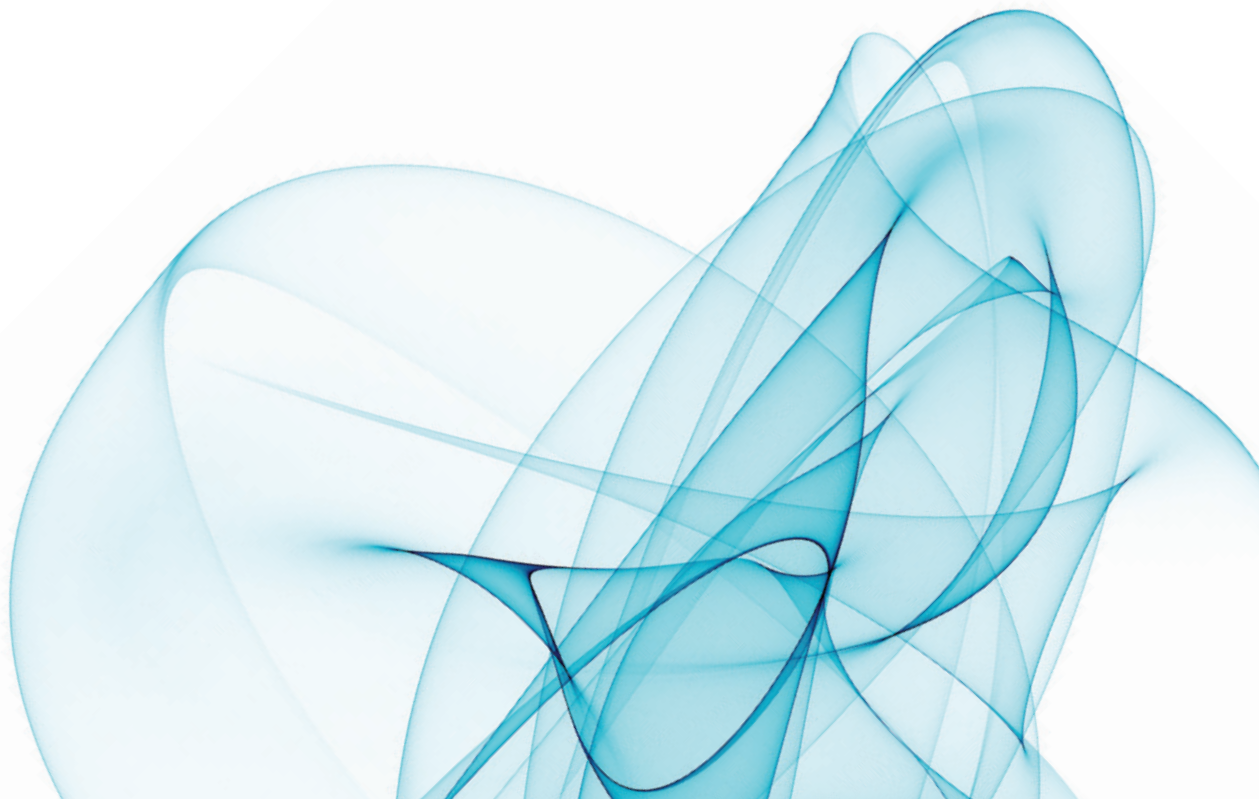ENERGY & UTILITIES

In**GRID**
IoT-based Smart Energy Services for Homes, Buildings & Industries

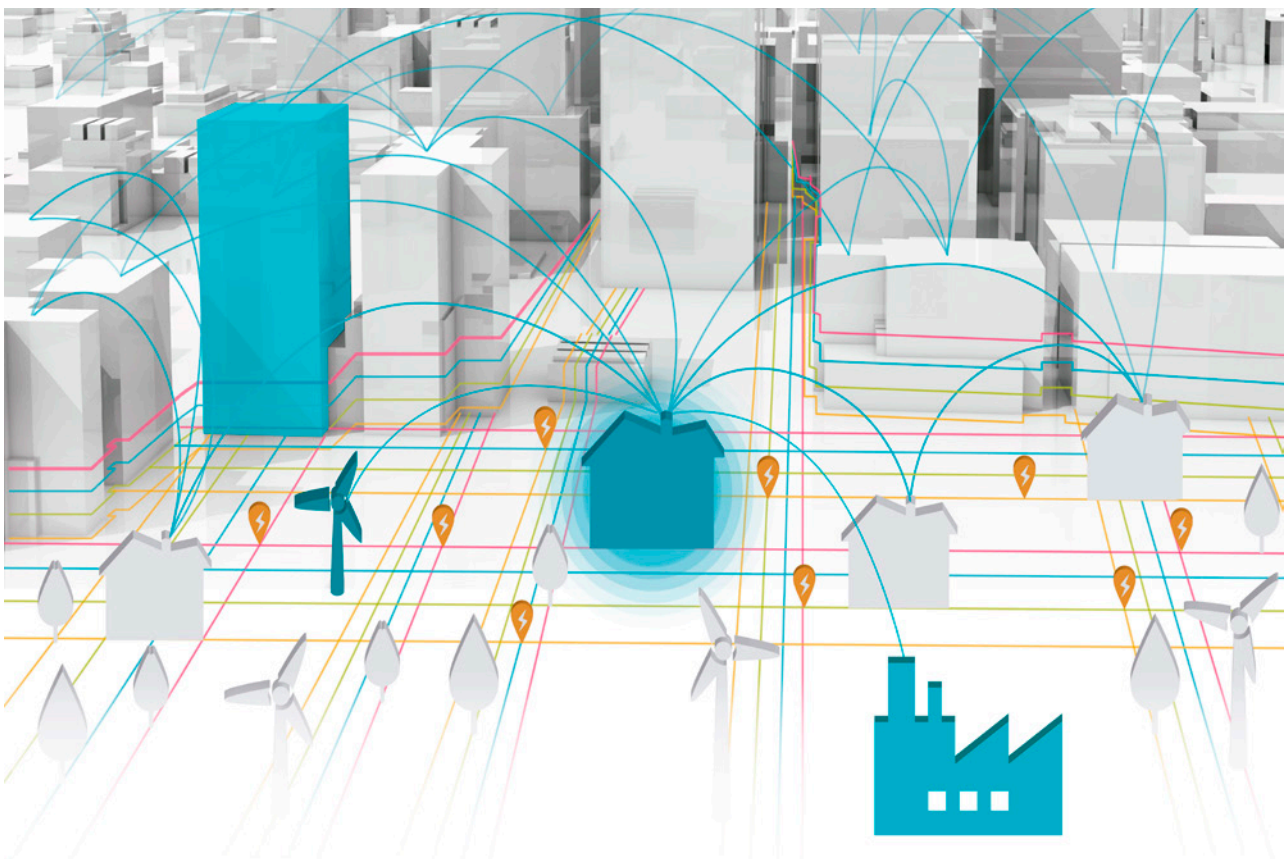More than 140 Utilities companies worldwide make use of Indra Solutions

indracompany.com

In**GRID**
IOT-based SMART ENERGY SERVICES FOR
HOMES, BUILDINGS & INDUSTRIES

GLOBAL OFFERING OVERVIEW

Helping to improve the way we manage Energy

Energy consumption is facing sustainability challenges that are leading to a profound transformation of Energy Management.

In this emerging context a deeper understanding of water resources and energy consumption is needed. To meet this goal, Indra offers an advanced IoT Platform that is able to gather, compute and display data regarding energy usage and processes performance, using the most innovative devices in the field.

The deployment of large and diverse amounts of data into a meaningful information overlay is achieved thanks to an unprecedented architecture that combines cutting edge technology and an effective platform, working together as one.

Acknowledging how energy is employed is a necessary first step in order to make better decisions in our everyday lives and create a deep, long-lasting and positive impact.

(intel) ∴ **indra**

SMART HOME & BUILDING ENERGY PLATFORM

A STRAIGHTFORWARD SOLUTION

Indra offers a comprehensive Solution to manage, supervise and control consumption, events and processes from a large number of points, remotely and in real time. This powerful Solution has been built with both a robust and scalable architecture, consistent with the needs of the current Market, in which Indra has gained valuable experience.

From Large Clients to Householders: learn how different users can take advantage of the solution, making a change that really matters:

Industry

- Management of consumption and processes.
- Tailored Key Performance Indicators (KPI) reports.
- Alerts based on variable criteria.
- Tasks automation from a large number of points.

Retailers

- Remote control of lighting, air conditioning and accesses.
- Electricity Bill forecast capabilities.
- Programmed behaviour for periodic events.
- Alerts for unusual activities or consumptions.

Residential

- Consumption monitoring.
- Programmed appliances running in minimum cost periods.
- Scheduled comfort schemes to optimize heating consumption.
- Distributed generation and Demand Response management.
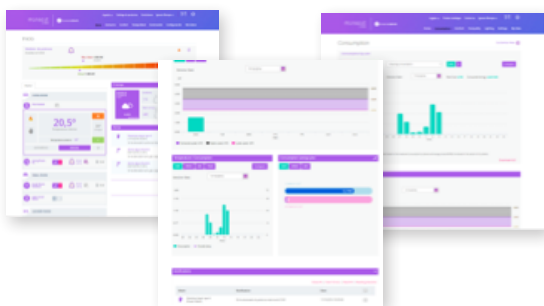- Integration with Domotics and Security devices.

SMART HOME

MAKE YOURSELF AT HOME

Residential Customers and Small Businesses are able to view and manage energy consumption, anytime, anywhere, using a friendly user interface via both in mobile app and via web.

With a wide catalog of sensors (including lighting, comfort and security), measuring devices and actuators available, it is possible to monitor and control electricity, water and gas usage, and centralize this information for further data mining and statistical analysis.

- Real time **consumption monitoring** for electricity, gas and water.
- **Programs** configuration to perform usual actions.
- **Alarms** setting for different events.
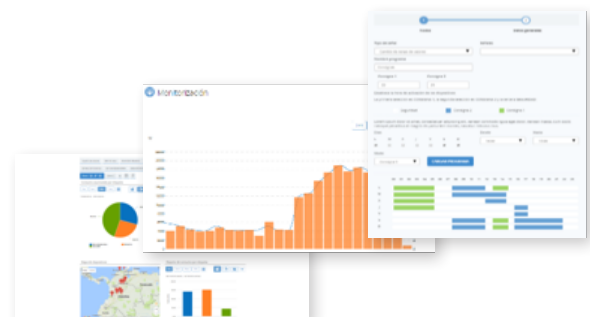- Remotely **comfort** control.
- **Recommendations**.

SMART BUILDING

SMOOTH, RELIABLE AND COST-EFFECTIVE

Large Customers with a large amount of supply points can visualize their overall energy usage in a more accessible and interpretable way. It is capable of handling these large amounts of data thanks to the synergy between node#1 and SOFIA and their outstanding capabilities.

- Energy **Management and Control**. (Electricity, Gas, Water, Processes)
- **Alarms** and **Programs**.
- Bill **Simulations**.
- **Reports** and KPIs.
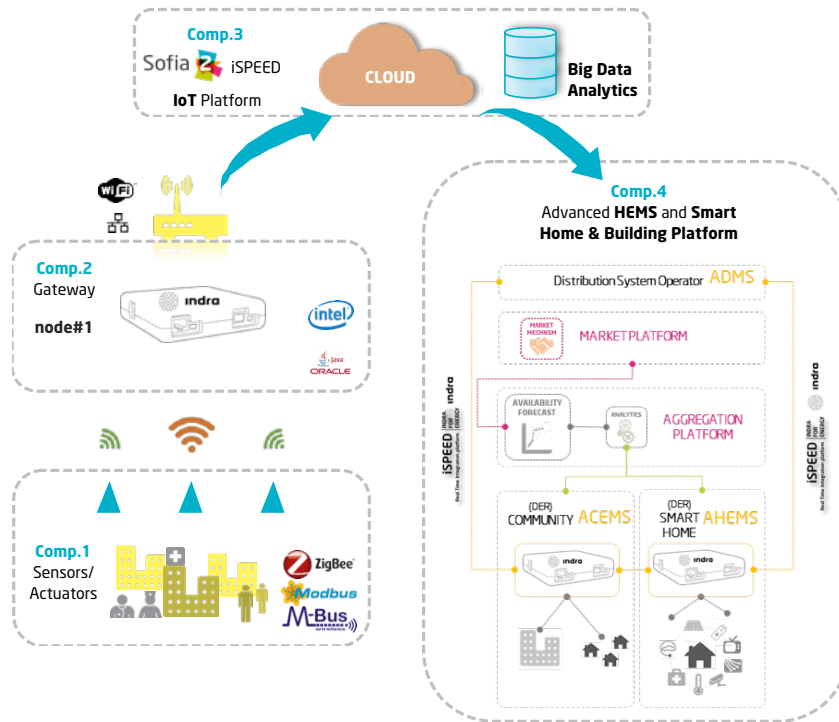- **Recommendations**
- **Certification** support.

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SMART ARCHITECTURE FOR A SMART ENERGY EFFICIENCY SOLUTION

Based on our experience in Energy Efficiency Management, Indra's platform allows us to offer our customers an advanced system for monitoring and control based on open standards IoT (Internet of Things) and cloud integration. Similarly, the great flexibility of components allows the integration of existing automation and control systems connecting the customers to the distribution system to maximize the power of the grid..
Indra's Solution is based on four main components:

1.Sensors/Actuators

A wide range of devices based on low consumption communication protocols, using both wire (X10, KNX, ModBus, etc.) and wireless (ZigBee, zWave, etc.) technologies.

2. Gateway

Indra's node#1 (domo and industrial) based on the Intel® IoT Gateway design acts as the datalogger for every data sent from/to the devices, with the ability to speak the main protocols out there.

3. Middlewares

They allow the interoperability among multiple systems and heterogeneous devices, providing real world information for intelligent applications (SOFIA2 and iSPEED).

4. Advanced Transactive Energy Platform

Our System makes all the data available in an accessible and meaningful way connecting the distribution system with the end customers.

IoT PLATFORM   iSPEED   FEEP **IoT Platform** Sofia2

MAKING ALL THE DIFFERENCE

Middleware that enables interoperability of multiple systems and devices, providing a semantic platform that puts real-world information available for intelligent applications (Internet Of Things). It is a multi-platform and multi-language tool that allows the interconnection of heterogeneous devices. It provides publishing and subscribing mechanisms facilitating the orchestration of sensors and actuators in an ultra-fast mode.

- Multiplatform, multidevice and multiprotocol.
- Integration with external systems.
- Centralized configuration.

- Centralized Customer Management.
- Advanced Rule Management.
- Cloud capabilities.

- Complex Events Processing (CEP) Capabilities.
- BIG DATA Capabilities.
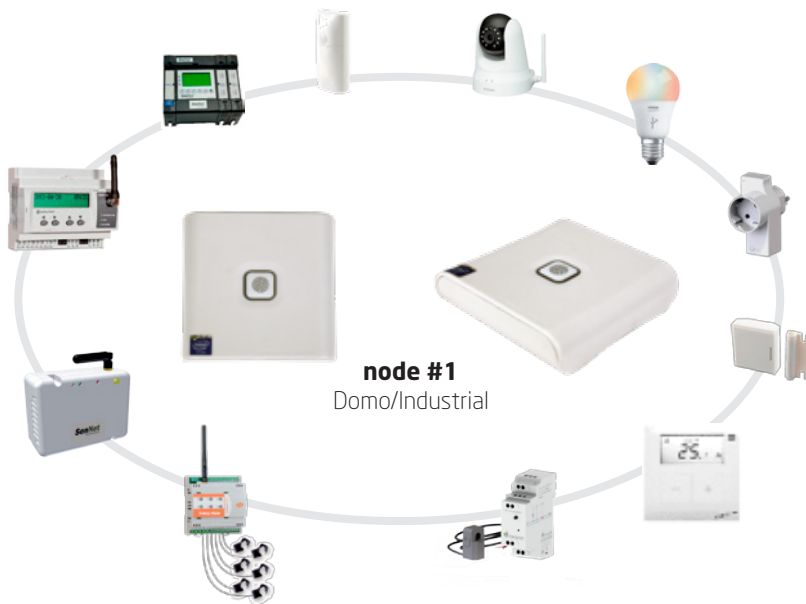- Extension of Processing and Security features using plug-ins.

THE EPICENTER OF ALL COMMUNICATIONS

An intelligent remotely managed gateway based on low-power electronics, Embedded Java and a standard modular architecture, configuring a compact yet powerful machine.

Indra's node#1 is able to handle a solid and reliable bidirectional communication with every deployed device, seamlessly and simultaneously (*).

MORE THAN A GATEWAY

The node#1 is not only designed as a datalogger, but it is ready for new opportunities arising from the IoT paradigm.

node #1
Domo/Industrial

(*) Designs and specifications are subject to change.
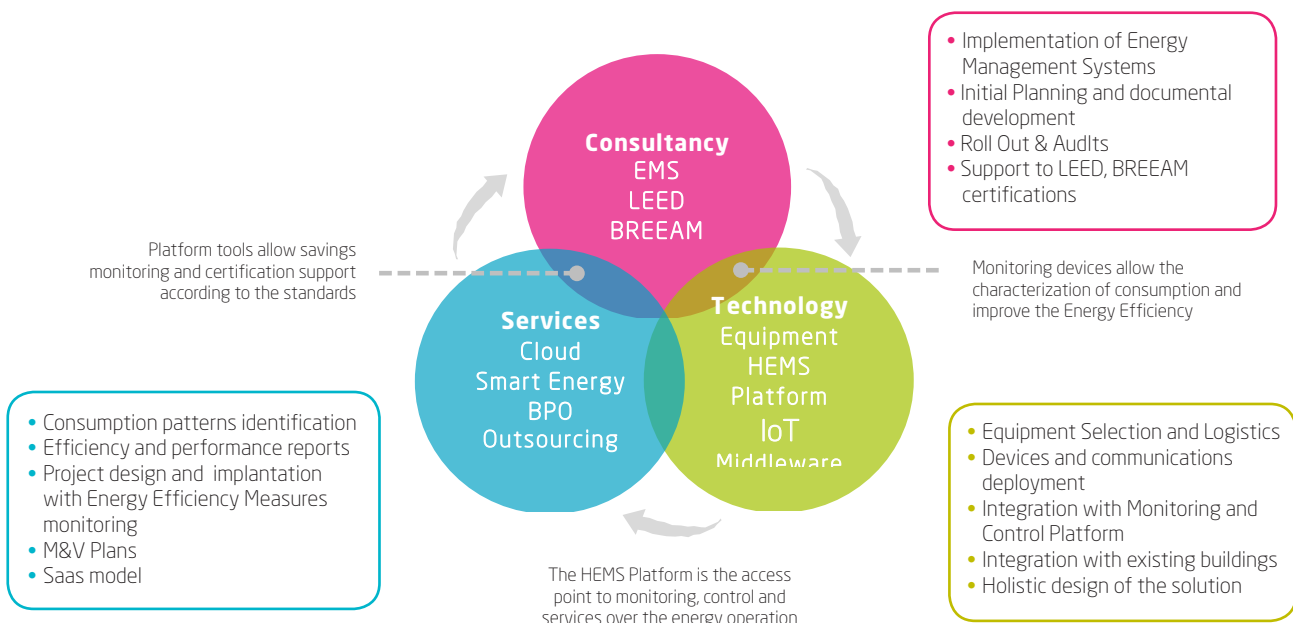
node#1 Domo
Intel® Atom™ E3800 1.33 GHz
1GB DDR3L 1066/1333 MHz
eMMC 4G x1, microSD x1
1x HDMI
1x USB 3.0
1x Gigabit Ethernet RJ45
Power supply 12V DC
Power ON/OFF switch
ZigBee connectivity chipset TI
Java Embedded
Operating Temperature 0 - 75°C (Fanless)
Operating Humidity 0% - 90%

INDRA'S GLOBAL OFFERING FOR ENERGY EFFICIENCY

A 360° SOLUTION: FROM CONSULTANCY TO SERVICES

Indra's Global Offering covers all the processes from the initial characterization stages to platform operation.

Platform tools allow savings monitoring and certification support according to the standards

Monitoring devices allow the characterization of consumption and improve the Energy Efficiency

Consultancy
EMS
LEED
BREEAM

• Implementation of Energy Management Systems
• Initial Planning and documental development
• Roll Out & Audits
• Support to LEED, BREEAM certifications

Services
Cloud
Smart Energy
BPO
Outsourcing

Technology
Equipment
HEMS
Platform
IoT
Middleware

• Consumption patterns identification
• Efficiency and performance reports
• Project design and implantation with Energy Efficiency Measures monitoring
• M&V Plans
• Saas model

• Equipment Selection and Logistics
• Devices and communications deployment
• Integration with Monitoring and Control Platform
• Integration with existing buildings
• Holistic design of the solution

The HEMS Platform is the access point to monitoring, control and services over the energy operation

FAR AND WIDE

Over **140 Utilities** use Indra's Technology Solutions today.

- More than **700 Power Plants** managed by Indra's Solutions.
- More than **100 MM Clients** managed by Indra's Commercial System.
- More than **50 Utility Companies** using Indra's Grid Manager Solutions.

AMERICA

Cemig (Brasil)
Elektro (Brazil)
OSE (Uruguay)
UTE (Uruguay)
AES SUL (Brazil)
Ecopetrol (Colombia)
DISNORTE-DISSUR (Nicaragua)
Aguas de Hermosillo (Mexico)
Aguas de Monterrey (Mexico)
Cadafe (Venezuela)
Electricaribe (Colombia)
Eleval (Venezuela)
Emdersa (Argentina)
Epsa (Colombia)
Grupo EMEL (Chile)
Electrobras (Brazil)
Petrobras (Brazil)
RGE (Brazil)
Exelon (USA)
Chevron (USA)
AyA (Costa Rica)
Aysa (Argentina)
Sedapal (Peru)
Sedalib (Peru)
Electrodunas (Peru)
Osinergmin (Peru)
Sempra (USA)
AES (Brazil)
Petroperu (Peru)

EUROPE

GNF (Spain)
BP (Portugal)
Agbar (Spain)
EON (Hungary)
Iberdrola (Spain / Portugal)
Enel / Endesa (Italy / Spain)
Canal Isabel II (Spain)
FCC Aqualia (Spain)
SSE Grupo EDF (Slovakia)
RWE (Czech Republic)
ELECTRICA (Romania)
NEK (Bulgaria)
EPS (Serbia)
ACEA (Italy)
ENI (Italy)
EDA (Portugal)
EDP (Portugal)
EEM (Portugal)
GALP (Portugal)
Repsol (Spain / Portugal)
Red Chisinau, Centru, Sud (Moldova)
Grupo PP&L CEZ (Czech Republic, Bulgaria)

AFRICA

KPLC (Kenya)
NCWSC (Kenya)
KenGen (Kenya)
AES SONEL (Cameroon)
EEPCo (Ethiopia)
UMEME (Uganda)
GECOL (Libya)
ZESCO (Zambia)
Copperbelt Energy Co. (Zambia)
ZETDC (Zimbabwe)
EDM (Mozambique)
ECG (Ghana)
EDEL (Angola)
ESKOM (South Africa)

MIDDLE EAST – ASIA - PACIFIC

Meralco (Philippines)
EYW Authority (Bahrain)
RAWEC (Saudi Arabia)
Cepalco (Philippines)
Caltex (Australia)
PNL (Indonesia)