

THE FUTURE OF THE ELECTRIC PRIVATE GRID

IDR - INTELLIGENT DEMAND RESPONSE

FULLY CUSTOMIZED POWER OPTIMIZATION



By Edmundo Duarte, M.S.

IDR - INTELLIGENT DEMAND RESPONSE

“Most of the infrastructure used in the U.S. electric power system was deployed in the 1960s and 1970s, and the system is overloaded”

*Massoud Amin - father of the smart grid, University of Minnesota. **Government Technology***

There is an alarming gap between people's demands for electricity and the amount the electrical network is able to supply.

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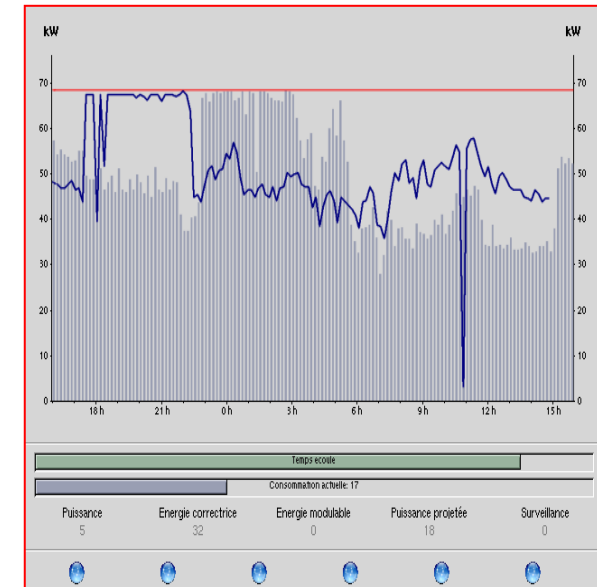
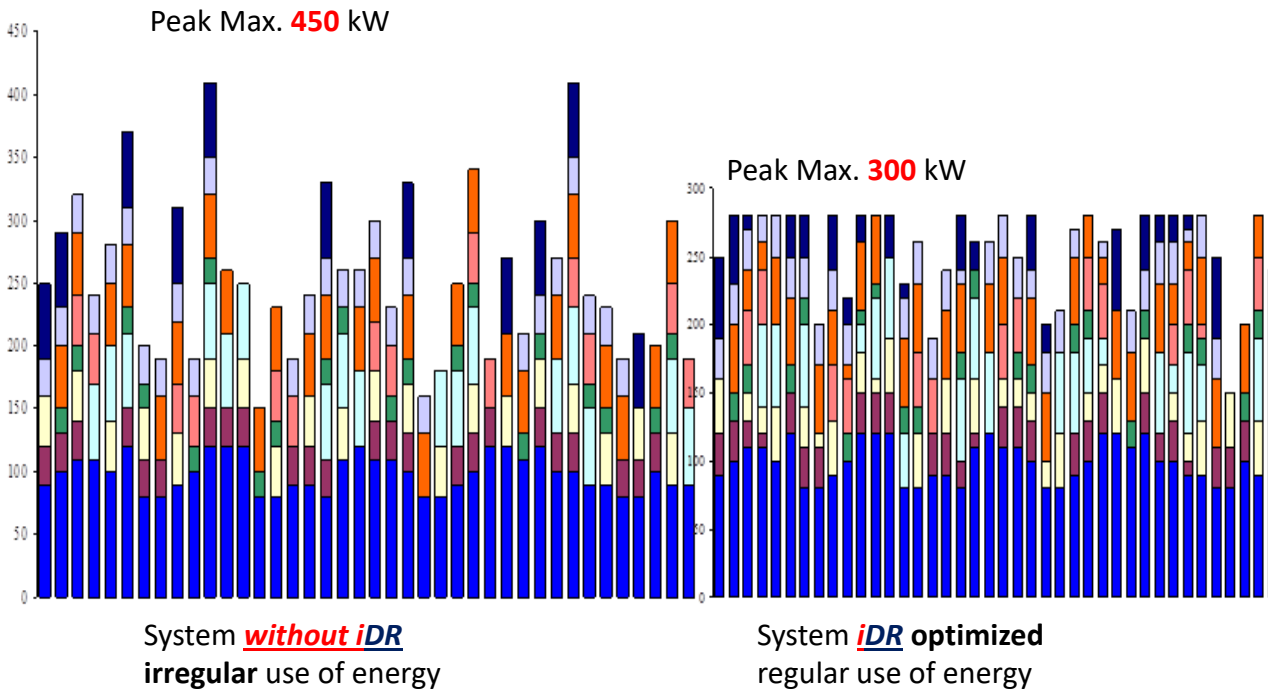
New core technologies and capabilities can minimize critical power and enhance energy infrastructures, generating important cost-savings.

iDR technology analyzes in real-time 24/7 the **private** electric network requirements (any type of electrical installation), ensuring a new reliable and accurate user load profile that can interface with the Smart Grid Technology Platform, triggering special EMS protocols that can ensure a steady electricity supply from utilities, lowering the power demand and consumption while offering a sustainable path for the rational use of energy.

A fully automated system with remote access by TCP/IP protocol for regular updates and reporting streamlines performance and

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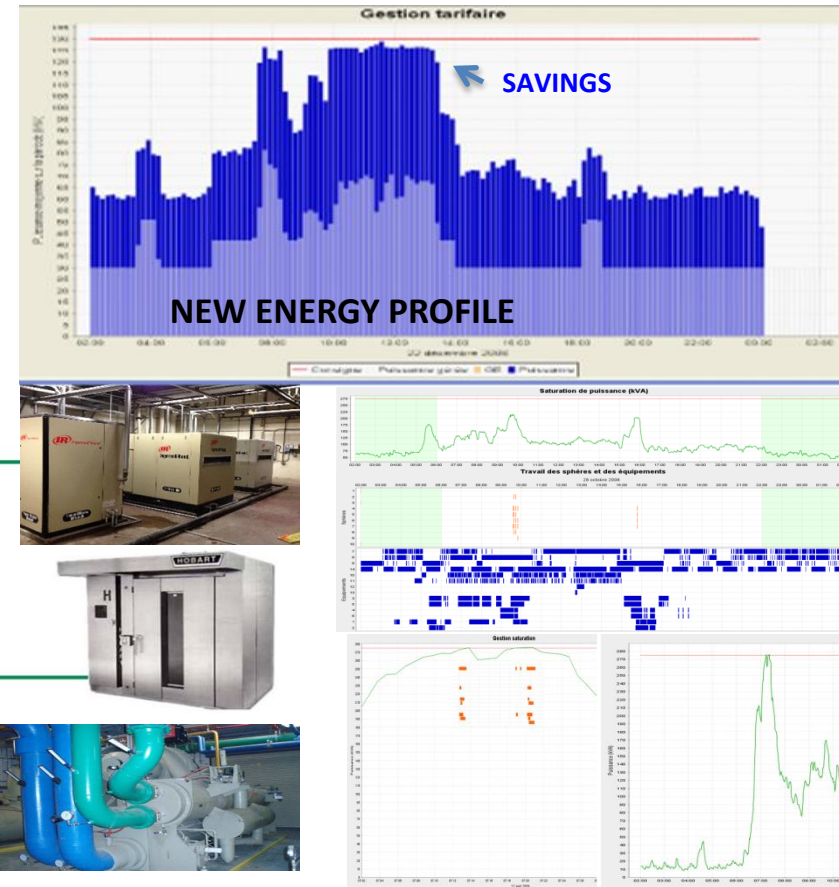
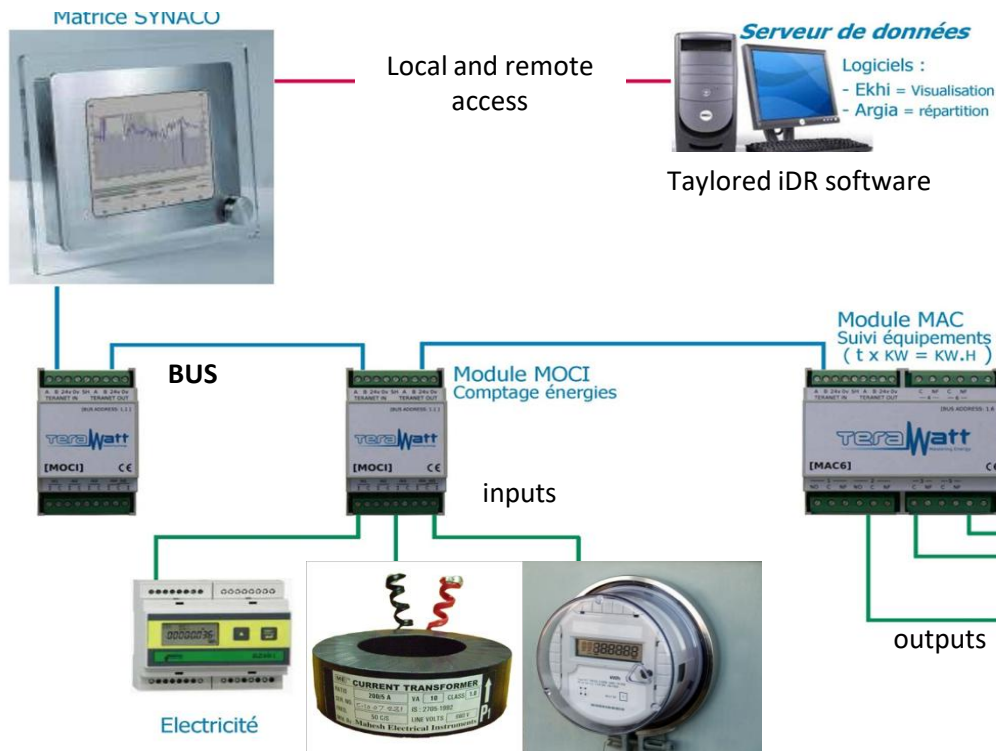
Difference between a user without Terawatt *iDR* and after being optimized



Algorithm of *iDR* in real time active power integration

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Basic Diagram of Connections



Measure and monitor all types of energy

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An Advent Reflection

The message of the nativity is as relevant today as thousands of years ago. During the busy holiday season, we are invited to take a moment to notice and experience the nativities displayed on lawns, in homes or places of worship and allow the "deep peace" soothe your spirit.

- Donna Toney, St. Mary's System Director of Pharmacy

Stewardship: Program saves tons of carbon – and thousands of dollars

St. Mary's cares about the world we all live in and the resources entrusted to us. That's why our system engaged with European Power Management Systems back in 2011 to reduce our impact on our planet and save money at the same time. It has been a spectacular success.

This power management system runs in the background on boilers and other large equipment at all three hospitals, silently allowing them to "coast" with no impact on performance but a big impact on energy use. To date, EPMS has saved our system about 256 million kilowatt hours of electricity. That's equivalent to:

- 184,327 metric tons of carbon dioxide
- 40,962 acres of trees
- 20.9 million gallons of gasoline
- \$1.6 million
-

Thanks, Engineering, for putting our Core Values into action!



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Terawatt iDR is fully customized to fit every electrical operation requirements, respecting equipment integrity and operations design intent:

- Strategic analysis of power demand and energy usage reducing costs
- Power saturation control and auto by-pass to an optimized Emergency Network
- Auto-regulated for pre-customized protocols: humidity / temprature levels
- Turn-key high quality capital recovery, proven technology: low investment, fast ROI
- Detailed performance tracking-reporting with real-time hourly optimization results
- Remote and/or local access on coded interface touch screen monitor
- Comprehensive planning, detailed schematics and guaranteed cost-savings
- Real-time emissions monitoring, tracking and reporting
- Interface option with electrical Distributed Generation platforms

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Terawatt iDR additional features

- Real-time temperature recording and monitoring
- Real-time fluids usage recording and monitoring
- Real-time interface with external inputs: Relative humidity, temperature, alarm monitoring and smart grid compatible
- Real-time interface on programming status by remote access (TCP/IP)
- Master-slave technology available
- MODBUS and SCADA protocols compatible
- Automated ATS commutation - emergency network monitoring and optimization
- Remote alarm activation using GSM technology with LTE Advanced Standard

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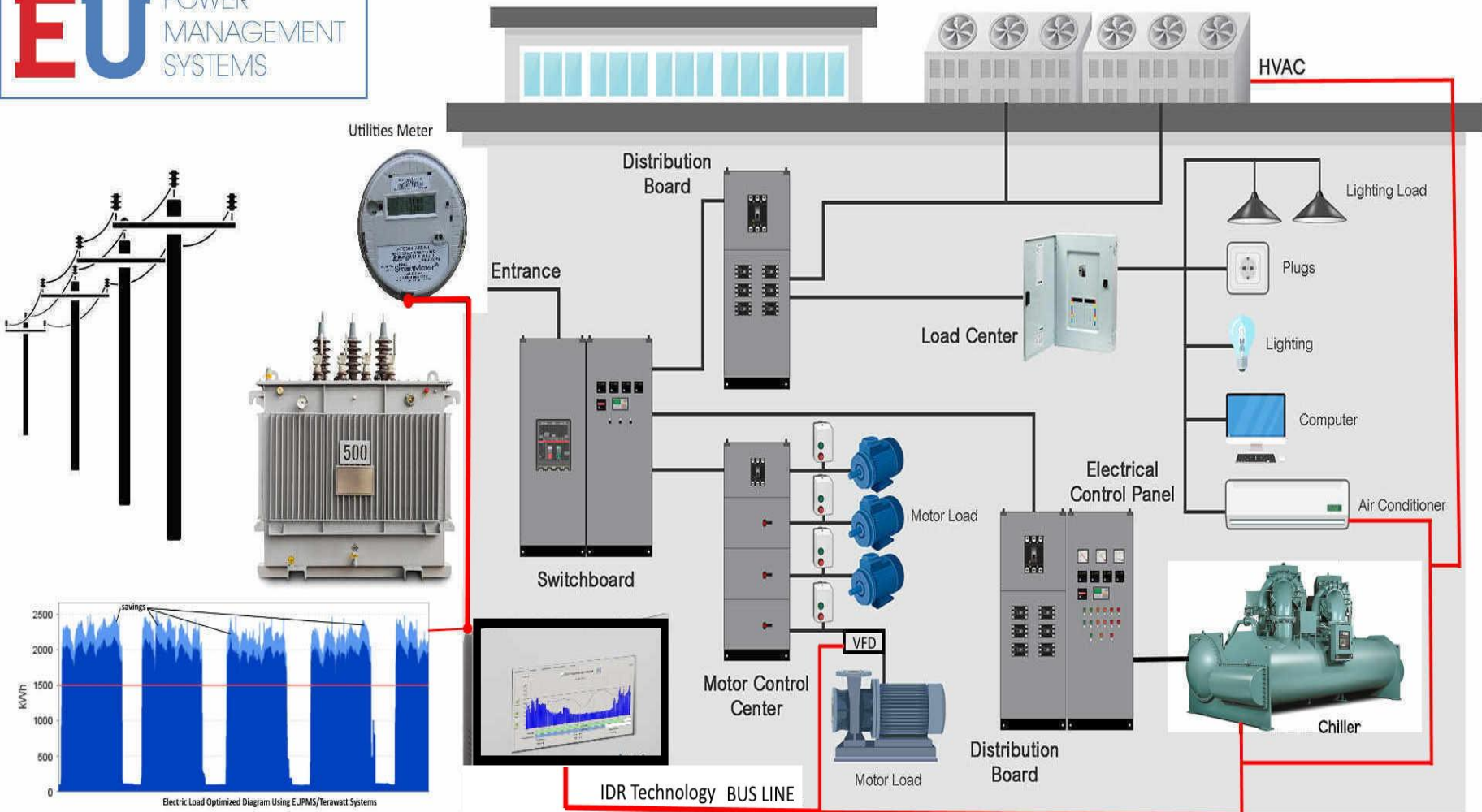
Electric Energy Optimizing in:

Hotel facilities
Restaurants
Hospitals
Office buildings
Stores and malls
Comercial areas
Residences
Schools
Catering units
Military complexes
Fast food outlets
Laundries
Factories
Sport and leisure centers
Municipalities
Electricity providers



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EU POWER
MANAGEMENT
SYSTEMS





IDR - INTELLIGENT DEMAND RESPONSE TECHNOLOGY

FACILITY UPGRADING SOLUTION THAT IMPROVE
THE MANUFACTURING ENVIRONMENT BY REDUCING
ENERGY COSTS AND IDENTIFY WASTE

