

Annex 2  
7 October 2009

**Workstream Day-Ahead  
Proposal for Target model and Roadmap**

# Definition of the DA Target model

## Definition:

- The Target Model (TM) is to implement Single Price Coupling (SPC) all over Europe
- In the TM, one single matching algorithm is able to establish prices and volumes across all borders between the "PX market areas" and/or bidding areas compatible with capacity calculation

## Implication:

- Pan-European Price Coupling (the TM) implies that a single algorithmic solution is used by all the Power Exchanges responsible for the matching
- All day-ahead bids and offers information necessary for the Pan-European Price Coupling need to be matched with this single algorithmic solution, jointly with all the cross-border capacity information across Europe
  - Such bids and capacity information must thus be fully and equally available to the matching algorithm

## Target model key issues

- The design prerequisites for price coupling can be partly identified /foreseen currently; however, this identification is not comprehensive since the technical challenges naturally emerge as markets are gradually coupled
- The work stream acknowledges that the algorithm can be updated/reviewed from time to time according to market needs/requirement/extensions
- The high level design prerequisites currently identified illustrate that it is not necessarily the implementation of the design prerequisites that will be the main challenge, but the governance issues associated with the design prerequisites
- High level governance arrangements require identifying roles and assigning responsibilities between parties, in order to facilitate the realization of design prerequisites
- The DA work stream has identified certain design prerequisites for price coupling and their associated governance challenges, such that the governance work stream carries out its work

## Design prerequisites for price coupling and associated governance issues

Price coupling prerequisites	Possible governance-related issues (see notes)
Implementation of a single algorithmic solution by the PXs, and full availability and use of all bids and capacity information required for the Pan-European Price coupling	Which arrangements required between all the PXs involved? Between the PXs and the TSOs ?
Power exchange operating a hub in each market	Some markets still without a PX. How is this to be achieved?
Algorithm should support all current PX products	What if it can't – e.g., infeasibilities, long processing times? Could imply reducing range of products/greater standardisation in this case: - Who decides? - On what basis? (criteria)
Algorithm shall support additional new functionalities e.g. new products due to increased wind	How can local market parties, TSO and PXs influence design decisions?
Algorithm should support geographic extension, geographic extension may imply new types of products.	What if it doesn't? If impossible, see 1. If possible: - Who pays for changes? - Who determines sequencing/timing of extensions? If algorithm is not as flexible as promised, what are the consequences (finding a replacement, sunk costs)
Optimal trade-off between flexibility (functionality), cost, time to implement, processing time/performance	Who decides? On what basis? Who pays? Need for formal governance processes (e.g., full arm's length) vs greater reliance on mutual interest, partnership
Necessary harmonisation (e.g., critical procedures/deadlines)	How to enforce harmonisation obligations?
Discretionary harmonisation (e.g., min/max prices)	What freedoms should individual markets/TSOs have? How is this controlled? Who pays for extra functionality?
Handling different currencies	Responsibility of central algorithm or local markets? Who bears currency risk?

Governance issues are not addressed in this request, because work on governance is still going on ...



## Top-down guidance vs. bottom-up implementation

- Previous slide shows that governance issues may be easier to solve with top-down guidance while others will need to be solved during the implementation phase at regional level (see next slide)
- The PCG recognises that clear roadmap is needed. It also acknowledged that input from the regions is needed in order to propose a more concrete roadmap (with a possible timeline and intermediate steps for each region)
- The PCG also identified as an important mean to help reaching the target model a more in-depth gap analysis for which the generic questions to the region (slide 9) should help

Sentence on we'll work on this issue parallel ...

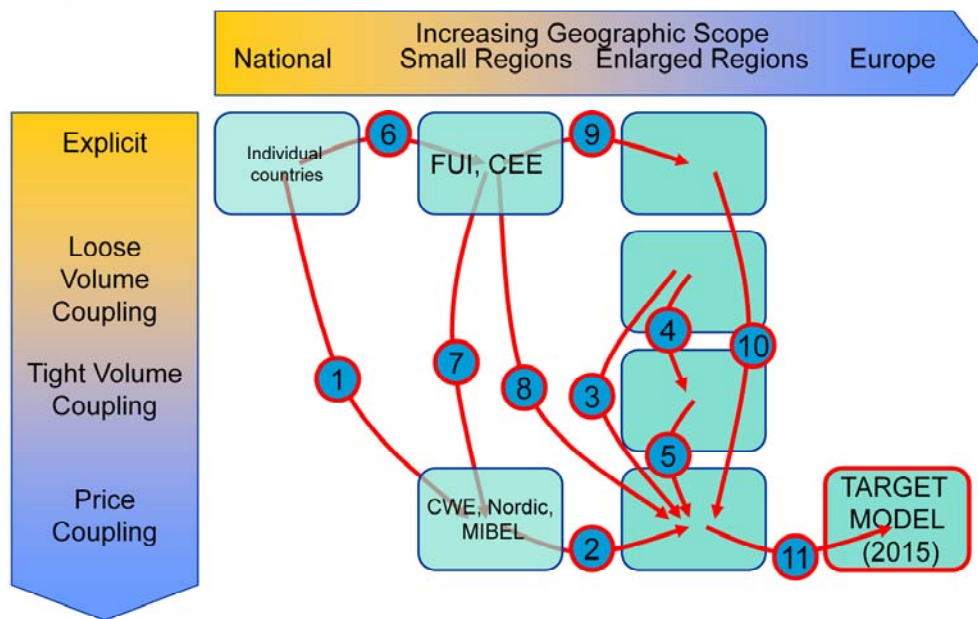
## Day-Ahead Generic Roadmap

	Description	2009	2010	2011	2012	2013	2014	2015
<b>Stage 1</b>	Agreement on target model, including prerequisites for price coupling and identification of key technical issues (to be defined)							
<b>Stage 2</b>	Agreement on common governance principles (together with WS Governance)							
<b>Stage 3</b>	Gradual implementation in all regions - governance structure - market design, rules - algorithm							Target Model

 Centrally led  
 Locally led/  
central oversight

## Possible routes to reach TM

(for definition of models and regions, refer to ETSO/EuroPEX study)



See following slide for clarification.

## Possible routes to reach TM

	Starting Situation	Ending Situation	Process options
1	Not part of any regional solution	Price coupled Market Region (PCMR)	<ul style="list-style-type: none"> <li>Establish new PCMR</li> <li>Join existing PCMR</li> </ul>
2	Price Coupled MR	Enlarged price coupled MR	<ul style="list-style-type: none"> <li>Merge with adjacent PCMR</li> <li>Extend PCMR</li> </ul>
3	Sequential loose volume coupling	Enlarged price coupled MR	<ul style="list-style-type: none"> <li>Convert to price coupling</li> <li>Join existing PCMR</li> </ul>
4	Sequential loose volume coupling	Sequential tight volume coupling	<ul style="list-style-type: none"> <li>Convert to tight volume coupling</li> </ul>
5	Sequential tight volume coupling	Enlarged price coupled MR	<ul style="list-style-type: none"> <li>Convert to price coupling</li> <li>Join existing PCMR</li> </ul>
6	Not part of any regional solution	Coordinated regional explicit auction (CREA)	<ul style="list-style-type: none"> <li>Establish new CREA</li> <li>Join existing CREA</li> </ul>
7	Coordinated regional explicit auction	Price coupled MR	<ul style="list-style-type: none"> <li>Establish new PCMR</li> <li>Join existing PCMR</li> </ul>
8	Coordinated regional explicit auction	Enlarged price coupled MR	<ul style="list-style-type: none"> <li>Establish new price coupled PCMR</li> <li>Join existing PCMR</li> </ul>
9	Coordinated regional explicit auction	Enlarged coordinated regional explicit auction	<ul style="list-style-type: none"> <li>Merge with adjacent CREA</li> <li>Extend CREA</li> </ul>
10	Enlarged coordinated regional explicit auction	Enlarged price coupled MR	<ul style="list-style-type: none"> <li>Convert to price coupling</li> <li>Join existing PCMR</li> </ul>
11	Enlarged price coupled MR	European price coupling (TM)	<ul style="list-style-type: none"> <li>Merge with adjacent PCMR</li> </ul>

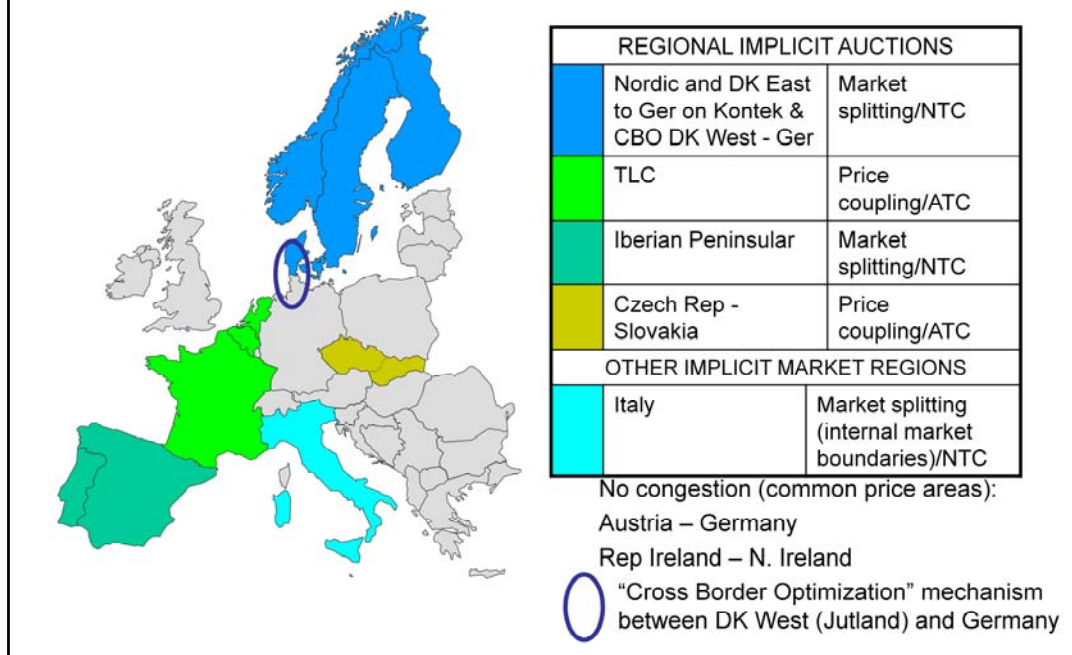


## Specific questions to ERI

1. What is the current day-ahead capacity allocation method used in your region (please confirm the information in table 7)?
2. Given your starting point and the pathway options described in table 7 : what do you consider the best interim steps to successfully achieve the target model for your region? Please explain why your preferred pathway should be easier/quicker and what potential conflicting issues with other regions
3. Please provide comments on the roadmap template on slide 7.
4. The PCG would like feedback on the steps that regions think they will need to take to move towards the target model. Please provide comments and/or fill out the table in slide 6 with indicative activities and timeframes.

## **ANNEX: Regional initiatives & projects maps**

## Current Implicit Auction Market Regions



Four regional implicit auction schemes are now operational (including Italy, which is a market splitting solution to allocate capacity *within* Italy between 7 separate bidding areas)

Progress to date has been successful where there has been close alignment of interests among the local stakeholders – in particular, where TSOs (and PXs in the case of implicit auctions) have had the incentive to lead the process “bottom up”.

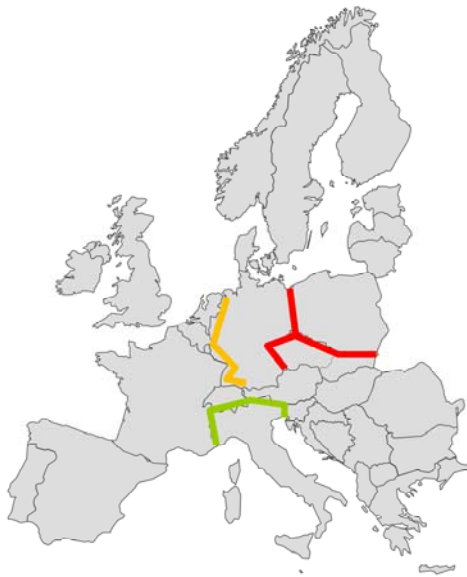
These regional allocation solutions have been developed largely independently within each region, with little Europe-wide coordination or direction. Each has tended to adopt unique technical and governance approaches.

Implicit auction solutions address capacity allocation on the borders within the group of markets, and they rely on a single power exchange in each market. All the solutions are price coupling (market splitting is a form of price coupling where only one PX is operates in each of the individual market areas) – for this reason, the current implicit auction solution regions do not overlap. Explicit auctions are used to allocate capacity between the different regions.

The EMCC market coupling between Denmark and Germany (currently suspended) is the first instance of an alternative to Price Coupling, namely Volume Coupling. EMCC uses an implicit auction to determine the optimal flows between Denmark and Germany. These flows are then included in the final matchings performed by Nord Pool Spot and EEX, which determine final prices and, in the case of NPS, also the flows within the Nordic region. It is a two-stage process.

The Spanish Market (Day-ahead and Intraday), since 1998, has always accepted bids for energy to be produced or consumed outside the Spanish electrical system in all the different countries with which Spain has a border. During the matching algorithms bids that are economically viable are matched, up to the limit of the commercial capacity published by the System Operator for each individual border in a one side Implicit auction. Since July 2007 the MIBEL started to be a full market splitting for Spain and Portugal, and the one side implicit auction is still applied to other borders of the Iberian peninsula (the COMELEC network in North Africa)

## Current Coordinated DA Explicit Auctions



Examples for REGIONAL EXPLICIT AUCTIONS		
	CEE	Coordinated explicit auctions/ATC
	DE – F/CH/(NL)	Coordinated ATC calculation
	CSE-Italian Borders	Coordinated explicit auctions/ATC

There are also a number of coordinated regional explicit auctions mechanisms now operational. Regional explicit auction solutions are border specific. It is possible for one TSO to be involved in more than one regional solution.

In the current regional explicit auctions, capacity is allocated according to a harmonised set of rules across several borders. In a more fully coordinated mechanism, capacity allocated on one border can influence the capacity allocated on others.

## Prospective 2010 Implicit Auction Market Regions



REGIONAL IMPLICIT AUCTIONS		
	Nordic+Estonia	Market splitting/ATC
	CWE	Price coupling/FB
	EMCC	Tight Volume coupling/ATC
	MIBEL	Market splitting/ATC
	Czech Rep - Slovakia	Price coupling/ATC
OTHER IMPLICIT MARKET REGIONS		
	Italy	Market splitting (internal market boundaries)/ATC

No congestion (joint bidding areas):  
Austria – Germany  
Rep Ireland – N. Ireland

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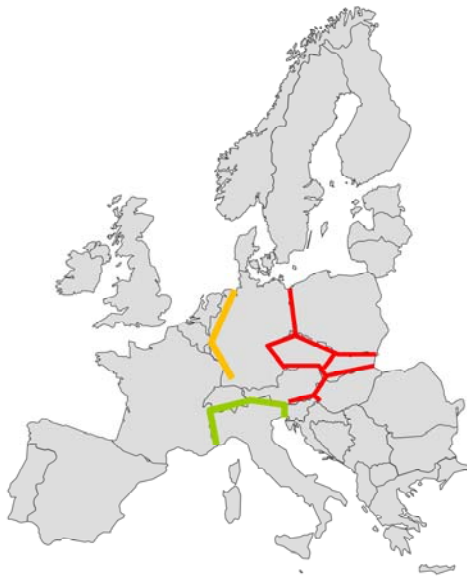
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## Prospective 2010 Coordinated DA Explicit Auctions

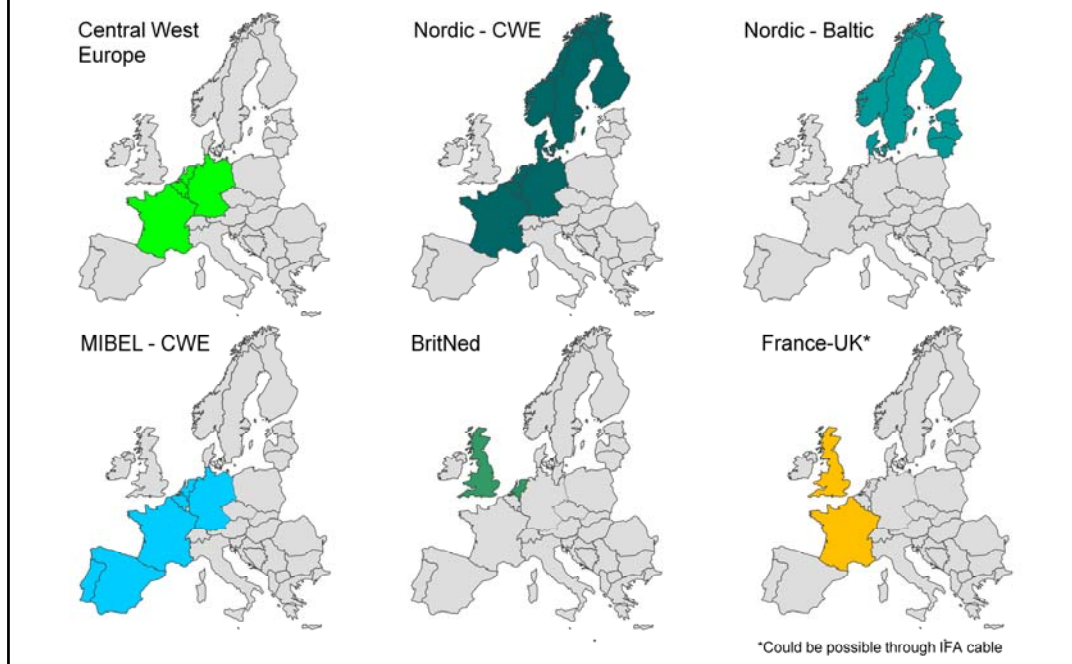


COORDINATED EXPLICIT AUCTIONS		
	CEE	Coordinated explicit auctions/flow based
	CASC	Harmonised ATC based (until introduction of Market Coupling)
	CSE-Italian Borders	Coordinated explicit auctions/ATC

There are also a number of coordinated regional explicit auctions mechanisms now operational. Regional explicit auction solutions are border specific. It is possible for one TSO to be involved in more than one regional solution.

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## Implicit DA Capacity Allocation Initiatives



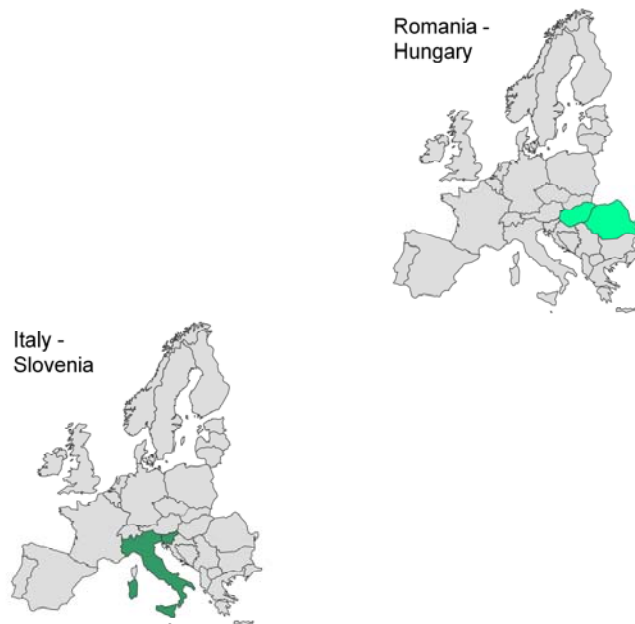
In Northern/Western Europe there is a complicated pattern of initiatives, building against an already well developed set of market regions (Nordic, TLC, Mibel).

There are different types of initiative:

Horizontal extension of existing market regions to additional markets (e.g., CWE, Nordic-Baltic). These initiatives are reported to be progressing reasonably well, led by the TSOs and PXs involved and requiring only limited support and direction from regulators

Coupling impacting more than one existing solution or where the solution is not well defined (e.g., Nordic-CWE, South West Europe, BritNed, NorNed). These initiatives are reported to be progressing less well. Problems frequently cited include the governance and organisational arrangements, the technical solution, the interaction/dependency with other initiatives, the impact on existing arrangements and the related harmonisation issues. Some are largely led by the TSOs and PXs involved, others are more controlled by regulators and/or governments.

## Implicit DA Capacity Allocation Initiatives



In Southern and Eastern Europe the emergence of regional solutions is less advanced (with the exception of Italy that already has a solution, albeit only within its national borders).

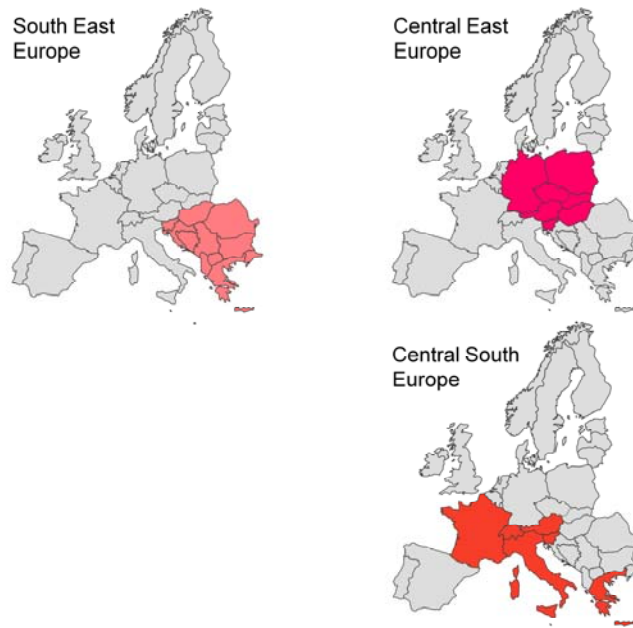
There are different types of initiative:

Price coupling between certain pairs of markets (Hungary- Romania). These solutions could eventually become the basis for a wider regional solution, but there is no clear plan on how market regions will emerge. Problems cited include the governance and organisational arrangements, conflicting regulatory requirements and getting adequate participation from all necessary parties. Generally there is a relatively high degree of “top down” influence from regulators and/or governments.

Market coupling in the CSE region. This is at an early stage and faces key design issues regarding the interaction with the CWE market coupling and the impact of the different market arrangements across the region. A more focused initiative just involving Italy and Slovenia is proposing a tight-volume coupling. A joint WG involving all relevant parties of the two countries was launched last summer.



## Coordinated Explicit DA Capacity Allocation Initiatives



The day ahead regional explicit auction initiatives identified addresses the borders between the involved countries.

These are at different levels of development, and all generally have a relatively high degree of “top down” influence from regulators and/or governments. Problems frequently cited include the governance and organisational arrangements, the technical solution, getting adequate levels of participation from all necessary parties, and conflicting regulatory requirements.