



This work was partly funded by national funds through the FCT – Fundação para a Ciência e a Tecnologia, I.P., under the grant PTDC/EEI-EEE/31711/2017

OptiRES.Lines Tool

Demonstration

Disclaimer: The statements and opinions expressed in this presentation do not bind the organizations participating in the study; LNEG and R&D NESTER.

Final Workshop

20th September 2022

Motivation



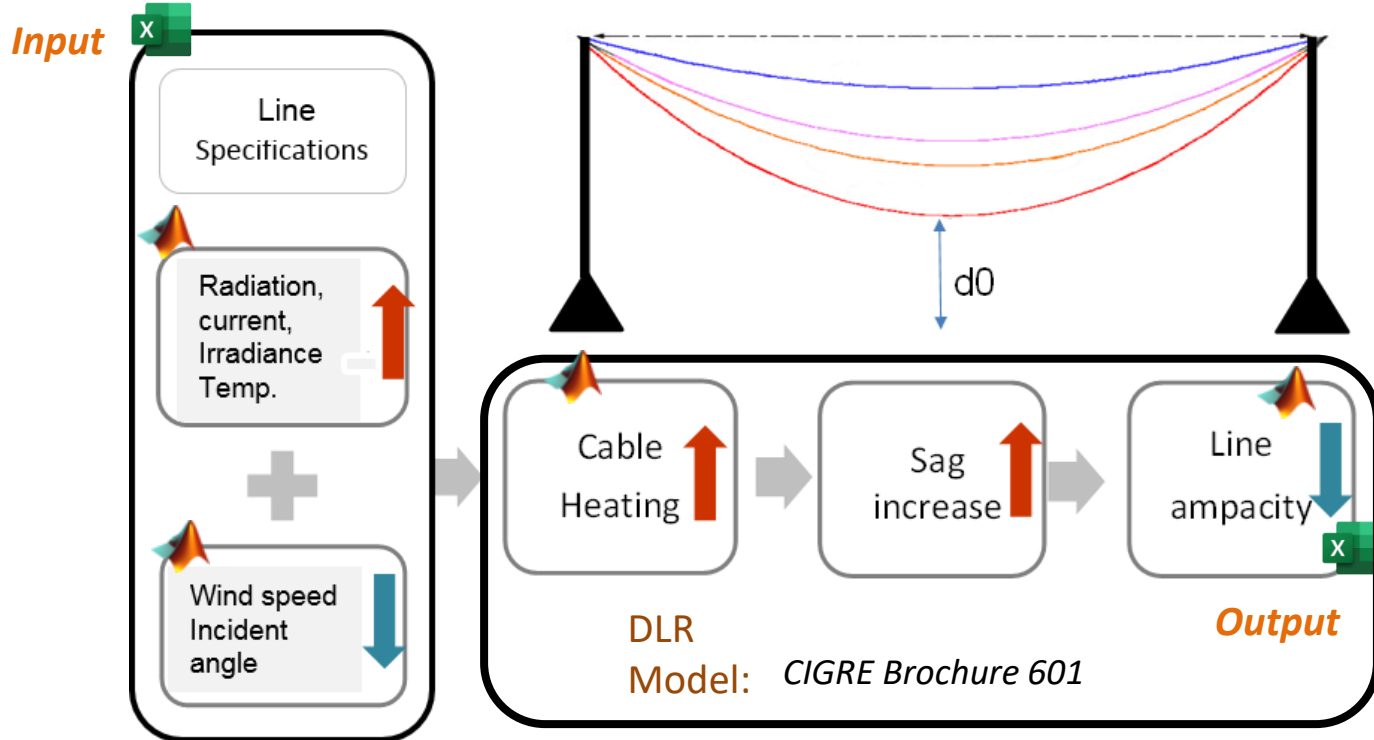
- The path towards power systems with near 100% renewable generation will replace part of the large centralized generation with decentralized variable generation.
- Dynamic Line Rating may have a key role in that process in minimizing congestions and support secure cross-border exchanges.



Methodology for Analysis of Dynamic Line Capacity and Optimized Management of Power Grids

More details available at: <https://optigrd.lneg.pt>

✓ Dynamic Line Rating (DLR)



✓ Optimal Power Flow (OPF)



Input:
 Generation
 Load
 Lines' data

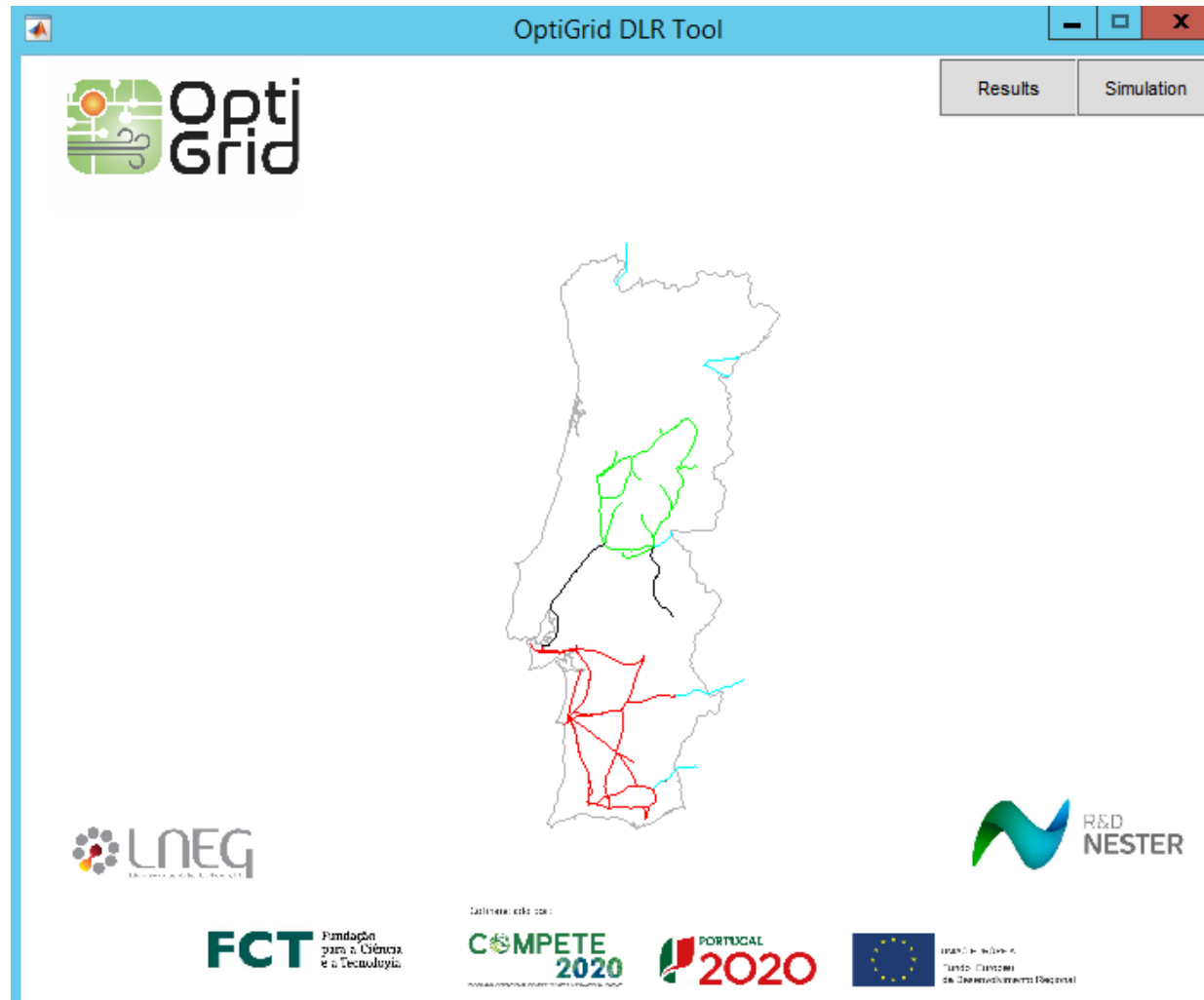


Objective function:
 Min Q_{loss}

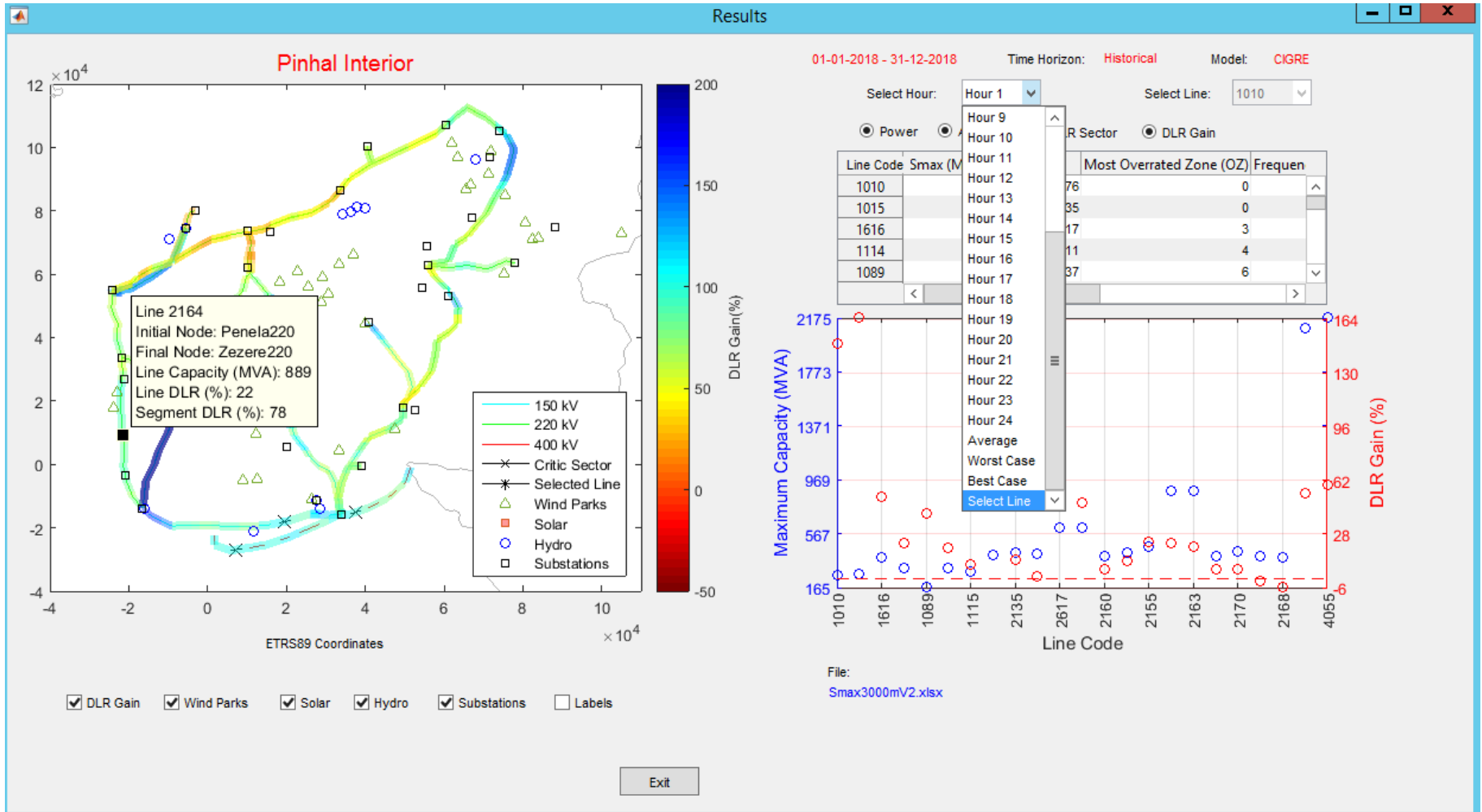


Output:
 Power Flow, Voltage,
 Angle, Capacitor Banks

OptiRES.Lines Tool – Interface



OptiRES.Lines Tool – Interface





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OptiRES.Lines Tool

Demonstration

- In the project an easy-to-use **DLR tool was developed**, in which **dynamic line rating methodology** (CIGRÉ) was implemented
- **The** general purpose **tool is** designed to be **easily applied** to other case studies **in any geographic location.**
 - needs network and weather data.
- OptiRES.Lines tool can be fed with **meteorological:**
 - Historical data: allowing for climatological analysis of the transmission capacity and critical sectors.
 - Forecast data: for use in real-time and embedded in planning (e.g daily) operations.
- **Optimal power flow (OPF)** is one of DLR **tool's add-ins**, also available.



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Further information available at: <https://optigrd.lneg.pt>

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