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Scientific Background

Overview of wind energy systems

Wind Generator classification

Equipment-wise detail of wind farm

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DVC in 66 kV HVAC Network

66 kV offshore network developed in RSCAD

Analysis of DVC performance

66 kV offshore network developed in PowerFactory

Performance comparison of both models

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Development of 2 GW Digital Twin Model

2 GW, 66 kV offshore network developed in RSCAD

Modular approach utilized

Modifications in MMCs control

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Analysis of 2 GW Digital Twin Model

Stage wise operation of the network

Dynamic events in the network

Analysis of DVC and MMCs control coordination

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Conclusions and Future Work