

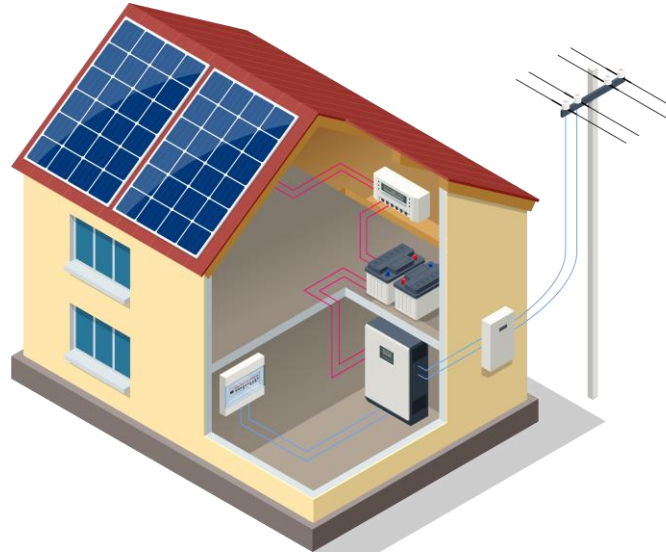


# Integrated planning: the future of resource adequacy & resiliency analyses

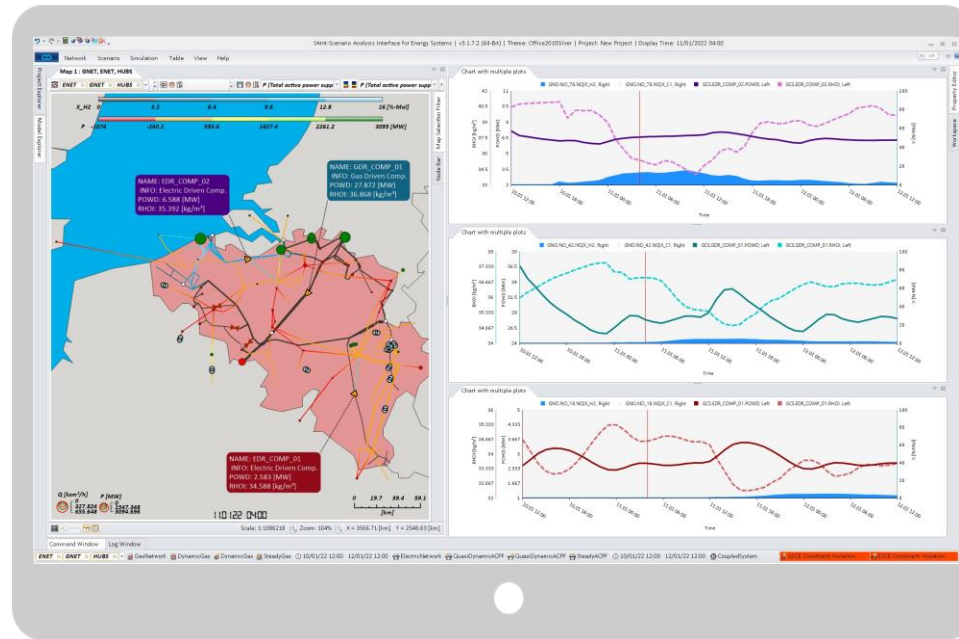
Carlo Brancucci  
Co-founder & CEO

EPRI 41<sup>st</sup> Annual Seminar on Resource Planning for Electric Power Systems  
November 9, 2022

# What is changing?



# The solution: an integrated planning platform



- Electricity & gas
- Transmission & distribution
- Optimization & simulation
- Weather & energy
- GUI & API

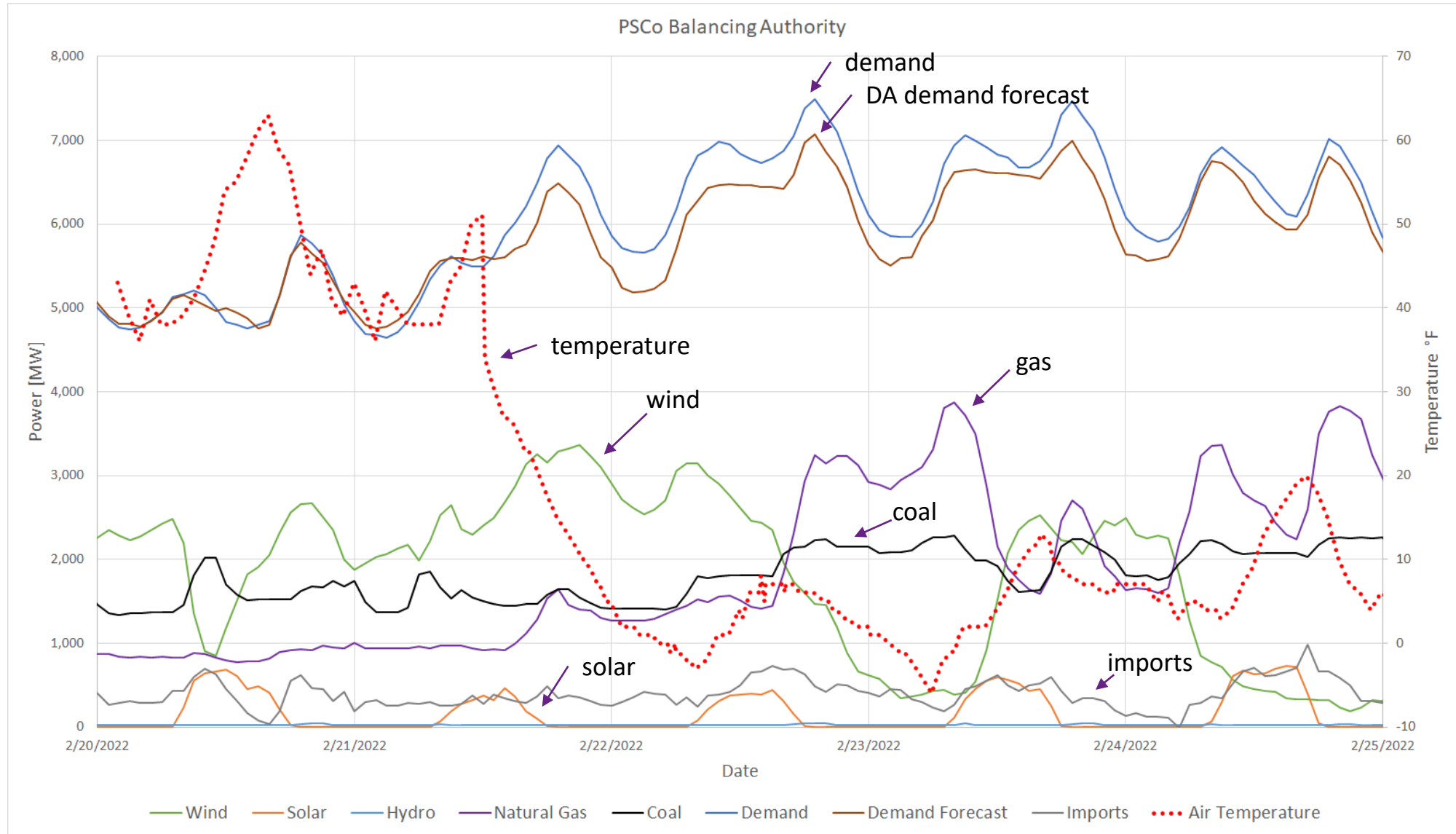


# Winter is coming



Credit: HBO

# February 2022 in Colorado



Data source: EIA

# EPRI – enccord study

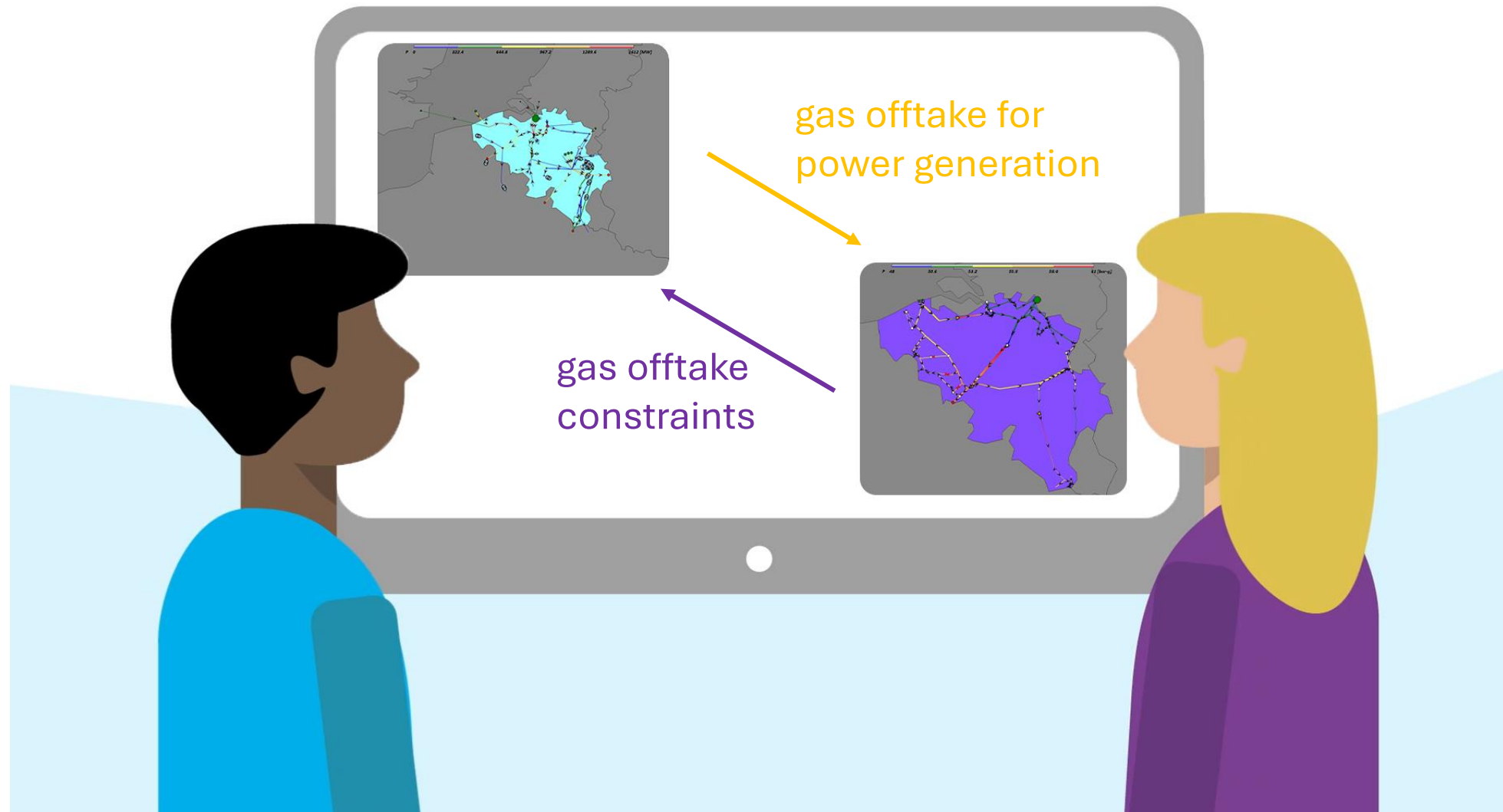
**Objective:** to understand and quantify the need for integrated planning of electricity and natural gas networks for use in planning, operations, and/or market operation and design.

*How can modeling different levels of granularity of the natural gas pipeline network impact the accurate planning of power systems?*

# Traditional planning

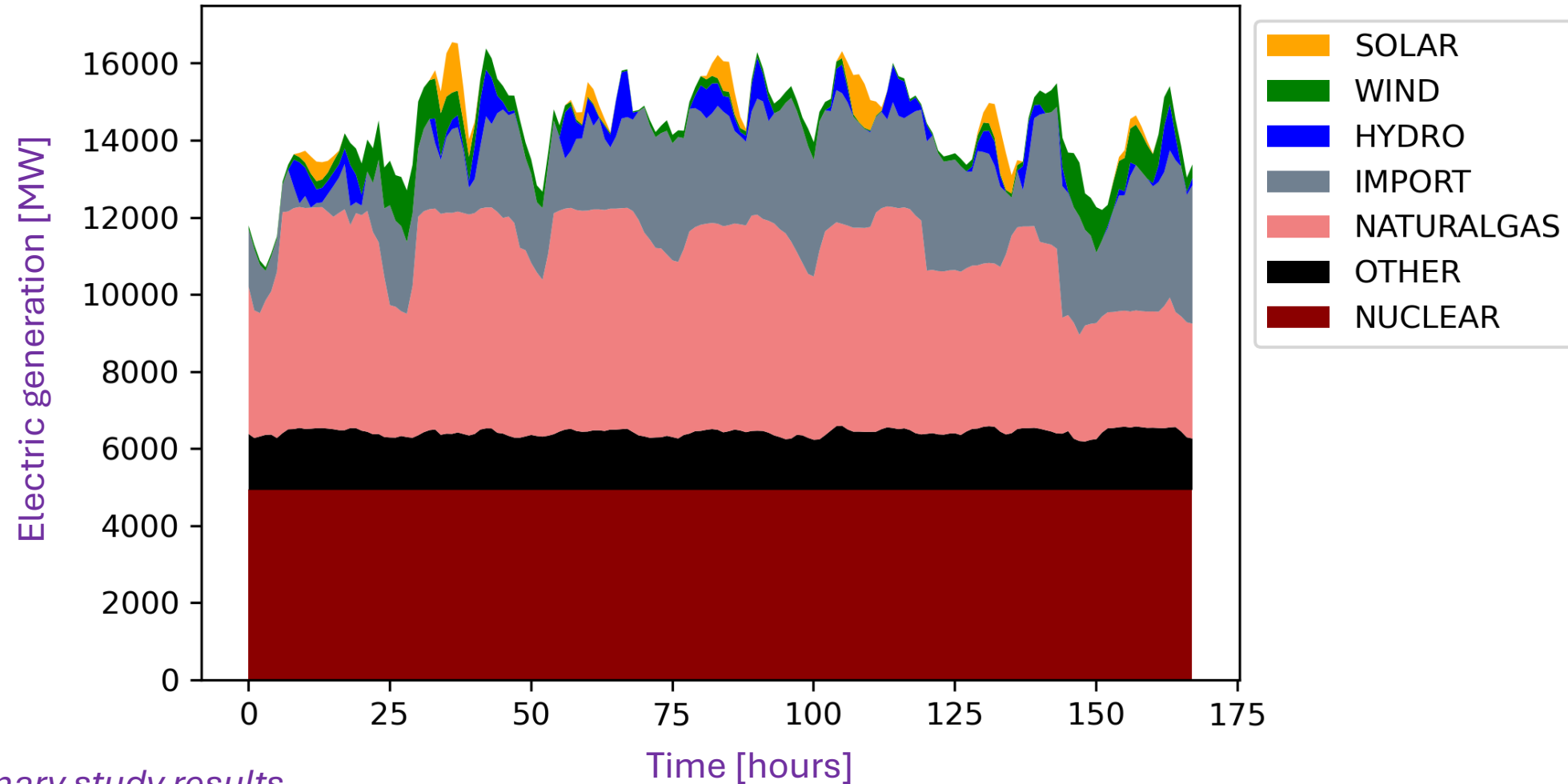


# Coordinated planning



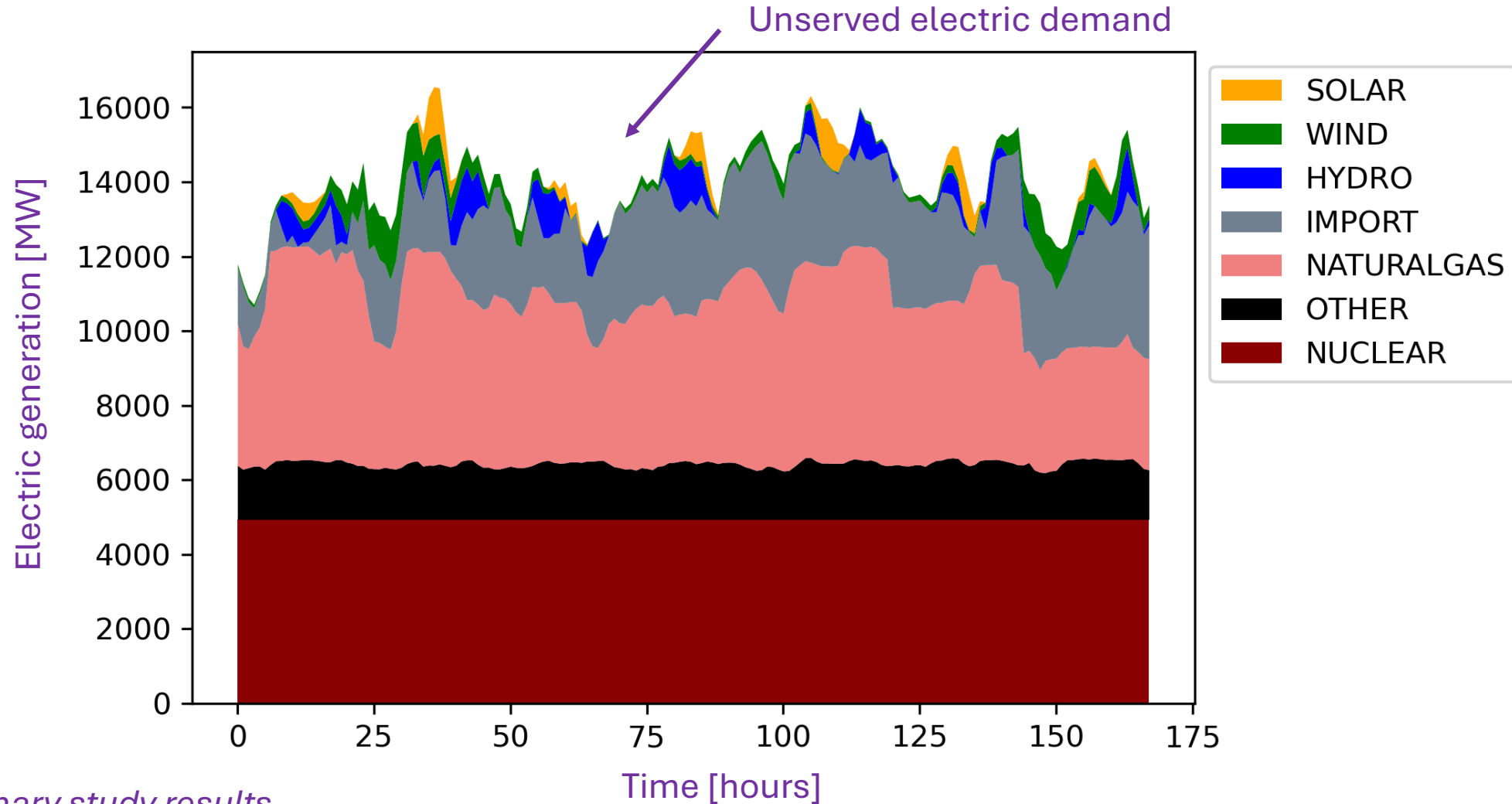


# Gas offtake constraints



*\*preliminary study results*

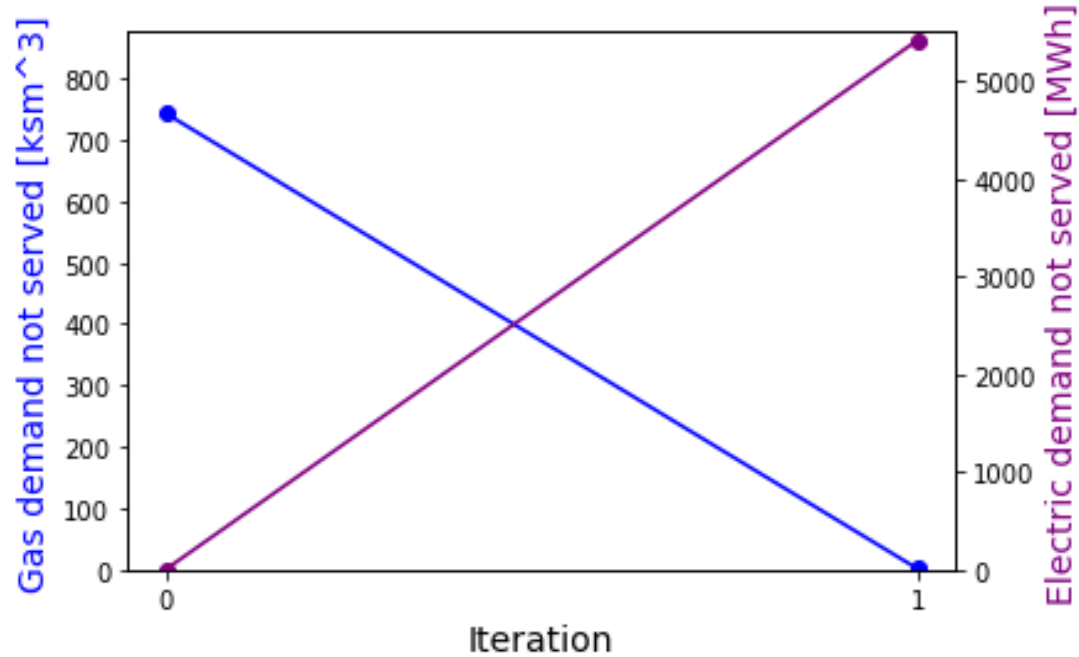
# Gas offtake constraints



*\*preliminary study results*

# Electric & gas network coordination

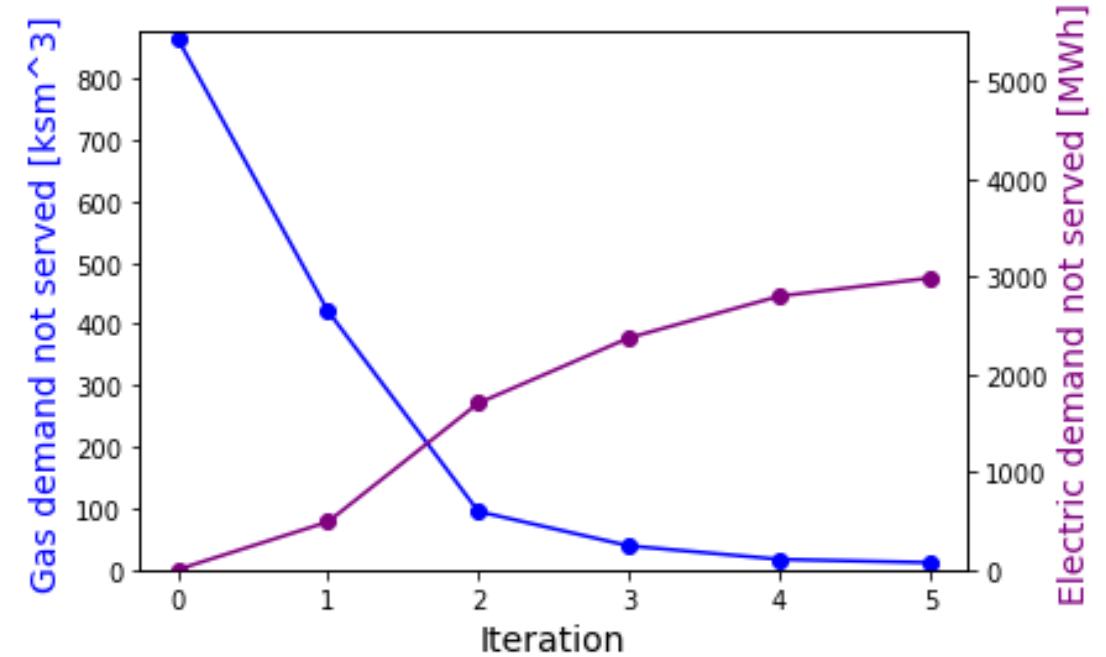
## Conservative



gas-fired power plants  
are not re-dispatched

*\*preliminary study results*

## Cooperative



gas-fired power plants  
are re-dispatched using  
gas pressure information

# Study conclusions

- Gas offtake constraints are identified using a gas hydraulic model but go unnoticed in a gas market model.
- Pressure-driven gas offtake constraints can be used to inform unit commitment and economic dispatch.
- Cooperative coordination between electric and gas network operators can help them respond to extreme events.

*\*preliminary study results*





# encord

Thank you!