ofgem Making a positive difference for energy consumers

5th Future Trading Arrangements Forum

14/11/2014

ofgem Making a positive difference for energy consumers

Agenda

Chair: Mark Copley - *Associate Partner, Electricity Wholesale and EU Co-ordination, Ofgem*

12.00 – 12:30	*Arrival and lunch*
12.30 – 12.40	**1. Welcome and introductions**
12.40 – 13.00	**2. Future Challenges to Market Arrangements**
13.00 – 14:10	**3. Lessons to be learnt from international experience – industry speakers**
14.10 – 14.20	*Coffee break*
14.20 – 15.00	**4. Insights and what can be done differently**
15.00– 15.15	**5. Concluding remarks and next steps**

1

Welcome and introductions

Aims for today's Forum

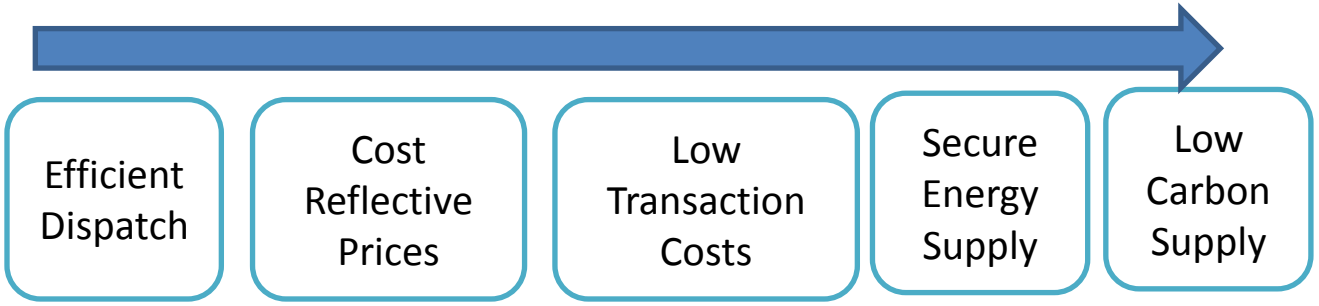
- Share our thoughts on the key future developments and how they challenge the market arrangements
- Feeding in your expertise gained from other markets
- Asking for views on what can be done differently

2

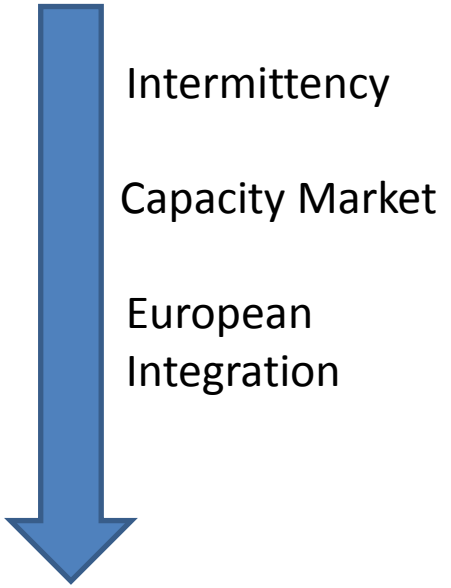
Future Challenges to Market Arrangements

Framework

What we want markets to achieve



Challenges



ofgem Making a positive difference for energy consumers

Assessment

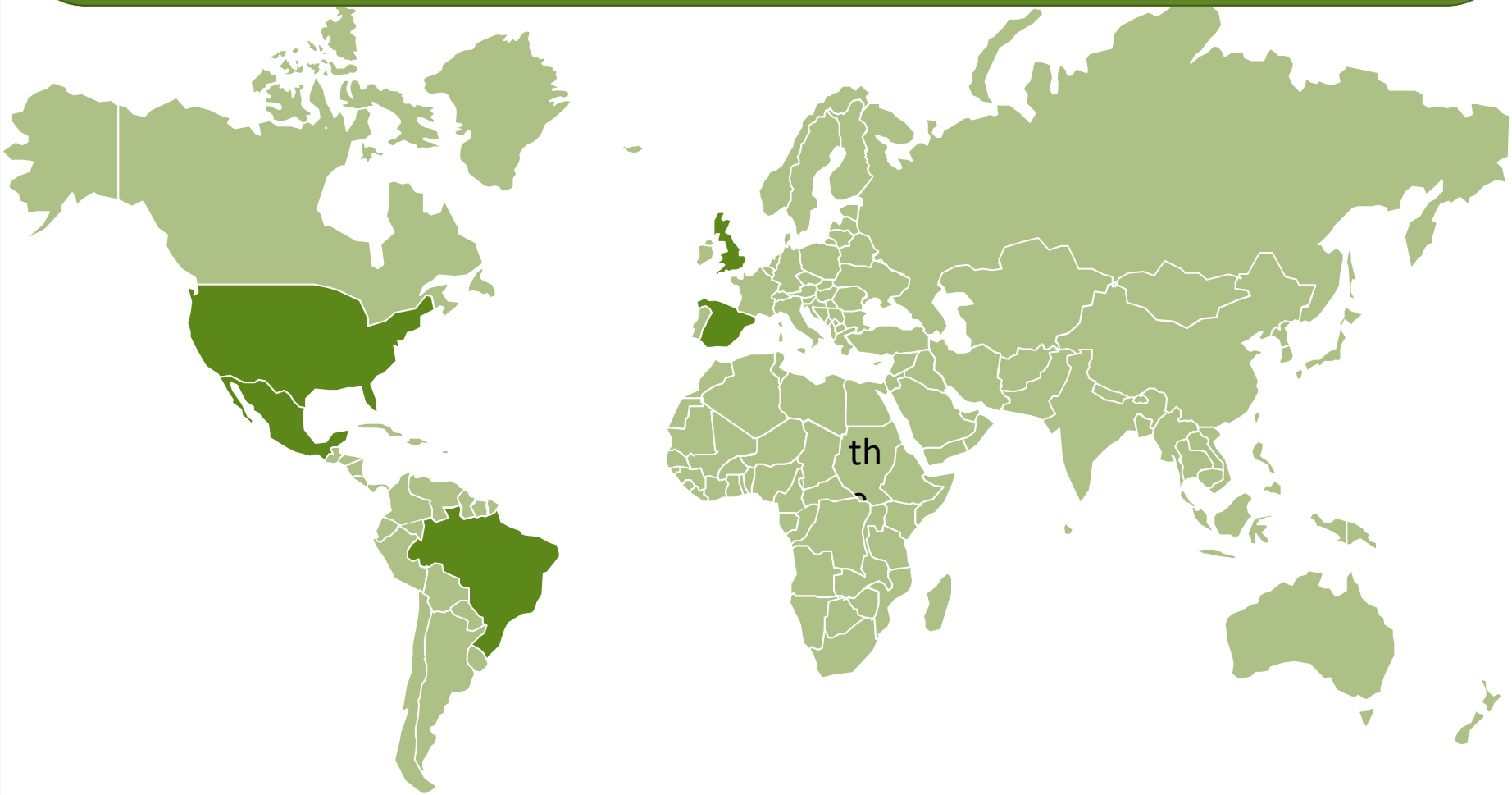
	Efficient Dispatch	Cost Reflective Prices	Low Transaction Costs	Secure Energy Supply	Low Carbon Supply
 Intermittency	●	●	●	●	●
 Capacity Market	●	●	●	●	●
 European Integration	●	●	●	●	●

3

International Market Studies

Iberdrola Overview

Iberdrola operates in 20+ countries and is the world's leading renewables developer with ~15,000MW



We have exposure to a variety of different market arrangements.

Spanish Market – Design Features

Spain belongs to MIBEL, the Iberian electricity market. Countries have market splitting based on transmission constraints.

1. Is generation dispatch centralised or decentralised?	Centralised (pool)	Hybrid/ mixed dispatch	Decentralised (self – dispatch)	
2. Role of the SO in balancing?	Balancing market	Series of Markets	Contracts	Parties self - balance
3. Is there locational pricing?	Single price, with SO re - dispatch	Zonal Energy Price	Nodal Pricing	
4. How is cost reflective imbalance pricing achieved?	Single average price	Dual Pricing Nothing or Shared	Single marginal price	Dual marginal price
5. Trading Restrictions	No restrictions on trading	Secure and Promotes	No Self-Supply / VI	Mandatory Auctions
6. How is capacity adequacy achieved?	Availability Payment	Permission to close - granted	Capacity Payment (CCGT<10)	Strategic Reserve
7. How is low - carbon generation incentivised?	ETS	Carbon Tax	Subsidies	Performance Standards

Growth in renewables backed by significant hydro generation.

Market Challenges – Renewables & Thermal

Spain is having to deal with high penetration of intermittent renewables.

Renewables Integration

- Very high penetration, around 65% on occasion.
- Reduced subsidies to curb excessive growth.
- Resilient network due to historical isolation.

Capacity Mechanism

- Introduced 1996, reformed 2007.
- Administered payments.
- New Royal Decree proposed 2013, not yet implemented.
- Possible move towards competitive auctions..

Availability of hydro helps, CCGT economics remain challenging.

Learnings for the UK Market

Spain's aggressive pursuit of renewables has illustrated some of the challenges of balancing competing priority objectives.

- Signs Spain looking to GB, elsewhere for a solution
- Contribution to EU climate/renewables goals at cost
- Need for strong focus on interconnection e.g. France
- Efficient ancillary services market

Balancing objectives at the wider EU level is likely to be even more challenging.

General Reflections

Whether considering the Spanish or GB market, the implementation of a single, integrated EU market is challenging.

Market Design & Harmonisation

- Network codes
- Renewable subsidies and market integration
- Capacity mechanism design
- Transmission charging

Competition & Level Playing Field

- CO2 pricing
- Application of BSUoS and TNUoS
- Interconnector design and rules

No easy answers, policy makers will need to address inconsistencies in application of market rules

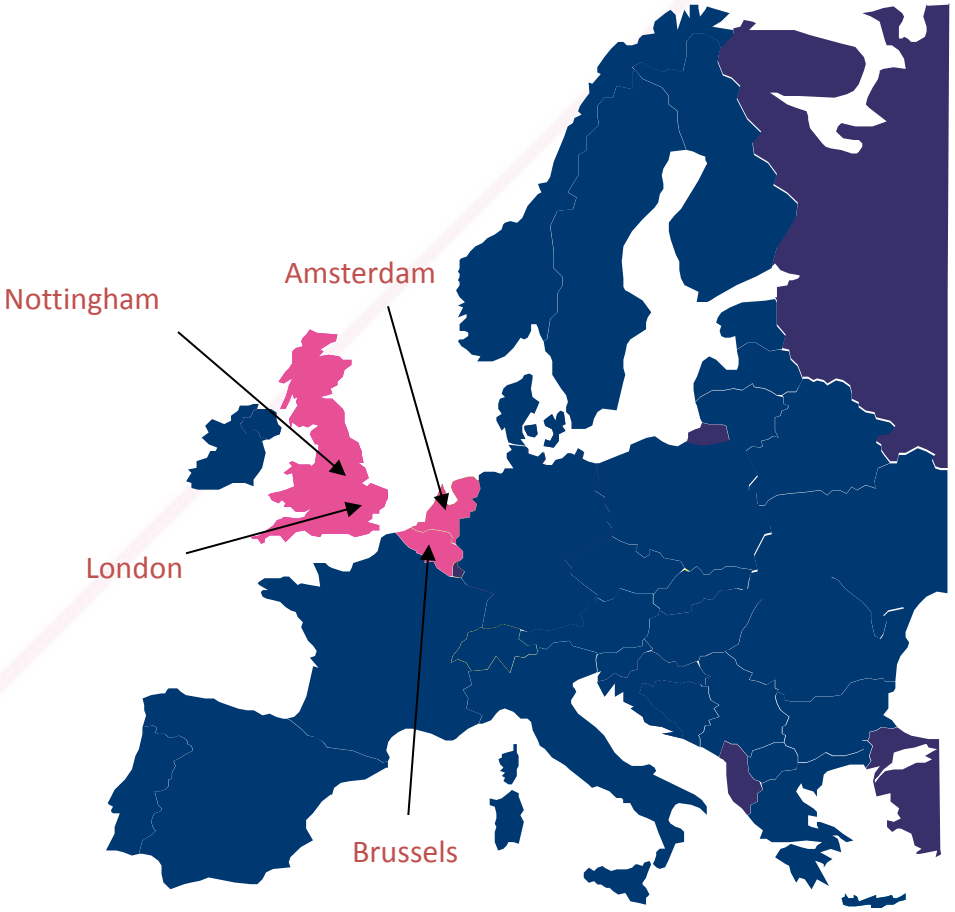
Wholesale Markets and RES

Andrew Claxton, Director Business Development

FTA Forum

APX Today

- APX provides exchange trading, central clearing & settlement, and benchmark data
- Located in 3 countries with over 170 members from 15 countries
- 88 TWh traded on APX markets in 2013, and over €9 billion in energy trades are settled annually
- APX UK has largest membership, provides access to the most markets, has lowest fees and most efficient collateral



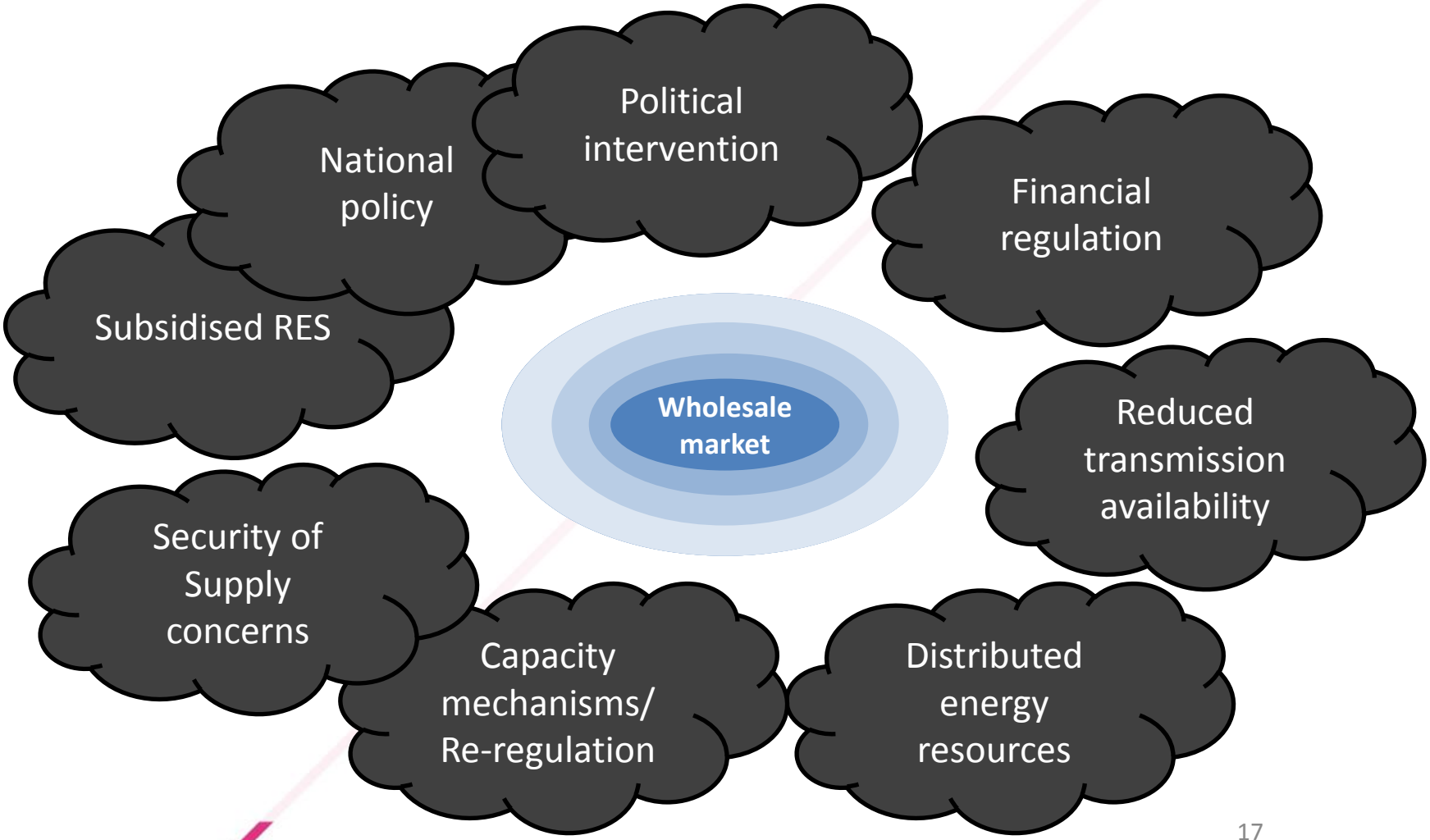
PCG The Target Model (c. 2008)

PTRs or FTRs	Day-ahead Market Coupling	Intraday market coupling	Cross Border Balancing

Capacity calculation, definition of zones, actions to alleviate constraints, transmission investment, cost sharing

Voluntary regional cooperation → legal European institutionalisation

A changing environment



Changes in total volumes

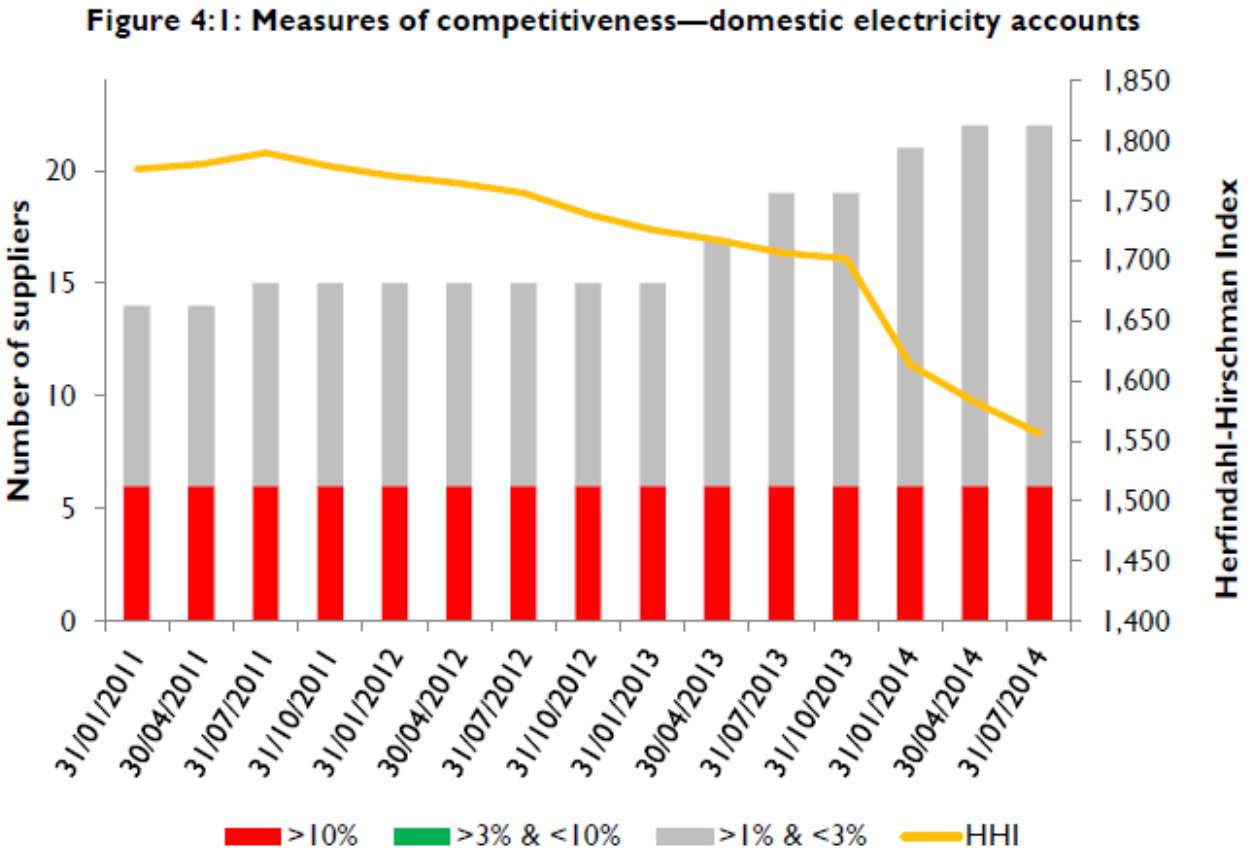
	2010	2011	2012	2013	% Change 2010-2013	Churn
Germany	5,336	4,651	3,858	3,800	-29 %	7.3
Nordic	2,406	2,022	2,000	1,986	-17 %	5.6
UK	1,296	1,065	970	945	-27 %	3.1
Italy	482	830	774	876	81 %	2.9
Spain	501	518	498	582	16 %	2.3
France	577	487	300	270	-60 %	0.5
Netherlands	329	148	145	170	-48 %	1.7
Spot	**1008**	**1020**	**1167**	**1225**	**22 %**	

- Some players, such as banks, have reduced volumes
- Flurry of policy initiatives creates uncertainty
- Unpredictability of renewables and changing policies makes longer term business more difficult

Exchange traded spot volumes

	2010	2011	2012	2013	% Change 2010-2013	% of consump.
Nordic + Baltic	305.2	294.4	334.0	348.9	14%	90%
Germany + Austria	205.5	224.6	245.3	245.6	20%	43%
UK	**15**	**35.4**	**113.6**	**162.1**	**980 %**	**50%**
Italy	199.5	180.3	178.7	206.9	4%	70%
Spain	196.4	185.1	185.8	185.6	-5%	78%
France	52.6	59.7	59.3	58.5	11%	13%
Netherlands	33.4	40.4	50.0	48.0	44%	45%
Belgium	12.1	12.7	17.0	17.8	47%	21%

Retail competition



- At the start of the liberalisation process there were ≈ 1000 local monopolies in Germany and 380 in Norway

Source: Cornwall energy – Competition in British household energy supply markets

Key themes (Europex)

1. Target Model remains the key foundation

Important to complete the Target Model: forward harmonisation/firmness, day-ahead and intraday rollout, balancing/ancillary services integration

2. Bring RES into the market

The policy mechanisms for promoting renewables are creating strong distortions of Europe's energy markets as well as creating high financial burdens for end-customers

3. Reward capacity and flexibility

Exploit untapped benefits available from Energy Only Markets (EOM) by removing subsidies, price regulation and allowing the wholesale price to trigger Demand Side Response

4. Align transmission networks

Investment in renewables without concurrent investment in transmission networks is leading to increased congestion; improved allocation of capacity (e.g., flow-based) needs to address all timeframes

5. Appropriate regulation and governance of markets

Markets need a stable environment in order to develop and perform their function efficiently

Bringing RES into the market

- **Integrate RES into existing balance responsibility arrangements**: avoid the distortion of FITS, priority dispatch, etc.
- **European scope**: avoid inefficiencies of divergent national solutions
- **Focus on a robust ETS** if the goal is carbon reduction: need to increase regulatory certainty
- **RES support schemes**: Guarantees of Origin/quotas may be less market distorting
- **Re-orientate the market arrangements**: build on the Target Model, with emphasis on liquid intraday/balancing markets, accessible to distributed energy resources (Market Design 2.0)

Reorientating the Market Design

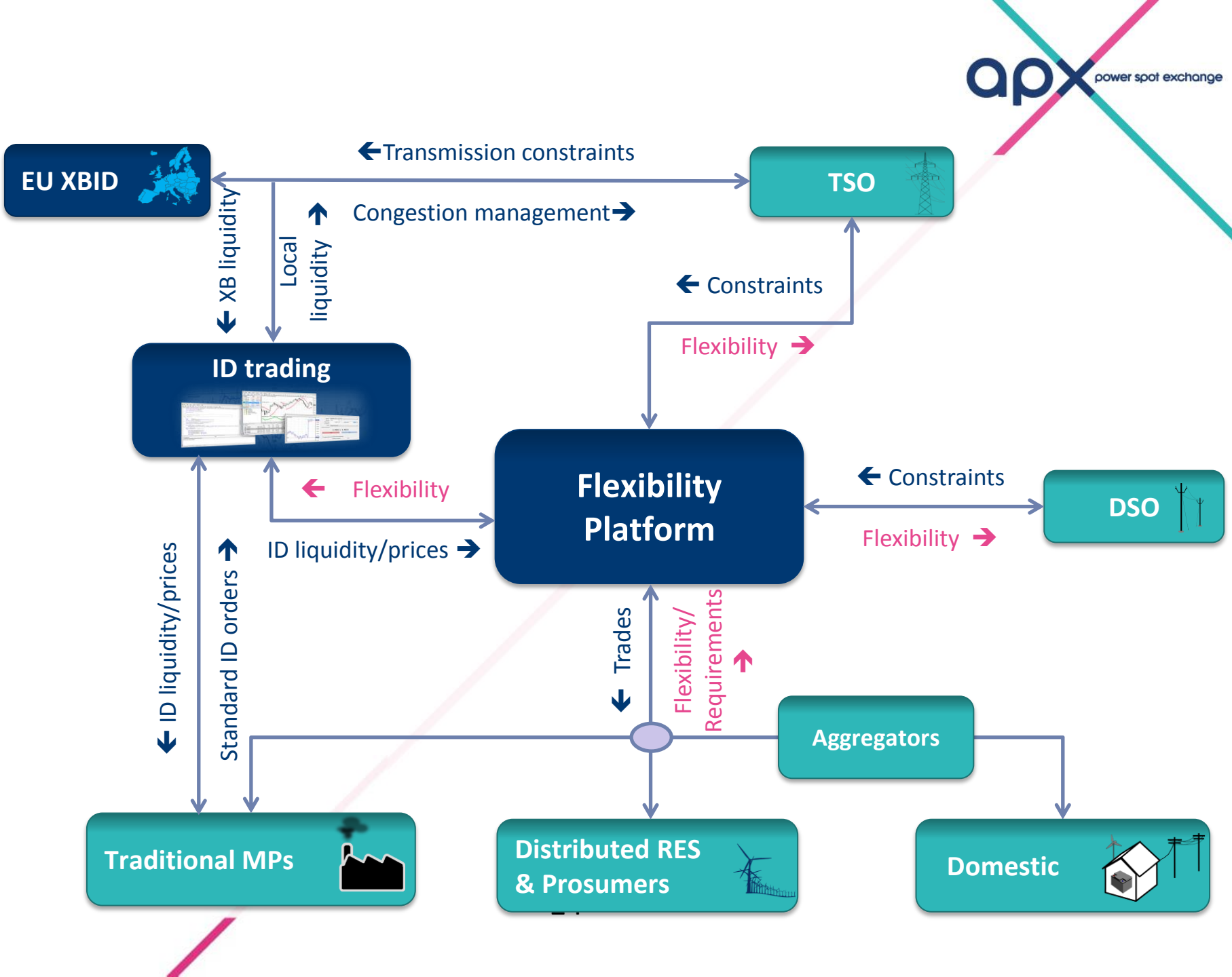
Old World

- Balancing and constraint management services from grid-level resources (large-scale generation and demand)
- TSO is single buyer, operates balancing and constraint management solutions
- Small scale resources need supplier/BRP as aggregator for wholesale market access

New World

- Increased need for flexibility to address impact of high share of intermittent RES
- Increased DNO-level constraints from distributed RES
- Opportunity for new DSR resources based on smart meters

- How incentivise new flexibility resources?
- How ensure efficient use of available resources (by TSO, DNOs, BRPs)?
- How support DNO, TSO system operation (e.g., locational information)
- How align with existing arrangements – e.g., balance responsibility?

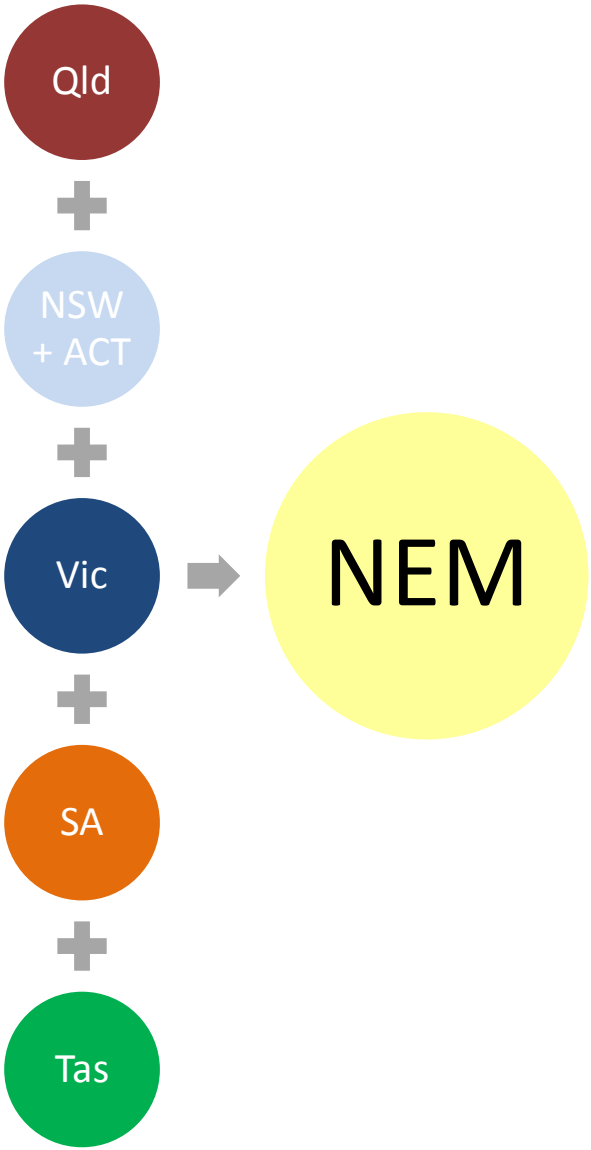

EU XBID
Transmission constraints
TSO
XB liquidity
Local liquidity
Congestion management
Constraints
Flexibility
ID trading
Flexibility
Flexibility Platform
Constraints
DSO
Flexibility
ID liquidity/prices
ID liquidity/prices
Standard ID orders
Trades
Flexibility/ Requirements
Aggregators
Traditional MPs
Distributed RES & Prosumers
Domestic

Making Markets Work!

www.apxgroup.com

ofgem Making a positive difference for energy consumers

NEM Regulatory Policy



The NEM began operation in 1998. Tasmania joined in 2006. The NEM integrated regional state based markets into a zonal market.
The NEM is the world's longest interconnected power system, at 5000kms.

Market price cap AUD$13,500/MWh representing VoLL. Unserved energy per year for each region must not exceed 0.002 percent of the total energy consumed in that region that year.

Climate Change policy is a major ambition but is a sensitive political issue and is under review

ofgem Making a positive difference for energy consumers

NEM Building Blocks

1. Is generation dispatch centralised or decentralised?	**Centralised (pool)**	Hybrid/ mixed dispatch	Decentralised (self-dispatch))	
2. Role of the SO in balancing?	Balancing market	**Series of markets**	Contracts	Parties self dispatch
3. Is there locational pricing?	Single price, with SO re-dispatch	**Zonal energy prices**	Nodal prices	
4. How is cost reflective imbalance pricing achieved?	Single average price	Dual Imbalance Price	**Single marginal price**	Dual marginal price
5. Trading Obligations	**No obligations**	Secure and Promote	No Self-Supply / VI	Central Buyer
6. How is capacity adequacy achieved?	**Energy only market**	Supplier obligation	Capacity market	Strategic reserve
7. How is low-carbon generation incentivised?	ETS	**Carbon tax**	Subsidies	Performance Standards

Lessons for GB future challenges

Intermittency

Ambition to de-carbonise in Australia but Climate Change policy is under review. The NEMs does not face a capacity shortfall and does not provide a clear exit signal. Emissions pricing would be valuable.

Capacity Market

An energy only market with prices caps that allow prices to spike can negate the need for a capacity mechanism

European Integration

Forming the NEM can be thought of as a “mini Europe”. Designing a common set of rules and establishing new entities. The NEM reforms have encouraged substantial investment.

4

Insights and thing we can do differently

So what are the insights?

What can do done differently?

Framework

	Efficient Dispatch	Cost Reflective Prices	Low Transaction Costs	Secure Energy Supply	Low Carbon Supply
 Intermittency	●	●	●	●	●
 Capacity Market	●	●	●	●	●
 European Integration	●	●	●	●	●

ofgem Making a positive difference for energy consumers

Ofgem is the Office of Gas and Electricity Markets.

Our priority is to protect and to make a positive difference for all energy consumers. We work to promote value for money, security of supply and sustainability for present and future generations. We do this through the supervision and development of markets, regulation and the delivery of government schemes.

We work effectively with, but independently of, government, the energy industry and other stakeholders. We do so within a legal framework determined by the UK government and the European Union.

www.ofgem.gov.uk