

Capacity allocation and congestion management Code Overview



JESG – 10th August 2011
CACM Code Update
Paul Auckland, UK Transmission

CACM (Capacity Allocation and Congestion Management) Update

Capacity Allocation & Congestion Management









Deliverable	ACER FG draft		ENTSO-E code drafting		ACER evaluation	Comitology Start	2011				2012				2013				2014			
	Start	End	Start	End			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Products/legislation relevant for effective implementation of the IEM																						
FG on capacity allocation and congestion management	Q1/11	Q2/11																				
NC on capacity allocation and congestion management ¹			Q3/11	Q3/12	Q4/12	Q1/13																
NC on forward markets ²			Q4/12	Q3/13	Q4/13	Q1/14																
Regional progress, setup and testing (incl. AESAG process and Regional Initiatives Work Program)																						
EC comitology guideline on governance ³						Q4/11																

LEGEND

- FG Framework Guideline
- NC Network Code

COMMENTS

- ¹ CACM NC includes Capacity Calculation, Intraday Platform and Day Ahead issues; beginning of formal 12 months NC period started with within Q3/11
- ² NC might start already in the end of Q3/2012 and end in the beginning of Q3/2013
- ³ Approved guidelines will be available on the end of Q3/12

	Common scoping discussions		ACER evaluation of NC
	ENTSO- E work		Comitology process (including EC input to Comitology)
	ACER work		ACER consultations
	Preparatory work including codes consistency work		ENTSO-E consultations

**STOP PRESS -
Final CACM
framework
guideline
published circa 6th
August on ACER's
website.**

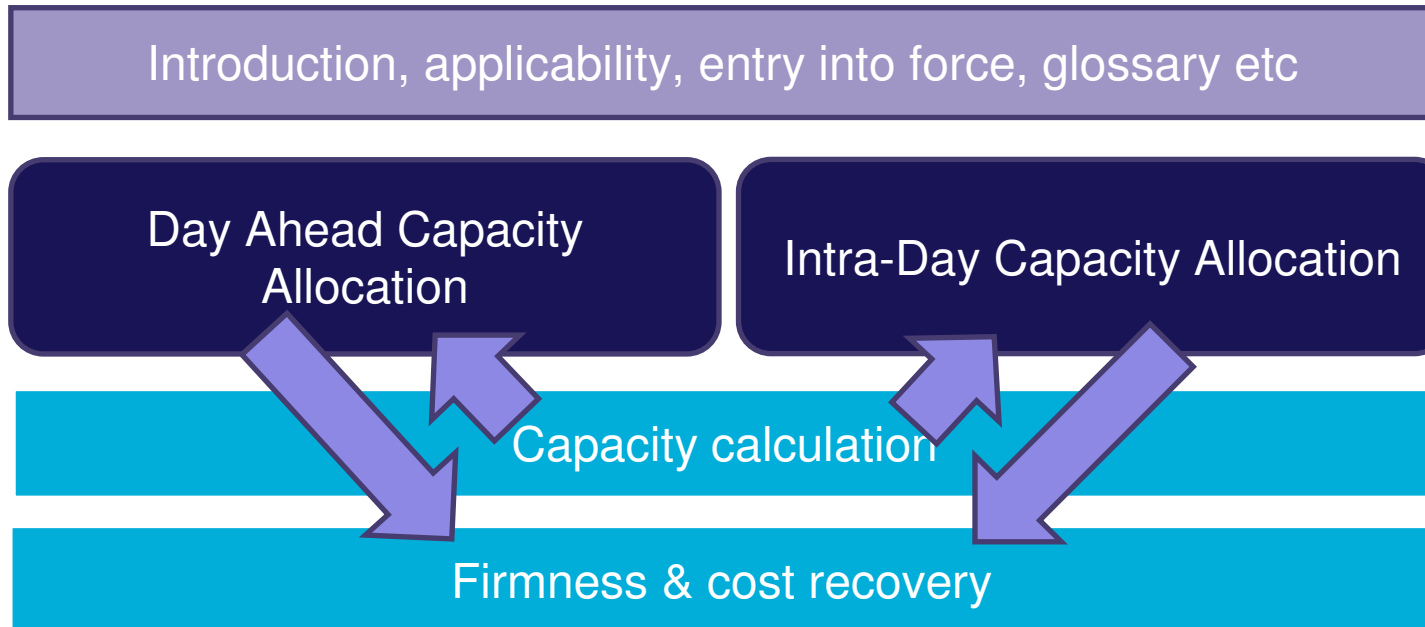
CACM FWGL (Code) Objectives

- The network code(s) adopted according to these Framework Guidelines will apply to Capacity allocation and Congestion Management (“CACM”) between the zones in the EU electricity market;
- These Framework Guidelines deal with the integration, coordination and harmonisation of the congestion management regimes, insofar as such harmonisation is necessary in order to facilitate electricity trade within the EU in compliance with Directive 2009/72/EC (the “Electricity Directive”) and the Electricity Regulation;
- These Framework Guidelines complement, where necessary, the existing Congestion Management Guidelines (CMG’s) and specify the detailed aspects which need to be implemented in the related Network Code(s), with references to relevant provisions from the CMG’s.

What does it cover?

- Capacity calculation;
 - Zone delimitation
- Intraday capacity allocation;
- Day ahead capacity allocation;
- Forward capacity allocation;

High-level overview of the CACM code



The exact scope, structure & content will be defined by the Final Framework Guideline

Drafting Teams

CACM network code		
Capacity Calculation Team Clotilde Levillain - RTE	Day Ahead Team Oliver John - Amprion ENTSO-E Secretariat	Intra-Day team Frank Vandenberghe - Elia

ENTSO-e Early Engagement

FWGL CACM

- ENTSO-e drafting teams came together to review the FWGL and contribute to ENTSO-e's response.

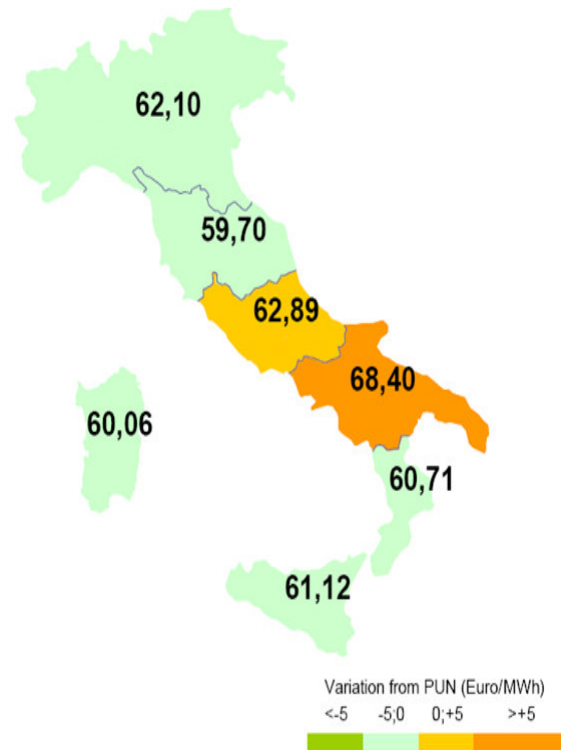
Code Areas status: -

- Day Ahead (DA) – a first draft of this aspect is being worked upon. There are fewer unclear issues;
- Capacity Calculation – Issues are being identified and sub teams being set up to propose solutions;
- Intraday – less mature work area with a need to define the envisaged European intraday solution;
- Forwards – not started. No team constituted yet.

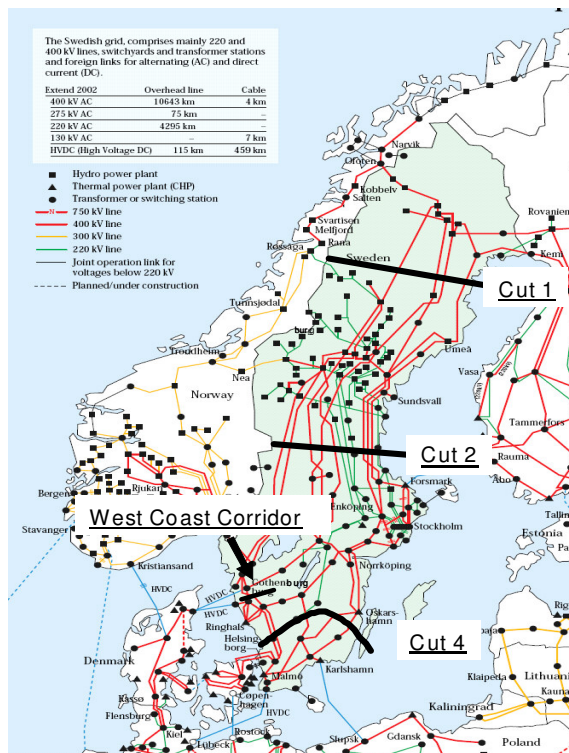
National Grid is participating in the three groups.

Cross border or inter zone?

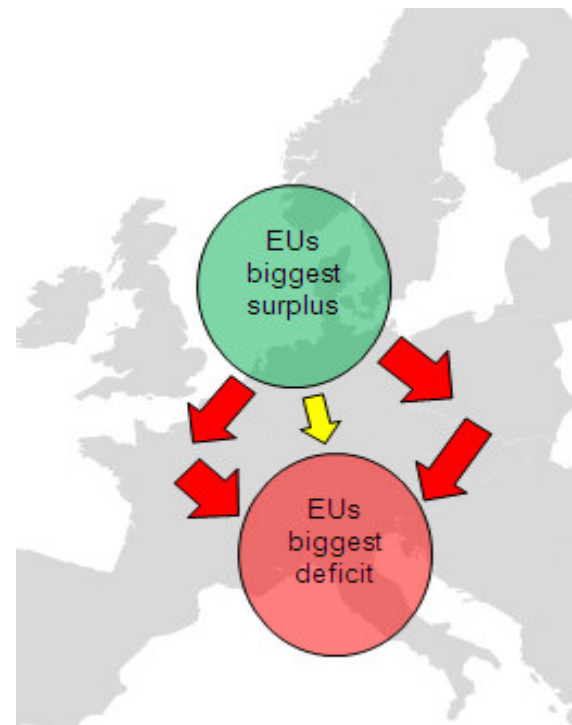
Italian Split



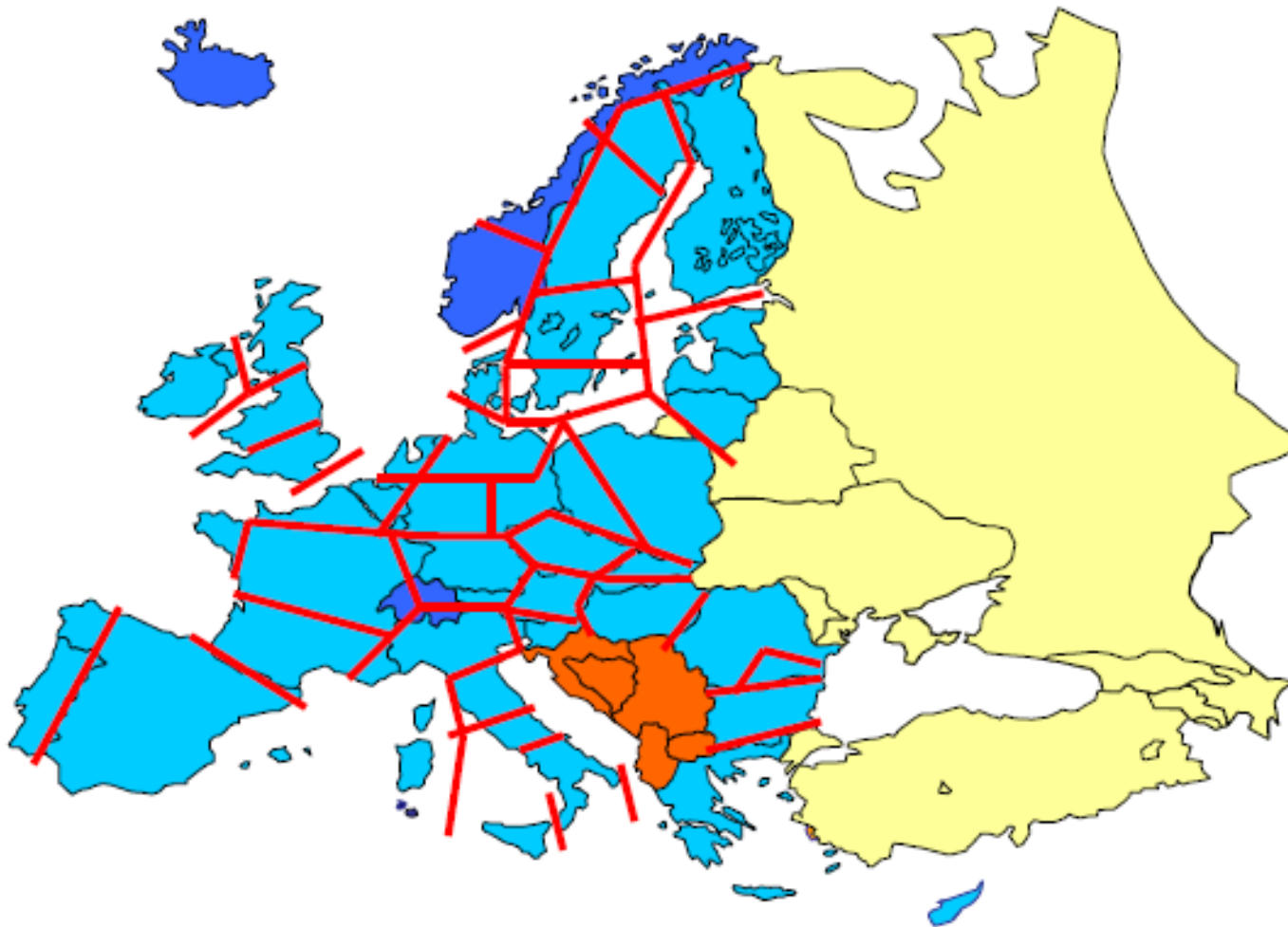
Swedish Splitting



German no-split



Matti's proposal for price zones in Europe



Capacity calculation

- Prescribes either Flow Based or ATC method for transmission capacity assessment;
 - Description of the methods to be in the network code(s);
 - TSO's to develop a common grid model covering Europe that incorporates generation and demand information for co-ordinating capacity provision;
- NRA's to approve the capacity calculation method – particularly with respect to security margins and how capacity is split between interdependent borders;
- Calculated capacity is to be updated regularly, including intraday to cope with variations in network use.

Capacity calculation – what is the (preferred) flow based method?

- ATC is available transmission capacity - calculated by TSO's based on generation/demand **assumptions** made ahead of time. The constraint is maintaining safe and secure operation;
 - Calculated ATC on borders is then allocated in a separate market coupling step where energy trades are optimised;
 - Noted as acceptable for less meshed networks and between islands or large peninsulas and Europe;
- Flow Based (FB) transmission capacity – calculated by embedding a grid model with knowledge of how capacity is related between nodes to **simultaneously allocate capacity and execute energy** trades to maximise welfare.
 - Allocates capacity to inter zone borders to maximise social welfare;
 - Uses recent information on demand and generation patterns as inputs.

Capacity calculation – zone delimitation

- Code defines a zone as a bidding area;
- Requires zones to be defined by the principle of: -
 - Overall market efficiency (including all economic, technical and legal aspects of relevance);
 - Socio economic welfare;
 - Market liquidity;
 - Competition;
 - Network structure and topology;
- Network codes should foresee stable and robust zones over time.

Capacity calculation – zone delimitation

- TSO's propose initial zones to NRA's having applied code principles who approve;
 - An active requirement on TSO's co-ordinated at a regional level to analyse existing zone's based on redispatch/counter trade costs and structural factors every **2** years;
 - NRA's and ACER will then review decide if zones should be changed;
 - Market participants to be consulted and given time to prepare;

Day ahead capacity allocation

- DA allocation by implicit auctions via a single price coupling algorithm;
- Simultaneously determines volumes and prices in all zones for each time unit;
 - Marginal price [normal coupling approach] ;
 - Recognise the role of PX's;
 - Harmonised day ahead market closure times;
- A range of product types – block bids;
- Price of capacity between zones is the difference between the corresponding day ahead zonal electricity prices;
 - DA prices also to be suitable references for forward markets;
- Firmness of DA trades shall only be impacted as a last resort and market parties shall not be affected and PX's should not face costs as a result.

Forward capacity allocation

- **Objective is to provide market participants with long term hedging solutions against congestion costs and day ahead prices given zone delimitation;**
 - Preferred solution is a financial hedge for price differentials (FTR's) if markets are sufficiently developed;
 - Otherwise Physical transmission rights with UIOSI;
 - Can't mix PTR and FTR on the same border;
 - This is to concentrate liquidity into a single product;
 - Harmonised set of rules for PTR+UIOSI/FTR for borders;
 - UIOSI means the full value of the right if unnominated is returned to the holder;
 - Provision for centralisation through a single platform for allocation of forward transmission rights;
 - Some space created for a role for regional platforms.
 - TSO's should provide a single European platform for anonymous forward secondary capacity trading.

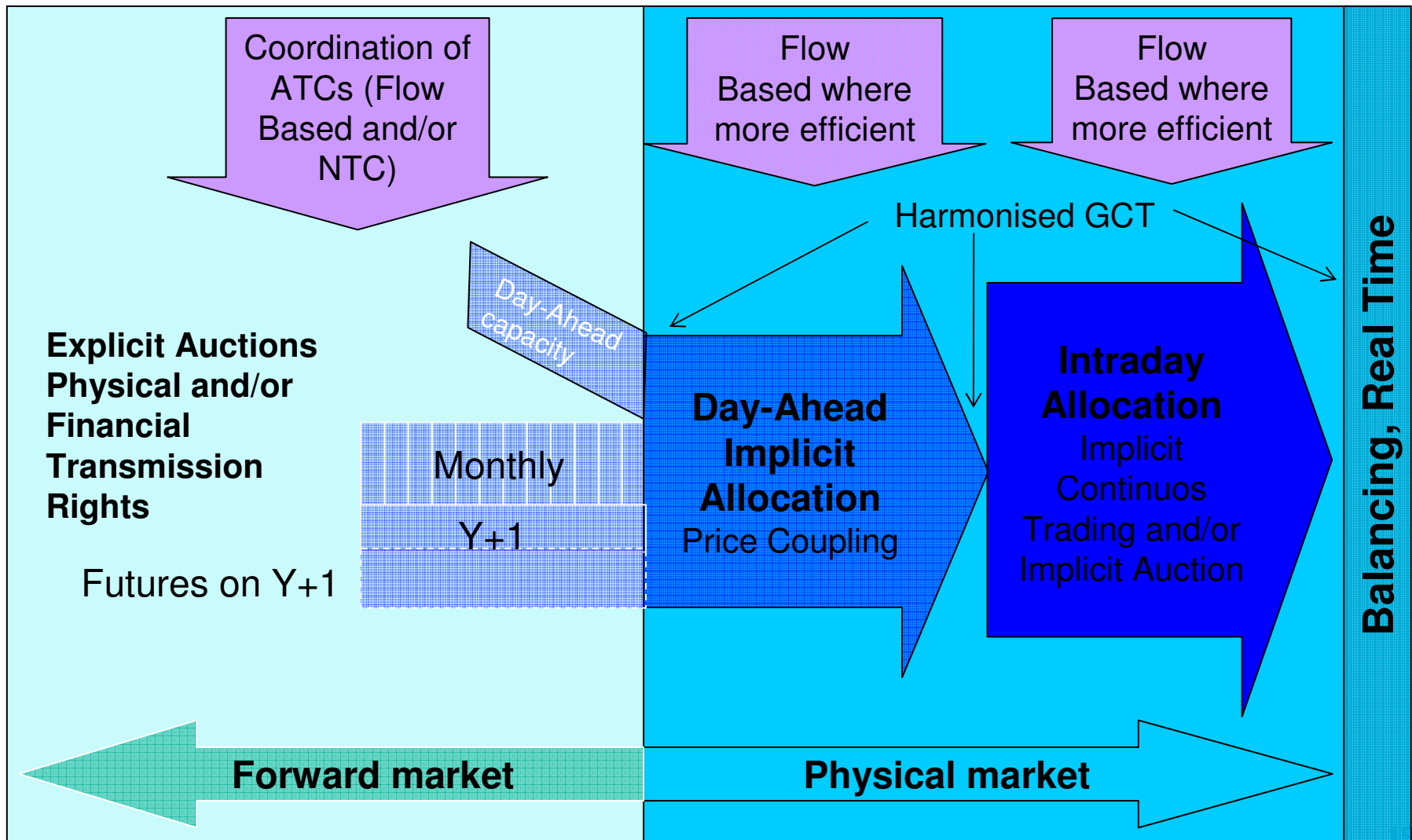
Intraday Markets

- Objective is to allow market participants to self balance as close to real time as possible. The solution will be approved by regulators;
 - Pan-european intraday platform supporting continuous implicit with reliable pricing of intraday capacity reflecting any intraday congestion
 - Pan European shared order book (SOB) and Capacity Management Module (CMM) including all bids and the latest information on capacity available;
 - ENTSO-e to lead developing the solution with input from PX's and market parties;
 - A common intraday gate closure time should be set;
 - Regional auctions for intraday markets should be able to interact with the continuous implicit DA market solutions;
 - When intraday capacity is allocated it's firm.
 - OTC access to cross border as a transitional step but then "sophisticated products" should be evolved to meet needs.

Firmness

- Force Majeure defined and compensation set at the initial price paid;
- Curtailments of capacity are only to take place in emergency situations with counter trading being completed first;
- Compensation to market parties in case of any issue with capacity to be equal to the price difference between the concerned zones in the relevant time frame;
 - Some derogation possibilities with caps on compensation can be introduced subject to NRAs approval.

Capacity Allocation & Congestion Management - Target Model



CACM Issues

Early Heads Up/WIP feedback

Starting point considerations

- Much of the rest of Europe comes from a position closer to the envisaged “end game” (implicit auctions and organised exchanges);
 - CWE (Central West Europe) <http://www.apxendex.com/index.php?id=186>
 - Nordpool (Nordic region) <http://www.nordpoolspot.com/PowerMarket/>
 - EMCC (European Market Coupling Company)
<http://www.marketcoupling.com/about-emcc>
- Our market has evolved in a different way to much of Europe;
 - GB’s organised exchanges (N2EX and APXUK) are relatively new;
 - Implicit market coupling on BritNed is currently closest to the model being sought on our borders.

Definition of zones

- The principle that price differentials between zone's indicate where investments are needed is generally accepted in Europe by the EC and Regulators;
 - Therefore zones should be designed to reflect fundamental principles;
 - Price differentials between markets result in a revenue stream to TSO's that can fund investments between zones;
- Main drivers reported to be: -
 - Some key issues in Europe with loop flows from Germany that could be resolved in the longer term by market splitting driving subsequent investments.
- Power prices are highly political due to the potential impact on retail markets and investment.

Calculating capacity

- The methodology applied by TSO's for setting the background assumptions for demand and generation that feed into capacity calculation may vary – the methodology should be harmonised;
- Strong support from many TSO's for whom this is a particular issue to use flow based optimisation;
 - Embeds the latest power system information (e.g. demand/generation) into the cross zone capacity optimisation.

Trading mechanisms

- Facilitating OTC trading with explicit cross zone capacity nomination is a transitional measure in intraday and not foreseen for day ahead timescales;
 - The only way to access cross zone day ahead markets will be through an organised exchange implicit auction that can handle block bids;
- OTC access to intraday capacity can only be removed after consultation and the decision will be taken by NRA's.
 - “Complex products” such as block bids offer a potential solution.

Harmonisation of trading activities

- Harmonisation of key market timescales proposed – when DA and Intra day close;
 - Increased focus on ensuring alignment with generation scheduling (implies domestic GC?)
- It's believe that harmonisation to a standard set of electricity products improves market efficiency but there is probably a cost of change for some countries in moving to a standard set.
 - We already trade the 23-23 baseload contract GB-continent through PX's;
 - The definition of market time units for varies across Europe;
 - E.g. Two HH products in GB would need to be matched with 1H by the single algorithm.
- In day ahead code timescales the active discussion is about having market time units that are easily matchable as block orders (e.g. 1/4, 1/2, and 1hrs).

Role of Power Exchanges

- Varied approaches to PX status across Europe in respect to: -
 - Any exclusivity to a market area;
 - Any energy market regulator oversight;
- In GB we have a model with competing exchanges;
 - National Grid is active in seeking solutions to market coupling with competing GB power exchanges;
- There is a natural competitive spirit between PX's but many aspects of the CACM implementation require close co-operation;
- What is included in the formalised role for PX's in cross zone trading activities?
 - Is this just a local presence or does it include cross zone shipping and clearing?

Binding road maps for market development

- Framework guidelines require CACM codes to set out implementation deadlines;
 - 2014 is the overall deadline for the completion of the internal market with a derogation that probably gives the SEM to 2016;
- General acceptance that 2014 is the key target date, but discussion on practicalities;
- AESAG (ACER Electricity Stakeholder Advisory Group) is the key forum discussing implementation timescales.

Firmness/transactions costs and who funds these elements

- Operational costs including provisions of Firmness, trading services, balancing charges and losses are treated differently;
 - Generally borne by Tariff Customers in the rest of Europe;
- Our independent interconnector owner model doesn't allow for access to GB's regulated customer base to fund new cost elements;
 - ACER FWGL clearer that congestion income should fund firmness;
- On going debate about if and how costs of cross border transfers are to be taken into account in market optimisation – seems like ACER has left this open.

Further views?

FUI Weblink

http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_ACTIVITIES/EER_INITIATIVES/ERI/France-UK-Ireland

ACER FWGL Weblinks

http://www.acer.europa.eu/portal/page/portal/ACER_HOME/Stakeholder_involvement

http://www.acer.europa.eu/portal/page/portal/ACER_HOME/Stakeholder_involvement/Public_consultations/Closed_Public_Consultations/PC-03_FG_Electricity_CAM_and_CM

Also see ACER's CACM consultation evaluation of responses

ENTSO-e Position Papers (e.g. Firmness/CACM response)

<http://www.entsoe.eu/resources/position-papers/>