

BATTERY STORAGES AND CONGESTION MANAGEMENT

A TSO PERSPECTIVE

JULIA RECHLITZ
AMPRION GMBH

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BUT THEY ALSO POSE CHALLENGES TO THE TSOS.

SO THAT THE LIGHTS NEVER GO OUT

HOW A TSO WORKS FOR THE COMMON GOOD

TSOs are responsible for the long-distance transport

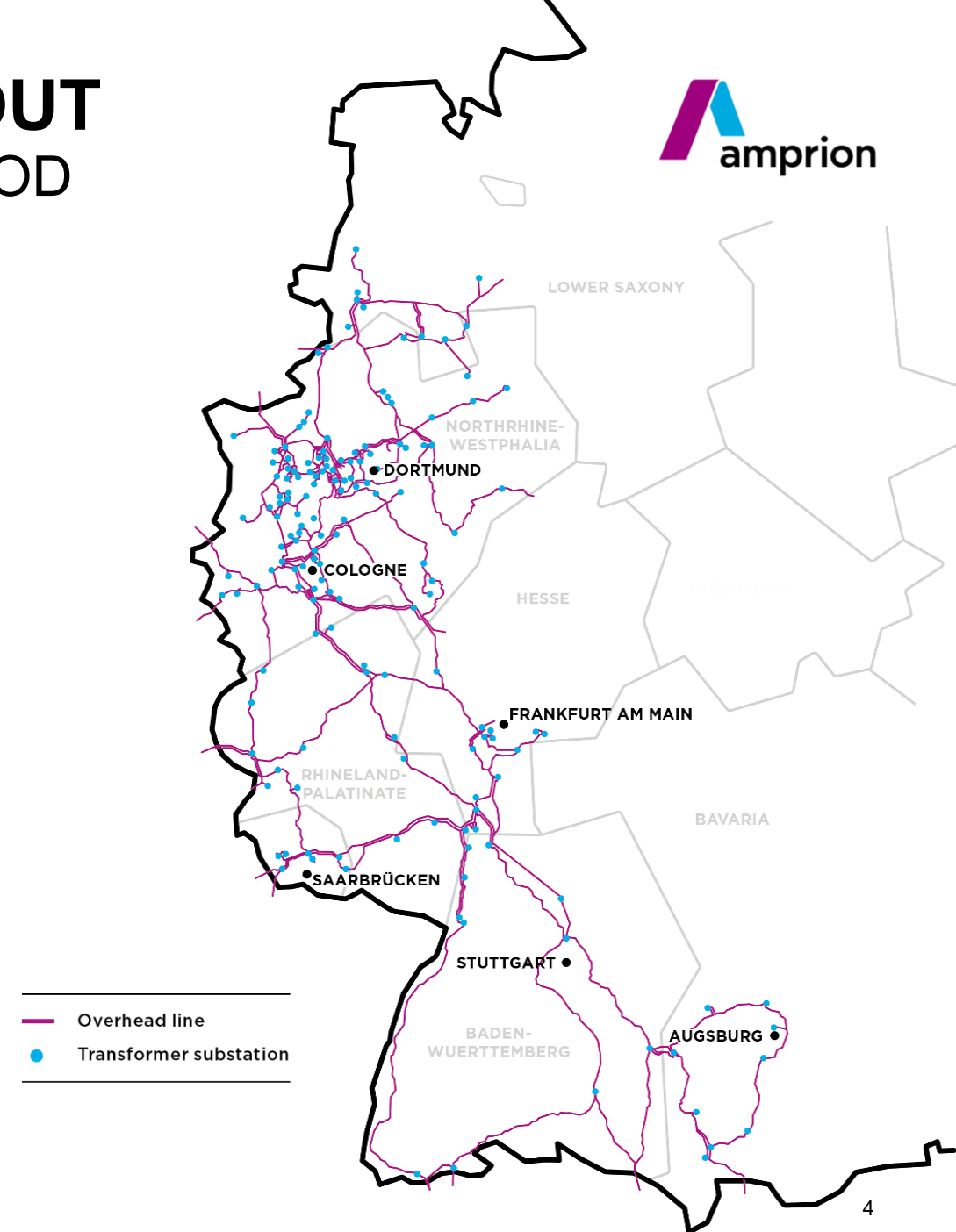
Therefore, they

- plan and maintain the extra-high voltage grid
- control grid operation
- ensure the safety and stability

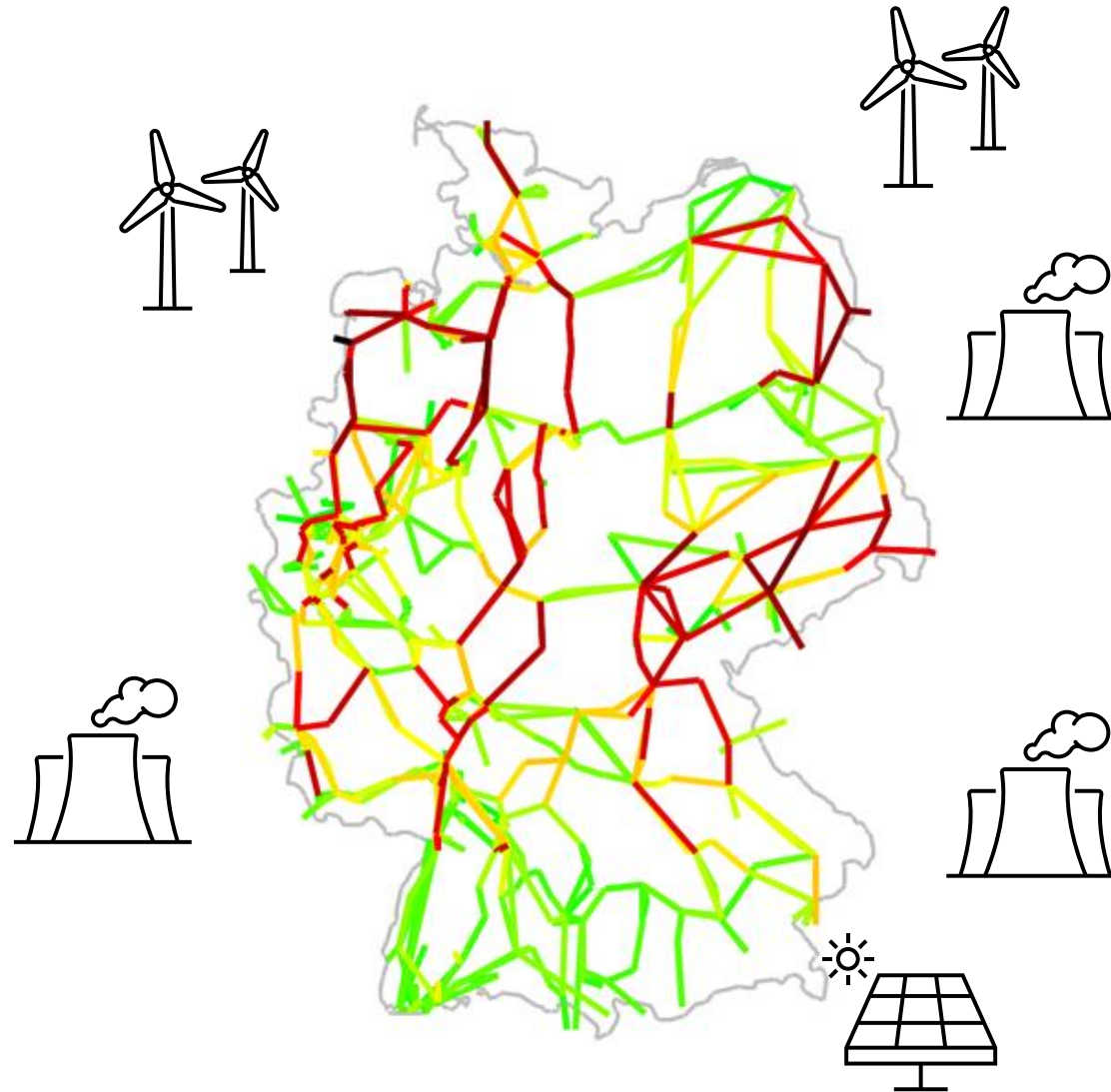
TSOs provide the infrastructure that connects producers and consumers enabling them to execute electricity market transactions

But: Market outcomes do not consider the capacity of the grid leading to possible grid congestions

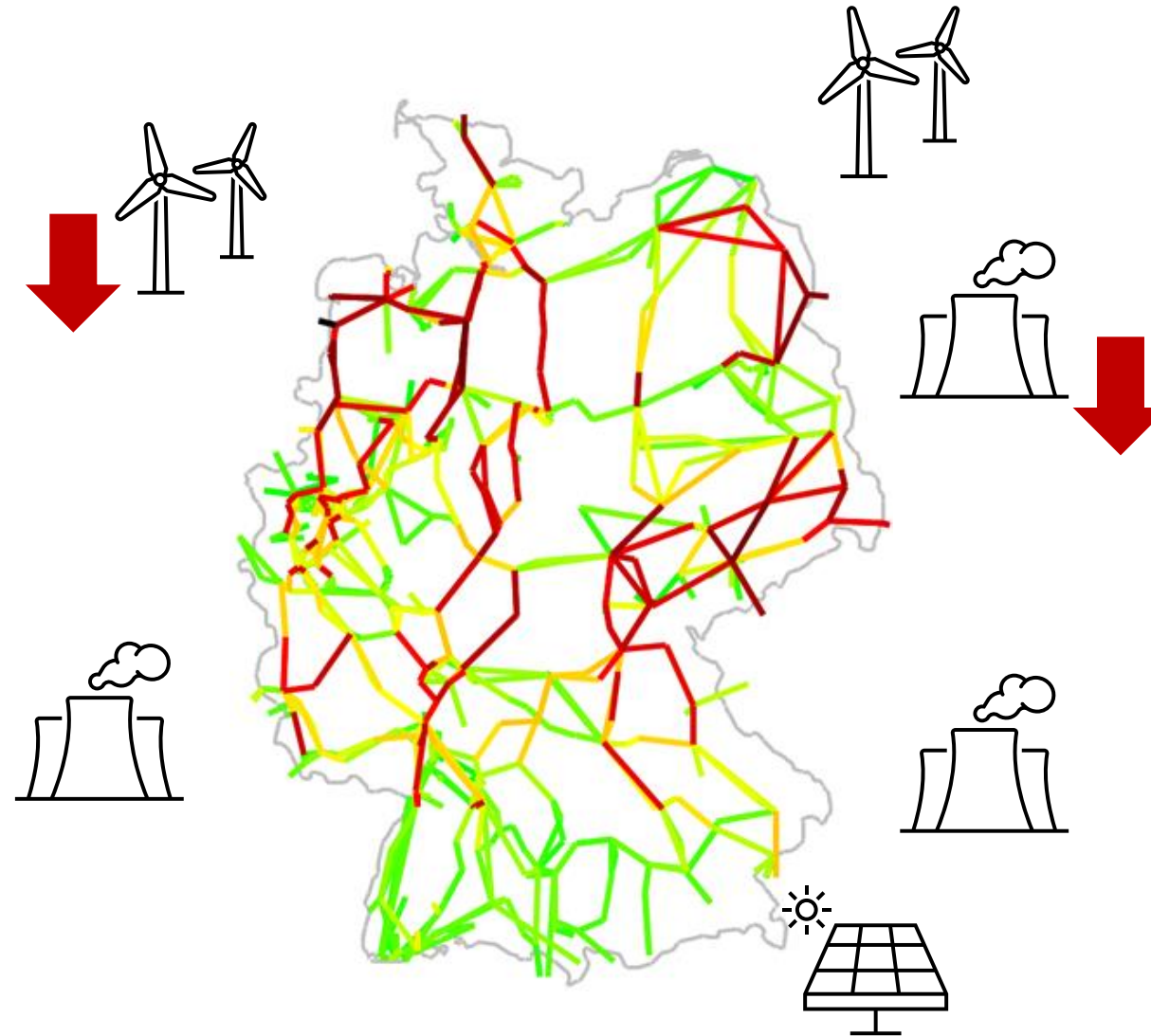
→ Need for congestion management



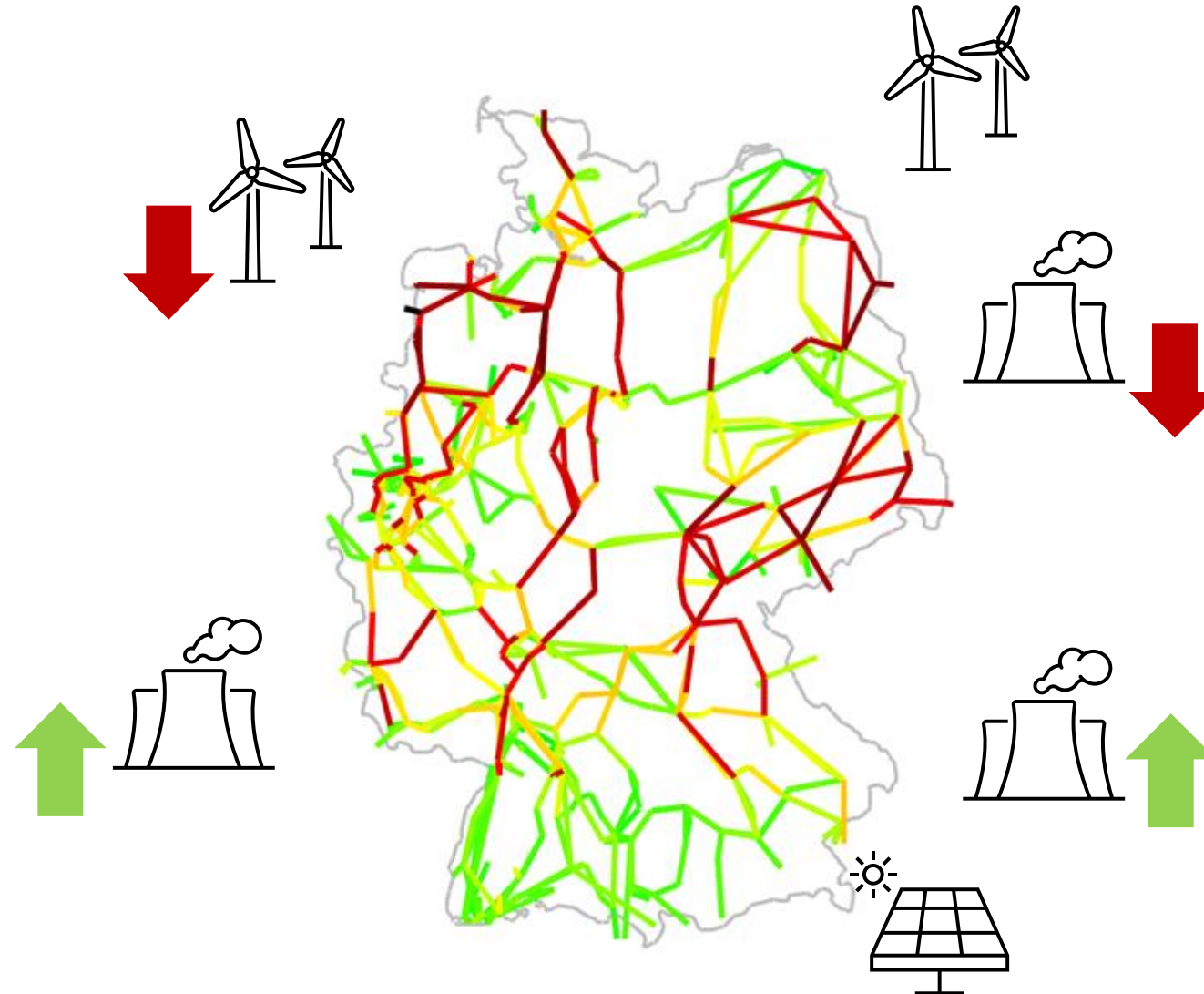
CONGESTION MANAGEMENT



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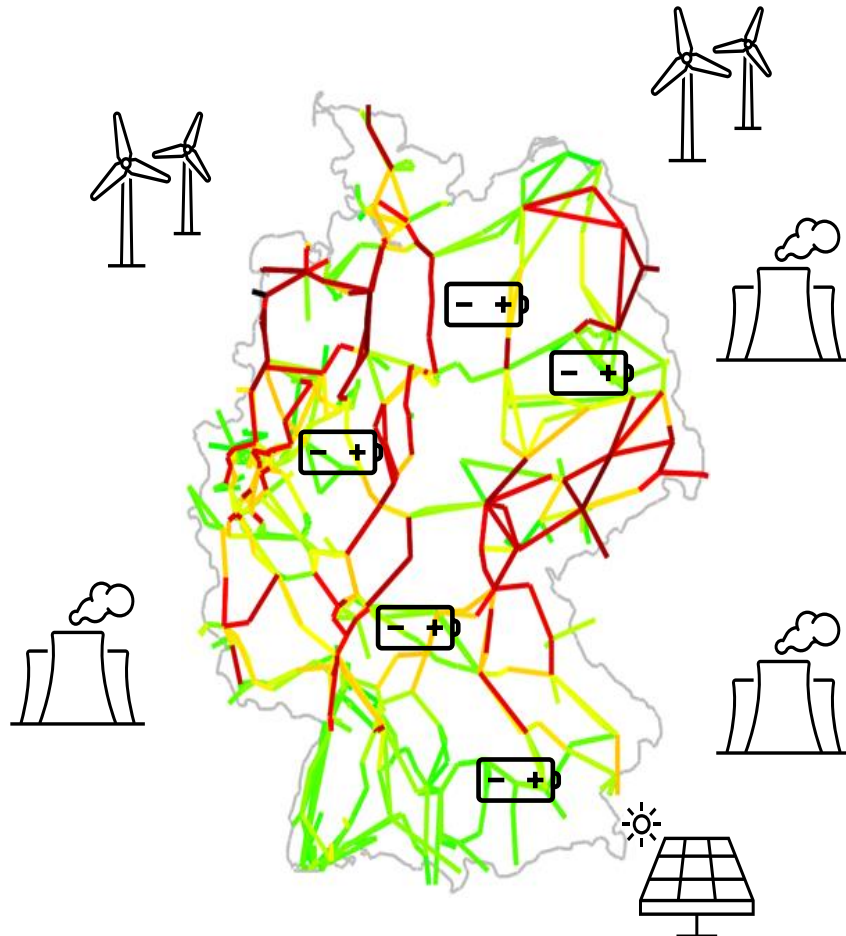


CONGESTION MANAGEMENT



CONGESTION MANAGEMENT WITH BESS

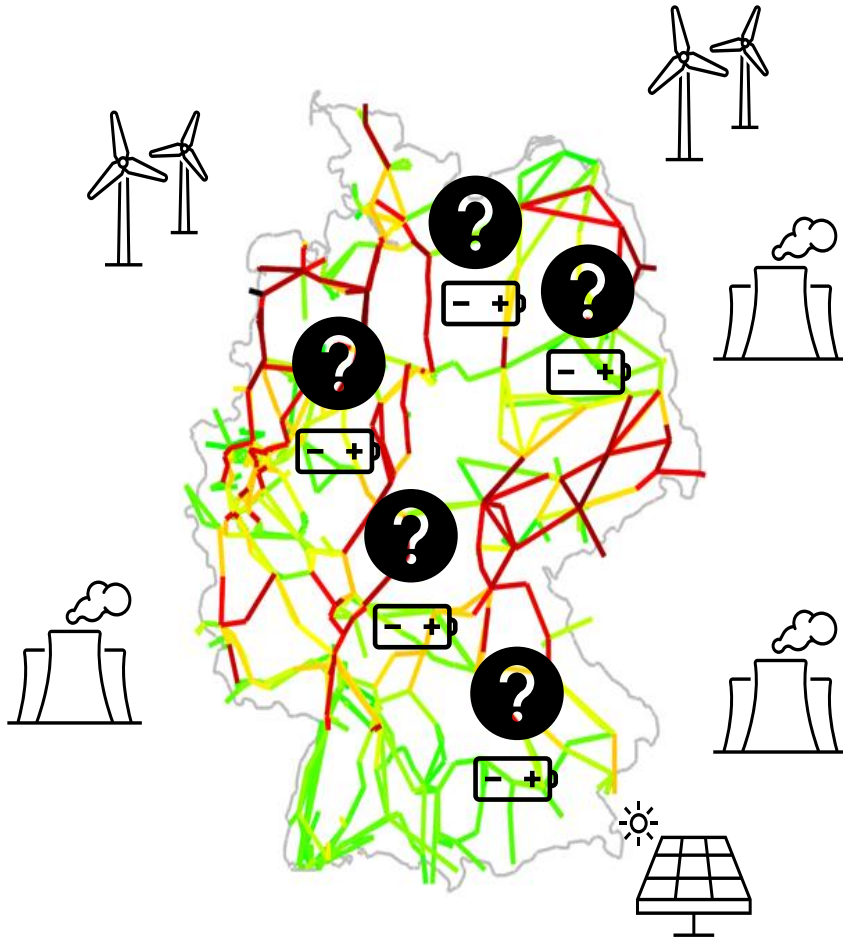
INCLUDE BESS IN THE REDISPATCH



- BESS bring high potential to resolve grid congestions
 - highly flexible
 - can respond quickly
- BUT: TSOs need reliable data in advance on
 - mode of operation
 - state of charge
- If not, BESS cannot be included in the grid simulations that determine the redispatch measures
 - can cause grid congestions without helping to resolve them
 - can lead to increasing redispatch demand and higher costs

CONGESTION MANAGEMENT WITH BESS

BESS LEAD TO INCREASING UNCERTAINTIES

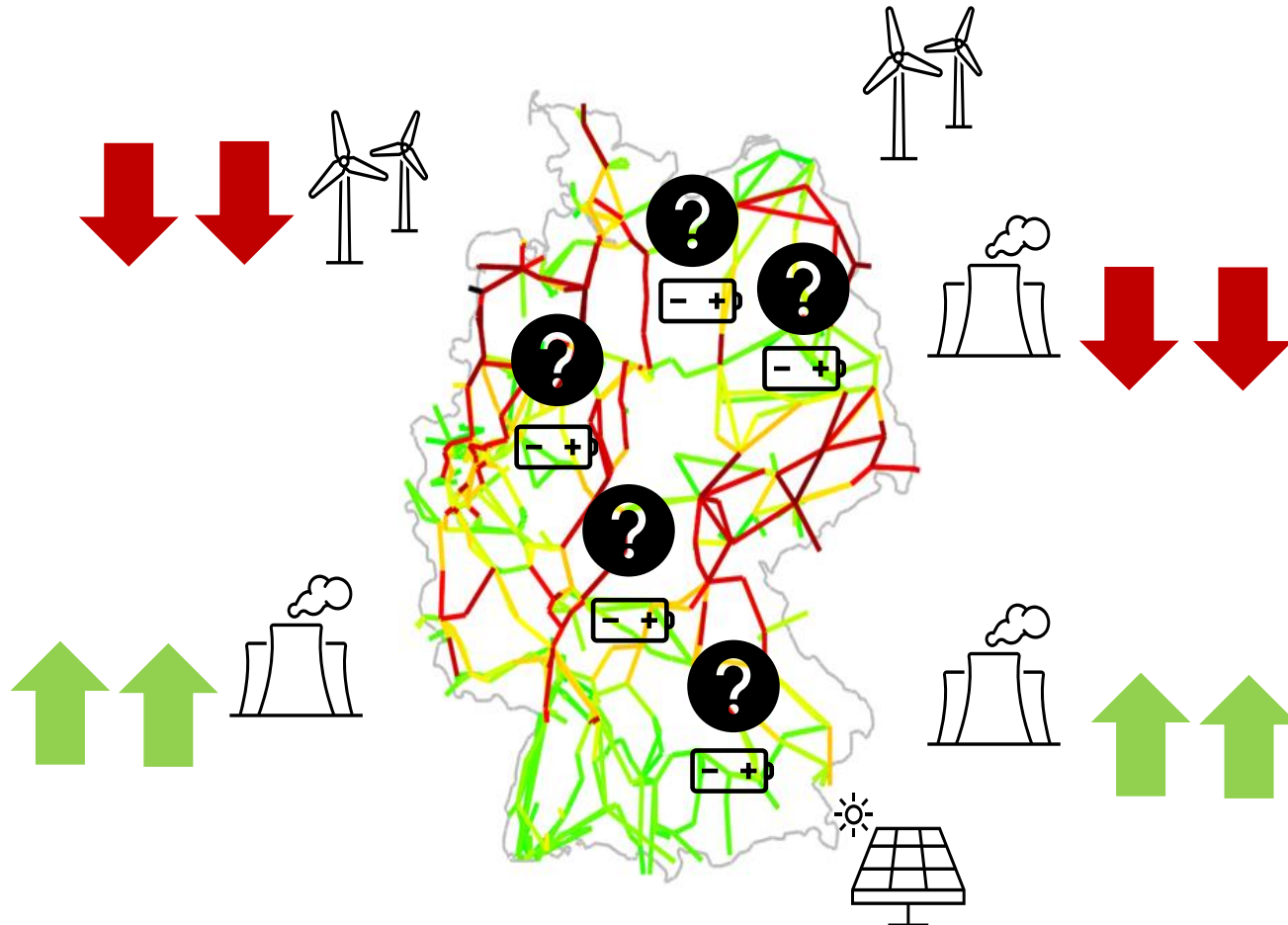


BESS participate in short-term trading until near real time

- short time changes in the mode of operation possible
- difficult to predict for a TSO

CONGESTION MANAGEMENT WITH BESS

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Independently of the feed-in behavior of BESS, grid security needs to be ensured

- leads to higher redispatch demand and
- higher redispatch costs

BESS: FROM A CHALLENGE TO A SOLUTION



TSOs are responsible for the security and stability of the electricity grid

Include BESS efficiently in the congestion management:

- Enables redispatch measures with BESS
- Reduce uncertainty

Otherwise, BESS can lead to higher redispatch demand and higher redispatch costs respectively



Common solution necessary to integrate BESS efficiently in the electricity grid and utilizes their potential to resolve grid congestions

THANK YOU FOR YOUR ATTENTION!