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**STATEMENT OF UNDERSTANDING BETWEEN THE DANISH UTILITY REGULATOR  
AND THE NORWEGIAN ENERGY REGULATORY AUTHORITY, ON**

20 December 2019

Reguleringsmyndigheden for  
energi

Forsyningstilsynet

# **THE APPLICATION OF IMPLICIT LOSS FUNCTIONALITY ON THE SKAGER- RAK INTERCONNECTOR**

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## **PURPOSE OF THE STATEMENT**

1. The purpose of this statement is to ensure sufficient coordination between the Danish Utility Regulator (DUR) and the Norwegian Energy Regulatory Authority (NVE-RME) regarding their national decisions on a joint application of 26 March 2019, submitted by the Danish and Norwegian Transmission System Operators (TSOs), Energinet and Statnett. The joint application is for the introduction of implicit loss functionality (ILF) on the Skagerrak Interconnector between Denmark and Norway.

## **DUR AND NVE-RME HAVE THE FOLLOWING COMMON UNDERSTANDING**

### **SUFFICIENT BASIS TO ADOPT NATIONAL DECISIONS ON APPROVEMENT**

2. DUR and NVE-RME have assessed the joint application of 26 March 2019 and additional information, provided by Energinet and Statnett upon request of DUR and NVE-RME.
3. DUR and NVE-RME agree that there is sufficient basis for DUR and NVE-RME to adopt national decisions, approving the application of ILF on the Skagerrak Interconnector, for Energinet, respective for Statnett.

### **OTHER ASPECTS OF LEGAL BASE FOR THE CASE E.G. ON COORDINATION**

4. DUR and NVE-RME agree that the legal basis for Energinet's and Statnett's coordination, and also for DUR's and NVE-RME's coordination, in the actual case, follows from point 3.1., in Annex I of Regulation 714/2009, applying for both Denmark and Norway from 1 November 2019.

5. Content to be reflected in each of the national decisions (paragraphs 5.A-V below):
  - A. DUR and NVE-RME agree that the following assessments and considerations shall be reflected, and the following terms and conditions shall be stated, in DUR's and NVE-RME's national decisions, applying for Energinet, respective for Statnett:

#### APPROVAL OF ILF IN THE DAY-AHEAD AND INTRADAY TIMEFRAMES

- B. DUR's / NVE-RME's decision on the application of ILF on the Skagerrak Interconnector implies principally that Energinet / Statnett may apply ILF on the Skagerrak Interconnector in the day-ahead and intraday timeframes.
- C. Prior to Energinet's / Statnett's implementation of ILF on the Skagerrak Interconnector in the intraday timeframe, Energinet / Statnett shall notify DUR / NVE-RME 1 month prior to that implementation. Subsequently, DUR / NVE-RME shall ensure that Energinet / Statnett inform the electricity trading markets on the time for the implementation of ILF on the Skagerrak Interconnector in the intraday timeframe.
- D. Energinet's / Statnett's operational implementation of ILF on the Skagerrak Interconnector in the balancing timeframe shall await DUR's / NVE-RME's approval of a specific application on the terms, conditions, and methodologies to be applied in the balancing timeframe for the handling of physical grid losses, occurring by transmission of electricity via interconnectors. Unless this is already handled and implemented through methods developed according to the Electricity Balancing Guideline.

#### REPORTING OF THE LOSS FACTOR, INITIALLY AND BY UPDATING

- E. For the reporting of the loss factor on the Skagerrak Interconnector for the European market algorithm, initially and by updating, Energinet / Statnett shall calculate the loss factor according to the principles and methods, deemed to result in a fair view of the loss factor. Ref. to Energinet's and Statnett's joint application on ILF on the Skagerrak Interconnector of 26 March 2019, pages 5 to 6.
- F. Energinet / Statnett shall notify DUR / NVE-RME on an updating of the loss factor no later than 1 month prior to a planned application of an updated loss factor on the Skagerrak Interconnector, showing for DUR / NVE-RME the calculations for the updating of the loss factor.
- G. If DUR/ NVE-RME has not reacted to Energinet's/ Statnett's notification of an updating of the loss factor within 14 days of that notification, Energinet/ Statnett shall inform the electricity trading markets on the time and the calculated content of an updated loss factor to be applied on the Skagerrak Interconnector.

## REASONING FOR EVALUATION OF OPERATION OF ILF ON SKAGERRAK

- H. The report provided by Energinet and Statnett, "*Analyses on the effects of implementing implicit grid losses in the Nordic CCR*" of 30 April 2018, by the Nordic TSOs does not clearly show:
- a. How the application of ILF on the Skagerrak Interconnector may affect the physical power flows in various scenarios,
  - b. how the modelling of load-flow and AC tariffs works in interplay with the modelling of losses in AC grids,
  - c. what AC tariffs are applied, and
  - d. how much extra grid loss other interconnectors and or grids in the Nordics will sustain (given per interconnector).
- I. As long as ILF is only implemented in the day ahead market, there exists a risk that the expected reduction in grid losses from ILF will be offset by the market in the intraday market, so that physical transmission via the Skagerrak Interconnector does not change according to the planned day-ahead change.
- J. It should also be considered that the application of ILF solely on the Skagerrak Interconnector carries a risk that power flows may seek alternative routes, and which may potentially have been mitigated by applying ILF on the more or all of the interconnectors in Capacity Calculation Region Nordic (CCR Nordic).

## EVALUATION OF THE FIRST 2 YEARS OF OPERATION OF ILF

- K. Energinet / Statnett shall produce a report in English, for the evaluation of the first 2 years of operation of the application of ILF on the Skagerrak Interconnector.
- L. The evaluation shall, in the respect of the actual, experienced effects of the application of ILF on the Skagerrak Interconnector, contain:
- a. Calculations of the effects on physical power flows, grid losses, and grid loss costs, for both AC grids and HVDC interconnectors, located in CCR Nordic,
  - b. explanations of method and parameters for modelling of losses in AC grids,
  - c. an analysis of socio-economic effect including market effect and grid losses,
  - d. an analysis of arbitrage between day-ahead and other markets,
  - e. an analysis of the implications for the balancing markets, notably the market for manual reserves (mFFR), and
  - f. a comparative analysis with a scenario of ILF not being applied on the Skagerrak Interconnector.

- M. Those calculations and analyses are as a starting point to be performed according to the same analytical tools and methods, applied in “Analyses on the effects of implementing implicit grid losses in the Nordic CCR” of 30 April 2018, by the Nordic TSOs.
- N. DUR and NVE-RME shall invite the Swedish Regulator, Ei, and the Finnish regulator, EV, to provide comments on the evaluation design and the draft version of the evaluation report.
- O. Energinet / Statnett shall submit a draft version of the evaluation report for public consultation in Denmark and Norway, and shall invite the Swedish and Finnish TSOs to provide comments on the draft version of the evaluation report, within 6 months after the first 2 years of operation of the application of ILF on the Skagerrak Interconnector.
- P. Energinet / Statnett shall submit a final version of the evaluation report for DUR / NVE-RME within 8 months after the first 2 years of operation of the application of ILF on the Skagerrak Interconnector. In the final version of the report, Energinet / Statnett shall take into account the views, resulting from the prior public consultations in Denmark and Norway, and the possible comments, provided by the Swedish and Finnish TSOs, on the draft version of the evaluation report.

#### FACILITATING EVALUATION OF ILF ON SKAGERRAK INTERCONNECTOR

- Q. DUR and NVE-RME agree to facilitate the evaluation. E.g. in terms of entering into a dialogue with Energinet and Statnett on the best possible practice to be followed for the evaluation.
- R. Upon due justifications provided by Energinet / Statnett, DUR / NVE-RME may ease or repeal the one or more of the requirements for the content of the evaluation report and or for the evaluation process, set in the paragraphs 5.K. to 5.P.
- S. A conclusion by Energinet / Statnett on the evaluation of ILF on the Skagerrak Interconnector does not have to be binary (ILF to be continued/discontinued) but may also include amendments to the method, that Energinet / Statnett is able to demonstrate will be to the benefit for CCR Nordic.

#### ACCESS TO REPEAL NATIONAL DECISIONS IN FOLLOW-UP OF EVALUATION

- T. Energinet / Statnett is obliged to uphold DUR’s / NVE-RME’s national decision as the legal basis for the application of ILF on the Skagerrak Interconnector for the duration of time for the evaluation process to be finalized, and for DUR / NVE-RME to assess and draw conclusions from the evaluation report.

- U. DUR and NVE-RME agree that if either DUR or NVE-RME, or both, assess that the evaluation report shows that a continuous application of ILF on the Skagerrak Interconnector does not meet the requirements according to the relevant national law, that regulator has access to repeal its national decision or approval. A possible repeal shall enter into force at the earliest 6 months after the relevant regulator has issued a decision on repeal.
- V. DUR and NVE-RME agree that in doing so, the legal basis, having been the two national decisions, for the application of ILF on the Skagerrak Interconnector, is consequently deemed invalid for both Denmark and Norway.

## **DUR AND NVE-RME COORDINATION WITHIN THE FRAME OF THE STATEMENT**

### **POSSIBLE ALL NORDIC TSO COOPERATION ON EVALUATION**

- 6. DUR / NVE-RME request Energinet / Statnett to cooperate with one another on the performing of the evaluation.
- 7. DUR / NVE-RME suggest that Energinet and Statnett also invite the Swedish TSO, Svenska Kraftnät, and the Finnish TSO, Fingrid, to enter into the preparation and performing of the evaluation.

### **FURTHER COORDINATION AND DIALOGUE BETWEEN DUR AND NVE-RME**

- 8. DUR and NVE-RME agree to coordinate their respective processes for Energinet's and Statnett's updating of the loss factor for the implementation of ILF on the Skagerrak Interconnector. Ref. to the paragraphs 5.F. to 5.G.
- 9. The access for either DUR or NVE-RME to repeal its national decision on the application of ILF on the Skagerrak Interconnector follows from the jurisdiction of DUR and NVE-RME as national regulating authorities.
- 10. However, in any circumstances, and prior to a possible and ultimate repeal, DUR and NVE-RME will enter into a close coordination and dialogue in the following-up on the evaluation of the application of ILF on the Skagerrak Interconnector.
- 11. A repeal by one regulator is an individual right based on the conditions written above, but cannot take place without a prior exchange of views and information between the regulators on notably the reasoning for a repeal.

### **PUBLICATION OF THE FINAL VERSION OF THE STATEMENT**

- 12. DUR and NVE-RME agree that the final version of this statement shall be made public at the same time as the final versions of the national decisions by DUR and NVE-RME.