



▶▶ Under the patronage of **H.E. Dr. Abdullah Belhaif Al Nuaimi** - Minister of Infrastructure Development



▶▶ 17th Edition

—
International Operations & Maintenance Conference in the Arab Countries

19, 20, 21 NOV 2019

Le Meridien Dubai Hotel
& Conference Centre
United Arab Emirates

Under the Theme:

**Enhancing Maintenance
Through Big Data Management**

▶▶ **Grid Stabilization Solutions
GROW EXISTING GRIDS UNDER
INCREASINGLY COMPLEX
CONDITIONS**
Eng. Shima Fahima
Easy Energy Companies & Consulting SA

►► Who is Easy Energy

Easy Energy Companies & Consulting SA (EECC) is a Swiss based company, specialized in the field of engineering and realization of **Sustainable Energy Solutions**.

Driven by a strong innovative spirit, Easy Energy services cover:

- Feasibility and concept studies;
- Basic and detailed engineering;
- EPCM, Project Management;
- Power Plant Relocations;
- Maintenance, Repair and Overhaul Management and Planning.

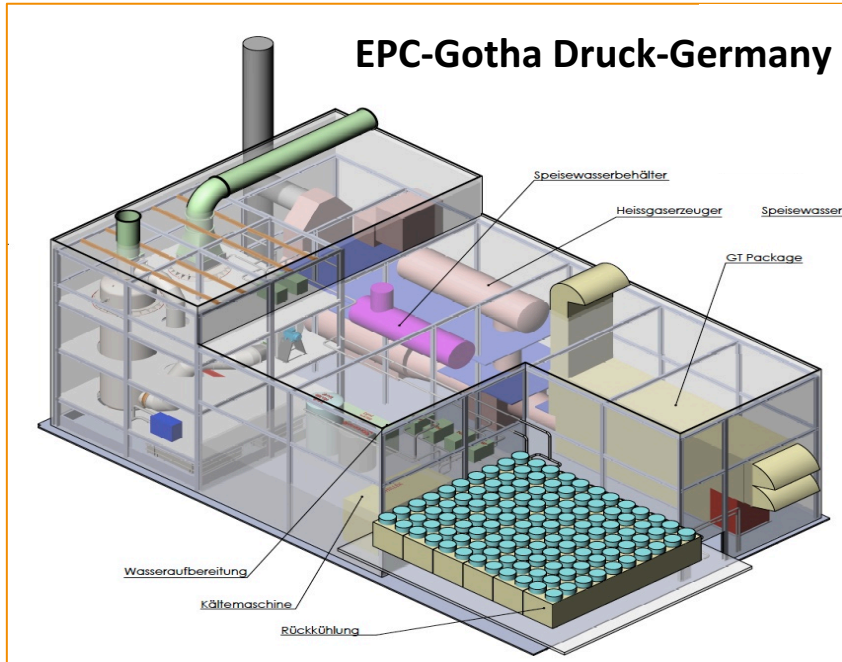


►► Our Strengths

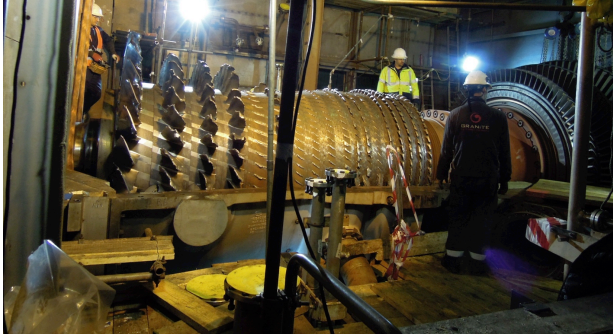
Easy Energy is a company built on a strong team of engineers and professionals, whose **main strengths** are:

- **Education** – *most of the staff graduated at first class Swiss Universities;*
- **Experience within leading companies** - *Solar Turbines, ABB, Alstom, GE;*
- **Seniority** - *average 42 year old, since 9 year with Easy Energy;*
- **Long lasting relationship** - *with our customers and partners;*
- **Operations based on reciprocal trust & strong contracts;**
- **Swissness** - *quality built on a clear mindset, reliability, efficiency, punctuality;*
- **Multilingual & Multicultural** skills –*Which let us operate globally.*

▶▶ INDUSTRIAL PROCESS ENGINEERING



►► Maintenance Management



Power Plant Maintenance Management

We provide overhaul, repair and maintenance management services for the entire power plant product line based on customer needs.



Oil & Gas Equipment Maintenance

We are the main service provider in Europe, Middle East, and Africa for maintenance, repair and overhaul of control valves, instrumentation, flow dividers and check valves from leading manufacturers *Fisher, Young & Franklin, JASC, Scherzinger, and Emerson.*



►► Among our References



Al-Walidia - Egypt



Lucciana - France



Trino Vercellese - Italy



InAmenas - Algeria



Corsica - France



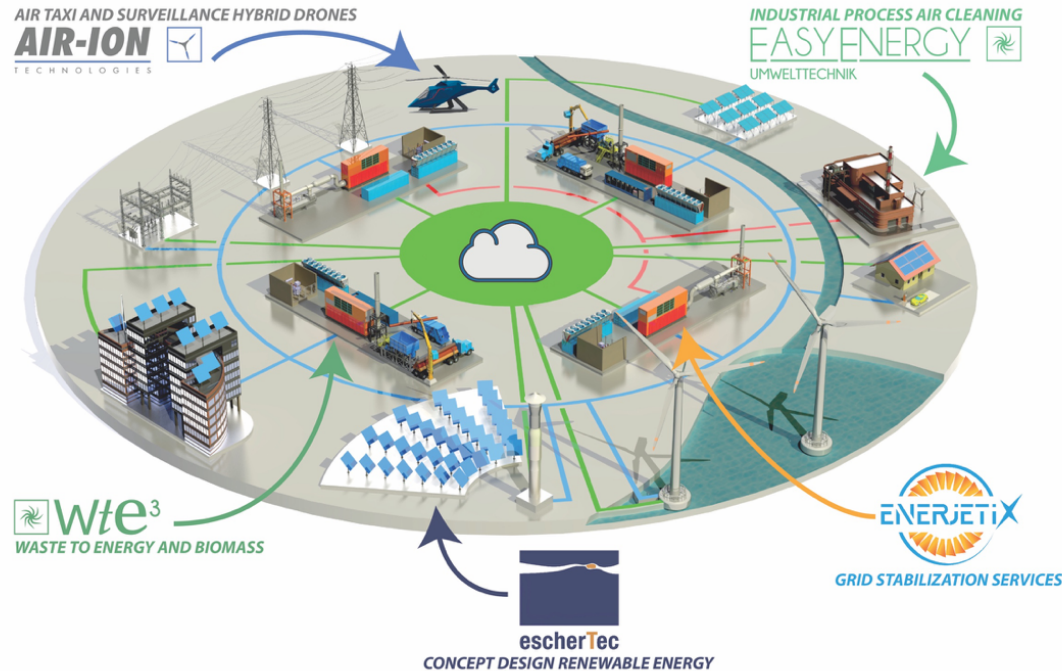
Chivasso - Italy

►► The Future: Grid and Stability

Due to the increasing ratio between the electricity production from renewable power sources and the one generated by conventional large power plants, significant investments will be necessary to allow the existing structure to face the disruptive changes in the operating conditions of transmission grids.

The exploitation of the potential given by ***predictive algorithms, smart measurement capacities, Big Data analytics and flexible power generation capabilities*** is a valid option to improve the stability of any existing grid under periodic maintenance schedule and actions, while minimizing CAPEX investment required to expand and adapt the infrastructure and maintaining limited OPEX operating costs.

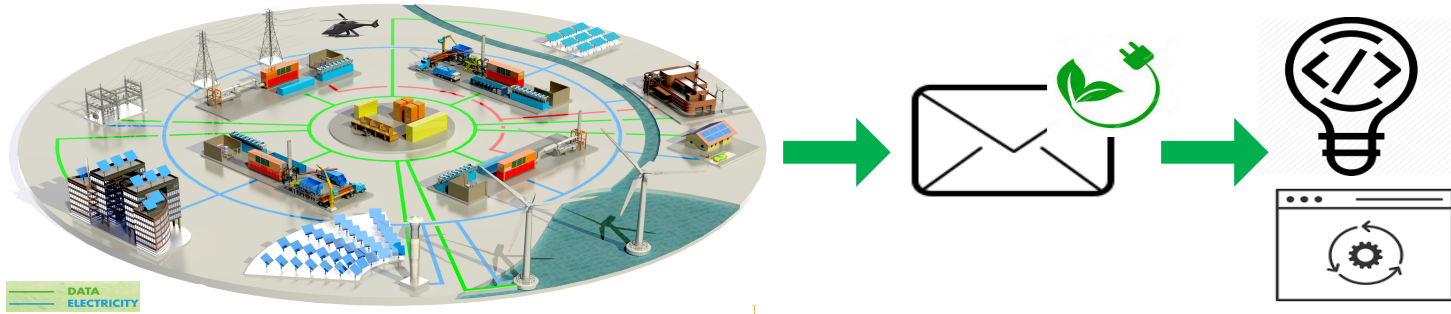
▶▶ Smart Integration of Hybrid Energy Systems (HES)



►► An Efficient Grid Through Big Data

- An efficient Smart grids are a vital element of the future energy landscape. We hear a lot about the technology and infrastructure developments, but the big challenge for system operators is *'Big Data': how to make use of the information gathered.*
- The main goal of utilities now is the ability to manage high volume data and to use advanced analytics to transform data collected to information, then to knowledge and finally to actionable plans.

►► Hybrid Energy System Optimization Tool



Our solution concept is to integrate and orchestrate various **renewable resources** together with **conventional** power generation in order to stabilize the grid **efficiently**.

Energy storage grows significantly over the next decades

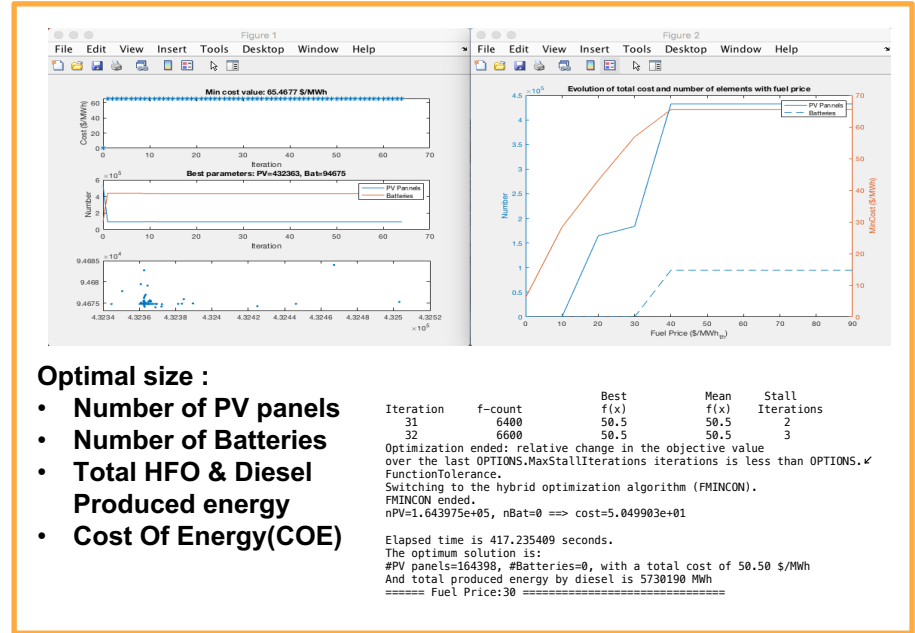
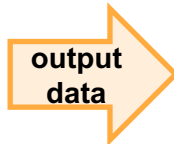
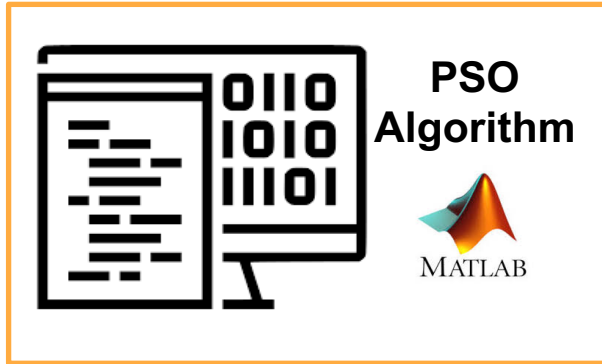
A dedicated software tool for **Optimal sizing** of renewable and non renewable energies for obtaining a **minor cost of energy** for on-grid and off-grid applications.

►► What's unique in our solution?

- Our solution combines the possibilities offered by the digitalization (Industry 4.0, big data analytics and Artificial Intelligence) within the controls of our Hybrid Energy System Units (HES units).
- Each unit is a combination of power generation and storage that has its own control and command system for a remote and local monitoring and data acquisition.
- Through the secure information sharing between all networked units a real-time interaction with power system will be achieved.
- Our units could be considered as a small-scale power plant that would be able to balance its generation and demand in order to maintain stable power supply inside a defined area.



▶▶ HES Input-Output data



▶▶ HES Key Features

- Ultra-Fast-Start-Up technology and continuous full load long term operation;
- Equipped with a powerful, battery based energy storage
- Integrating and rendering a grid smarter to orchestrate the generation and distribution of power;
- Focused maintenance;
- Better understanding and greater load control;
- Modular upgradable and expandable distributed system;
- Supplying grid stability service under long term agreements (No CAPEX is required);
- Maximizing utilization of the renewable resources, minimizing the cost of generating energy and minimizing the pollutant emissions are objective functions of this optimization;
- Preventing outages.



►► Insurance prospective on power outage

- Power Interruptions cost European Union businesses €150 billion each year. Outages cost the U.S. economy an average of \$1.5 billion, with a 'B' each year.(GE report)
- The economic losses of the 2 hour power outage recorded on the 24th of July 2018 in Monteceneri ,Switzerland were estimated to be between 20-25 M\$.
- With rising awareness of electricity reliability risks will likely come increased demand for responsive **Insurance products and services**.
- **Loss-prevention** measures and **grid stability solutions** will reduce current risks to a level that insurers can more readily assume.
- Insurers are finding new business opportunities to become more engaged, as advisors and service providers, in loss prevention.

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