9TH AIEE ENERGY SYMPOSIUM
GRID SECURITY AND ENERGY STORAGE

Francesco Peccianti

Energy Studies – Regulatory, Market Analysis & Scenario

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A LONG HISTORY…

1938

Foundation of ERG in Genoa, by Edoardo Garrone

1947

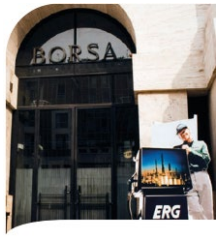
Production begins at the **San Quirico Refinery** in Genoa

1975

Production begins at the **ISAB Refinery** in Priolo

1997

ERG listed on the Stock Exchange



2000

ISAB Energy: production and marketing of electricity begins from the gasification of heavy refinery residues

2006

Entry into Renewables: acquisition of **EnerTAD**

2008

Sale to LUKOIL of 49% **of the ISAB Refinery**

2010

Start-up of **ERG Power's** combined cycle power plant (480MW), and of **TotalERG**

2013

ERG 1st wind operator in Italy (1,087MW) and among the top 10 in Europe (1,340MW). Acquisition of a company for **O&M activities** of wind farms. Definitive **exit from refining**

2014

Sale of the **ISAB Energy** plant and of **ERG Oil Sicilia** fuel network

2015

Entry into the hydroelectric business: purchase of the Terni Complex (527MW).
Wind: growth in France and Poland (+146MW)

2018

Entry into the solar power sector: 30 photovoltaic plants acquired in Italy (89MW, in operation). Definitive **exit from the Oil sector** with the **sale** of **TotalERG**

2019

Solar: capacity increases to 141MW after the purchase of 51MW in Italy.
Wind: further growth in France and Germany (+86MW)

2021

Solar: entry in France (79MW).
Wind: entry in Sweden, and start of operations in the United Kingdom

2022

Sale of the **hydroelectric business.**
Solar: entry in Spain (92MW).
Wind: 172MW acquired in Italy, and ~230MW started up in Europe.
IFM NZFI indirect shareholder (with **35%** in **SQ Renewables SpA),** alongside the Garrone-Mondini Family

2023

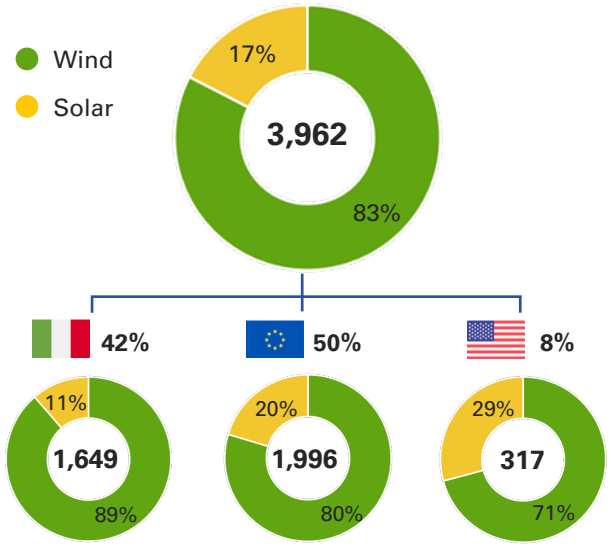
ERG: a **pure renewable player** after the **sale** of the **thermoelectric business.**
Wind: start-up of the first 2 wind farms subject to **repowering.**
Solar: further growth in Spain (+149MW)

2024

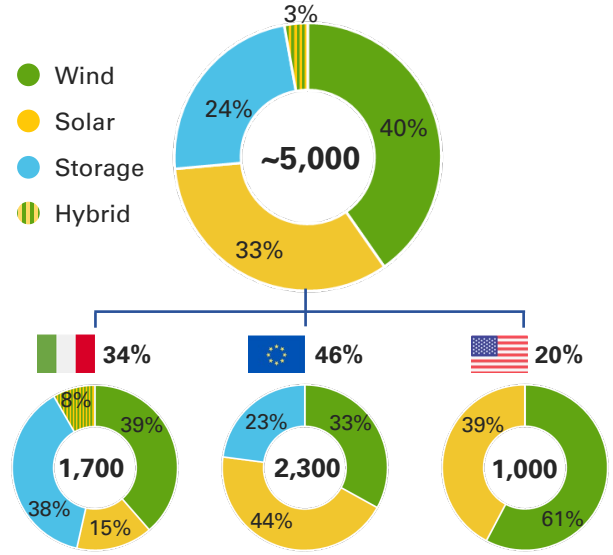
Entry into the US: partnership with Apex (317MW wind and solar). Growth in France (+114MW wind and solar), and start-up of 2 wind farms subject to **repowering**.
IFM NZFI increases to **49%** its stake in **SQ Renewables SpA**

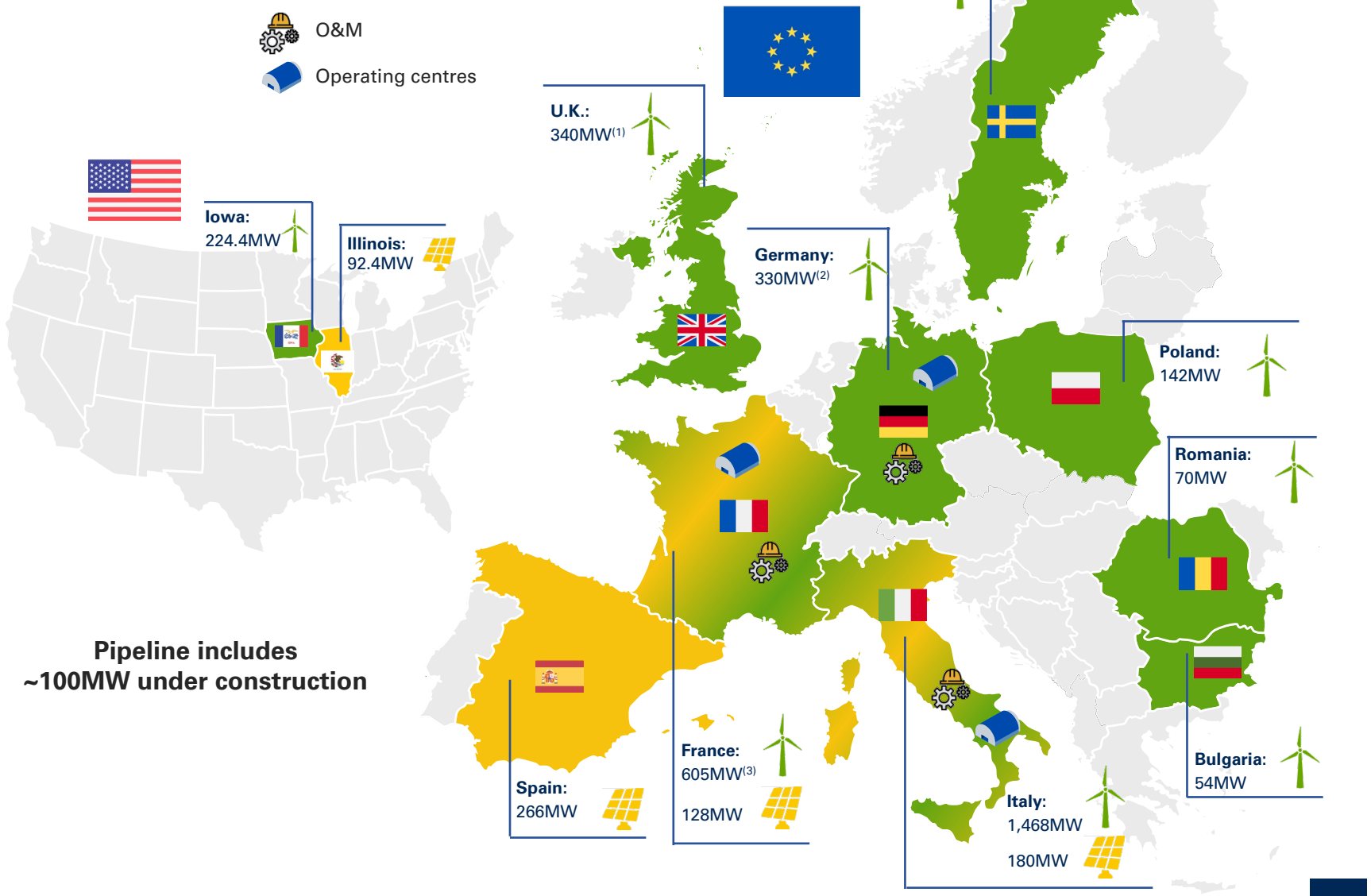
ERG AS OF TODAY: A SOLID AND INTERNATIONAL PLATFORM

Installed Capacity (MW)



Pipeline (MW)



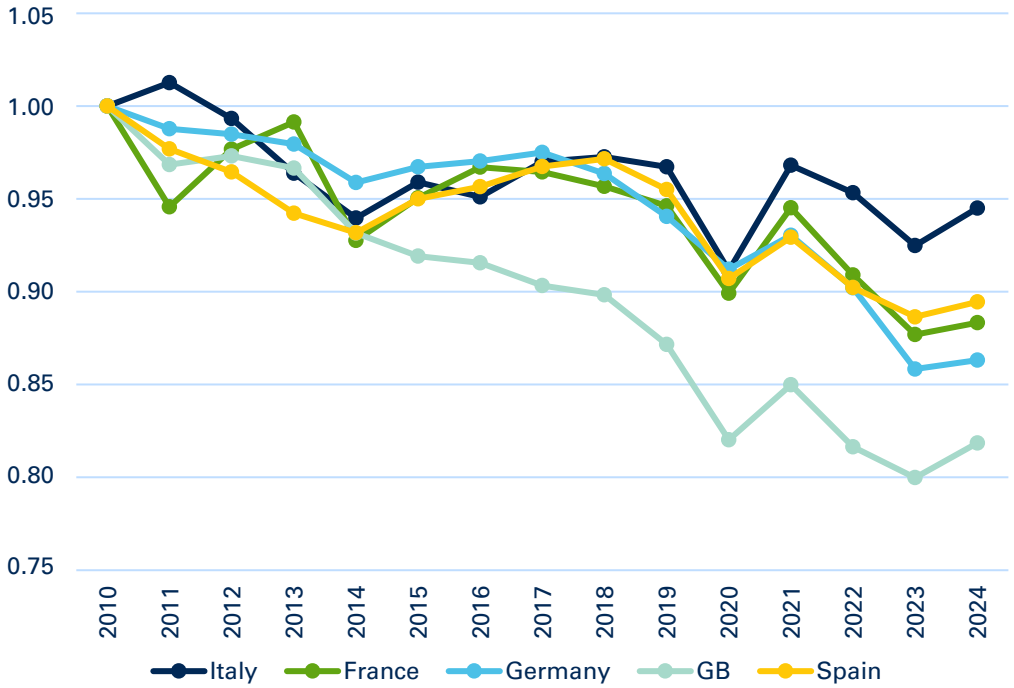


Pipeline includes ~100MW under construction

(1) It includes Corlacky wind farm (47.3MW), entered into operation on July 31, 2025
(2) It includes Reindorf wind farm (6MW), entered into operation on March 28, 2025 after completion of repowering activities
(3) It includes Picardie 1 wind farm (18MW), entered into operation on May 8, 2025

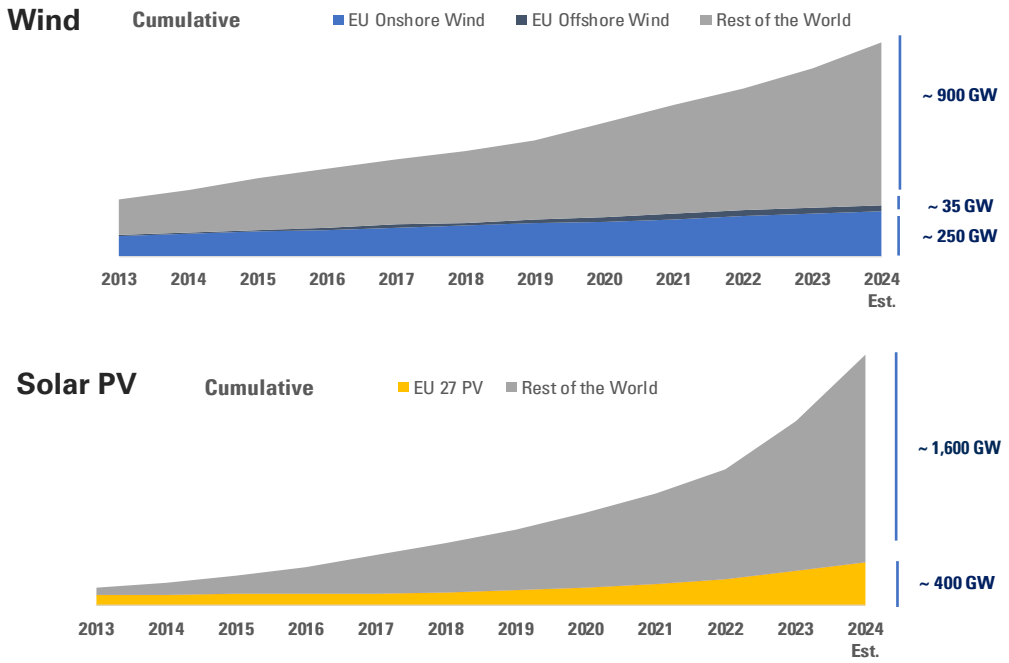
GENERATION & DEMAND EVOLUTION

Demand (2010=1)



ERG elaboration on Entso-e data

Stable RES growth over years (GW)



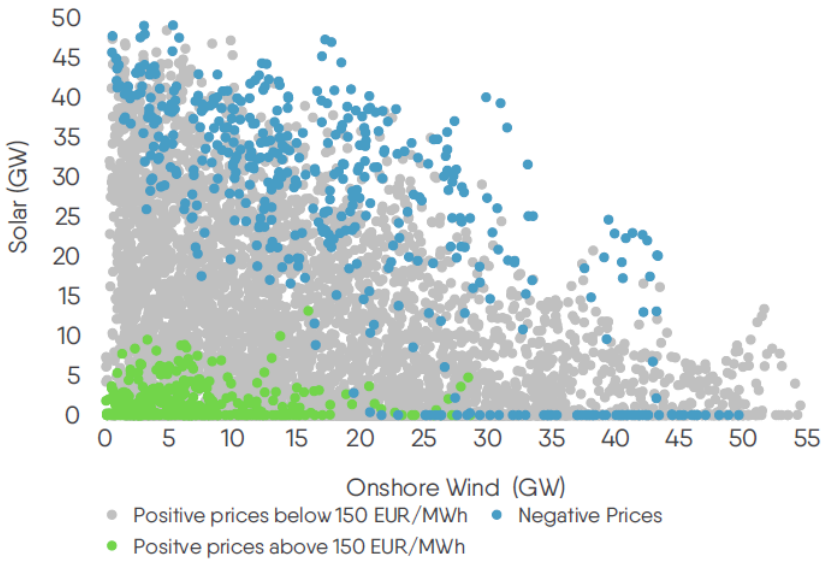
Source: ERG analysis on World Wind Energy Association (WWA). WindEurope. International Renewable Energy Agency (IRENA) . SolarPowerEurope

- Since 2008 the EU has lost around 250TWh of electricity demand
- Meanwhile RES deployment has increased at a fast pace: in 2024 Renewables contributed 48% of the EU power generation mix
- For the first time, in 2024 solar overtook coal generation in the EU

The energy transition is an equation: as RES capacity rises, demand and the grid must increase as well

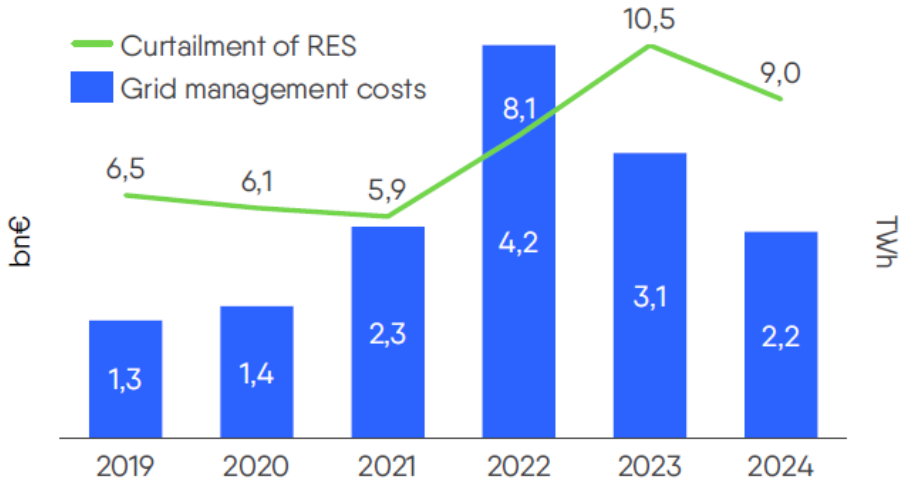
THE RISE OF NEGATIVE PRICE HOURS AND CURTAILMENTS

Correlation of solar and onshore wind hourly generation in German DA market in 2024



Source: Power Barometer 2025 - Eurelectric

System management costs in Germany



Source: Power Barometer 2025 - Eurelectric

- When RES made up over 50% of generation, Europe's electricity prices were 27% lower than during lower-renewable periods
- Negative price hours are surging: Spain and Germany already recorded over than **500 negative-price hours** in 2025 YTD
- Consequently, **curtailments are also increasing**, which in turn raises system-balancing costs
- The **value of flexibility is increasing**, the need for storage technologies is set to increase

Negative price hours highlight the need for greater flexibility in our power system.

MORE FLEXIBILITY TO THE POWER SYSTEM

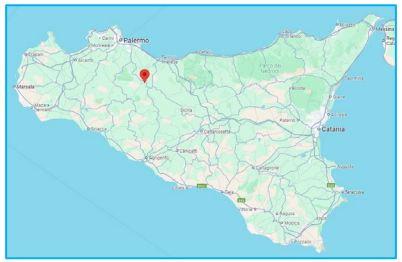
Power system	✓ Investments in grid ✓ Smart meter ✓ More digitalization
Utility-scale storage	✓ BESS ✓ More hybridization ✓ Hydro
Electrification	✓ EU target 32% ✓ Transport ✓ Building ✓ Industry
Demand-side flexibility	✓ Vehicle to grid ✓ Industrial flexibility ✓ Consumer flexibility

Vicari

Power: 12.5MW

Capacity: 50MWh

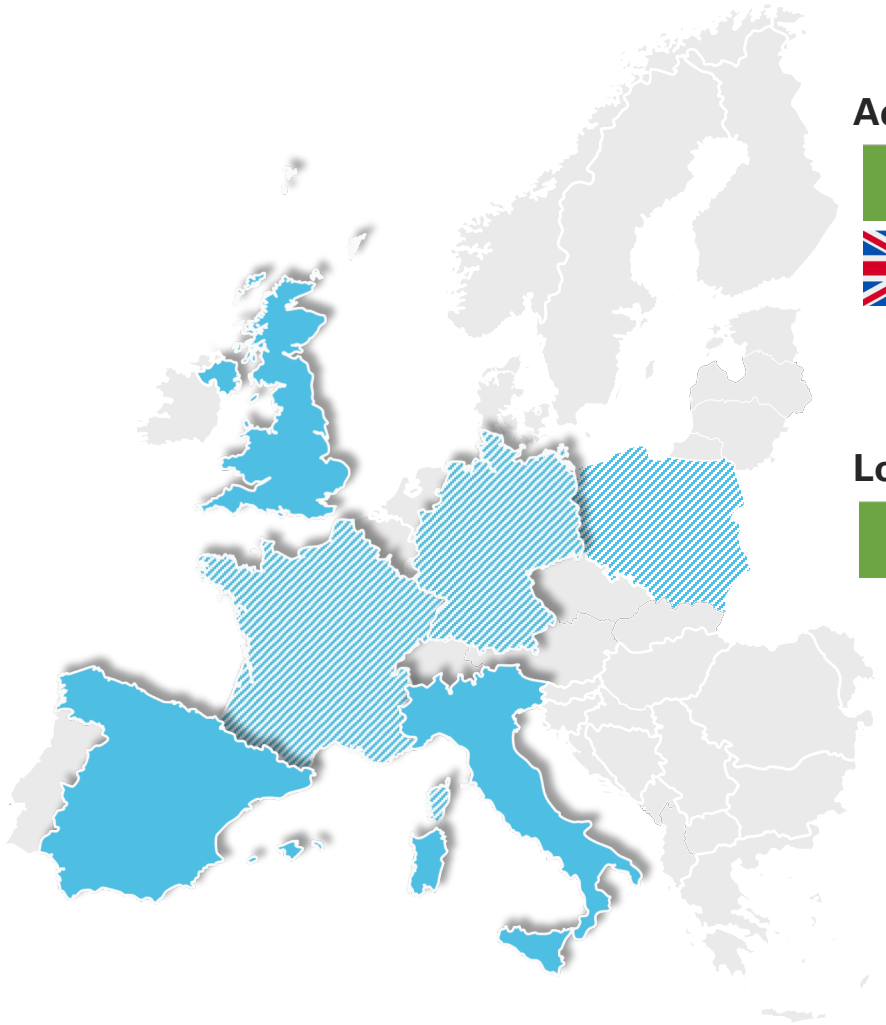
COD: 3Q 2025



- ✓ **First ERG's BESS project in Italy**
- ✓ **Hybridization** with exisiting wind plant: no new connection required
- ✓ **Fully Merchant asset**: no Capacity Market; No MACSE

Flexibility will be the cornerstone of the future energy system

ERG'S EXPERIENCE IN BESS



Advanced Pipeline of ~120MW, of which:

22MW fully permitted

37MW fully permitted

Long-Term Pipeline of ~1GW in:

How to deliver utility-scale storage effectively?

- ✓ Capacity Market
- ✓ MACSE
- ✓ Tolling
- ✓ Ancillary Services
- ✓ Grid tariffs designed to incentivize BESS
- ✓ ....

BESS markets are growing rapidly, but deployment remains uneven and dependent on regulation, grid access, and market structure

DIGITALISATION AS AN ENABLER

Advanced digitalization skills, competences and instruments become essential for power producers

Visibility and control in a decentralized energy system

- The grid is no longer just "big plants feeding passive consumers" but filled with rooftop PV, batteries, EVs, heat pumps
- Producers need **real-time data** and advanced analytics tools to understand "**when and where**" power is being consumed, generated or stored

Optimizing renewable generation

- Digital tools based on machine learning, software forecasting weather, predictive analytics can help IPP to forecast the correct output of RES production and match it with the profile of demand
- Fast and responsive remote control is essential to meet updated regulations and to unlock the value of flexibility

Maximizing asset value & flexibility

- Producers can use digital twins, predictive maintenance, and AI optimization to extend asset life and lower O&M costs.
- Advanced digitalized systems allow the participation in ancillary service markets (frequency regulation, balancing), monetizing flexibility

New revenue models & customer engagement

- In a customer-driven system, producers must evolve from "selling kWh" to offering energy services, such as
  - ➢ Smart tariffs (time-of-use, dynamic pricing)
  - ➢ Demand response programs (paying customers for flexibility)

  Advanced digital platforms make these scalable and customizable

From infrastructure asset management into smart energy service providers capturing new value streams

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