

Newsletter issue
2019/2

UPCOMING EVENTS:

Stakeholder Group meeting (members have been nominated)

- August 22, 2019
(Copenhagen)

UPCOMING CONSULTATION:

- none

MORE INFORMATION:

Web: <https://nordic-rsc.net/related-projects/>

QUESTIONS?

Email: CCM@nordic-rsc.net

THE NORDIC CAPACITY CALCULATION METHODOLOGY PROJECT

During the entire period of the new CCM preparation, and latest in the December 2018 Stakeholder Forum, some concerns were expressed linked to the possibility of having flows from high-price to low-price bidding zones under a FB allocation. These flows are also referred to as “non-intuitive” flows and, although they seem illogical, they are a way to optimize the flows in a meshed grid as they can relieve congestions on constrained elements. Non-intuitive flows occur when the welfare economic cost of a non-intuitive flow is smaller than the welfare economic benefit of relieving a congestion. By relieving capacity on congested grid elements, non-intuitive flows contribute positively to the overall market efficiency, and thus generate a market-wide efficiency gain.

The Nordic CCM project has analyzed the results of FB market coupling simulations where the so-called intuitive patch in Euphemia has been activated to prevent these “non-intuitive” flows. The analysis below compares market simulation results for flow based where non-intuitive flows are allowed (FB original; the same results that already have been presented to the stakeholders) with market simulation results where the “intuitive patch” has been activated (FB intuitive). A total of 76 days from the already simulated 11 weeks in 2017 are included in the analysis.

Figure 1 shows the cumulated socioeconomic welfare gains of FB compared to NTC (difference in welfare with FB and with NTC), for both “FB original” and “FB intuitive”. It can be seen that, over the studied period, the cumulated socioeconomic welfare gains for flow based with the intuitive patch (FB intuitive) compared to NTC resulted in around 1.5 MEUR less than for flow based that allowed for non-intuitive flows (FB original). This means that by activating the intuitive patch, and enforcing more restrictions in the optimization algorithm, a total of around 1.5 MEUR would have been lost in welfare for these weeks.

THE NORDIC CAPACITY CALCULATION METHODOLOGY PROJECT

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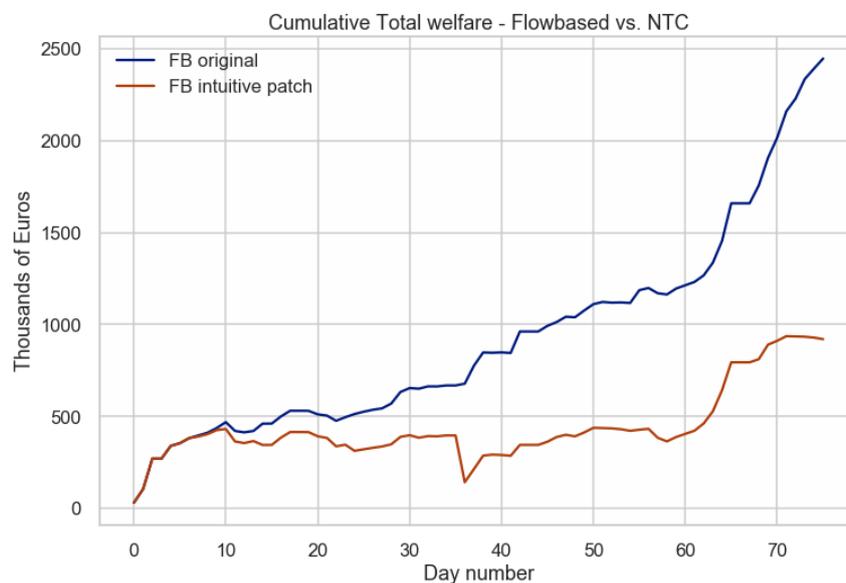


Figure 1: Cumulated socioeconomic welfare gains with FB compared to NTC (difference in welfare with FB and with NTC). Reading: After the first 60 days of the studied period, the welfare gain using FB original, compared to NTC, is about 1.2 MEUR and the welfare gain using FB intuitive is about 400 kEUR.

Figure 2 shows the differences in socioeconomic welfare, but now represented by its three components (being consumer surplus, producer surplus, and congestion rent), between FB original and FB intuitive (rather than between FB and NTC as in the previous figure) for all of the Nordics. It can be seen that producers and consumers experience an aggregated welfare loss over the studied period whereas congestion rents increase when activating the intuitive patch. The activation of the intuitive patch introduces new constraints on the trade exchanges and therefore leads to larger price differences between bidding zones and a higher congestion rent. Figure 3 shows the price difference between the bidding zone with the highest price and the bidding zone with the lowest price for both FB original and FB intuitive. There it can be seen that the price difference increases when you activate the intuitive patch in the simulations.

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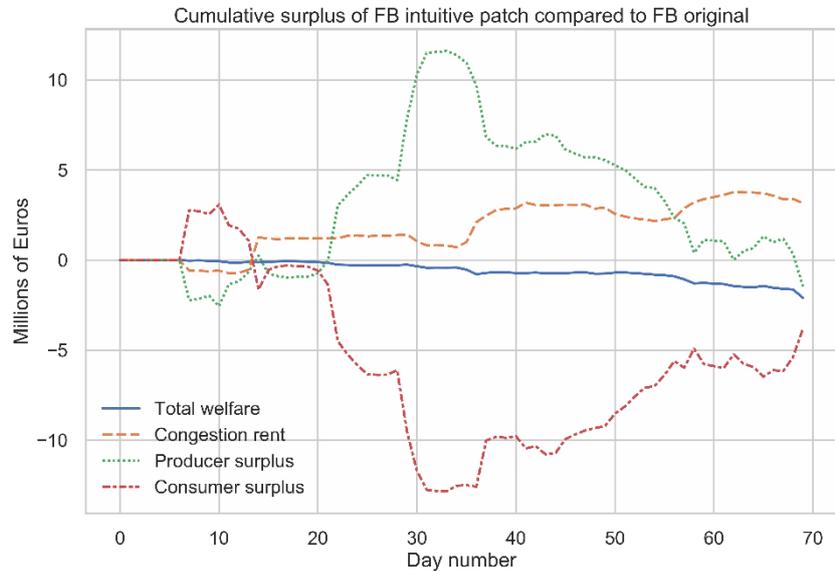


Figure 2: Cumulated differences in welfare and its three components between FB original and FB Intuitive. Reading: after the first 40 days of the studied period, the congestion rents would have increased by about 3 MEUR due to the intuitive patch, compared to FB original.

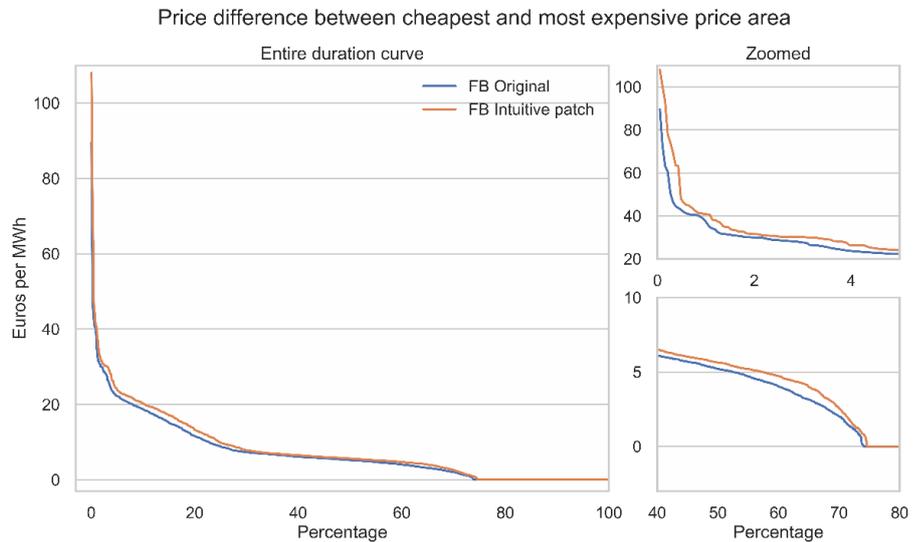


Figure 3: Price difference between the bidding zone with the highest price and the bidding zone with the lowest price for FB Original and FB Intuitive; sorted by price difference from high to low. The x-axis shows the percentage of timestamps (hours) analyzed.

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The table below summarizes the results. It presents the cumulated welfare gains in EUR (difference FB minus NTC) and its components for the FB market coupling without (FB original) and with the intuitive patch (FB Intuitive).

Table 1: Cumulated results for the 11 studied weeks in EUR in terms of difference between FB and NTC. Reading: over the studied period of 11 weeks, the consumer surplus increased by 4 MEUR with FB original compared to NTC and by 1.2 MEUR with FB intuitive compared to NTC.

	Total welfare	Congestion rent	Producer surplus	Consumer surplus
FB original	2 447 200	631 945	-2 260 636	4 076 099
FB intuitive	920 329	4 309 096	-4 586 553	1 197 677

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