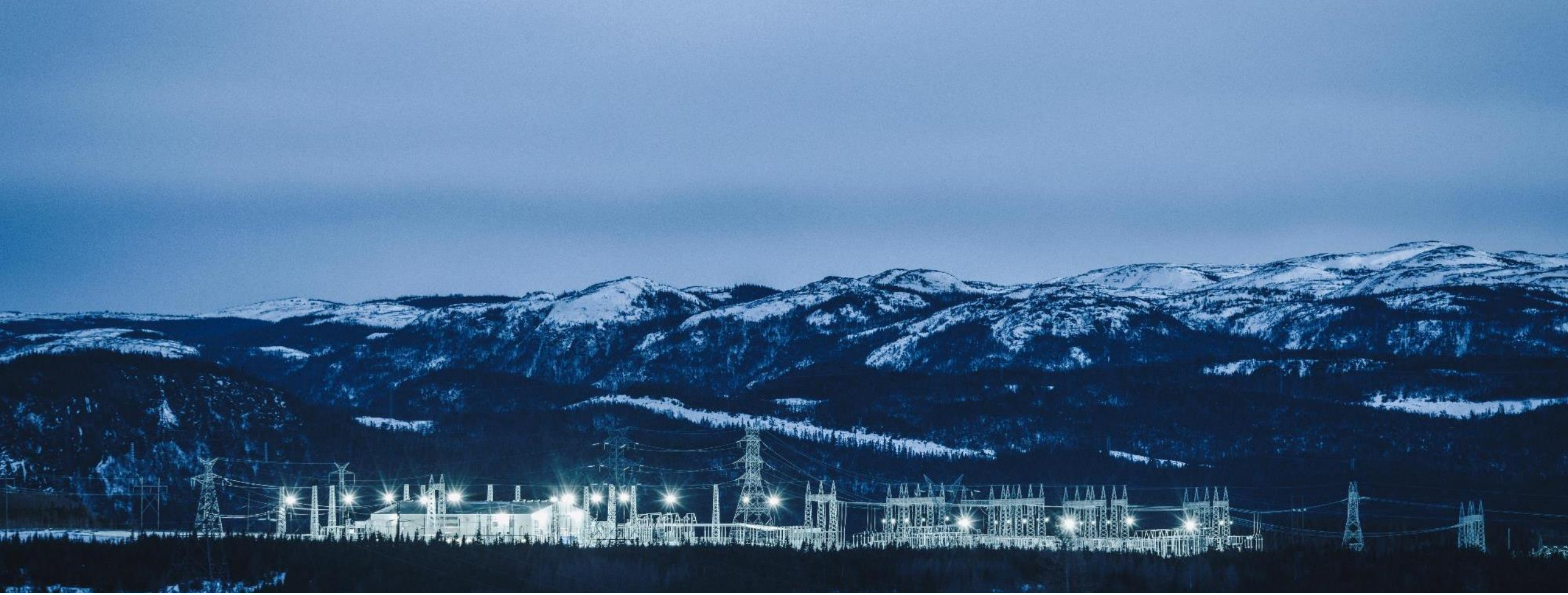


ATHANASIOS KRONTIRIS, ABB POWER GRIDS

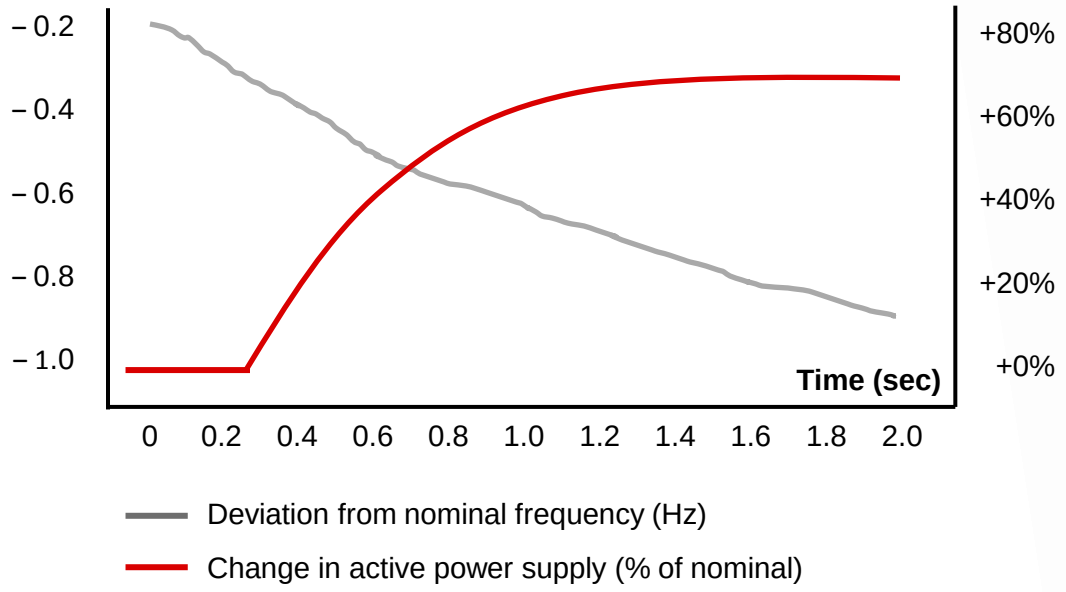
Stability in low-inertia systems

and how HVDC can contribute

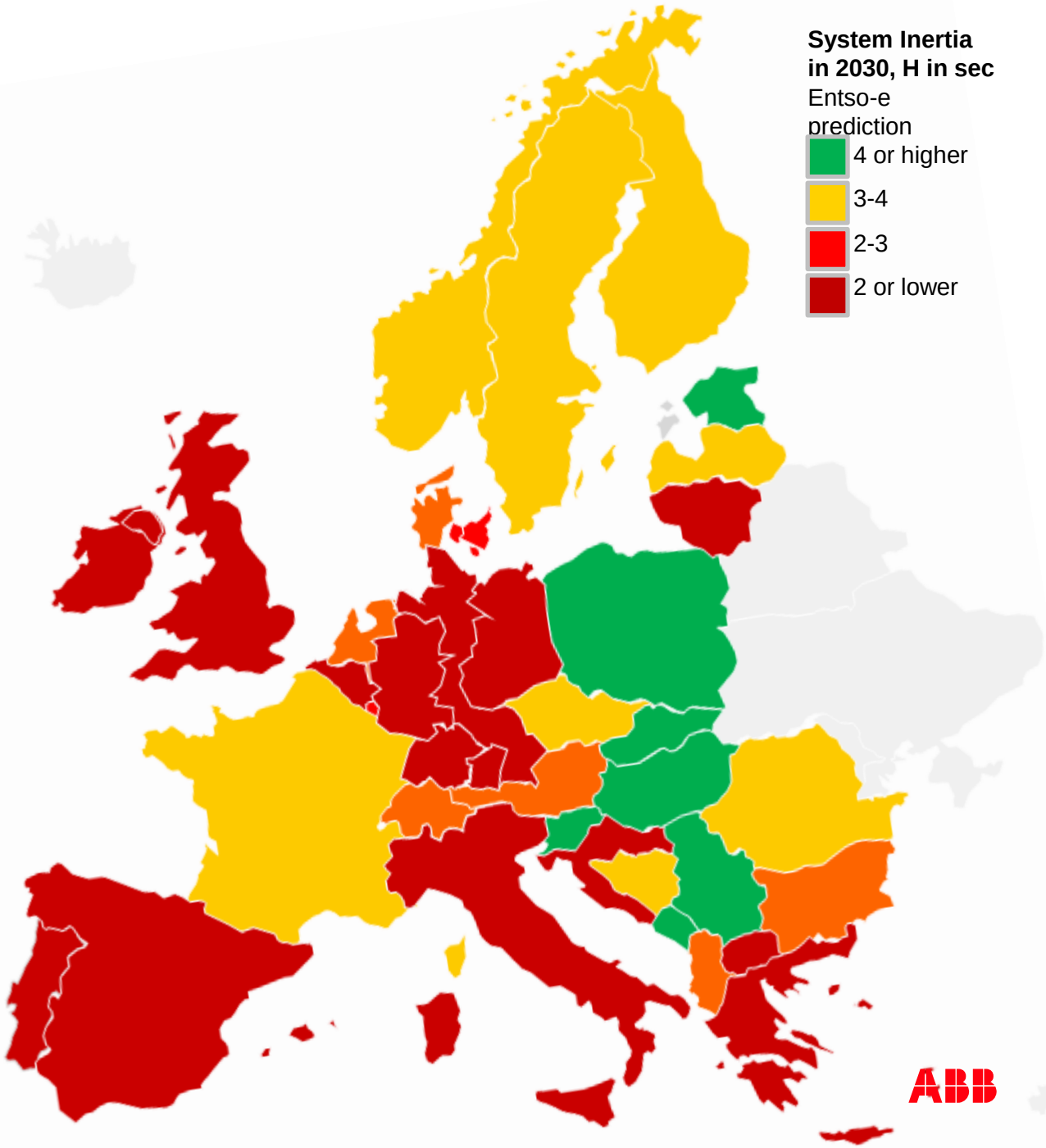
Stability benefits
from HVDC Light® interconnectors

Frequency reserves can be shared between regions via HVDC transmission links

Example: Fast Frequency Response



FFR already implemented in several schemes and qualified for ancillary markets



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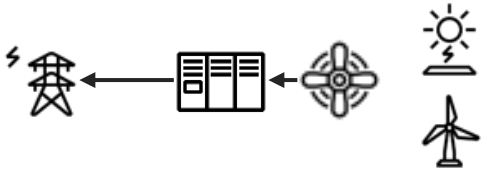
HVDC Light technology

State of the art and further potential

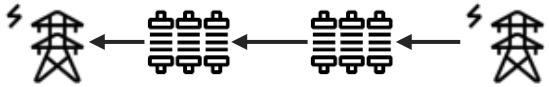
Differences between VSC HVDC and generation in GFC



Primary source is limited

Single-terminal system

Low DC voltage
easier integration of storage

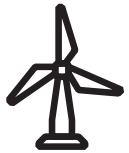


Primary source is „unlimited“

Double-terminal system

High DC voltage
challenging for storage integration

Where is Grid Forming Control used in HVDC?



Offshore Wind Connections

Black Start

Extremely weak grids

Potential of (VSC) HVDC for future system needs

HVDC is a transmission asset, last to survive

Main benefit: share reserves between synchronous areas

Inertia can be readily provided at one end

In the future, there will be no „infinite grid“ at the sending end, generation/storage will have to provide the power needed at the remote end

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