Applications supporting energy transition

Optimal Power Flow

Used to optimize network operation, regulate voltages, avoid congestions and maximize power which can be delivered from RES

In case of congestions, it can be used to limit production (curtailment) of renewables and perform redispatch while keepng RES production at the maximal acceptable level

Load and Generation Forecast

Accurate prediction is crucial for operational planning of power system operation. Forecasted values are used by a number of look-ahead applications.

Load and Generation forecast based on AI and ML are capable to quickly process large quantities of various input data such as weather, social, economic information etc.

System Inertia Estimation

In networks with high levels of DER penetration system inertia is significantly reduced and hard to estimate. This could have negative effect to system stability.

Several available methods for estimation of system inertia including WAMS/PMU ethod based on passive or active montoring of system response to disturbances

Group Discussion Meeting

Applications supporting energy transition

Dynamic Line Rating (DLR)

Instead of using a one conservative line rating, makes it possible to utilize lines to their actual limits in every condition.

Line limits can be forecasted for next hours or days making it possible to use DLR in operational planning and look-ahead studies.

Transient Stability Analysis

Due to the fast-changing operating conditions, traditional steady state security analysis of system response to contingencies might not be enough

Transient Stability Analysis is quickly becoming an important part of control room tools and is used for operational planning and security assesment purposes

Special Protection Schemes

Help prevent widespread system disturbances and allow system to be safely operated closer it its limit

To accommodate fast changing network conditions, special protection schemes can be autonomously modified

Depending on time requirements, can be executed centrally or from a station