

DISTRIBUTION MANAGEMENT SYSTEM

INTEGRATED SOLUTION
FOR THE COMPLETE
MANAGEMENT OF
DISTRIBUTION GRIDS



InGRID DMS is the Indra's solution for efficient, secure and reliable monitoring and controlling of distribution grids. Through iSPEED, the Indra's Field Message Bus solution, InGRID DMS integrates SCADA and AMI real time data with DMS and OMS results. Supported by the InGRID WFM solution, it enables the Utility to improve the incident response and resolution times.

Integrated GIS Data Model, fully configurable according to the Utility's needs, also enabling the use of non-electrical entities (pg. trees, poles, etc.) and external data integration (weather maps).

Real Time Grid Monitoring and Control through the integration with SCADA and AMI systems.

Grid Operation from the **Georeferenced view**, as well as **Orthogonal** and **Substation Schematic Views**. The symbology is completely customizable.

The **Alarms & Events** module provides tools for collecting and

managing operational alarms, as well as long-term storage of operational and system events. Additionally, the **Crisis Module** enables special system modes (configurable) based on the grid operational status, number of existing incidents, disturbance/storm modes, etc.

The embedded **Trouble Call** module enables the call center dispatchers to efficiently manage and resolve customer calls and complaints related to grid events. This module also integrates with CRM and IVR third party data.

The **Fault Proposal Engine** provides the most probable faulted

device, as well as customer calls aggregation through customizable Fault Prediction rules.

The **Job Scheduler** module enables programming of short, medium and long-term activities. It can also integrate jobs from InGRID NDM and InCMS systems.



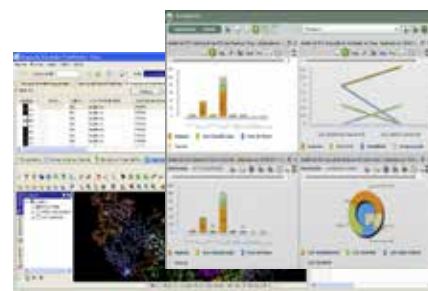
The **Crew Management** module enables efficient management of crews, crew member's skills, available equipment (tracks, cars, etc.) and workloads for each field team. Optimal vehicle route calculation.

Switching Order Programming.

Definition of security conditions, clearances, description, dates, assigned crew, temporary elements, scheduling, with fully configurable workflows enabling KPI calculation and SLA management.

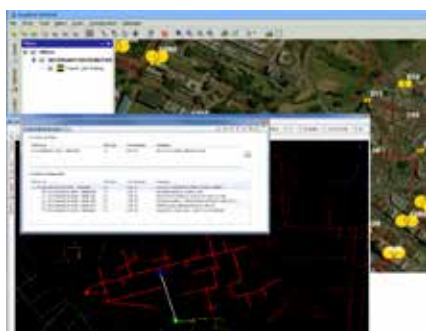
Powerful Simulation Environment

for both what-if simulations and switching plan verification.



Grid Incidents Management:

- Operation directly into the geographical, orthogonal and substation schematic views.
- AOR Management by organizational and operational hierarchy, for secure and easy user permissions configuration.
- Clear and comprehensive ongoing incident visualization, both from graphical and tabular displays.
- Pending Incidents prioritization and routing according to configurable rules.
- Fully configurable and customizable workflows.
- Best-Crew proposal by job type. Manual and automatic dispatching.
- Real-time key performance indicator calculation: SAIFI, CAIDI, CHI, etc.



Users, Profiles and Permissions Management

fully configurable with a high level of granularity.

Power Analytics: grid optimization by the use of complex grid analysis in real-time:

Power Flow, State Estimation, Fault Calculation (Short-circuit), Block Isolation (fault isolation) and Service Restoration, Topology Analysis, Grid Reconfiguration, Volt/Var Optimization, FLISR, Optimal Power Flow (OPF).

Distributed Energy Resources (DER) management:

- Load flows to manage renewable generation and local storage.
- DER devices Close-loop set-point control.

Customizable Dashboard. All KPIs indicators in a single dashboard. Operational and Regulatory reporting.

Powerful **Operator Training System (OTS).** Real network simulation environment, providing the trainees with a complete practical knowledge of grid behavior and so enhancing the operators' skills.

