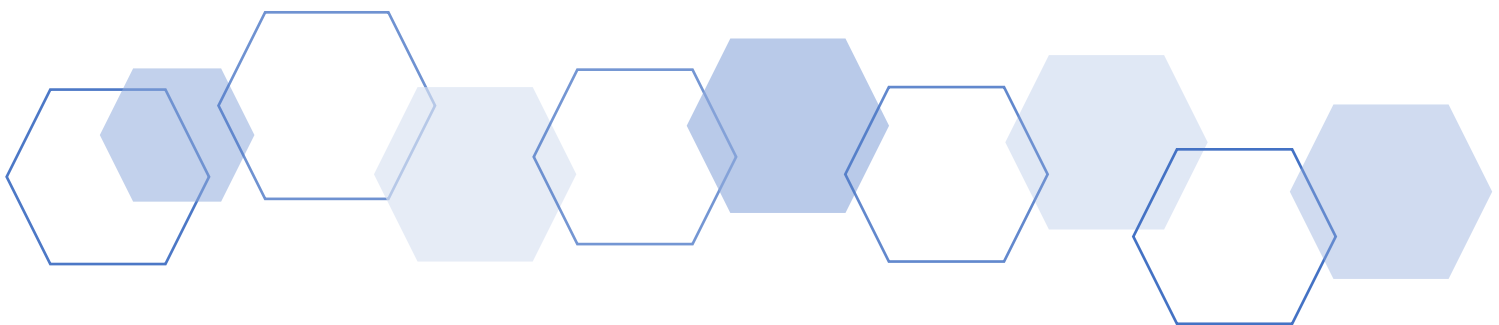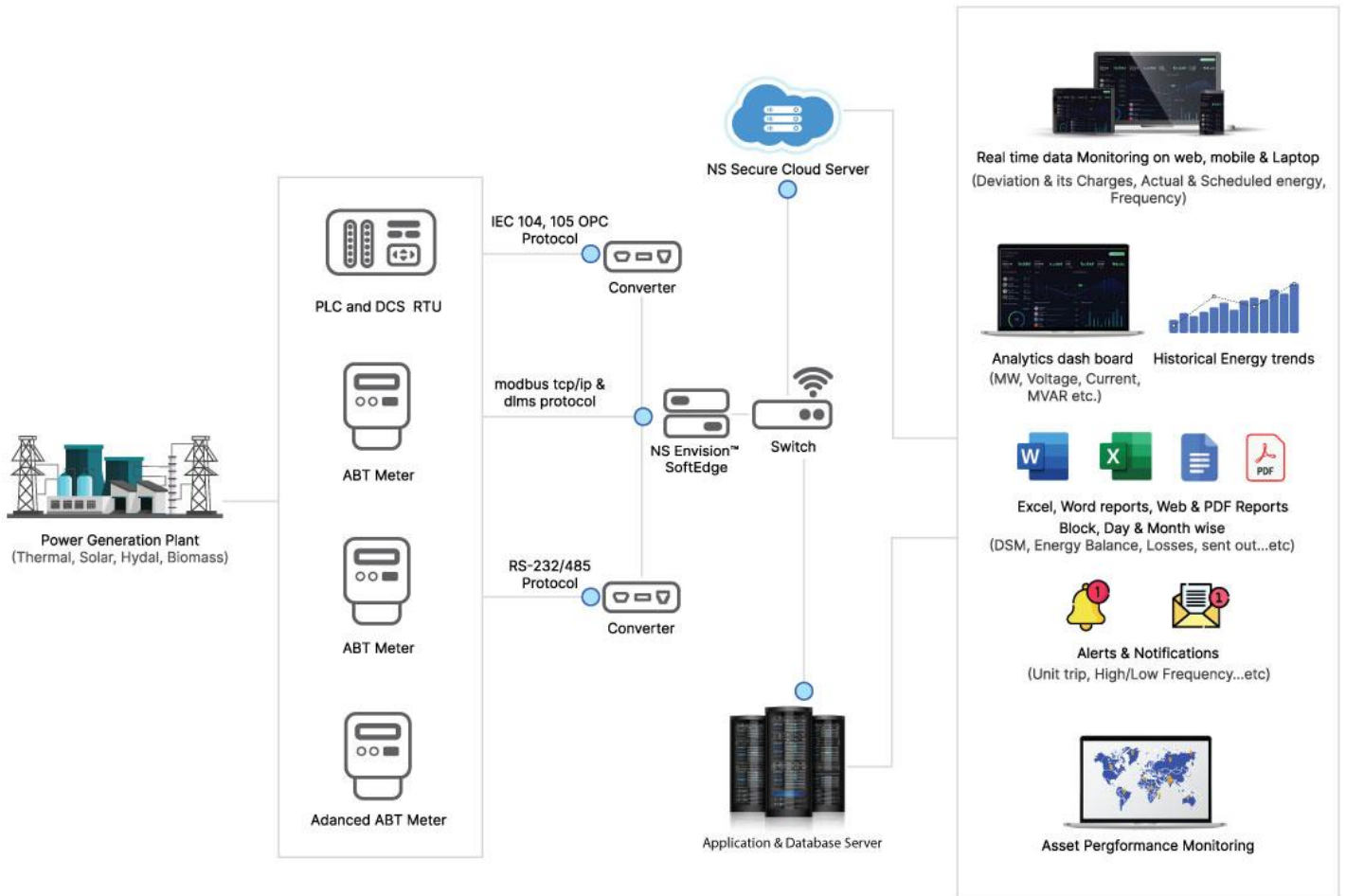
- Unscheduled deviation from the power generation schedule incur considerable penalties (termed UI charges now DSM charges).
- Real-time changes in Schedule, Grid frequency, dynamic plant operations (like Energy balance Bus balance, losses and many more) need a real-time ABT Monitoring & calculations.
- Lack of Advanced integrated systems and monitoring systems to closely monitor the ex-bus output of the plant.
- The ABT Calculations are complex and are to be evaluated quickly every second to provide quick information for operators.

The NS Envision™ -Online Energy Management & Monitoring Solution uses the AI capability to resolve today challenges and key offering are.

- Keep balance between real time energy sent out and schedule of power generating stations.
- Real-time ABT calculations and provide dashboards with key guidelines to manage Ex-Bus generation as per DSM regulations.
- Multiple reports as per the Central and State ABT regulations under DSM mechanism in India.
- Generates and share automatic detailed ABT Reports by email.
- Sends notifications and alerts in case of anomalies and huge penalties for quick response.
- AI Capability for load forecasting

Solutions Architecture
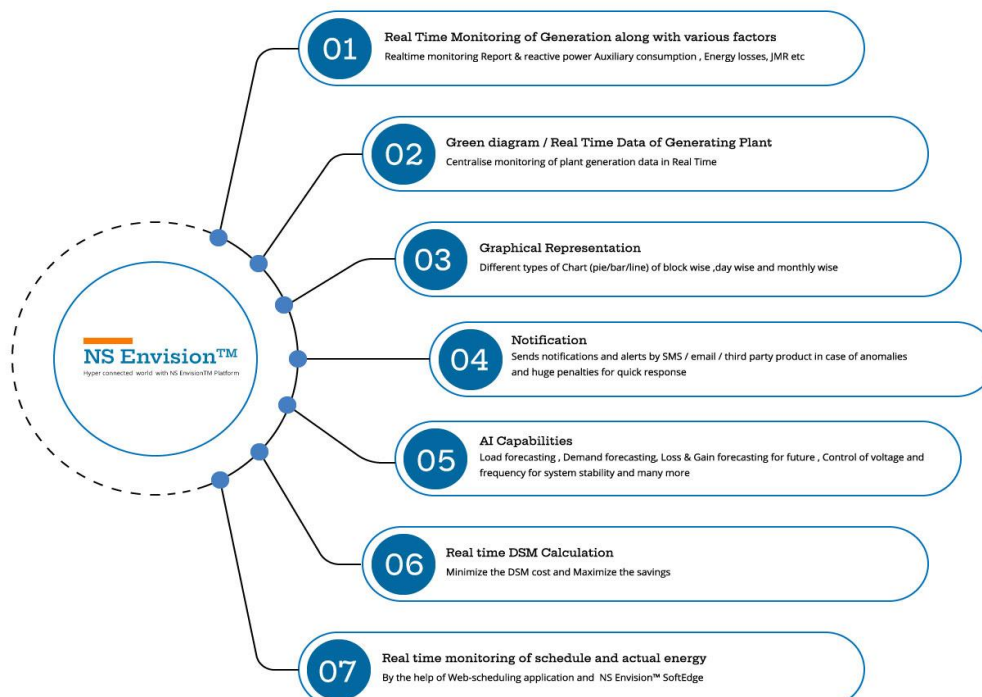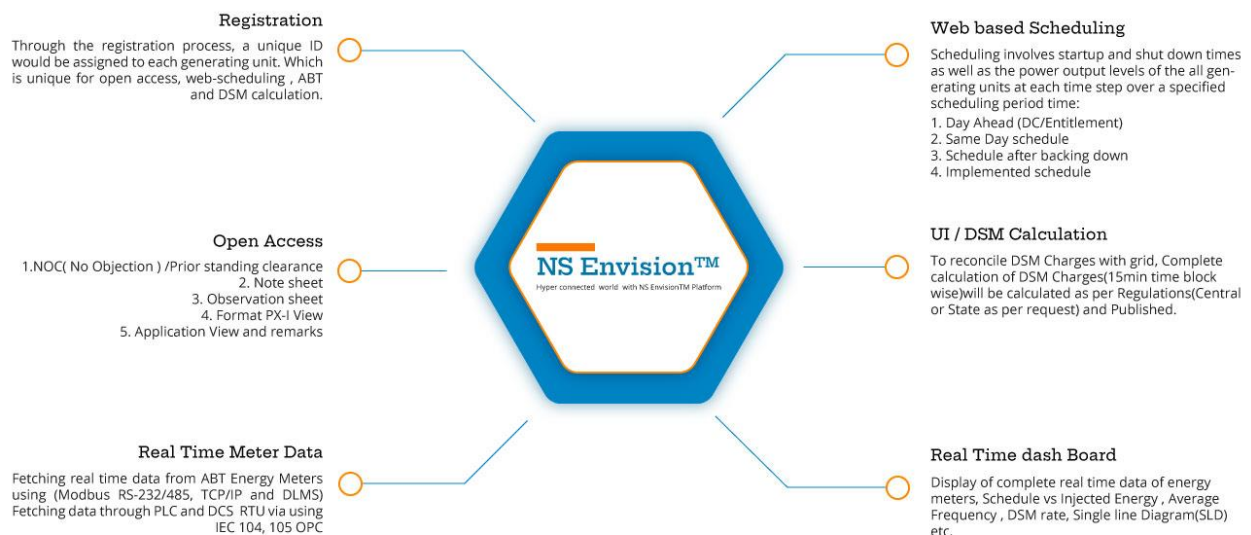
Scalable architecture to full fill your need both on cloud and on premises solutions, which provide real time data such as deviation & it's charges, Actual &Schedule energy, frequency. Analytics Dashboard (MW, Voltage, Current, MVAR etc.), Reporting add PDF also…. Block, Day & Month wise (DSM, Energy Balance, Losses, sent out…etc) and Alerts & Notification (Unit trip, High/Low Frequency…etc).

Key Modules

Solutions come with multiple module design to Minimize the DSM loss and Maximize the saving, Real time monitoring of Schedule and Actual sent out energy, Real time monitoring and report of Active & Reactive power, Aux consumption, Energy Balance, Losses, JMR etc., centralize and plant level monitoring of plant generation data in 2 sec time interval and more.

Registration

Through the registration process, a unique ID would be assigned to each generating unit. Which is unique for open access, web-scheduling , ABT and DSM calculation.

Web based Scheduling

Scheduling involves startup and shut down times as well as the power output levels of the all generating units at each time step over a specified scheduling period time:
1. Day Ahead (DC/Entitlement)
2. Same Day schedule
3. Schedule after backing down
4. Implemented schedule

Open Access

1.NOC(No Objection) /Prior standing clearance
2. Note sheet
3. Observation sheet
4. Format PX-I View
5. Application View and remarks

UI / DSM Calculation

To reconcile DSM Charges with grid, Complete calculation of DSM Charges(15min time block wise)will be calculated as per Regulations(Central or State as per request) and Published.

Real Time Meter Data

Fetching real time data from ABT Energy Meters using (Modbus RS-232/485, TCP/IP and DLMS) Fetching data through PLC and DCS RTU via using IEC 104, 105 OPC

Real Time dash Board

Display of complete real time data of energy meters, Schedule vs Injected Energy , Average Frequency , DSM rate, Single line Diagram(SLD) etc.

NS Envision™
Hyper connected world with NS EnvisionTM Platform

01 Real Time Monitoring of Generation along with various factors
Realtime monitoring Report & reactive power Auxiliary consumption , Energy losses, JMR etc

02 Green diagram / Real Time Data of Generating Plant
Centralise monitoring of plant generation data in Real Time

03 Graphical Representation
Different types of Chart (pie/bar/line) of block wise ,day wise and monthly wise

04 Notification
Sends notifications and alerts by SMS / email / third party product in case of anomalies and huge penalties for quick response
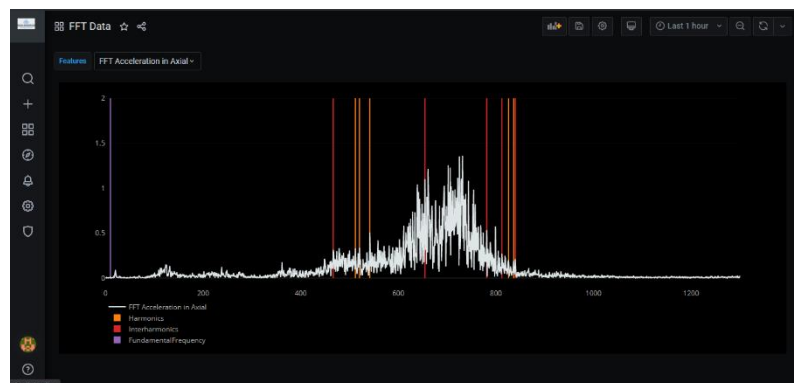
05 AI Capabilities
Load forecasting , Demand forecasting, Loss & Gain forecasting for future , Control of voltage and frequency for system stability and many more

06 Real time DSM Calculation
Minimize the DSM cost and Maximize the savings

07 Real time monitoring of schedule and actual energy
By the help of Web-scheduling application and NS Envision™ SoftEdge

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3. **Real Time Monitoring of Generation along with various factors:**

   Realtime monitoring Report & reactive power Auxiliary consumption, Energy losses, JMR etc.

4. **Green diagram / Real Time Data of Generating Plant**

   Centralise monitoring of plant generation data in Real Time.

5. **Graphical Representation**

   Different types of Chart (pie/bar/line) of block wise, day wise and monthly wise

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7. **AI Capabilities**

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   Minimize the DSM cost and Maximize the savings.

2. **Real time monitoring of schedule and actual energy**

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Key Benefits

- Enables participants to avoid deviation penalties.
- Gaming and avoiding the same.
- Local sub-station and central control centre online monitoring through dashboards
- Facilitate to verify deviation bill charges.
- Integrates main, check and standby meters.
- Facility to update UI rules.

Premium Features and Specification

SAMAST enables Caters to the needs of load dispatch centre (LDC)	Caters to the needs of load dispatch centre (LDC) & enables LDC to perform their business processes effectively: Scheduling, Energy Accounting, Settlement and Reconciliation
Caters to the needs Independent power producers (IPP) and Captive Power Plant (CPP)	Caters to the needs of Independent power producers (IPP) & enables IPP to perform their business processes effectively with minimizing the deviation
Web based Interface	Web based interface for monitoring, reporting, analysis, and workflow interactions required by various stakeholders is available through portal
AI capabilities	Demand forecasting

Loss & Gain forecasting for future

Analysis of electricity markets and strategies for bidding (market price forecasting for utilities and balancing for consumers, automated trading with smart contracts) |
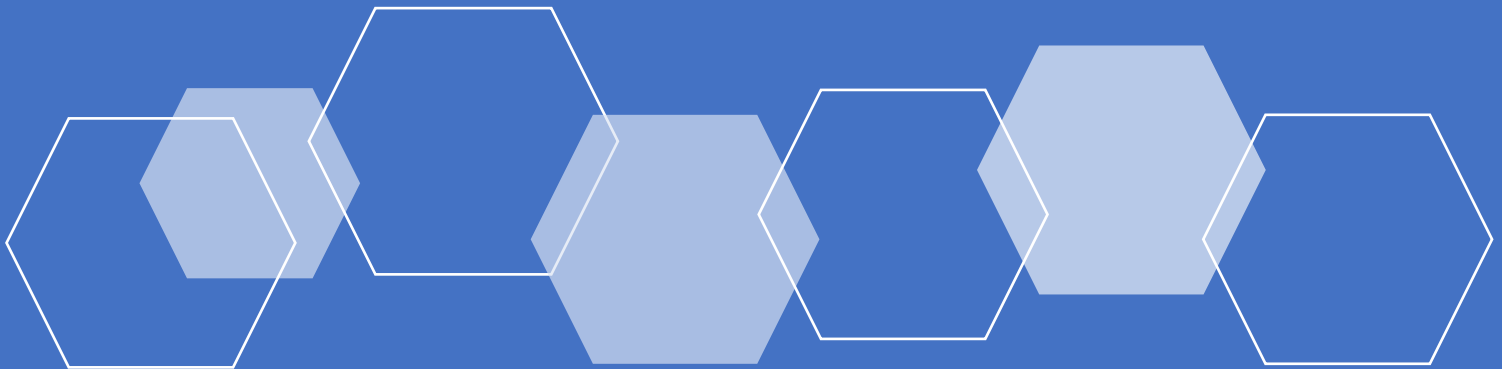| Modular, scalable, and flexible platform | Scalable architecture to full fill your need both on cloud and on premises solutions & configuration as per the requirements |
Supports industrial protocols	Supports industrial protocols (Modbus RTU, Modbus TCP/IP, RS 232 & 485, DLMS, IEC 104, 105 OPC)
IIOT Protocol	Support IIOT Protocol (MQTT Connector)
Alarms	Alarms on regulatory non-compliance and deviations
Missing data read facility	Back data option in case of failure
Schedule management (multiple entity & multiple stages)	User Management Authentication will be done with OAuth2 and Token Based Authentication.

Application

- State and Central Transmission companies.
- Central and state generating stations.
- Independent power producers (IPP) and Captive Power Plant (CPP).
- Renewable generators, such as wind and solar.
- Distribution companies.
- Railways.

Distributor:

Address

#11, Abhaya Heights, 7th Floor, 9th Cross Rd, 3rd Phase, J. P. Nagar, Bengaluru Karnataka – 560078.

Email

reachus@nsplustech.com

Call Us

9353189566 | 9845661763

Website

www.nsplustech.com