SMART ENERGY

SMART ASSET MANAGEMENT

Over 140 utilities throughout the world are using Indra’s solutions

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Energy companies are subject to increasing quality, safety and environmental constraints that, in a highly competitive arena, call for the maximization of asset reliability, efficiency and flexibility, while operation and maintenance costs are reduced.

The integrated asset lifecycle management is a major contributor to improving the return on investment and maximizing the company profitability.

Asset Management in the Energy Sector

To this aim, technical and financial data are combined with the facility design information, scheduling and operation data to systematize the available information, automatically analyze it and optimize decision-making processes related to asset investment, operation, maintenance and replacement options.

Asset Management is thus a data intensive process requiring procedure definitions and the implementation of tools to gather, manage, analyze and share the information that, as a result, becomes an integral part of the production process itself.

With the goal of meeting those challenges and with the background of a sound business and technology knowledge, Indra has an integrated offering of both products and services to help its customers define, implement and accomplish the Intelligent Asset Management.
Indra provides analysis, requirement definition and delivery of the necessary instrumentation for a correct Asset Management. Once the information is made available, the management system allows:

- To integrate the information from multiple sources into a single system,
- Real-time remote access to data
- Storage of a big volume of historical data
- Report production and access
- KPI calculation

An information portal is the ideal tool to display key information (KPI, mimics, ...) and access the multiple applications or systems in a unified way.

InGRID and InGEN are Indra's solutions for the main production processes in power generation and T&D facilities, such as:

- Operation
- Maintenance
- Environmental follow-up
- Project supervision

In the case of Maintenance, competence centers specialized in SAP PM or Maximo have been set up.

The maintenance management chain is completed with the APM-Asset Performance Management.

In relation to the implementation of maintenance management systems or the delivery of process improvement services, Indra has a Maintenance Engineering team specialized in:

- Definition and assessment of maintenance plans
- Maintenance optimization
- Advanced methodologies: RCM, FMEA, ...
- Parametrization and optimization of spare parts
- Warehouse management and logistics
When dealing with intensive energy consuming processes (electricity, heat, steam...) energy efficiency tools allow:

- To audit ambient and production dependent consumptions in real-time
- and compare them to reference values to identify potential deviations.

In the case of thermal power generation, such as natural gas/coal fired units or nuclear power plants, performance monitoring systems:

- Calculate on-line key indicators such as efficiency or energy losses both for the whole plant or individual components
- and compare them to reference values dynamically computed as a function of ambient conditions.

This allows to constantly focus on the optimal performance, thus reducing both fuel costs and environmental emissions.

### Equipment condition analysis

Different monitoring technologies focused on the equipment condition evaluation are able to perform an early identification of malfunction or degradation processes, thus allowing an efficient maintenance scheduling resulting in cost decrease, reliability improvement, non-scheduled unavailability reduction and performance improvement.

To achieve this, the main technologies we use are:

- Condition Monitoring: in collaboration with our partners we can offer instrumentation and analysis systems for vibrations, oil, electrical equipment, transformers...
- Predictive Analysis: real-time analysis based on plant instrumentation readings, including diagnosis capabilities.
- Prognosis: forecasting the equipment future status to make early decisions about scheduling and investments.

### Monitoring and Diagnosis Centers

**Monitoring and Diagnosis Centers (MDCs)** centralize plant support activities with the objective of increasing their availability, improving the performance and reducing O&M associated costs.

To this aim, a team of experts with remote on-line access to plant data is combined with the necessary IT tools for automatic analyses as previously described.

The scope of a MDC is unique and must be designed according to the identified objectives, the available resources, the collaboration model with the production facilities, etc.

Indra supports its customers from the MDC analysis and design stage until its commissioning and maintenance, including the implementation of systems, training and change management to guarantee the most efficient results.
**What is Asset Management?**

**Asset Management** consists of a series of systematic and coordinated activities by means of which an organization manages its assets in an optimal and sustainable way, entailing the follow-up of their performance, risks and costs throughout their lifetime oriented to the fulfillment of the organization strategic plan. The main goal of these activities is to address the following questions:

- Which assets does the company own and where are they?
- Do they support achieving the goals?
- Are we getting as much profit as possible from our assets?
- Do we have the necessary assets to cope with our current level of activity?
- Is the level of risk tolerable?
- Are the costs associated to our assets (investment/operational costs) appropriate?
- Are we able to evaluate an investment associated benefit in terms of efficiency increase, risk reduction, sustainability...?
- Are we optimizing our processes according with emergent technologies?

PAS-55 regulations and the recent ISO 50000, are a reference in the implementation of correct Asset Management policies endorsing the increasing interest in the standardization of this process.

The Asset Management is focused on ensuring an optimal management of the asset lifecycle through the life cycle, from the design, purchase and commissioning, the production phase, with operation and management, until the final stage with their replacement and disposal.

**Indra’s proposal for the intelligent Asset Management**

Indra’s proposal combines the business expertise, the technical experience and the capabilities to develop, implement and integrate information systems (owned or third-party’s), to define and deliver the best solution for each customer.

Indra’s offering includes consulting services to assess the current situation, define the Asset Management-related objectives, set up an action plan to identify resources and the scheduling to reach the desired goals, develop the necessary methodologies and procedures or assist the customer during the implementation, assessment and improvement of the Asset Management system.

Besides, Indra’s portfolio incorporates technical support services and training (i.e., simulator-based training) or remote monitoring services.

**Solutions for the Smart Assets Management**

**KPI’s**
- Operation and maintenance
  - Advance maintenance
  - Warehouse and spare parts
  - Maintenance management
  - Safety and Environment
  - Operation management

**Analytics**
- Monitoring and analysis
  - Performance monitoring
  - Energy efficiency
  - Prognosis
  - Predictive monitoring
  - Condition monitoring

**Integration and data management**
- Mobility
- GIS
- Document management

**Instrumentation and control**
Indra has been supporting its customers for over 20 years with products and services to optimize Asset Management.