



**TELECONTROLLO**  
RETI DI PUBBLICA  
UTILITÀ 2013

**ANIE**  
AUTOMAZIONE



**ABB - Power Systems Division**

# Telecontrol systems for renewables: from systems to services

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# Renewables - from systems to services

## Key point

- Investments for renewable energy plants are mostly focused on plant realization but operation and maintenance are also a crucial issue.
- Performance of the plants is strictly related to a well-performing O&M. Now, more than ever, Owners of renewable energy plants need to operate and maintain the plants reducing as much as possible the related operational costs (plant budgets are focused on Return on Assets)

# Renewables - from systems to services

## Primary tasks of asset management

The goal: cost reduction.

This requires services for lifecycle costing, which implies cost minimization starting with the initial investment, continuing through the lifecycle of the equipment, and ending with recycling or evolution to the next equipment generation.

These services typically consist of:

- Monitoring the condition and identifying performance problems of assets
- Reducing downtime by predictive maintenance
- Optimizing asset lifecycles and evaluating the impact of asset failure
- Having access to service engineers and product experts
- Ensuring compliance to safety and security regulations

# Renewables - from systems to services

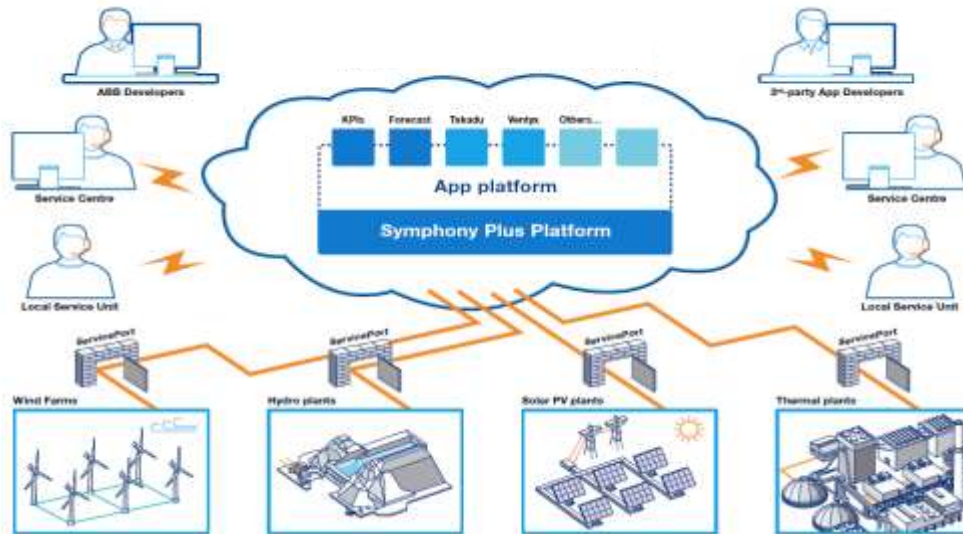
## New scenario

New scenario is needed:

- plant owner do not need to take care of maintaining the system itself
- plant owner get benefits from an O&M system without huge investments
- using state-of-art automation, web and cyber security technologies, it is possible to offer and implement such services from **remote Service Centers**:
  - optimize the operation and maintenance activities by providing proactive solutions (avoid production downtime and improve performance)
  - provide significant benefits by making it possible to connect the best (or most familiar) service engineers to the customer quickly and determine the necessary actions efficiently. The benefits of an on-site visit are extended

# Renewables - from systems to services

## Remote plant maintenance

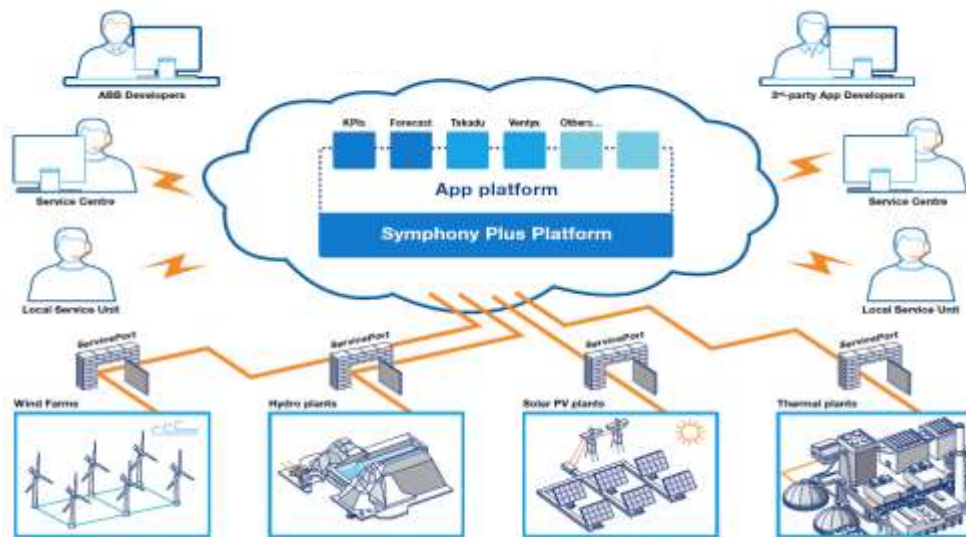


Remote Service platform:

- collects real-time process data from renewable energy plants
- handles alarm and failure detection (sms & e-mail notification to 24h/7 engineers)
- provides data reporting and ensures that the plants are meeting their performance targets

# Renewables - from systems to services

## Production forecasting

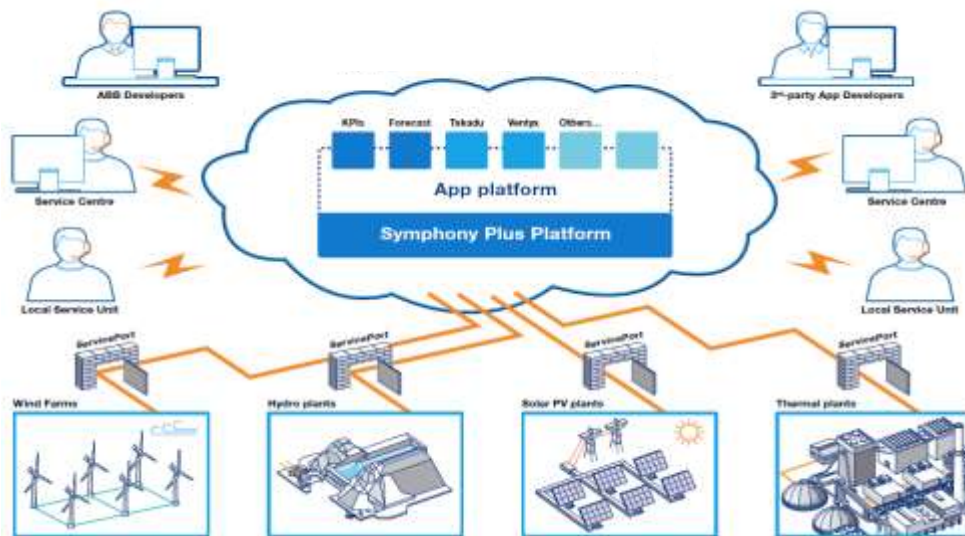


The production forecasting tool:

- receive data from weather forecast provider
- process the weather forecast data and estimate the energy production within the next 24 hours
- forecast data are stored in a database and sent daily to the grid operator

# Renewables - from systems to services

## Health check



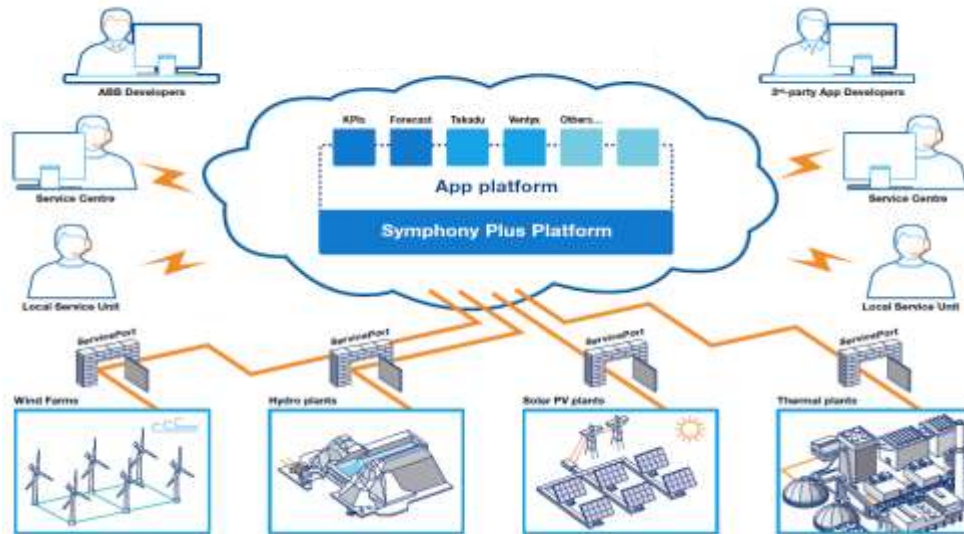
Equipment health check service identify equipment performance and reliability issues through data collection and analysis, generate system benchmark and improvement plan.

The service applies for various equipments, for example:

- automation system and related software / hardware components;
- for cyber security settings;
- for electrical process equipment;
- for mechanical process equipment.

# Renewables - from systems to services

## Reporting, alarms and notifications



The Remote Service platform stores data of renewable energy plants and generate specific reports, such as:

- Production reports
- Interventions and Operators' actions reports
- Operations & Maintenance log book
- Executive level reports
- Business analysis level reports.



# Renewables - from systems to services

## ABB existing solution



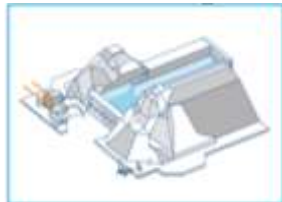
### Wind Farms

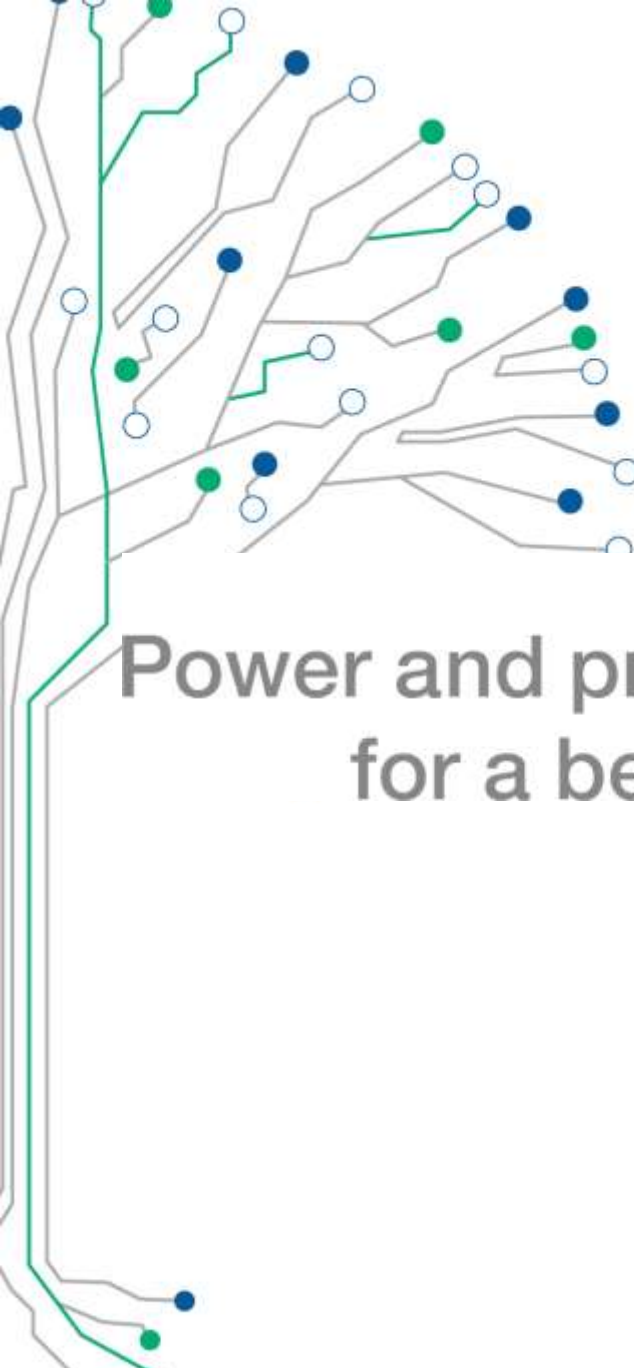
- More than 200MW in Italy .



### Photovoltaic

- More than 270 MW in 6 countries.





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