CFAI DU 27 SEPTEMBRE 2013

PROJET FLOW-BASED

AGENDA

1. **External parallel run performance and MPs' feedback**
2. CWE Project Planning
3. Calculation of ID capacities
4. Transparency
5. AOB

1 - External parallel run performance

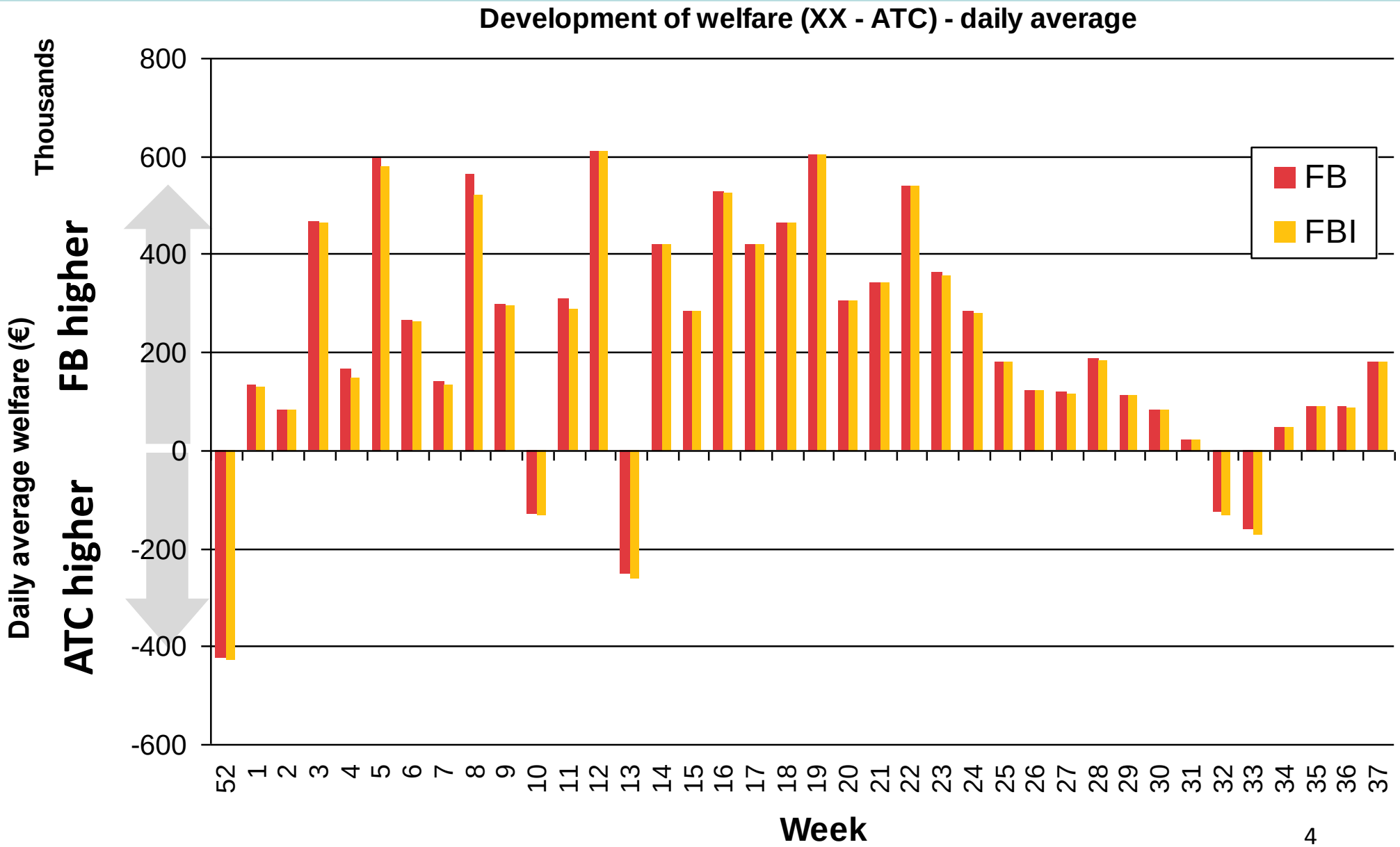
Representativeness of data

wk	Wed	Thu	Fri	Sat	Sun	Mon	Tue
0							01 Jan
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3	16 Jan	17 Jan	18 Jan	19 Jan	20 Jan	21 Jan	22 Jan
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8	20 Feb	21 Feb	22 Feb	23 Feb	24 Feb	25 Feb	26 Feb
9	27 Feb	28 Feb	01 Mar	02 Mar	03 Mar	04 Mar	05 Mar
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33	14 Aug	15 Aug	16 Aug	17 Aug	18 Aug	19 Aug	20 Aug
34	21 Aug	22 Aug	23 Aug	24 Aug	25 Aug	26 Aug	27 Aug
35	28 Aug	29 Aug	30 Aug	31 Aug	01 Sep	02 Sep	03 Sep
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37	11 Sep	12 Sep	13 Sep	14 Sep	15 Sep	16 Sep	17 Sep

1 - External parallel run performance

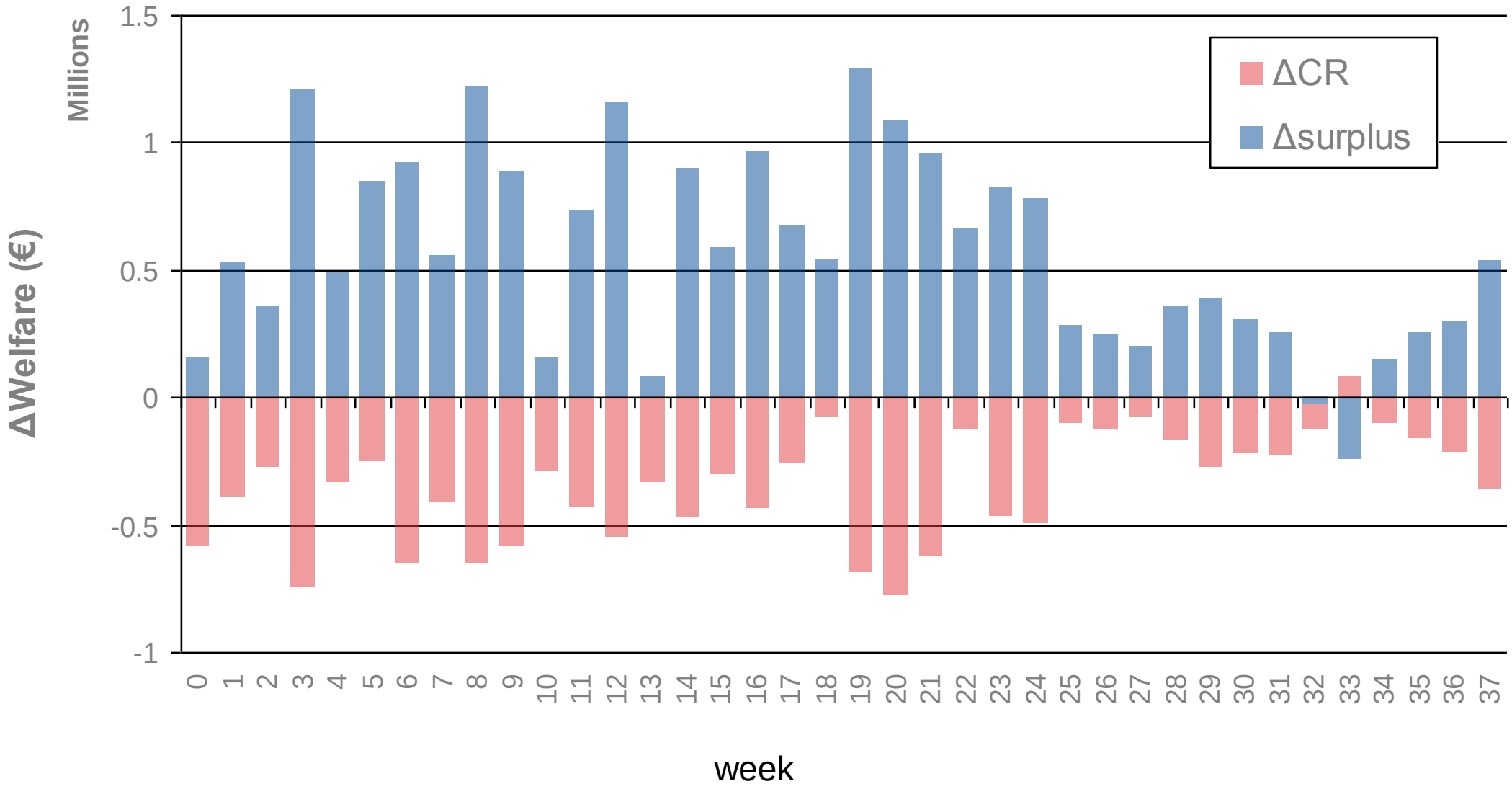
Day ahead market welfare (weekly, relative to ATC)



4

1 - External parallel run performance

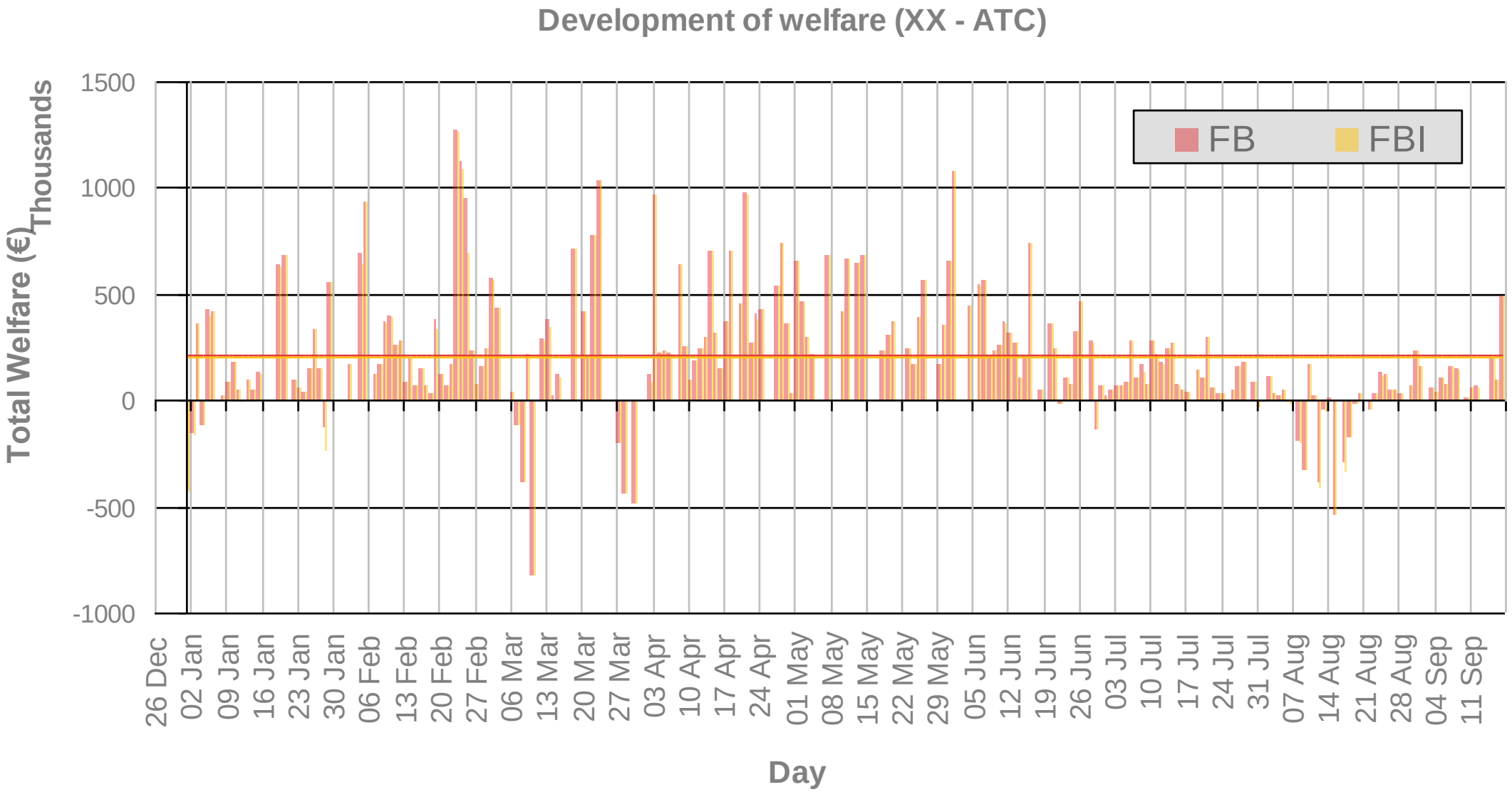
Change in weekly daily average welfare FB - ATC



5

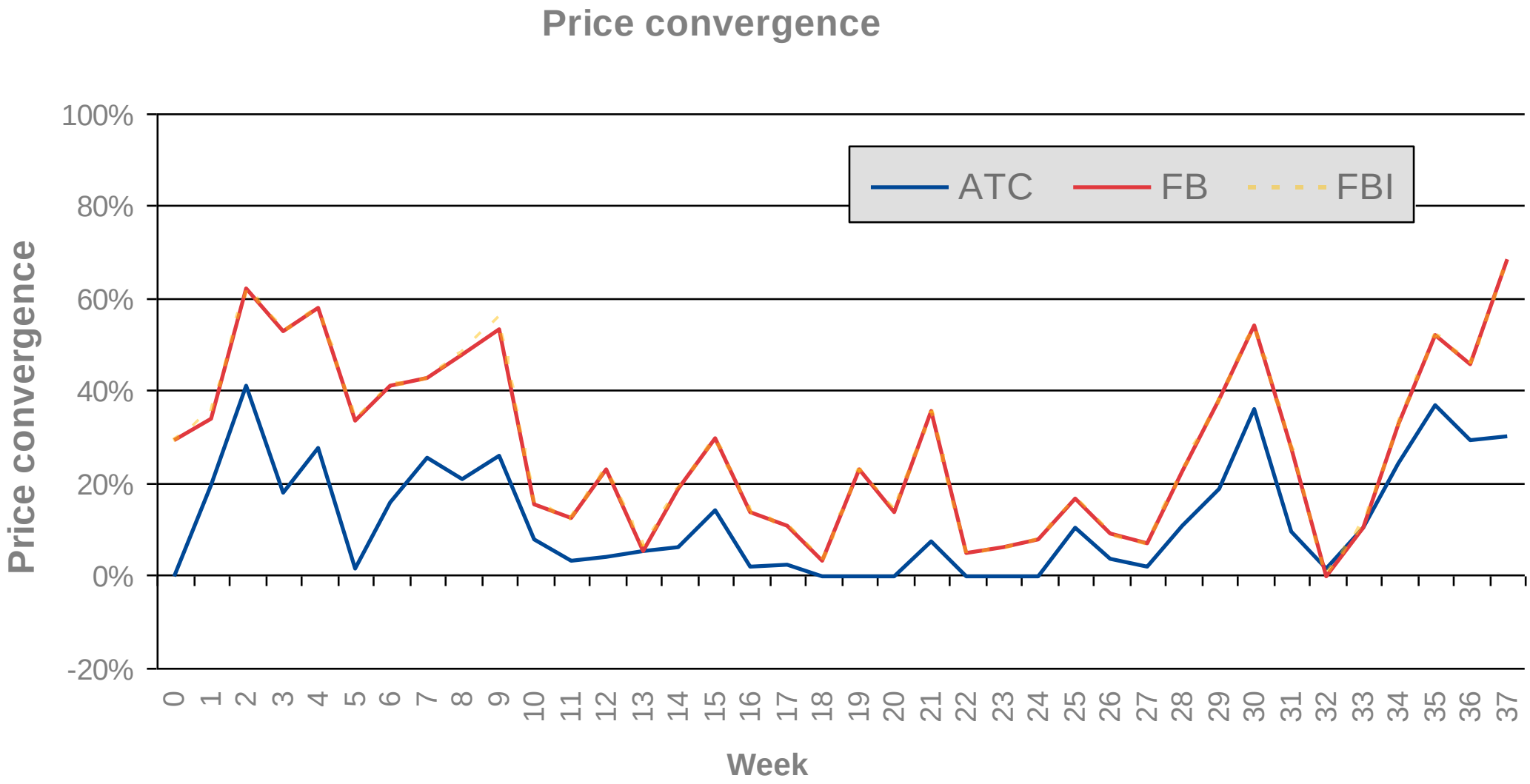
1 - External parallel run performance

Day ahead market welfare (daily, relative to ATC)



1 - External parallel run performance

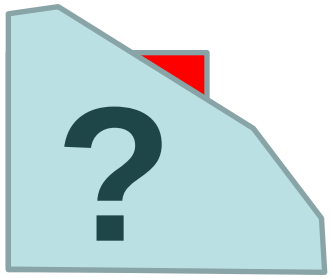
Price convergence (= percentage of time with single CWE price)



1 - External parallel run performance

ATC not covered by the FB domain

ATC exceeding the FB domain

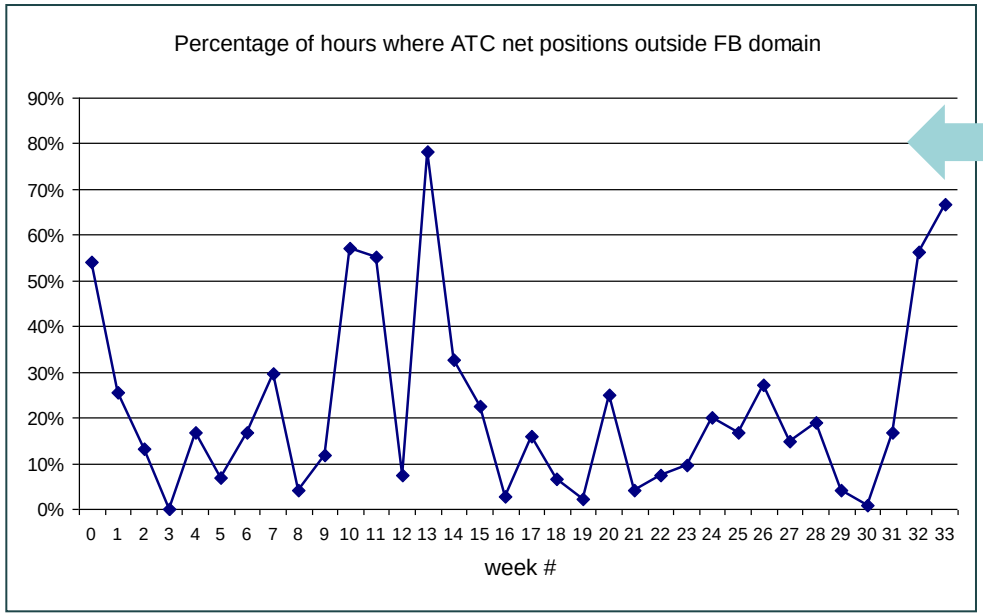


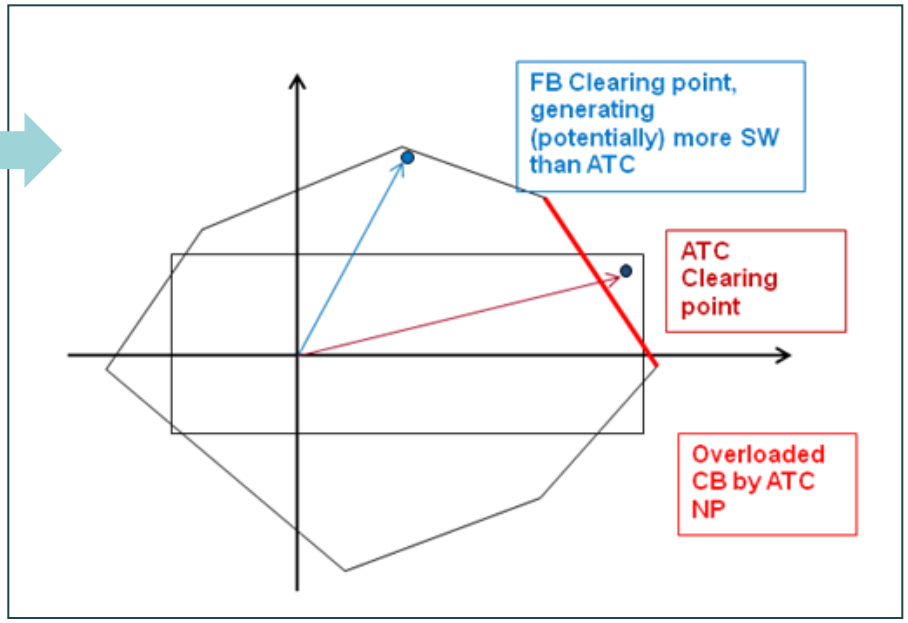
1 - External parallel run performance

Why ATC sometimes exceed the FB domain : Conceptual introduction

Some facts

- It has been observed during the FB parallel run that the ATC clearing point is sometimes (in average 1 out of 5) out of the FB domain, meaning that **some FB critical branches would be overloaded by the exchanges generated by the ATC** market coupling solution

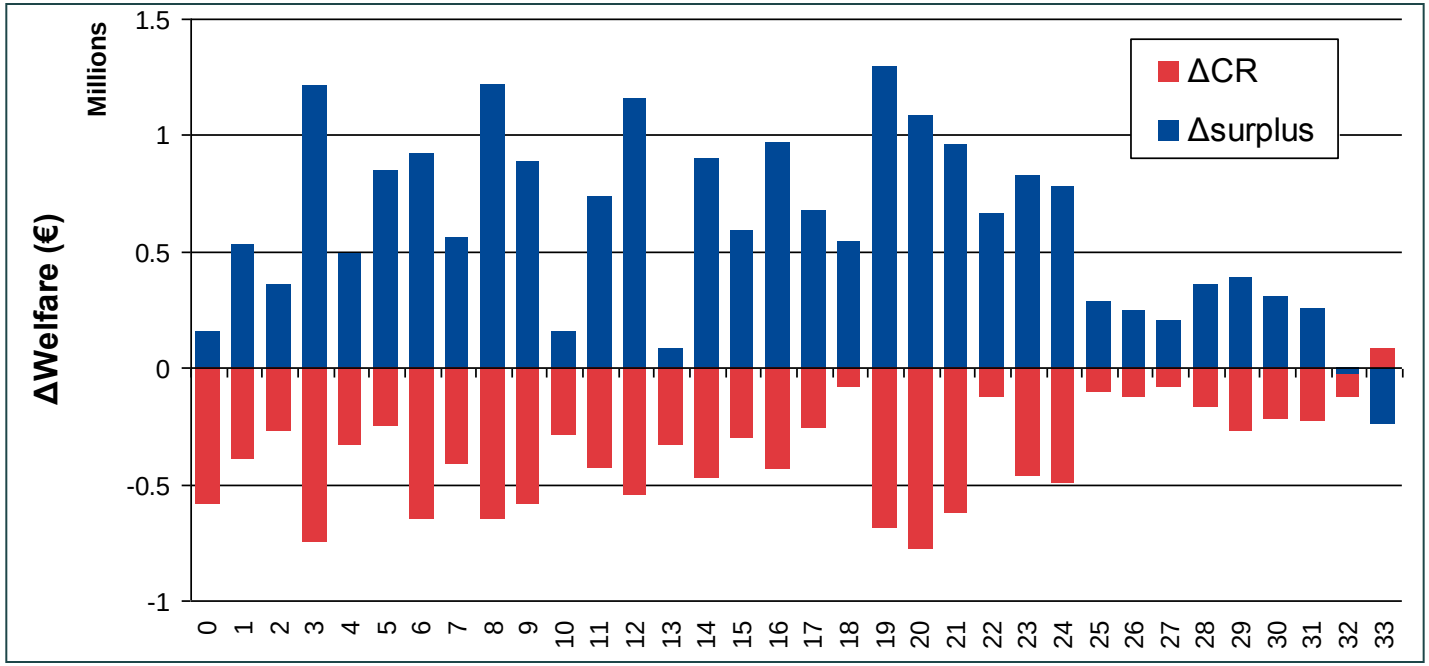




1 - External parallel run performance

Why ATC sometimes exceed the FB domain : Conceptual introduction

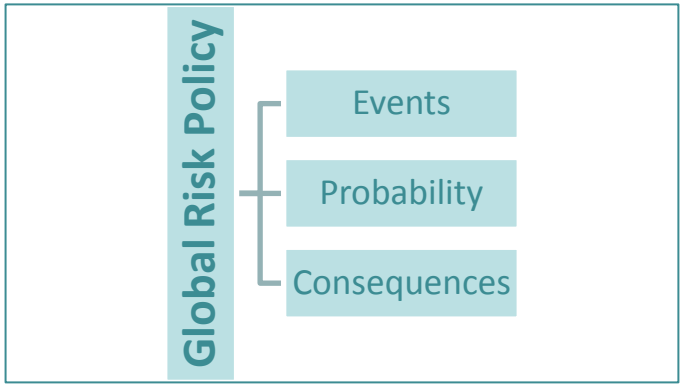
- Such cases raise questions about the consistency of the risk policy standards followed by CWE TSOs from ATC to FB. **Should not the ATC systematically be covered by the FB domain ?** If not, does it mean that current ATCs entail too much risk for the TSOs ? Or that FB sometimes happen to be over-conservative ?
- We will see, from a conceptual angle then with a practical example, why **such cases can happen without contradicting the consistency of the risk policies** applied by the TSOs
- Before, CWE partners wish to remind that in the vast majority of cases, including the ones where FB constraints are violated by the ATC clearing point, **the trade-off remains largely in favor of the Flow Based approach**, with respect to welfare and convergence indicators



1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Globality of TSO SOS policies**

- TSOs apply **global risk policies which are strictly equivalent in ATC and FB**
  However, the differences at implementation level and the increased accuracy of the FB model can sometimes lead to discrepancies between two independent approaches which are based on different assumptions
- Focusing on single cases does not give a representative image of risks management as TSOs' SOS policies are global, statistical approaches

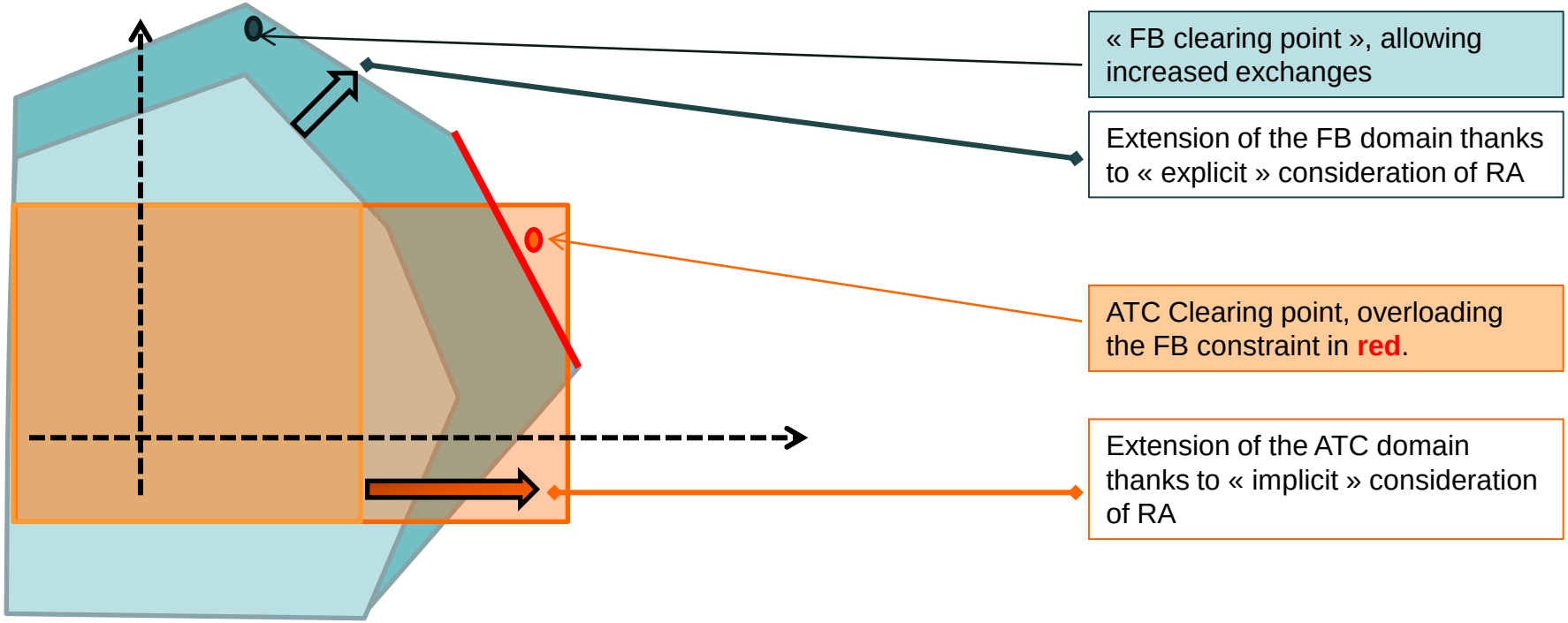


- Therefore, one cannot draw the conclusion that ATCs are not safe or that FB is over conservative. Discrepancies are normal, even though **CWE TSOs expect a progressive decrease in their occurrences** in the course of the parallel run**, thanks to increased experience**
- However, **losses of welfare from ATC to FB, which do not happen systematically when the ATC domain is not fully covered by the FB one**, deserve circumstantial explanations

1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Same SOS policies but different modeling assumptions**

- These somehow abstract concepts can be better understood when **comparing the usage of remedial actions in ATC and FB**
  - The consideration of RA in FB, thanks to a better physical model and enhanced coordination between TSOs, results in a **increased capacity domain**, yet potentially overloaded by some ATC "corners", which on their side result from a "simpler" consideration of RA



- The situation is therefore "normal" but during the parallel run, also a learning phase for TSOs, the efficiency of coordination procedures will increase which is expected to make such cases scarcer

1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Focus on parallel run results**

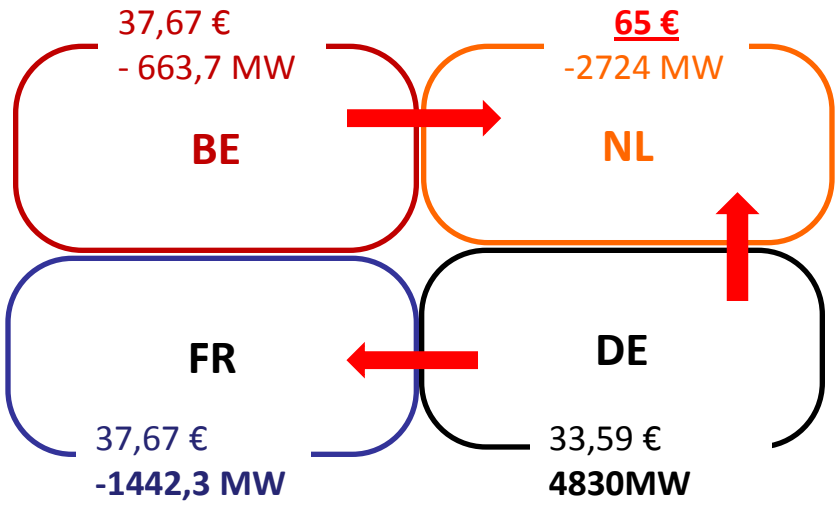
- These concepts will be illustrated by focusing on two specific cases from the parallel run
  1. **"Normal" parallel run day** (with promising welfare gain from ATC to FB)
  2. Parallel run day from **week 33 displaying a significant degradation of day-ahead market welfare**
- In both cases, the ATC solution violates some FB constraints
- We will see that the specific conditions of the parallel run mainly explain such situations

1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Focus Case n°1 : week 28, DA welfare gain = 1.2 M€**

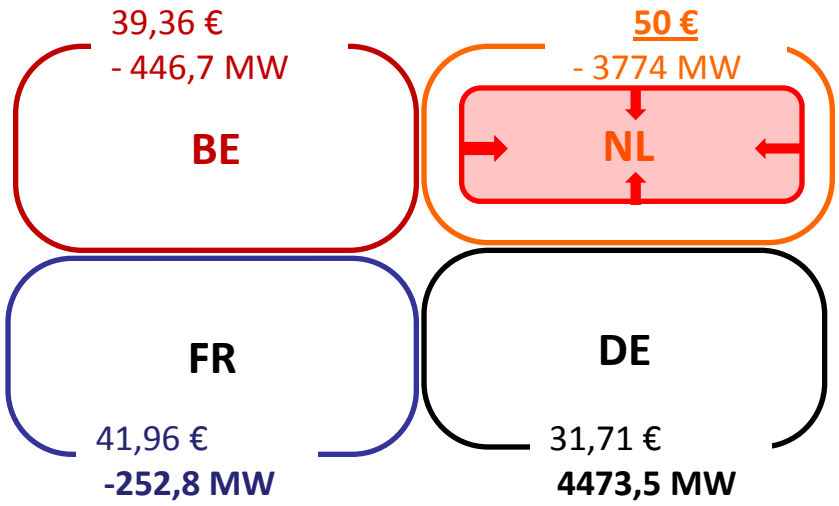
Situation: 11th of July, at 2 – 3 pm

ATC market coupling



- Congested situation in ATC
- Limiting ATC from Germany to France, from Belgium to the Netherlands, and from Germany to the Netherlands.

FB market coupling



- Congested situation in FB or FBI. Active CB is the import limit of NL.
- However the situation significantly improves, prices converge more, mainly thanks to increased imports into NL.

Welfare gain of this day, from ATC to FB, is 211 k€.

1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Focus Case n°1 : week 28, DA welfare gain = 1.2 M€**

Situation: 11th of July, at 2 – 3 pm

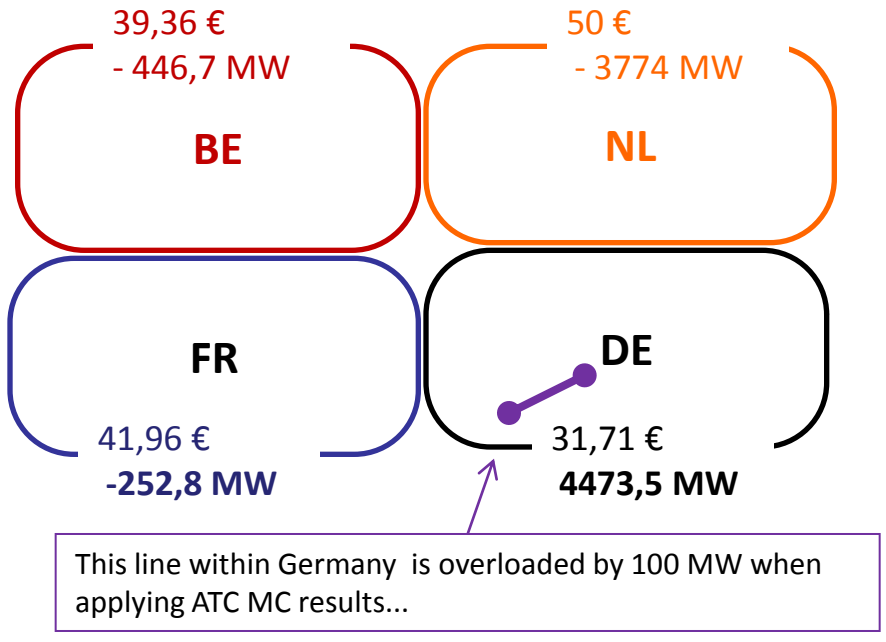
So everything went fine ? Yes but...

- One may have noticed that the ATC clearing point actually violates one FB CB, which is a line within Germany (N-1 case), between 2 German TSOs.
- The check can be performed in the utility tool, which displays an overload of 100 MW when applying strictly ATC MC results.

Does it mean that the ATC domain is not safe ?

- NO, the ATCs computed by the TSOs implicitly consider the usage of a topological RA
- As the line is an "interconnector", this RA needs to be shared, thanks to coordination between the two concerned TSOs
- Some topological RA are not completely implemented in FB (precisely because RA are explicit in FB, which makes their consideration more accurate but more difficult to implement), which is why sometimes the "missing RA" generates a decrease of day-ahead market welfare.

FB market coupling



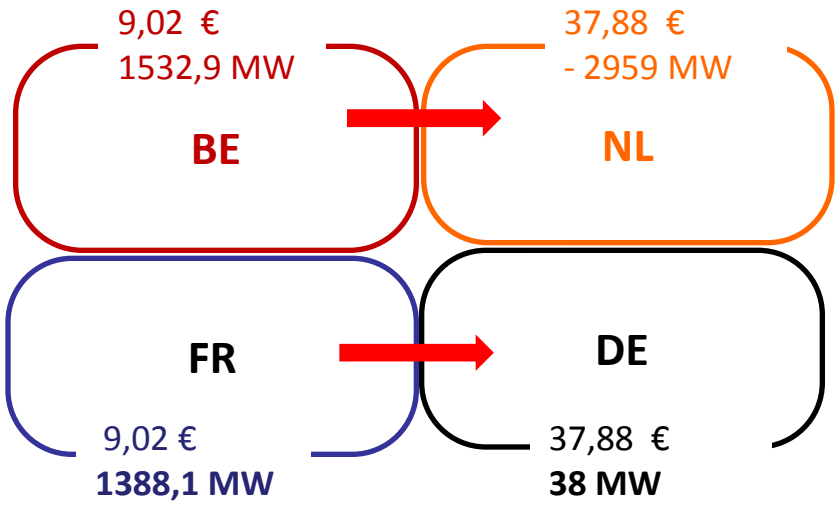
Coordination (and therefore sharing) on all type of topological remedial actions in FB will be accomplished shortly by CWE TSOs

1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Focus Case n°2 : week 33, DA welfare "gain" = - 1 M€**

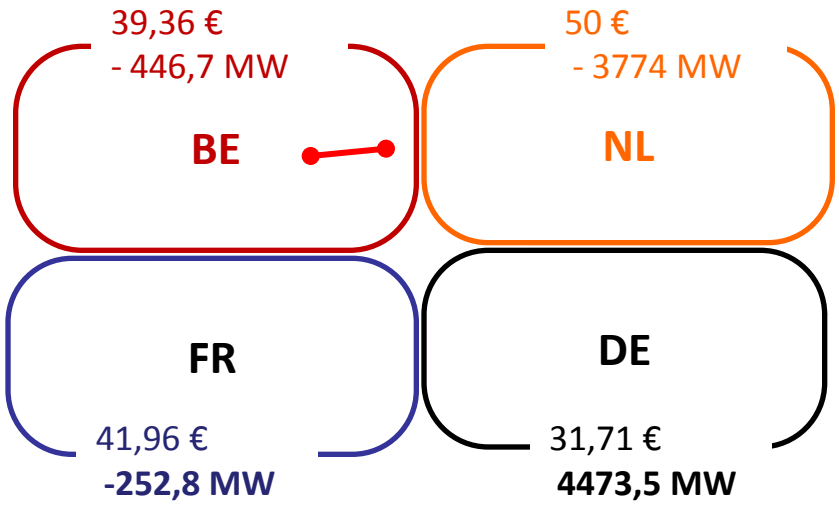
Situation: 15th of August, at 6 – 7 am

ATC market coupling



- Congested situation in ATC
- Limiting ATC from France to Germany, from Belgium to the Netherlands.

FB market coupling



- Congested situation in FB or FBI. Active CB is an internal line of BE, close to the NL border.
- The line is overloaded in the basecase (without any outage happening), i.e. in the so called "N-case".
- It appears that the constraint in BE limits even more the exchange in CWE, especially towards NL, than ATC do.

Welfare "gain" of this day, from ATC to FB, is - 540 k€

1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Focus Case n°2 : week 33, DA welfare "gain" = - 1 M€**

Situation: 15th of August, at 6 – 7 am

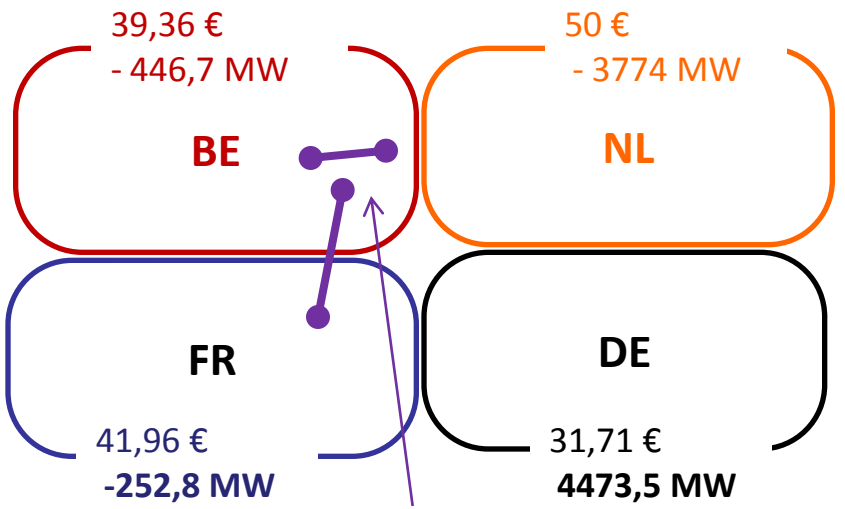
How to explain this drop of SW ?

- Obviously, the drop of SW means that the ATC clearing point is out of the FB domain.
- One can see in the utility tool two overloads appearing when applying the ATC solution. One is due to the CB already active in FB (internal BE line) and the other is due to a BE-FR interconnector monitored in N-1 situation.

Does it mean that the ATC domain is not safe ?

- NO, as in the previous case, it appears that the FB domain is over constraining, mainly due to incomplete coordination.
- The first CB is an internal line overloaded in "N" (or basecase) situation, for which coordination was not considered upfront.
- The other CB is an interconnector BE-FR monitored in N-1. After internal investigation, the concerned TSOs decided that this did not have to be monitored in the framework of a FB computation.

FB market coupling



These 2 BE CBs drastically limit the exchanges in CWE (with respect to ATC) as they are respectively overloaded by 281 and 300 MW when applying the ATC solution.

A: Proper coordination on pre-fault (or "preventive") remedial actions will be shortly implemented by CWE TSOs

B: The CB set is continuously monitored and adjusted, as a normal aspect of the parallel run learning opportunity

1 - External parallel run performance

Why ATC sometimes exceed the FB domain: **Conclusion**

- Two explanation for cases where the ATC solutions exceed the FB domain:
  1. a **conceptual** one: globality of TSOs risk policies
  2. a **technical** one: different modeling assumptions
- These situations are therefore normal and should in principle not raise concerns, especially when keeping in mind that FB is creating in average more welfare than ATC
- However, the frequency of such "ATC > FB" cases, and the fact that single outliers have in some cases led to a decrease of day-ahead market welfare can be explained by circumstantial factors, mainly linked to the semi-operational conditions of the parallel run:
  - **Coordination on all type of topological remedial actions in FB** will be accomplished shortly by CWE TSOs
  - **Proper coordination on pre-fault remedial actions** will be shortly implemented by CWE TSOs
  - **The CB set is continuously adjusted**, as a normal aspect of the parallel run learning opportunity
- For these reasons, CWE partners expect the number of such cases (especially the "day-ahead market welfare drop" situations) to decrease along the course of the parallel run, even if the absolute disappearance of such situations is not a goal in itself, as contradictory to the independence of the FB approach

1 - External parallel run performance

MPs Feedback



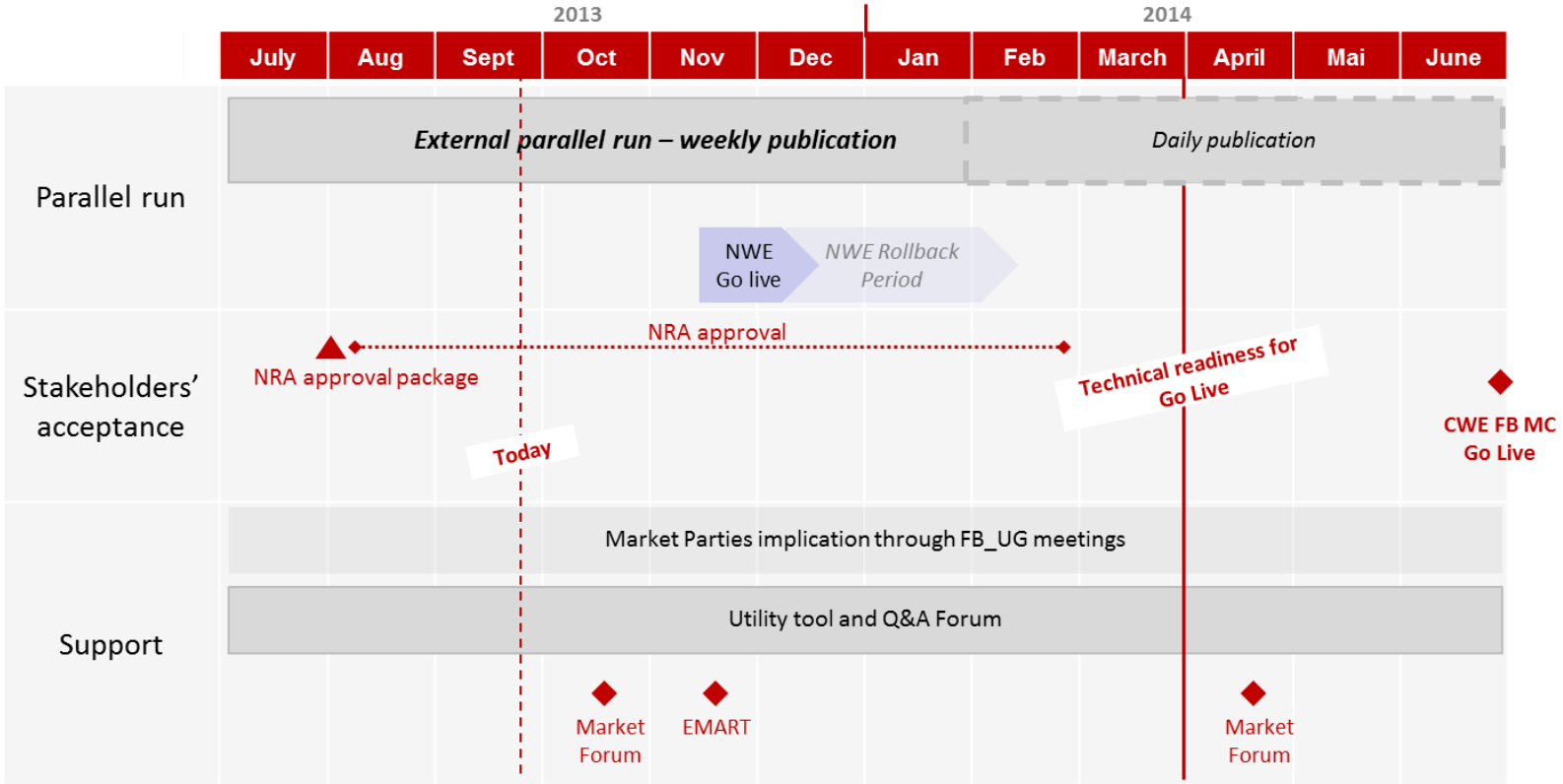
- Do you have questions on the presented slides?
- Do you have additional questions on specific external parallel run situations?
- What can Project Partners do to further foster MPs confidence in the parallel run?
- What is your opinion regarding the performance of FB during the last months?
- …

AGENDA

1. External parallel run performance and MPs' feedback
2. **CWE Project Planning**
3. Calculation of ID capacities
4. Transparency
5. AOB

2 – CWE Project Planning

- The objective of the CWE FB MC project is to be technically and operationally ready in March 2014 after a successful launch of the NWE DA Project





- Do you have any questions on this planning and milestones?
- How long do your internal adaptations (tooling, etc.) take?

2 – CWE Project Planning

Organization of the Market Forum in October (1/2)



- CWE Market Forum on the 10th of October at the Sheraton Brussels Airport

Timing	Agenda	
09.30	***REGISTRATION AND COFFEE***	
10.00	**Introduction CWE FB project partners: Consultation outcome and project status**	
11.00	**Main market concerns and go-live requirements from market view (EFET)**	
11.30	**NWE DA Price coupling project status and go-live preparation**	
12.30	***LUNCH***	
13.30	**Workshop Session 1: Challenges linked to the FB capacity calculation method** ▪ FB terminology and TSO operational process ▪ Transparency challenges ▪ Parallel run results: cases when FB is out of ATC domain	**Workshop Session 2: Impact on market and interpretation of simulation results** ▪ Allocation principles ▪ Parallel run results: calculation of Intraday capacities, non-intuitive cases ▪ Shadow auctions fallback and rollback principles
15.15	***COFFEE BREAK***	
15.30	**Workshop Session 2: Impact on market and interpretation of simulation results** ▪ Allocation principles ▪ Parallel run results: calculation of Intraday capacities, non-intuitive cases ▪ Shadow auctions fallback and rollback principles	**Workshop Session 1: Challenges linked to the FB capacity calculation method** ▪ FB terminology and TSO operational process ▪ Transparency challenges ▪ Parallel run results: cases when FB is out of ATC domain
17.15	***COCKTAIL***	

2– CWE Project Planning

Organization of the Market Forum in October (2/2)

- EFET welcomed the idea to present a summary of main challenges related to the FB implementation for MPs during the market forum
- FBUG members are welcome to share the main points they would like to see addressed during EFET's presentation



- Which are key points the presentation from the market point of view should address?
- …

AGENDA

1. External parallel run performance and MPs' feedback
2. CWE Project Planning
3. **Calculation of ID capacities**
4. Transparency
5. AOB

3 – Calculation of ID capacities

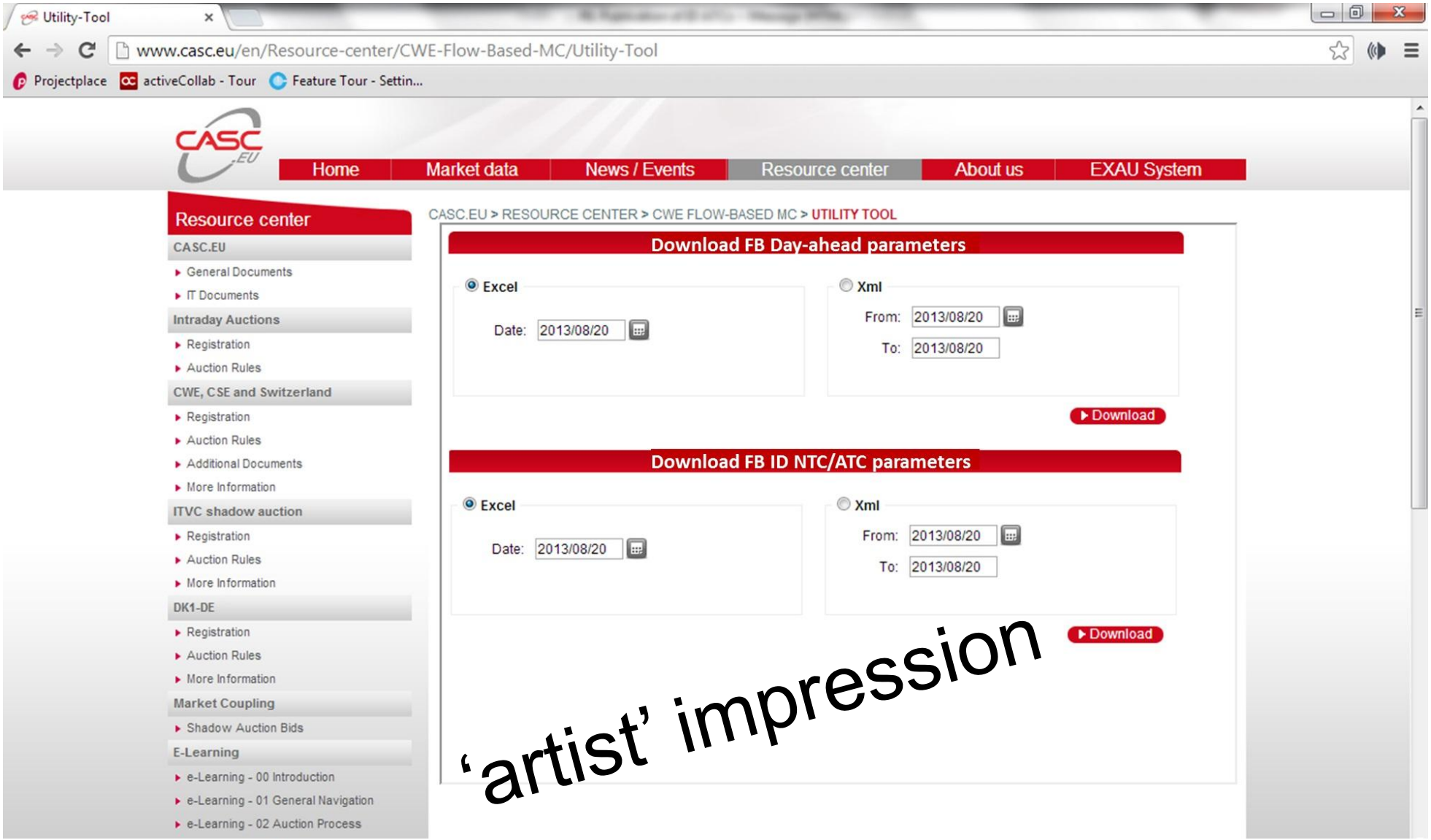
Publication of simulated ID ATC values?

- Today, CWE TSOs have derived the initial values for the ID ATCs given the plain FB MC market simulations as of the start of the external parallel run

- To what extent could the publication of these values be helpful for market participants?

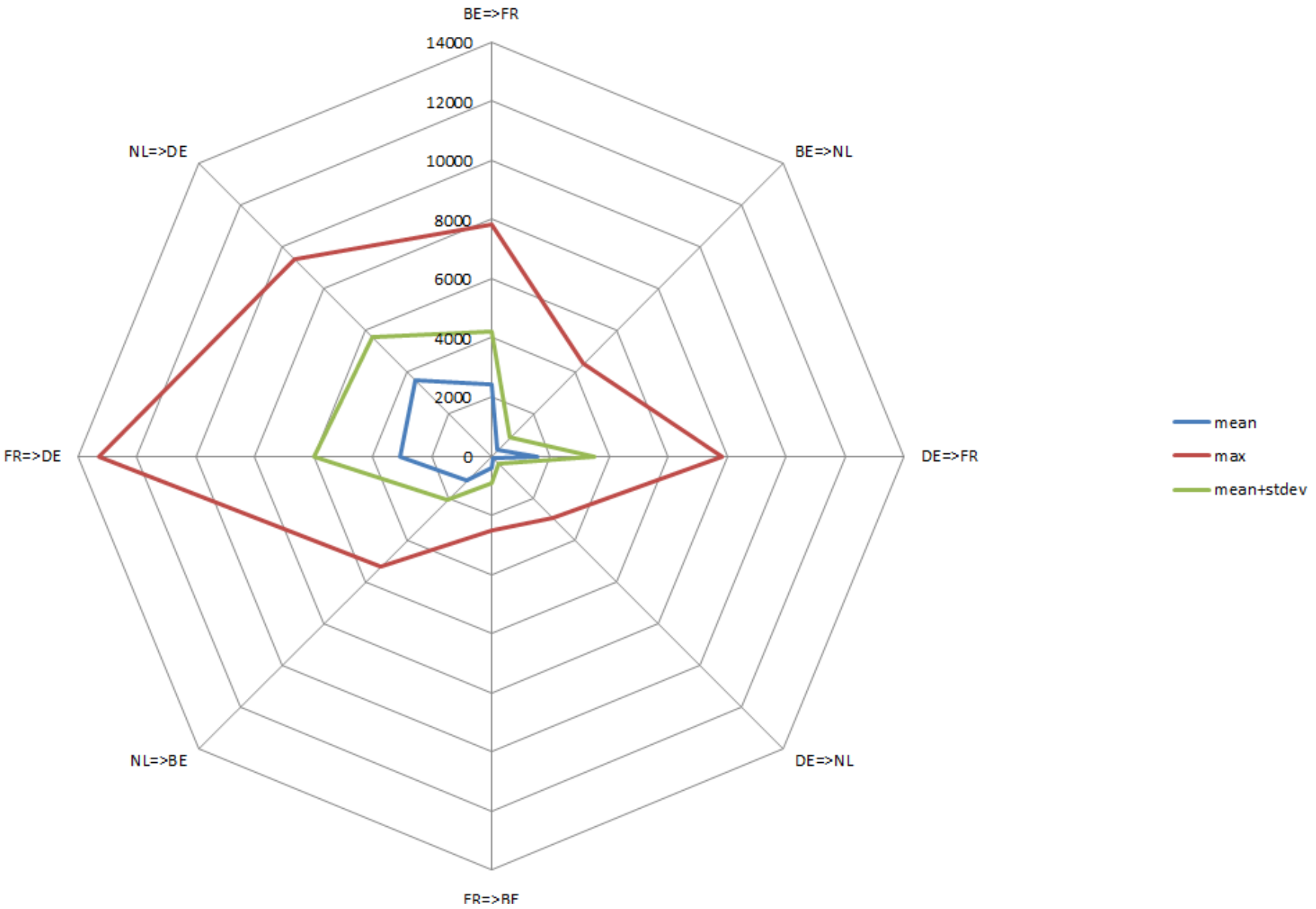
3 – Calculation of ID capacities

Publication of simulated ID ATC values?



3 – Calculation of ID capacities

Overview of initial IDATC values (Jan 2 – Sept 3, 2013)



AGENDA

1. External parallel run performance and MPs' feedback
2. CWE Project Planning
3. Calculation of ID capacities
4. **Transparency**
5. AOB

4 – Transparency

- Following project partners' proposal on data publication made in the approval document, discussions and exchanges are still ongoing with NRAs
- In order to further illustrate the proposal and the transparency challenges from a TSO point of view, a more detailed presentation is currently being prepared for the CWE Market Forum where the slides presented by Statkraft are a valuable input for the discussions
- Today, the project would like to share and discuss with MPs the proposal for publication of critical branches (see following slide)

4 – Transparency

Current project's proposal for data publication: Critical Branches

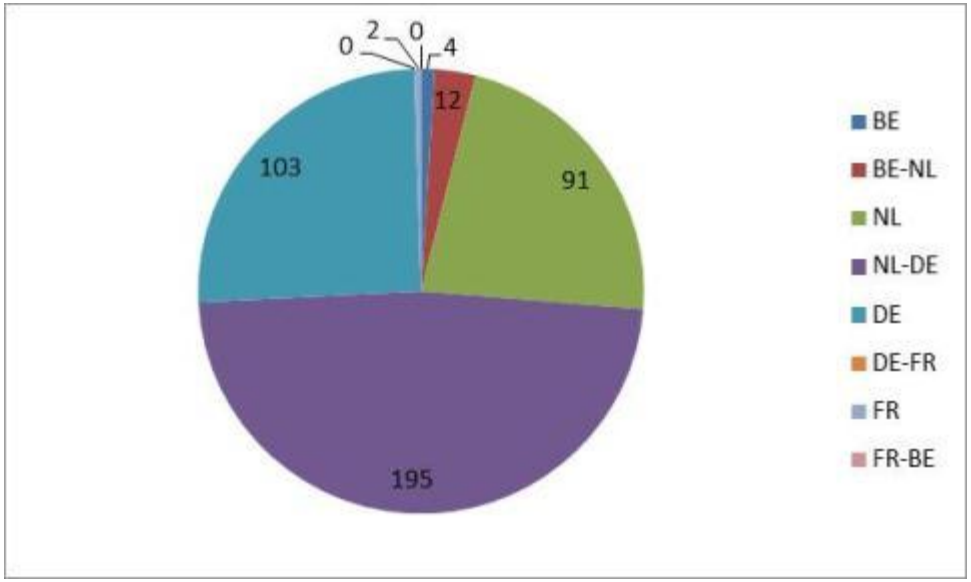
- CWE project partners propose, as mentioned in the NRA approval package, additionally to publish **ex-post**:
  - for each day with an hourly resolution,
  - the detailed list of pre-solved critical branches also highlighting the limiting CBs
  - with locational information aggregated per country or border
- In other words, CWE will publish the equivalent of the PTDF sheet of the utility tool, but will indicate the location of the CB per country/border
- Based on this data and publication it is intended to publish a monthly overview/summary of the limiting CBs

4 – Transparency

Current project's proposal for data publication: Critical Branches

- For common discussion

Day d / Hour h					
Location	BE-hub	DE-hub	FR-hub	NL-hub	RAM (MW)
BE - NL	-0.00751	0.03839	-0.02333	0.04863	248
BE - NL	-0.00751	0.05327	-0.02333	0.04863	341
DE	0.01825	0.24165	0.16244	-0.00478	1246
DE - FR	0.03219	-0.12462	0.06965	-0.09202	846
DE - FR	0.03219	-0.12462	0.06965	-0.09202	846
FR	-0.0934	-0.17882	-0.30739	-0.10358	955
DE - FR	-0.01121	0.03316	0.04949	0.02056	241
BE - NL	0.15894	0.01178	-0.10359	0.08035	1069
BE - FR	0.07409	0.00339	-0.0138	0.02669	371
BE - FR	0.08865	-0.13143	-0.07653	-0.14152	823
BE	-0.06486	0.09981	0.18421	0.04557	1030
NL	-0.04593	0.20901	0.09448	0.25008	1143
NL	-0.04593	0.20901	0.09448	0.25008	1143
BE - FR	0.03743	-0.04985	-0.05299	-0.03277	377
DE - FR	-0.10814	-0.31978	-0.18941	-0.4588	1366
DE - NL	-0.02438	-0.14392	-0.07175	-0.31532	1079
DE - NL	-0.02438	-0.14392	-0.07175	-0.31532	1079
BE	-1	0	0	0	4220
FR	0	0	1	0	6406
FR	0	0	-1	0	4123
DE	0	-1	0	0	4470
DE	0	1	0	0	6930
NL	0	0	0	-1	3838
NL	0	0	0	1	4462



The diagram presents the numbers of hours critical branches limited the market and their location

4 – Transparency

Current project's proposal for data publication: long term information

Requested but non-existing information:

- Long Term Flow Based Grid Models:
  - "Long term Flow Based grid models" do not exist as such, as TSO perform their long term studies by using complex hypotheses and multiple scenarios

- Long Term PTDFs:
  - As a consequence of the previous statement, "LT PTDF", which would therefore be computed on the basis on a LT grid model, cannot exist. Flow Based is computed on day-ahead, it is not feasible to publish additional "days-ahead" information. Flow Based takes into account parameters which change on a daily basis and which are very difficult to predict

4 – Transparency

Current project's proposal for data publication



- Further open discussion

AGENDA

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5 – Divers

- Market Forum à Bruxelles le 10 /10...venez nombreux !
- E-mart 26/27 novembre : “permanence” d’experts FB aux Stands EPEX et APX
- RTE reste preneur des besoins / suggestions relatifs à l’accompagnement de ses clients quant à la transition ATC => FB.