



IEA Wind TCP Task 50

ENGIE Participation

PUBLIC

INTERNAL

RESTRICTED

SECRET





Leader of the energy transition, building today the low-carbon energy system of tomorrow to achieve Net Zero Carbon by 2045 for us and our customers

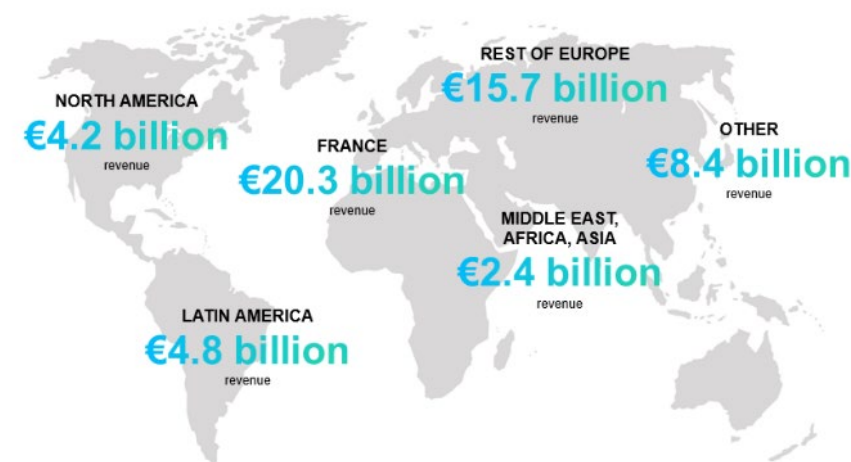
In 2020

- **170,000** employees
- **€55.8 billion** revenue
- **€190 million** spent on R&D
- **3GW** extra installed renewables capacity
- **€4 billion** growth investment
- **101 GW** installed power generation capacity

Business activities

- **Renewables**
- **Networks**
- **Energy Solutions**
- **Thermal production & energy supply**

An international player



ENGIE Laborelec

In a nutshell

- ENGIE Laborelec is a leading **expertise and research center** in **electrical power technology** with a strong focus on the **Energy Transition** and **Net Zero Carbon**.
- ENGIE Laborelec has a **global presence** with offices in Belgium, France, the Netherlands, Germany, Chile and the Middle-East.
- With a strong focus on **high value delivery** for ENGIE and for our external customers, we combine:

Expert
knowledge

Operational
experience

State-of-the-art analysis
& measurement capability

- With a **highly skilled workforce** of more than 335 colleagues (PhD, engineers, specialized technicians),
- We offer:

Operational
R&D

Specialized
expertise

Tailor-made
global solutions



Interest in Hybrid Power Plants

Different opinions exist within the Group

We see the advantages of hybrid power plants, but there are questions around the trade-offs between co-location and aggregation.

Our interest:

- Reduction in land costs: **colocation** of storage, wind and PV significantly reduces land cost and infrastructure costs, as well as permitting costs
- Solving local grid issues: potentially **less grid reinforcement** needs and reduction of congestion due to time-shifting flexibility
- Being able to reduce power forecast errors → Reduced **balancing costs**
- **One interface** to communicate to: less imbalances to manage in real-time due to using storage
- Enhancing the potential to deliver **ancillary services**

Our questions:

- Reducing forecasting errors: Forecast errors even out over a Balancing Area → Optimization at hybrid plant level might be suboptimal?
- Sizing tools, integrated with financial models → What are the sensitivities? Interactions between sizing and lay-out?
- Examples of existing plants?
- Practical implementation issues?

WPs: (1), 2, 3 and 4

Focus: PV+ BESS + WIND (+ Hydrogen)

Participants



Matthijs Doclo

Research Program Manager
Storage Lab

Expertise: Li-ion storage
integration BTM and FTM,
battery technologies



Cyril Daniels

Multi-Disciplinary Project
Manager

Expertise: Power
networks, Energy
Management System,
Renewables



Luana Berriel

Project Engineer
Solar Lab

Expertise: PV design
optimization



Celine Carbonez

Project Engineer
Solar Lab

Expertise: PV
performance analysis, PV
design

