

Dear NWE TSOs,

Following up the discussion on the handling of losses on HVDC interconnectors, we would like to repeat the most important points from regulators and request NWE TSOs to undertake an impact assessment regarding the inclusion of losses on HVDC interconnectors in the algorithm.

- As a starting point, regulators recognize DC losses as a - cost, and consideration in the social welfare maximization and the price coupling algorithm is a relevant issue which regulators like to understand in detail. However, there might be other factors that have to be taken into consideration. Therefore regulators are asking for an impact assessment, where the introduction of a loss functionality is examined.
- This is desirable in particular, as regulators have not come to a final decision whether for all HVDC cables in NWE, i.e. including HVDC cables within the Nordic synchronous area, or only particular cables a loss functionality should be activated in the price coupling algorithm.
- Regulators advocate for a harmonized approach for all HVDC cables across NWE and later on the whole of Europe as long as this leads to social welfare maximization. Harmonization is meant both in the sense of a harmonized method for the inclusion of losses in the algorithm, including the method to assess the losses ratio per interconnector.
- On the contrary regulators see no meaningful reason to deviate from current practices to handle losses from commercial trades via AC interconnectors.
- In order to facilitate the decision making for regulators we would kindly ask you to carefully analyse the effects considered above and quantify your assessment based on historical data/simulation as much as possible. The results of our assessment should be available as soon as possible, but ideally (at least first results) should be presented and discussed during our next IG meeting which shall be scheduled for end of November.
- Specific questions that should be covered in the impact assessment are:
 - o What effects can be expected on prices and flows in the NWE region when a loss functionality is used?
 - o If based on your analysis you would come to such conclusion, please explain why a subset of interconnectors with a loss functionality could be welfare maximizing, compared to introducing the functionality on all cables.
 - o On a border with both AC and DC interconnectors, what would the effect of a loss functionality on the HVDC cable be on flows? And would there be any effects on prices, that are different from a purely HVDC connected border?
 - o Since as today also in future losses on the AC grid shall not be considered in the welfare maximization, could introduction for DC interconnectors be a discrimination issue? Please specify whether it is sensible to conclude that substantial (technical) differences between AC interconnectors and HVDC justify different approaches.
 - o Would the introduction of a loss functionality on DC interconnectors within the Nordic area have any detrimental effects on e.g. the System price as in the Nordic Market or CfDs, FTRs and Forward energy products (formation, reliability, liquidity)?
 - o Would the introduction of a loss functionality on DC interconnectors have detrimental effects in terms of system security on the neighbouring and/or whole AC grid?
 - o What other effects (if any) are there (positive or negative) with the introduction of a loss functionality?
 - o If a loss functionality is included for DA without doing the same for ID, what will the effects be on ID trading?

- What would be implications of a loss functionality for the long term market and its products (PTRs, FTRs, CfDs)?
- Please raise any further issues you consider important in your analysis.

For your information, which you may probably know already, EMCC has done some calculations on these issues and has also commissioned a scientific report to a German engineering research institute. It could be worthwhile to approach EMCC to ask whether their material could be used as food for thought or an input to your assessment.

We appreciate a common view of all TSOs, where possible. If there are differing views on some topics, we appreciate hearing the different views (rather than leaving them out).

Should you have any questions regarding clarification of the expectation of regulators on the impact assessment or other please come back to us immediately. We could for example arrange a short conference call in order to ensure mutual understanding.

On behalf of NWE regulators

With best regards

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