



# PROJECT REPORT CWE Market Coupling

PLEF SG 1, November 26 2008, Brussels  
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# Previous PLEF meeting

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- ▶ The design of the MC solution was explained and discussed.
- ▶ On some outstanding issues further information was requested:
  - ▶ Congestion revenue sharing
  - ▶ ATC calculation
  - ▶ Bottom-up planning and budget
- ▶ Continuation of validation analysis
- ▶ In the addendum we now present our proposal regarding these issues
- ▶ Project organisation is set up as planned



# Content

- ▶ In this presentation we would like to focus on:
  - ▶ ATC calculation
  - ▶ Planning and budget
  - ▶ Validation results
- ▶ Congestion revenue sharing key is clear and similar to the split of revenue currently applied

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# ATC calculation

- ▶ 15 September: explanation in PLEF of the methodology being studied
- ▶ In the addendum this methodology is further described in a business process containing 6 steps:
  - ▶ Step 1: NTC determination like today. All TSOs apply the country to country ETSO model. With MC this allows for hub to hub allocation ( today TSO to TSO on some borders)
  - ▶ Step 2: NTCs are shared between all CWE TSOs. Today, there is only bilateral exchange of NTCs
  - ▶ Step 3: Creation of a common grid model, as presented in the Orientation Study. This implies the creation of 2 basecases on D-2. The basecases include best estimation for
    - ▶ Planned grid outages
    - ▶ Planned outages of generators

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# ATC calculation

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- ▶ Representative load pattern
- ▶ Wind generation
- ▶ Load forecast
- ▶ Exchange programs
- ▶ For non participating TSOs the DACF will be used

- ▶ Step 4: security assessment using the basecases
- ▶ Step 5: coordinated adjustment of NTCs in case of a potential security problem is foreseen
- ▶ Step 6: from NTC to ATC:
  - ▶ Coordinated ATC = coordinated NTC – netted LT nominations



# ATC calculation

- ▶ This methodology is an improvement:
  - ▶ Improved regional view between TSOs
    - ▶ TSOs share data and coordinate on potential problems
    - ▶ Harmonized approach
  - ▶ Better reflection of actual grid conditions:
    - ▶ NTCs are expected, where grid conditions are comparable, to be similar to today on most days (i.e. non-stressed days)
    - ▶ NTCs can be lower in stressed cases, maintaining required security of supply
      - ▶ During stressed days, the adjustment is made in a coordinated way, based on common information. Adjustment is more efficient than in bilateral NTC, since each TSO adjusts the NTC based on his own (incomplete) information. Capacities will be adapted to the exact level needed
  - ▶ Step towards the Flow Based target
    - ▶ Daily use of a common base case is a key element of the fine-tuning of the Flow Based method

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# ATC calculation

## ▶ Envisaged plan:

- ▶ Expert meeting with regulators is highly desired by the project
- ▶ Phased rollout through pilot experimentation Q1 till Q3 2009 :
  - ▶ 01.01 - 31.03: daily creation of the common base case (steps 1 to 3).
  - ▶ 01.04 - 30.06 : add-on of NTC verification and NTC adjustment (daily basis). Ex-post analysis of the frequency and volume of NTC adjustments (steps 4 and 5)
  - ▶ 01.07 - 30.09: add-on of ATC calculation (daily basis). Ex-post analysis of the impact on ATC. (step 6)
- ▶ IT development (common tool) :
  - ▶ Now to 04.2009 : specification
  - ▶ 04.2009 to 10.2009 : development and testing
  - ▶ 10.2009 : system ready for integration testing

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# Planning

- ▶ Bottom up and detailed exercise:

- ▶ Objectives were broken down into small deliverables
- ▶ Planning for each deliverable made by the responsible persons
- ▶ Integration into overall planning: iterative process of combining and challenging sub plannings

- ▶ Critical Path:

- ▶ December 2008: Regulators Endorsements
- ▶ TSO European Procurement
- ▶ All PX and TSO Systems built and ready 30 Sept 2009
- ▶ Systems integration tested
- ▶ Simulations finished - launch ATC based: 1 March 2010
- ▶ Launch of parallel run ATC and FB: April 2010
- ▶ Launch of FB MC in window November 29 and December 31 2010

- ▶ Planning is dependent on a number of critical assumptions

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# Critical Assumptions underlying the planning

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- ▶ Regulatory endorsement on the proposed solution ( incl. Coordinated NTC Methodology) and the cost recovery is assumed to happen by December 1st 2008
  - ▶ Any delay, will delay the planning accordingly
  - ▶ Once endorsed, local regulatory approval of local rule changes shall follow
- ▶ Timely Contractual Agreements:
  - ▶ Signature of All Party Cooperation Agreement II by the CWE Partners is needed by December 1st 2008. Contract is ready for signature but waiting for final regulatory endorsement on cost recovery , especially in Germany
  - ▶ Framework Agreement and Subsidiary Agreements for Operational phase shall be ready before end of 2009
- ▶ Agreement between partners on the Shipping Agent concept before end of 2008
- ▶ Confirmation of GCT at 12.00 and reception of EMCC flow data within 20 minutes after GCT (assuming sequential volume coupling)
- ▶ Readiness of all systems to start integration testing by September 30th 2009:
  - ▶ EPEX Spot Trading System that reduces interfaces, TSO European Procurement
- ▶ Flow based implementation:
  - ▶ No problems encountered during the pilot testing
  - ▶ Positive validation in 2010 based on study with 6 months of data
  - ▶ No extension to be integrated before the intended launch date



# Risk assessment on Critical assumptions

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Assumption	Risk	Mitigation measure
Regulatory endorsement by December 1 2008 of the proposed solution described the implementation study dated August 13, 2008	Risk of no timely endorsement. No questions asked or discussion requested on the implementation study by regulators. Regulatory endorsement is needed to start the implementation phase: building the MC system, the TSO systems, the local systems, the industrialization of the algorithm etc. Specific consent is required for the market design (GCT and subsequent timings, fall back), high level business process, congestion revenue distribution key, ATC calculation, the algorithm	Expert meetings with the regulators to discuss questions and unclarities
Signature of the All Party Cooperation Agreement II by the Project Parties, covering the implementation phase	APCA II is about cost sharing between the Project Parties. The contract is ready to be signed. However, German parties have officially confirmed that they will not sign as long as there is no formal agreement on the cost recovery in Germany	Parties request an urgent decision by BNetzA on full cost recovery
Timely realisation of all CWE MC related governance schemes and operations associated contracts before the ATC based launch date	The CWE Parties have chosen to setup a set of contractual arrangements between themselves to structure the Project (APCA I for design phase and APCA II for implementation phase) and the subsequent Operational phase ( Framework Agreement and Subsidiary agreements). Negotiation of contracts is a heavy process between 11 Parties. The timely completion of the contractual negotiations of the latter agreements between the Parties is thus a challenge.	<ol style="list-style-type: none"> <li>1. Dedicated negotiation team</li> <li>2. Logic and strict planning of negotiation matters</li> </ol>

# Risk assessment on Critical assumptions

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Assumption	Risk	Mitigation measure
Timely readiness of PX trading systems for integration and simulation testing, particularly the timely completion of the EPEX Spot system, the MC system and the industrialized algorithm	Complex systems need to be developed on a tight time schedule. Readiness of the EPEX Spot trading system (which enables price coupling to Germany and reduces the number of interfaces) is a critical dependency. The timely completion of the MC system and the industrialized algorithm is considered less critical	Close monitoring and reporting on the progress of the PX subproject  Identification of potential contingency measures
Timely readiness of the TSO systems for integration and simulation testing	Completion of the EU tendering process in 4 months  Completion of the detailed specification at the end of the tendering process	Strict planning and follow up by a dedicated person of the tendering process, the IT developments and the integration of TSO systems.  Identification of potential contingency measures
Solution endorsed will also be approved on local level	After regulatory endorsement, the formal approval of the solution will be reached on a local level, according to local procedures. This introduces the risk of discrepancies between the solution endorsed and the solution requested on the local level. This may cause serious delays of the project and increase in costs.	The parties request a view from the regulators how to ensure a joint and efficient decision making process.  Risk further to be managed by regulators



# Risk assessment on Critical assumptions

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Assumption	Risk	Mitigation measure
Positive confirmation of the proposed ATC methodology	A method was proposed by the TSOs. So far, a detailed impact study is not available. At this stage the Parties can not exclude a risk that the methodology proves to have material impact, leading to change request. A detailed evaluation study will be available by the end of Q3 2009.	Start pilot test phase in January, monitor and report intermediate results during the test phase Transparency on the analysis
Agreement between the Parties on Shipping Agent solution before end 2008	Parties are still in the process of deciding on the concept and the final business process for the most efficient collection of the congestion revenue resulting from the shipping of the cross border energy flows due to CWE Market Coupling. Analysis is ongoing on the best way to organise the granting of cross border capacity by the TSOs, nomination of cross border exchanges resulting from market coupling and tax/VAT consequences of the resulting money streams in the process of the congestion revenue collection. Planning is dependent on the finalisation of this process.	Dedicated taskforce with hard deadline. Intense efforts to seek agreement and address outstanding issues before end of 2008



# Risk assessment on Critical assumptions

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Assumption	Risk	Mitigation measure
Flow based delayed	Risk that the pilot test phase shows unexpected results that would need additional studies, implying either to postpone the FB parallel run, or to make FB parallel run last longer than planned. An alternative is also that there is high pressure from external parties to extend the market coupling before switching to FB.	Start pilot test phase as soon as possible (Jan. 2009), monitor and report intermediate results during the test phase
Maximum time span of 20 minutes between gate closure time to receive data from the Nordic coupling	No assurance that EMCC meets the 20 minutes requirement. The 20 minutes is a strong request from CWE given the VPP auctions in France. Delay of the 20 minutes would bring the VPP auction in a critical timing. At the moment, EMCC guarantees to provide data within 30 minutes. CWE intended to discuss the shortening of this delay after the launch of EMCC. However, that will not be possible before the restart of EMCC in Q1 2009. The risk is that GCT needs to be renegotiated if data can not be received within 20 minutes	More visibility on expected EMCC timings  Reassess the assumption of whether CWE can coexist with sequential volume coupling



# CWE MC Project Budget k€

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Cost Category	TOTAL
Costs originating from all party tasks:	6910
Joint PX tasks and investments	4530
Costs of local PX origin	4634
Joint TSO tasks and investments	1500
Costs of local TSO origin *	15271
Identified unallocated cost for Shipping Agent setup	300
Total implementation phase costs	25695
Actual design phase costs	7449
<b>Total Project Budget</b>	<b>33144</b>

\* Some of these costs are already considered in national tariffs

# Budget

- ▶ Actual design phase costs are near to budgeted costs
- ▶ Increase of total budget from 26 M€ to 33 M€. Mainly caused by 2 steps approach to be finalised in December 2010.
- ▶ More details of the budget to be provided at the local level between TSO and regulator

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# Validation results

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- ▶ New analysis performed based on improved order book data: correction of order books regarding explicit auction of capacity between Germany and TLC
- ▶ TSO data unchanged compared to previous analysis (318 days of historical ATC of 2007)
- ▶ Results still to be treated with care
- ▶ *NB: All values provided in this presentation unless explicitly stated have been calculated over 318 days.*



# Day ahead social welfare

Increase day ahead social welfare of +36.4M€ over 318 days, **41.8M€ annually**

Welfare distribution



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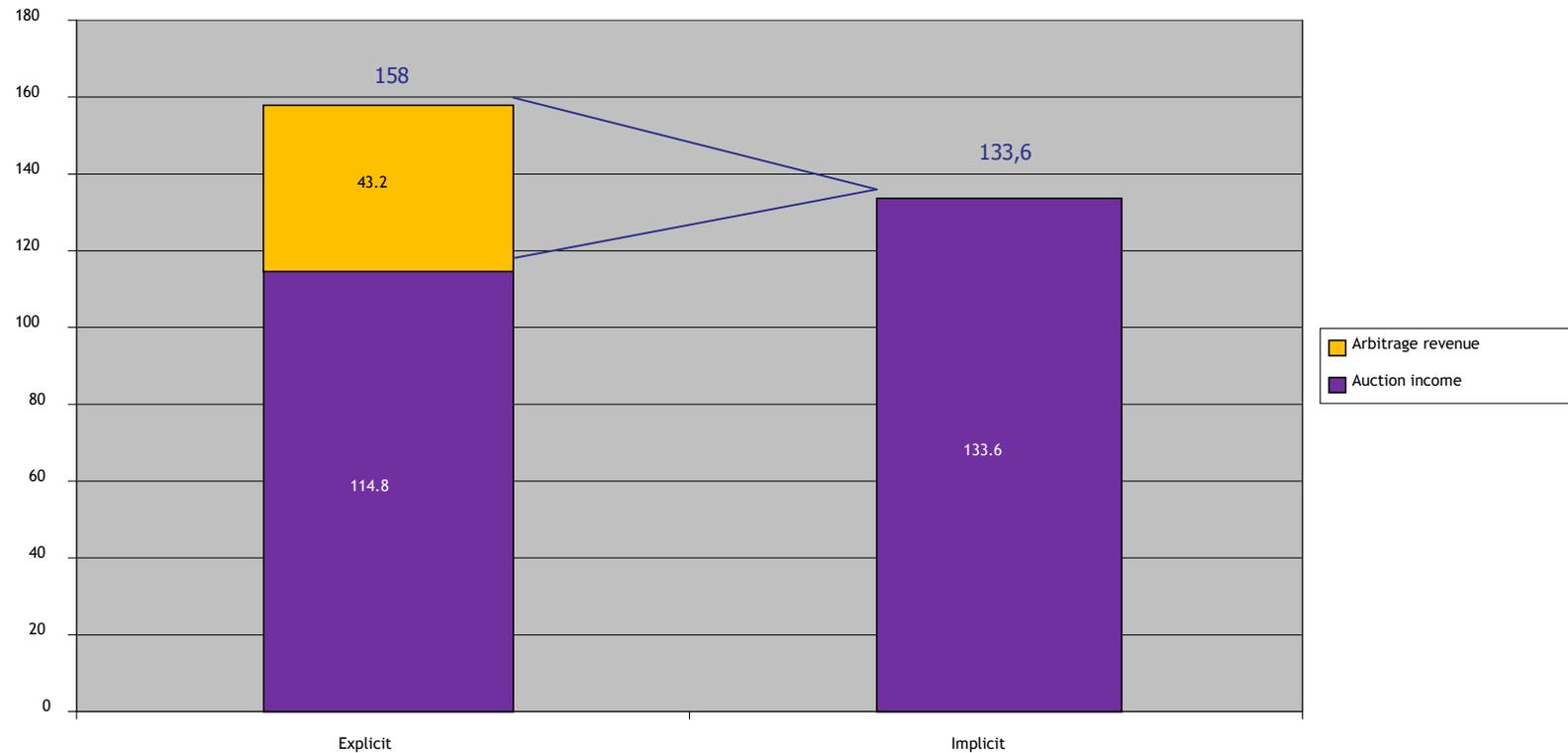
# Price spread revenue

Price spread revenue = auction income + arbitrage revenue

In implicit auctions arbitrage revenue is zero (0)

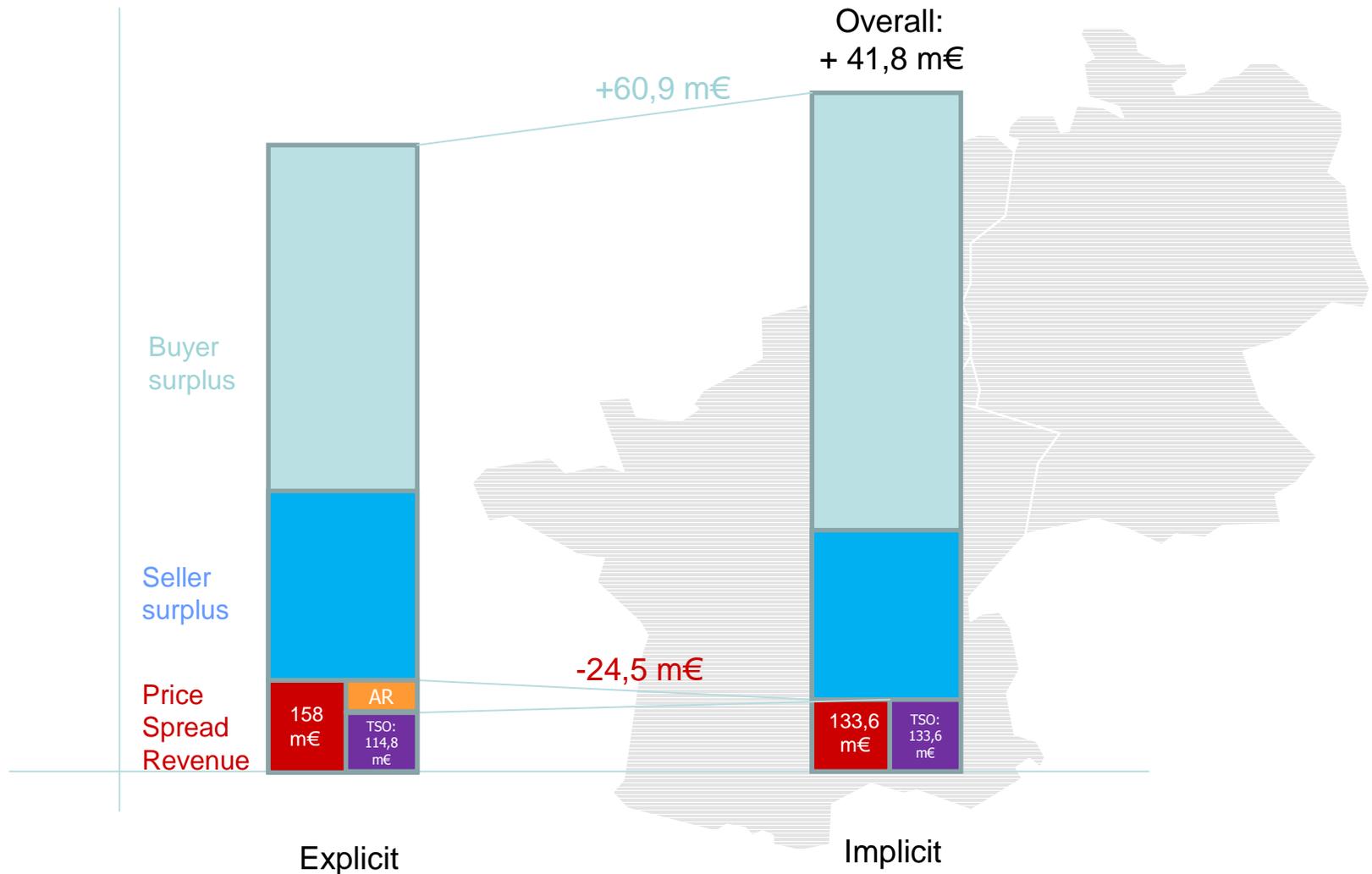
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Distribution of CR between TSOs and arbitrageurs



# Total Welfare Evolution from Explicit to Implicit

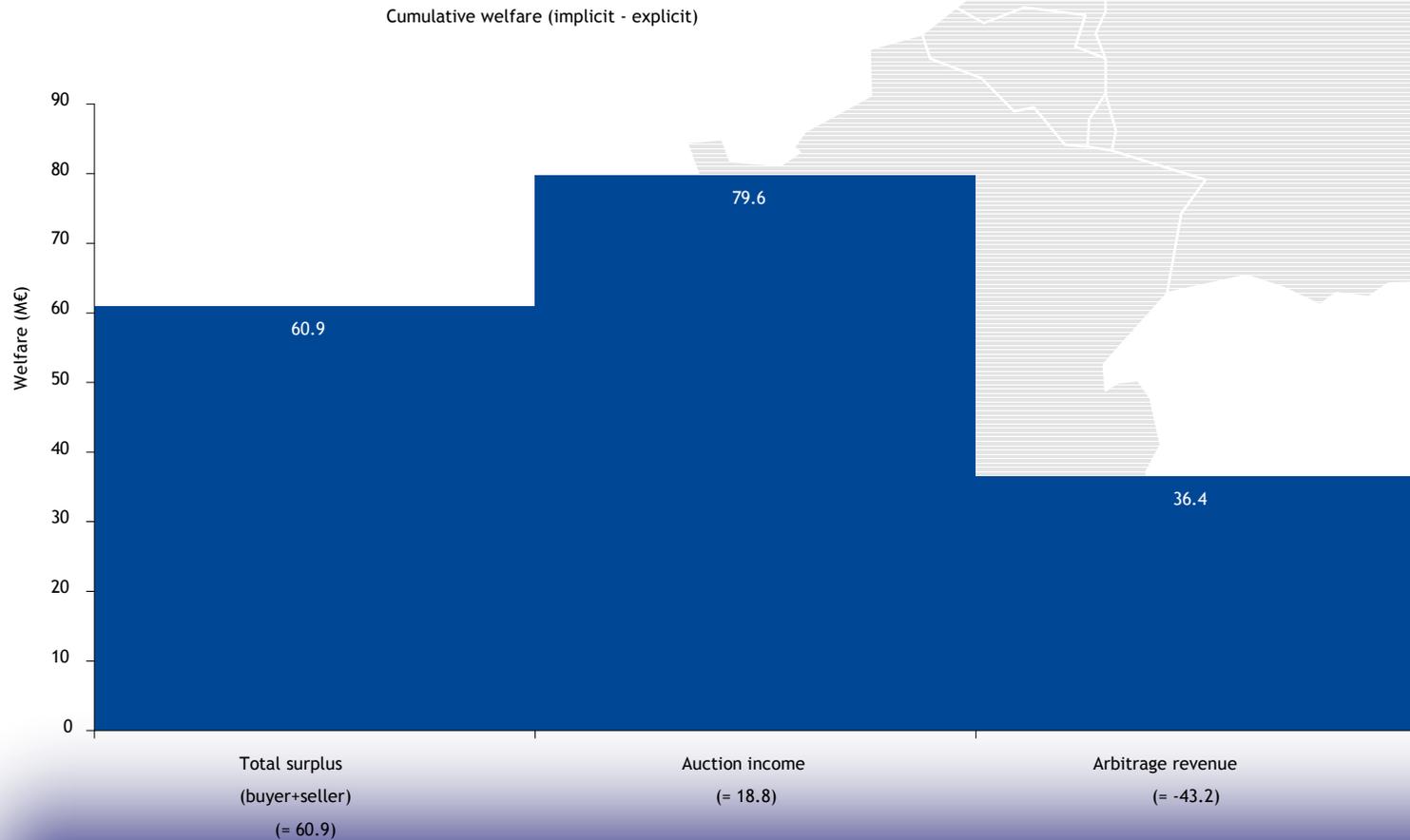
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# Day ahead social welfare

Increase of total surplus of 60.9M€  
 Increase of auction income of 18.8M€  
 Decrease of arbitrage revenue of 43.2M€

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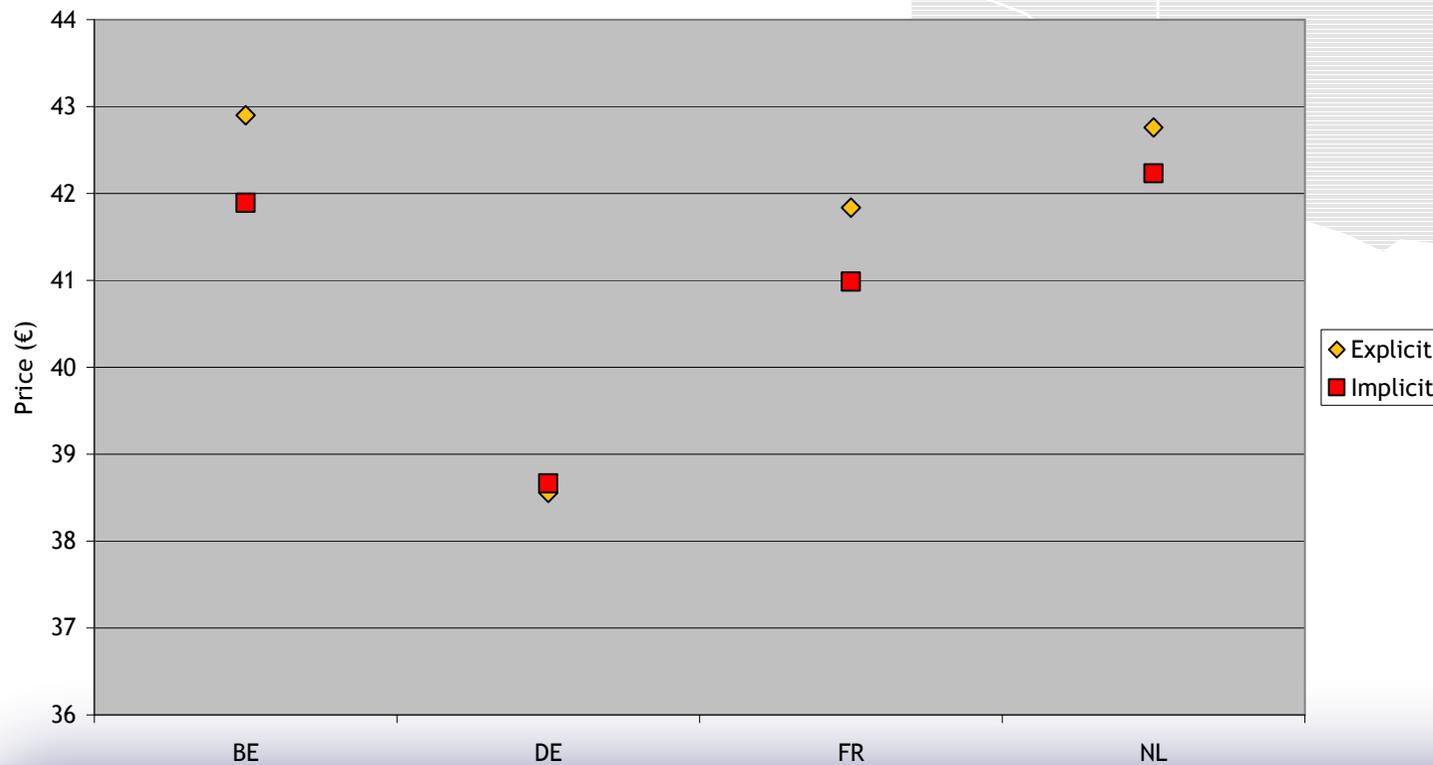


# Baseload prices

Convergence of average spread under ATC MC

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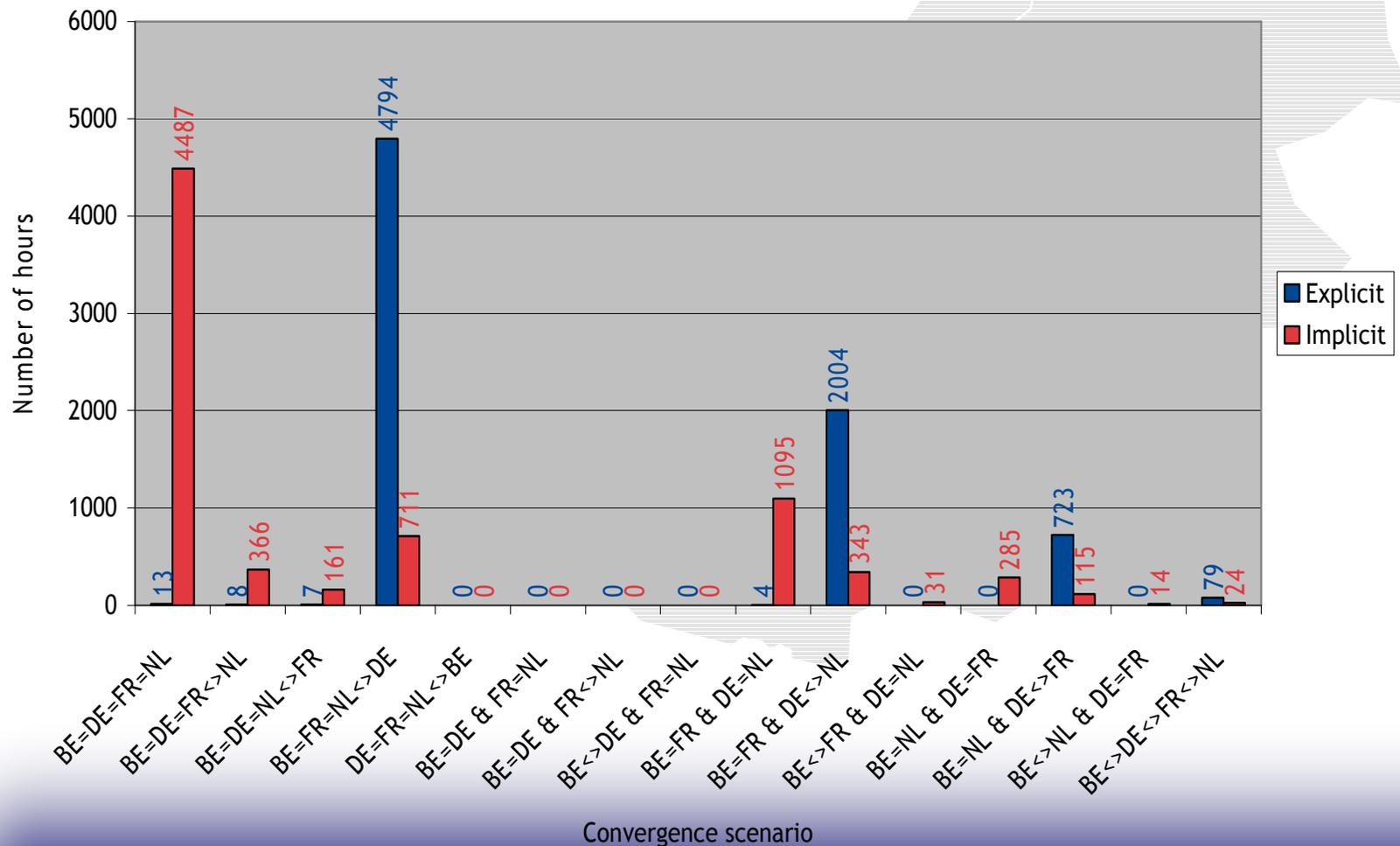
Annual base-load prices



# Price convergence

Increase of full convergence from 0.2% to 58.8% of all hours  
 Increase of partial convergence from 99% to 99.7%

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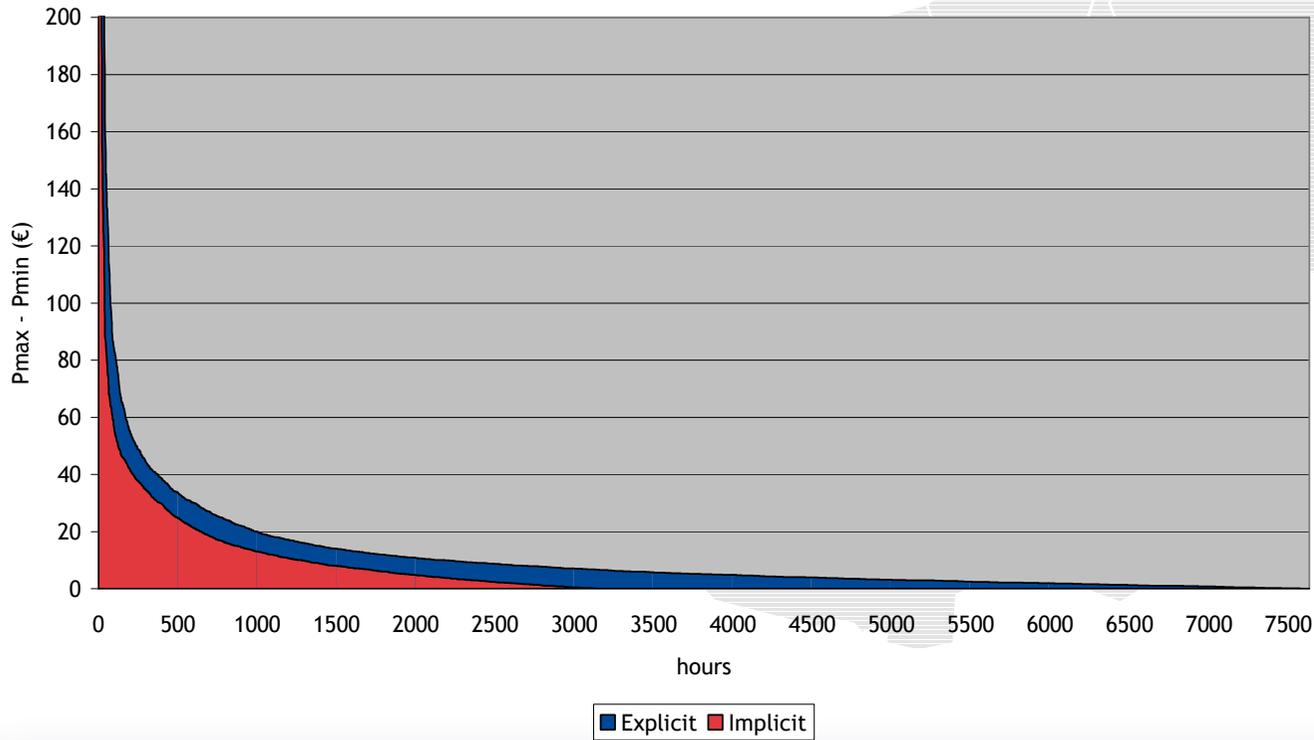


# Price divergence

Price difference between the most expensive and cheapest market decreases under ATC MC

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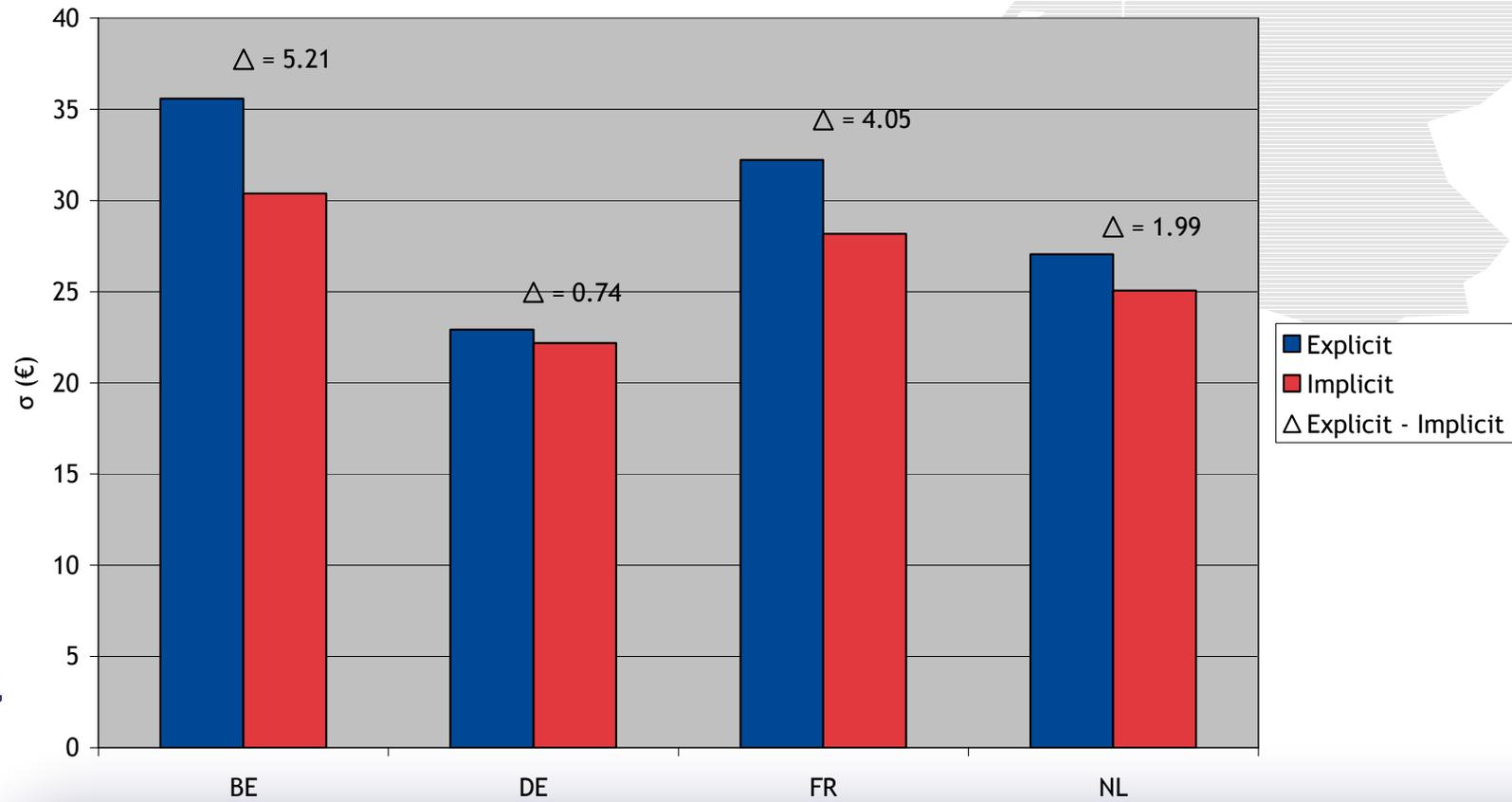
Price divergence



# Price volatility

Decrease of volatility in all markets under ATC MC

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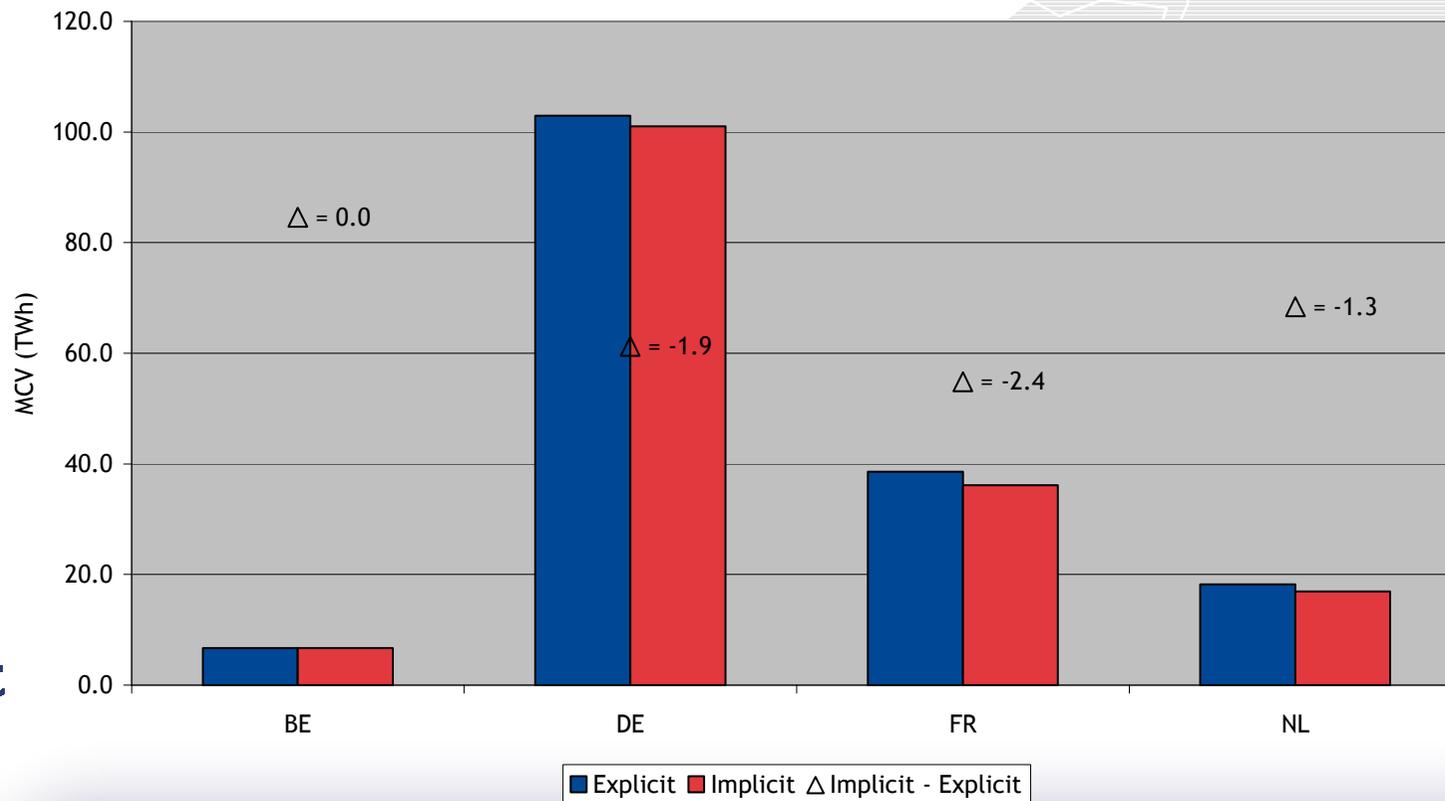
# Market clearing volume

Decrease of cleared volume on APX, EEX and Powernext under ATC MC

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Market Clearing Volume



# Achievements and facts so far

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- ▶ Design phase delivered for lower budget than foreseen 2 m€ i.s.o. 3,5 m€
- ▶ Design Central Calculation Unit + Algorithmic Prototype completed, specified and ready to sign contract for industrial implementation
- ▶ Project Cooperation Agreement for Implementation are ready to sign
- ▶ Project Organisation for implementation is in place and waiting for start signal
- ▶ More than half way the calendar towards launch
- ▶ The efforts so far:

- ▶ More than 100 people of 11 companies involved in the project

- ▶ Nr of Meetings:

- ▶ 28 Joint Project Board Meetings
- ▶ 15 Joint Steering Committees
- ▶ 250 WS Meetings

- ▶ Total mandays spent: 1600 under common cost regime

Continued good understanding between CWE Partners

In parallel:

- ▶ CASC created as company
- ▶ CASC start of long term auctions
- ▶ CWE is catalyst to consolidation towards EPEX

