

## Single Electricity Market Committee

### Implementation of the European Target Model for the Single Electricity Market

#### Next Steps Proposed Decision Paper

**SEM-12-105a**

**9 November 2012**

## 1. Introduction

On 24 January 2012, the SEM Committee published a Consultation Paper on Implementing the European Electricity Target Model in SEM.<sup>1</sup> The consultation closed on 20<sup>th</sup> April and 22 interested parties responded.<sup>2</sup>

Since the end of April, the regulatory authorities' project team has been considering the responses received and the issues raised by respondents; discussing next steps with the Department of Communications, Energy and Natural Resources (DCENR) in Ireland and the Department for Enterprise, Trade and Investment (DETI) in Northern Ireland (collectively 'the Departments') in the light of the responses to the Consultation paper; pursuing further the topics outlined in the Consultation Paper, particularly central vs. self-dispatch; and keeping abreast of and contributing as appropriate to developments in Europe, through ACER and in Great Britain, through Ofgem.

As stated in the Consultation Paper, given the overarching policy and legislative responsibilities of the respective Government Departments in Ireland and Northern Ireland in establishing the SEM and considering EU Member States' adoption of the Third Package, any decision that would lead to re-designed wholesale electricity market arrangements will be made by means of the SEM Committee making a recommendation to the Departments.

The purpose of this paper is:

- to set out the SEM Committee's view on the issues raised by respondents to the consultation;
- to discuss developments in the SEM Committee's thinking and its decisions on a number of issues; and
- to issue a recommendation to the Departments on next steps in the process.

On foot of this recommendation, it is understood that the Departments may issue a joint policy communication on the Implementation of the European Target Model on the island of Ireland.

Section 2 of this paper summarises the responses received on the Consultation Paper and the SEM Committee's views on those responses.

Section 3 sets out the developments in thinking since the Consultation Paper was published, particularly on the issue of central vs. self-dispatch and the compatibility of a centrally dispatched market with the European Target Model.

Section 4 discusses the governance of the market integration project and project management issues, including new working arrangements being finalised with Ofgem.

Section 5 of this paper sets out the SEM Committee's recommendations to the Departments on the next steps in the process of implementing the European Target Model in Ireland/Northern Ireland.

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<sup>1</sup> See SEM-12-04

<sup>2</sup> See [http://www.allislandproject.org/en/TS\\_Current\\_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385&mode=author](http://www.allislandproject.org/en/TS_Current_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385&mode=author)

Section 6 sets out the SEM Committee's decisions on a range of issues discussed in the paper, in particular central dispatch, capacity payments, renewables and regulatory stability.

PROPOSED DECISION

## 2. Summary of Responses and SEM Committee Views

The Consultation Paper asked interested parties to respond to a number of specific questions. These have been summarised here into four thematic areas, namely:

1. The market integration project and the performance of the SEM to date
2. High level objectives and the appropriate assessment framework
3. The European Target Model
4. Options for a re-designed SEM

Respondents' views are first outlined under each area. This is followed in each case by a SEM Committee response.<sup>3</sup>

### 2.1 Market Integration Project and the Performance of SEM to Date

#### *Consultation Issues and Respondents Views*

The Consultation Paper began by outlining the overall context, goals, methodology and progress of the SEM Market Integration Project, within the context that implementing the European Target Model is a positive development that will bring significant benefits to the consumers and producers of electricity on the island of Ireland. The Consultation Paper also set out a brief description of the origins, operation and development of the SEM to date. The SEM Committee asked for views on whether the SEM had met its objectives and how current work streams should be coordinated with the Market Integration Project.

Respondents were of the view that the Consultation Paper was a good first step in understanding the challenges and the complexities of integrating the SEM into the single European market in electricity; and that eliciting views from respondents on the appropriate next steps added value to the process. A majority thought that the project process in general, and the work done thus far - the inclusive approach through workshops and ongoing communication with stakeholders in particular - were useful and expressed a wish for the process to remain inclusive. Many respondents stressed the need for adequate project resources given the importance of the project to the future development of the SEM.

Most respondents were of the view that a 'step back' from the detail of design options as presented in the paper was now needed. The dominant view was that to achieve compliance of the SEM with the European Target Model through a series of modifications to the existing market rules would be too complex a process and would risk compromising the integrity of the market architecture. Summarising this view, one respondent pointed out that *'reusing some of the SEM IT platform does not amount to minimising operational complexity, risk and cost for participants and ultimately the consumer'*. A majority of respondents argued that the next phase of the project should be a re-affirmation of the principles and objectives to be used in the development of the SEM and to establish an adequately resourced project to design a coherent market from the top down that meets these principles and implements the

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<sup>3</sup> For detailed responses on each issue, please refer to individual responses published on the AIP website. Annex 1 also contains a fuller summary of responses received.

Target Model. Confirmation of the principles and objectives going forward should then set the context governing re-designing the SEM to comply with the Target Model.

Most respondents expressed the view that the SEM had achieved its objectives and had been a success since its inception in 2007. However, many respondents argued that the SEM now needed to be re-designed to comply with the European Target Model and to meet future challenges, including high and increasing levels of wind penetration on the island.

Respondents drew attention to the significant changes planned or underway to the electricity market in Great Britain (GB), specifically the Electricity Market Reform (EMR) proposals being driven by the Department of Energy and Climate Change (DECC) and a number of Ofgem-led initiatives to develop the BETTA market to facilitate the efficient implementation of the European Target Model in GB. It was argued that the SEM Committee and the Departments should coordinate their plans with those of DECC and Ofgem in GB.

Some participants questioned the powers of the SEM Committee to implement the European Target Model, on the grounds that their duties were limited to the SEM and implementation of the European Target Model was effectively a regional market decision.

### *SEM Committee Response*

#### *SEM Performance to Date*

The SEM Committee agrees with participants' views that the SEM has performed well to date and met its statutory objectives by delivering cost reflective prices to consumers that are reflective of the long run cost of producing electricity. The SEM Committee will continue to ensure that the SEM performs in accordance with its objectives and delivers value for money to all island electricity consumers during the period of transition to the European Target Model.

#### *Project Approach and Governance*

The SEM Committee is encouraged by the positive comments made by respondents on the usefulness and transparency of the market integration project approach to date and undertakes to continue this open and consultative approach in the next phase.

The SEM Committee acknowledges the points raised by respondents regarding the options presented in the paper for modifying the SEM design to meet the European Target Model (the so-called 'evolutionary options'). It was clear from the Consultation Paper that these options were not intended to be a description of detailed market rules for a re-designed SEM. But we acknowledge that they were also not coherent high level descriptions of a re-designed market. As such they suffered from providing too little detail for the former and too much detail for the latter.

It is also evident that these options did not offer clarity on a number of fundamental design pillars (such as treatment of renewable generation, capacity payments etc.) that market participants require before being able to assess and evaluate how their business strategies and investment plans would be affected. For similar reasons, from a regulatory perspective, the SEM Committee acknowledges that it would not have been able to assess the differing 'evolutionary options' against national policy objectives and the requirements of European internal market rules.

However, the work undertaken on the evolutionary options by SEMO and the TSOs, as presented in the Consultation Paper, served a valuable purpose. The SEM Committee is encouraged that many respondents have developed their thinking, in part as a result of the complexity of issues highlighted by the ‘evolutionary options’ and that the understanding among respondents of the European Target Model has developed considerably as a result. Nonetheless, it is evident that a ‘bottom-up’ approach of modifications to the SEM design to meet the Target Model is not in the interests of consumers and risks overcomplicating and compromising the principles of the SEM.

For this reason, the SEM Committee takes the view that a ‘top-down’ approach is the most efficient means of re-designing the SEM to comply with the European Target Model. The SEM Committee agrees with the majority of respondents that the optimal approach now is that used for the design of SEM itself, i.e., to re-design the SEM in the following order: agreement on principles and objectives; project scoping and set up phase; consultation and decisions on design changes required to SEM, within the framework of agreed principles and objectives; followed by the development of detailed market rules and accompanying systems in an inclusive manner.

It is clear that the implementation of the European Target Model is a constraint that has to be observed in re-designing the SEM. It cannot, however, be considered in isolation. The Target Model does not cover many issues related to market design (for example capacity mechanisms, forward energy products and market power mitigation) which cannot be ignored when reviewing or designing an electricity wholesale market. The task is therefore not merely compliance with a European Regulation but to implement the Target Model in a manner that best serves the interests of consumers and is best coordinated with the other strategic goals of national and European energy policy – i.e. integration of renewables, promotion of competition and security of supply.

Clearly, implementation of the Target Model must be done in a manner that is consistent with government policy in Ireland and Northern Ireland. Our working assumption is that SEM redesign shall in the next phase take place under the aegis of the existing All Island Energy Framework and the Memorandum of Understanding between the Governments of Ireland and the United Kingdom<sup>4</sup>. Under this framework, the regulatory authorities were given lead responsibility for the development of the all island wholesale electricity market design within the context of the EU Internal Electricity Market. The programme of work to make fundamental changes to the SEM design to implement the European Electricity Target Model will require endorsement by both governments as well as ongoing supervision by the Joint Steering Group. In addition, should legislative changes be required these will be initiated by the Departments.

Section 5 sets out further the SEM Committee’s recommendation on governance and project arrangements.

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<sup>4</sup> <http://www.dcenr.gov.ie/Energy/North-South+Co-operation+in+the+Energy+Sector/North-South+Co-operation+in+Energy.htm>

## 2.2 High Level Objectives and Assessment Framework

### *Consultation Discussion and Respondents' Views*

A number of respondents to the Consultation Paper made the point that the next phase of the project should be a re-affirmation of the principles and objectives and the criteria against which to judge a re-design of the SEM; and that detailed work on a high level re-design should start only after the principles have been endorsed by the Departments and agreed with participants.

As most respondents agreed that the SEM could be judged a success in meeting the objectives set for it back in 2005, they felt that a good way of proceeding would be to use the assessment framework that was employed in 2005 in coming to a final decision on the high level design of the SEM. The Commission for Energy Regulation and the Utility Regulator (NIAER as it was then) developed the following primary objective for the SEM, in light of their statutory duties and functions:

*The wholesale electricity trading arrangements should deliver an efficient level of sustainable prices to all customers, for a supply that is reliable and secure in both the short and long-run on an all-island basis.*

This primary objective was then supplemented in the proposed high level decision paper of 5<sup>th</sup> March 2005 by the following eight criteria:<sup>5</sup>

- i. *Security of Supply:* the chosen wholesale market design should facilitate the operation of the system that meets relevant security standards.
- ii. *Stability:* the trading arrangements should be stable and predictable throughout the lifetime of the market, for reasons of investor confidence and cost of capital considerations.
- iii. *Efficiency:* market design should, in so far as it is practical to do so, result in the most economic (i.e., least cost) dispatch of available plant.
- iv. *Practicality/Cost:* the cost of implementing and participating in the wholesale market arrangements should be minimised; and the market design should lend itself to an implementation that is well defined, timely and reasonably priced.
- v. *Equity:* the market design should allocate the costs and benefits associated with the production, transportation and consumption of electricity in a fair and reasonable manner.
- vi. *Competition:* the trading arrangements should promote competition between participants; incentivise appropriate investment and operation within the market; and should not inhibit efficient entry or exit, all in a transparent and objective manner.
- vii. *Environmental:* while a market cannot be designed specifically around renewable generation, the selected wholesale market design should be conducive to renewable energy generation involvement.

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<sup>5</sup> See AIP/SEM/06/05

- viii. *Adaptive*: The governance arrangements should provide an appropriate basis for the development and modification of the arrangements in a straightforward and cost effective manner.

Those respondents to the consultation paper who addressed the question of the assessment criteria also said that:

- compliance with the Target Model should be an initial screen for all design assessments;
- non-discrimination and promotion of efficient use of interconnection should be added to the list of criteria; and that
- any new market design must ensure a stable future for renewables.

### *SEM Committee Response*

The SEM Committee welcomes the constructive views expressed by participants during the consultation. These views have informed the SEM Committee position on which high level principles and objectives should govern the project in the next phase.

### *SEM Committee Statutory Objectives*

Many respondents commented on the various weighting of the assessment criteria proposed in the Consultation Paper in relation to SEM Committee decision-making going forward. We recognise that a successful regulatory framework for assessing market design changes requires an appropriate balance between competing principles. Guidance and context in this regard is provided by the SEM Committee's statutory objectives rather than explicitly prioritising one assessment principle over another. The SEM Committee will continue to be guided by its statutory objectives as set out in primary legislation in Ireland and Northern Ireland as it makes decisions. It is appropriate to recap on these objectives here:



## SEM Committee Statutory Objectives

### Principle Statutory Objective:

The Principal Objective of the SEM Committee is to protect the interests of consumers of electricity in Ireland and Northern Ireland supplied by authorised persons, where appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the sale or purchase of electricity through the Single Electricity Market.

The SEM Committee is required to consider a number of issues in furthering its principal objective to protect the interests of consumers. These duties are:

- To secure that all reasonable demands for electricity in Ireland and Northern Ireland are met
- To secure that authorised persons are able to finance their activities
- To secure a diverse, viable and environmentally sustainable long-term supply in Ireland and Northern Ireland
- To consider the effect on the environment in Ireland and Northern Ireland of the activities of authorised persons
- To promote the use of energy from renewable energy sources
- To ensure that decisions are transparent, accountable, proportionate, consistent and targeted only at cases where action is needed

It is worth noting that the SEM Committee's statutory objectives are almost identical to those of Ofgem, which should facilitate optimum cross border cooperation between GB and the SEM regulators<sup>6</sup>.

In response to the three specific points made by respondents on the high level assessment and SEM objectives, the SEM Committee make the following observations:

First, the SEM Committee agrees that compliance with the European Target Model is the primary objective of re-design options for the SEM.

Second, the Regulatory Authorities have a statutory duty not to discriminate. For example, one of the functions of the CER is to ensure "no unfair discrimination between applicants or holders of licences, consents and authorisations or between them and State-owned operators". The principal objective of the Utility Regulator in carrying out its electricity related functions is: "to protect the interests of consumers of electricity supplied by authorised suppliers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the generation, transmission, distribution or supply of electricity". Therefore, there is no need for a separate criterion of non-discrimination in this context.

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<sup>6</sup> For Ofgem's Statutory Objectives, see DECC's Final Report on their Ofgem Review, page 20: <http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/energy-markets/2151-ofgem-review-final-report.pdf>

Third, the rationale for the Third Package and the various Network Codes that will be adopted is the establishment of an effective internal European market in electricity. A necessary condition for this is to ensure that interconnectors are used efficiently in the interests of consumers and producers of electricity. Accordingly, there is no need for an explicit criterion related to the efficient use of interconnectors. Compliance with the Target Model is sufficient.

Finally, the SEM Committee acknowledges that the achievement of the ambitious targets as committed to by Departments in both Ireland and Northern Ireland for renewable generation will be a consideration in the development of any re-design of the SEM. EU and national governments' twin overarching policies of creating the internal electricity market and moving toward a low carbon generation mix (which includes government targets for renewable energy and other provisions of the Renewables Directive) cannot be delivered without an efficient market design. From a regulatory perspective, we are satisfied that the High Level Principle on Environment and the SEM Committee's statutory duty to promote renewable energy sources adequately, reflect this key policy objective.

The SEM Committee is satisfied that the principles and criteria set out above, which are identical to those used in 2004 and 2005 to assess the high level design of the SEM, with the addition of compliance with the European Target Model and as published in the Consultation Paper, adequately encompass the points raised by respondents. The SEM Committee have endeavoured to clarify what the SEM Committee means by these principles and is confident that they will be a useful benchmark for assessing market designs in the next phase of the project.

These same eight criteria should therefore be used now to evaluate changes to high level market designs, together with the addition of a ninth criteria:

*Implementation of the Target Model:* a binding constraint on the replacement for the SEM is that it will be able fully to comply with the European Target Model, as set out in the various Network Codes.

In conclusion the SEM Committee will recommend to the Departments that changes to the design of the SEM in the next phase of project will be developed that meet the principles set out in the box below and that these principles will be considered in light of the statutory objectives of the SEM Committee. If the Departments confirm the SEM Committee's recommendation, the Regulatory Authorities will then begin work on the redesign of the SEM high level design that best meets these objectives. The next steps involved in that process are set out in Section 4.

### **SEM Committee Recommendation: High Level Principles for the Market**

In conclusion, the SEM Committee makes the following recommendation to the Departments on the high level principles for re-design of the SEM that is chosen to implement the Target Model in Ireland and Northern Ireland:

- i. **Security of Supply:** the chosen wholesale market design should facilitate the operation of the system that meets relevant security standards.
- ii. **Stability:** the trading arrangements should be stable and predictable throughout the lifetime of the market, for reasons of investor confidence and cost of capital considerations.
- iii. **Efficiency:** This refers to efficient short term operation. Market design should, in so far as it is practical to do so, result in the most economic (i.e., least cost) dispatch of available plant. This shall include cross border TSO balancing arrangements that are at least cost to consumers.
- iv. **Practicality/Cost:** the cost of implementing and participating in the wholesale market arrangements should be minimised; and the market design should lend itself to an implementation that is well defined, timely and reasonably priced.
- v. **Equity:** the market design should allocate the costs and benefits associated with the production, transportation and consumption of electricity in a fair and reasonable manner.
- vi. **Competition:** the trading arrangements should promote competition between participants; incentivise appropriate investment in generation and demand reduction as well operation within the market; and should facilitate efficient entry or exit, all in a transparent and objective manner.
- vii. **Environmental:** while a market cannot be designed specifically around renewable generation, the selected wholesale market design should promote renewable energy sources and facilitate government targets for renewables
- viii. **Adaptive:** The governance arrangements should provide an appropriate basis for the development and modification of the arrangements in a straightforward and cost effective manner.
- ix. **The Internal Electricity Market:** the market design should efficiently implement the European Electricity Target Model and ensure efficient cross border trade.

It is recommended that the relative priority of these assessment principles will be determined by reference to the SEM statutory objectives as set out in legislation in Ireland and Northern Ireland.

## 2.3 European Target Model

### *Consultation Discussion and Respondents' Views*

The Consultation Paper set out the overall European policy context and implementation vehicles for the creation of the internal market and gave an overview of the European Target Model for electricity and the 'shadow' European standard electricity market design on which it is based. It also examined the issues faced by the SEM in implementing the European Target Model, including differences between the Target Model and the current SEM design and placed the SEM in the context of the broad spectrum of market designs.

The majority of respondents took the view that the SEM in its current form was incompatible with the requirements of the European Target Model and therefore needed to be re-designed from the 'top down', but that this should not be done in isolation from other key national and EU energy policies.

Others argued that, owing to the lack of clarity surrounding some aspects of the European Target Model, it would be unwise to redesign the SEM now and risk losing or compromising the success that the SEM has achieved. Rather, these respondents took the view that the SEM Committee should wait until the Target Model was fully in place and operational in the rest of Europe before embarking on a market re-design, rather than risk trying 'to meet a moving target'.

One respondent mentioned the issue of bidding zones and questioned whether it would be possible to retain the current design of the SEM if there were bidding zones on the island.

Other issues relating to market design raised by respondents in response to the consultation were central/self dispatch, capacity payments, imbalance pricing, spot market liquidity, forward hedging, market and settlement timelines and gate closure.

### *SEM Committee Response*

#### *Certainty and the European Target Model*

The SEM Committee appreciates the views expressed by many participants that there was a perceived lack of clarity on how the European Target Model will operate in practice and the difficulty in relating to some of the terminology used in the Framework Guidelines and Network Codes, owing to the many differences between the SEM and its counterparts in the rest of Europe.

Some participants also emphasised that the Target Model relates only to cross border trade and therefore should not affect the design of national wholesale electricity markets. While this may be true, we intend to implement the European Target Model in a manner that most efficiently protects the long and short term interests of electricity consumers and not merely achieves compliance with the Network Codes and Third Package. The latest developments with regard the internal European electricity market, the key pillars of the Target Model and how their provisions relate to other areas of national energy policy are set out below. Market design itself is considered further in Section 2.5.

We recognise respondents' concerns with regard to uncertainty with the Target Model but we also recognise that high level design of the European day ahead and intra-day markets

has been clear for a number of years. As a result, the SEM Committee believes that, in complying with the European Target Model, we are not attempting to hit a moving target. It is to be expected that the European single market in electricity will evolve over time and that there will be initial implementation issues to overcome (such as the delayed progress in the NWE intraday project) but these factors should not be used as an excuse to delay. Such delays would impact adversely on electricity consumers on the island of Ireland by

- denying them the benefits of more efficient use of the capacity of the 1,000MW of interconnection with GB;
- limiting international competition; and
- inhibiting the ability of Ireland and Northern Ireland to influence the development of the internal European market in electricity going forward.

We appreciate that any re- design of the SEM inevitably involves a period of uncertainty for participants and investors. Nonetheless, the codification of the European Target Model through the Network Codes will provide market participants with some clarity on how the future market on the island of Ireland will look in the longer term. In the short to medium term, the SEM Committee has secured a transitional period for the island of Ireland to implement provisions of the CACM Network Code. Article 96 paragraph one of the CACM Network Code, as submitted to ACER in September 2012, states that:

*“The requirements of this Network Code shall not apply to Transmission System Operators in Ireland and Northern Ireland, operating island systems with central dispatch, until 31 December 2016”<sup>7</sup>.*

This provides market participants with a fixed point at which the market arrangements will change from the current SEM and provides adequate medium term stability. In that regard the SEM Committee is also committed to maintaining the current design of the SEM until that point and will not approve material market changes between now and then.

*What are the key elements of the Target Model for the SEM?*

The Consultation Paper described in some detail the legislative process for the Target Model and the roles and responsibilities of the various stakeholders in this process. Since the publication of the Consultation Paper in January, a number of important developments have taken place in this area. These include ENTSO-E’s consultation on the CACM Network Code and ACER’s consultation on the Electricity Balancing Framework Guidelines. Given these developments and the points made by respondents to the consultation on the Target Model, it is worth restating here the essential elements of the European Target Model which SEM future design will incorporate.

To provide further clarity, the five main features of the Target Model and how they relate to the Market Integration Project are set out below:

### **Capacity Calculation and Zones**

The CACM Framework Guidelines and Network Code require a review of European Bidding Zones (i.e. the network area within which market participants submit their energy bids) to

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<sup>7</sup> For the full provisions of the draft wording for the transitional arrangements for the island of Ireland see: [http://www.allislandproject.org/en/TS\\_Current\\_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385&mode=author](http://www.allislandproject.org/en/TS_Current_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385&mode=author)

determined whether the current bidding zones should be maintained or whether an alternative configuration should be implemented. The review may be launched by National Regulatory Authorities or by System Operators with the approval of National Regulatory Authorities. The CACM FG provides that when defining bidding zones, *'the principle of economic efficiency should be the guide including all economic, technical and legal aspects of relevance such as socio economic welfare, liquidity, competition, network structure and topology, planned network reinforcement and redispatching costs'*.

The SEM is currently a single bidding zone. As part of the implementation of the Target Model, we will review (or request the TSOs to review) the bidding zone configuration for Ireland and Northern Ireland to apply from 2016. An evaluation of the merits of such, by applying the criteria for assessing the efficiency of options for bidding zones configurations is set out in the CACM Network Code.

If the GB market were to split into two zones before 2016, we would also need to consider the implications of this on the SEM, since the CACM Network Code stipulates that any reconfiguration of bidding zones in a particular control area would need to take into account any adverse effects of internal transactions on neighbouring bidding zones<sup>8</sup>. But this possibility is independent of the re-design of the SEM and can be done in tandem with the process of re-design in the period to 2016<sup>9</sup>. Arrangements for SEM RAs and Ofgem to work together on such issues of mutual interest are discussed later in the paper.

### **Forward Markets**

Since finishing the CACM Network Code in September 2012, ENTSO-E have informally begun work on the Forward Markets Network Code, also under the aegis of the Framework Guidelines on Capacity Allocation and Congestion Management.<sup>10</sup>

The Forward Markets element of the European Target Model covers two main areas:

- Forward (cross border) risk hedging products. These can be either physical transmission rights (PTRs), as currently on Moyle and East West), or financial transmission rights (FTRs), which are rights to congestion revenues arising from price differences between price zones) or contracts for difference (CfDs), which provide a price hedge for differences in prices between price zones in the same market, as in the Nordic market.<sup>11</sup> The choice between PTRs, FTRs or CfDs is made on border by border basis by the two NRAs concerned. Until day ahead market coupling is in place, PTRs are the only option.

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<sup>8</sup> For more on bidding zones see the recent report by Frontier Economics for the BundesNetzAgentur on Bidding Zones in Germany:  
[http://www.bundesnetzagentur.de/SharedDocs/Downloads/EN/BNetzA/Areas/ElectricityGas/Special%20Topics/StudyPriceZone/StudyPriceZoneLong.pdf?\\_\\_blob=publicationFile](http://www.bundesnetzagentur.de/SharedDocs/Downloads/EN/BNetzA/Areas/ElectricityGas/Special%20Topics/StudyPriceZone/StudyPriceZoneLong.pdf?__blob=publicationFile)

<sup>9</sup> It is worth noting that market splitting is relatively common in other markets in Europe (e.g. the MIBEL in Spain and Portugal, the Nord Pool market between Scandinavian countries and GME which operates a zonal market in Italy. Other markets, such as those in France and Germany constitute one large zone). Therefore, market designs can accommodate a variety of zone configurations.

<sup>10</sup> Notably for Ireland, ENTSO-E have appointed EirGrid as lead drafter (or convenor) of the Forward Markets Network Code. ENTSO-E were recently formally invited by the EC to draft the Forward Markets Network Code. See :<https://www.entsoe.eu/resources/network-codes/forward-capacity-allocation/>

<sup>11</sup> Contracts for difference allow market participants in Nord Pool to hedge against the risk that prices in the price area or zone where the market participant is physically located will differ from the system wide price. New forward contract types based on area prices would have been a way of accomplishing this goal. However, this method would have split total liquidity among several products and was rejected. A separate product, a CfD, was therefore introduced.

- Harmonisation of cross border capacity allocation rules. The European Target Model provides that these should be harmonised and a regional (and eventually pan-European) auction platform should be established for the allocation of all cross border long term capacity rights, be they FTRs, PTRs or CfDs.

On 21 September ENTSO-E was officially invited by the European Commission to start developing a Network Code on Forward Capacity Allocation. ENSTO-E expects to launch a consultation on the Code in Q2 2013 with submission to ACER by Q4 2013. The Forward Markets Network Code will be binding by 2014, but some of its elements will not be possible for Ireland/Northern Ireland until 2016.

### **Day Ahead Market**

European-wide price (or market) coupling at the day ahead stage is the centrepiece of the European internal market in electricity.

With market coupling the available cross-border transmission capacity at the day ahead stage across Europe will not be explicitly auctioned, but will implicitly be made available via energy transactions on the power exchanges on either side of the border (hence the term implicit auction). So participants on a power exchange benefit automatically from cross-border exchanges without the need to explicitly acquire the corresponding transmission capacity; participating power exchanges can be coupled in a way that requires them to make minimal changes to their market rules; and day ahead cross border prices will automatically be equalised, provided sufficient cross border transmission capacity is available, thus guaranteeing a genuine European internal market in electricity.

To implement market coupling across Europe:

- each Member State will be required to designate a Nominated Electricity Market Operator and a Market Coupling Operator.
- the Nominated Electricity Market Operator will be required to adopt the European-wide single price coupling algorithm that is approved by ENSTO-E
- TSOs will be required to submit all available cross border capacity at the day ahead stage to the Market Coupling Operator
- market participants who submit bids and offers into the implicit auction through their Nominated Electricity Market Operator will be required to use products compatible with the price coupling algorithm.

The Consultation Paper recognised that, in common with other power pools around the world, the SEM uses a system of complex bids where generators submit their costs (including non-convex costs such as start-up costs) to a central price coupling algorithm. As most power exchanges have relatively simple products, the existing complexity of technical and commercial offer data used in the SEM may not be acceptable to the exchange-based price coupling algorithm that is currently being developed by the power exchanges as part of the NWE pilot day ahead market coupling project, and which is due to launch at the end of 2012.

SEMO has been doing some preliminary work since the Consultation Paper was published on the components of SEM bids that may be accommodated by the price coupling algorithm. For these purposes the day ahead price coupling algorithm was assumed to be the Price



Coupling of Regions (PCR) algorithm, COSMOS. SEMO note that power exchanges initially accepted only simple price/quantity orders. But over time, sophisticated orders have emerged that increasingly reflect similar characteristics to those used in complex orders. Examples include standard blocks or profile blocks. Blocks, in addition to a simple price and quantity, also specify a period over which the price/quantity offer is valid. Other examples of sophisticated orders include minimum income conditions, which allow a participant to specify the minimum income it would be prepared to accept over the trading day were its price/quantity offers to be accepted. Both would block bids and minimum income condition offers would allow participants to reflect non-convex costs. However, the PCR algorithm is characteristically different from the MSP Software, since generator units are not explicitly represented in the algorithm. Instead, only the orders themselves are represented.

SEMO concluded that many of the SEM order components can be, or may be, catered for by the PCR order structures. However, there are some that are almost certainly unlikely to be accommodated, such as those related to the current SEM bidding mechanism for pumped storage bidding.

Other elements of the day ahead market, such as whether participation is mandatory or voluntary, are not currently specified and may be determined on a national or regional basis.

### **Intra-Day Market**

The intra-day implicit continuous market will operate up to one hour ahead of real time, with gate opening times to be determined. This market will be useful for market participants to respond to within day changes in anticipated supply and demand such as forecast errors for intermittent generation, plant outages or unexpected changes in demand.

Some aspects of the intra-day Target Model are yet to be determined, in particular:

- How congestion pricing will operate with continuous implicit trading
- How implicit intra-day auctions of the sort used in the central dispatch markets in Spain and Portugal can combine with implicit continuous trading.

The NWE pilot project for intra-day has recently suffered a delay in implementation of the interim solution. Nonetheless, the enduring NWE intra-day solution with congestion pricing is due to be in place by 1 January 2014.

SEM RAs continue to be informed on NWE developments through interactions with Ofgem and through EirGrid attending relevant NWE meetings.

### **Balancing**

ACER has now consulted on draft Electricity Balancing Framework Guidelines. These provide for the cross border sharing of balancing and reserve arrangements which will bring important benefits for the island of Ireland, owing to its high penetration of intermittent generation. The Framework Guidelines provide that the Balancing Network Code must take into account systems with central dispatch and it is expected that the terminology used in the Framework Guidelines will be adapted in the Network Code to suit central dispatch systems. Examples of this include 'Balancing Responsible Party' and 'Imbalance Settlement' which may not be meaningful concepts in those centralised markets in Europe which have spot markets integrated with the pricing of imbalances and ancillary services (as is the case with the SEM).



ACER approved and adopted the Electricity Framework Guidelines on 18 September 2012. ENTSO-E expect to receive a formal invitation to begin drafting the Balancing Network Code in October 2012. It is anticipated that the Network Code will come into effect in stages, with initial implementation expected in 2015.

### *Interactions between the European Target Model and other areas of Energy Policy*

Respondents to the Consultation Paper raised a wide range of issues related to wholesale electricity markets that they considered should be considered in the context of the implementation of the European Target Model in SEM. Some of these fall under the aegis of government policy while others are regulatory issues related to aspects of the design of a wholesale market. Some of the issues raised by respondents in this regard were:

#### Government Policies:

- Renewable support schemes
- Provisions of the Renewables Directive

#### Regulatory Issues:

- Capacity payments mechanism and rewarding flexibility
- Ancillary services and the DS3 Project
- Demand side participation
- Market power mitigation
- Contract liquidity

The above areas are strictly speaking outside the scope of the European Target Model and the Third Package Network Codes and fall within the respective remits of national governments and regulatory authorities. However, we recognise the importance of joined-up thinking and a coherent and stable regulatory framework. The re-designed SEM will not only need to meet the requirements of the European Target Model but will also need to take into account other important areas of energy policy that fall within the remit of regulators and objectives of national energy policies.

Therefore, in assessing the possible ways in which the SEM could be re-designed to comply with the European Target Model, we commit to carrying out an assessment to judge the compatibility of each candidate design with other elements of Government and regulatory policy.

## **SEM Committee Decision: The European Target Model will be implemented in the SEM by 2016 in a coherent and stable manner**

In this regard, the SEM Committee makes the following Decision:

- **Target Model:** At a minimum, changes to the high level market design of the SEM must provide for the following five pillars of the Target Model by 2016 (as set out in the ACER Framework Guidelines for Capacity Allocation and Congestion Management and the ACER Framework Guidelines on Electricity Balancing):
  - Capacity Calculation and zones delimitation
  - Cross Border Forward Hedging and Harmonisation of allocation rules
  - Day Ahead Market Coupling
  - Intra-day Continuous Trading
  - Cross Border Balancing
- A review of the **bidding zones** in the SEM will be considered as part of the implementation of the Target Model
- **SEM Design Stability to 2016:** We commit to maintaining the current structure of SEM until 2016 where possible and will not approve material market changes between now and then.
- **Impact Assessment:** The redesigned SEM shall be subject to a regulatory impact statement consulted upon and a cost benefit analysis, where appropriate, that take into account the key energy policies that are materially affected by the wholesale electricity market.

## 2.4 Options for a re-designed SEM

### *Consultation Discussion and Respondents Views*

The Consultation Paper presented four 'evolutionary options' that sought to preserve some of the fundamental characteristics of the SEM. These options ranged from very significant modifications to the market design (Options 1 and 3) to moderate but nonetheless significant changes (Option 2) to relatively modest/small changes (Option 4).

The Consultation Paper also examined a full scale replacement of the SEM, a decision which ultimately would involve the respective Departments. It considered the key attributes of the two broad classifications of market design – centralised and decentralised - and how these measured up against the SEM Committee's assessment criteria set out in Section 2.2. It also considered the option for further integration between the market arrangements in Ireland/Northern Ireland and the wholesale market in GB (BETTA). The Paper also considered other market designs in place in Europe such as the Nordic and Iberian markets (MIBEL) and presented a preliminary evaluation of these against the proposed assessment criteria. The Consultation Paper also looked at the potential costs of replacing the SEM as opposed to developing it, as outlined in the 'evolutionary options' section.

Most respondents did not support any of the 'evolutionary options' presented in the paper and suggested that the distinction between 'revolutionary' and 'evolutionary' paths was unclear and should be abandoned going forward.

There was limited endorsement of Option 3 (limited bi-laterals with forward pool), with two respondents noting that it seemed to provide compliance with additional trading opportunities. However, this support was heavily qualified and in one case the respondent clearly did not favour any of the four options, while commenting that option three appeared to offer closest compliance to the day ahead and intra-day elements of the European Target Model.

One respondent argued for a move to bilateral trading arrangements to replace the SEM on the grounds that it would mean closer market integration with GB and beyond. It pointed out that both self and central commitment are possible under a central dispatch regime and that market design options based on self-commitment need to be more fully evaluated so as to achieve the full benefits of market integration. The response provided detail on the price reductions that occurred at the time of the move from the old England Wales Pool to the New Electricity Trading Arrangements (NETA), which the respondent claimed was a result of the change in market design. It signalled its support for the 'expanding BETTA' option and urged the RAs to explore this further.

No respondent favoured an outright adoption of the MIBEL or Nord Pool markets, though many were of the view that they should be considered once the high level principles and objectives for the market design had been established by the RAs.

A number of respondents argued strongly for preserving as much of the SEM as possible and indicated a preference for evolutionary option 4 (minimal change to the SEM, with CfD trading in the day-ahead and intraday markets).

Many respondents also pointed to the ongoing importance of the mitigation of market power and that this should be a key consideration when considering any design changes to the market.

Many respondents emphasised the importance of considering the impacts of design changes to SEM to implement the Target Model on renewable generators going forward and in particular intermittent generation. Key issues raised in this respect were:

- the exposure of intermittent generation to penal imbalance pricing;
- efficient market signals for import and export;
- reference prices; and
- incorporation of priority dispatch

### *SEM Committee Response*

#### *Evolution and Revolution*

The SEM Committee acknowledges that the level of detail in the 'evolutionary options' was too detailed for a high level design and insufficient for a consultation on detailed market rules, while also making a number of implicit assumptions about the high level principles that would be used to choose a new market design. The SEM Committee also acknowledges that, given the fundamental design changes involved in all of the 'evolutionary options', the

distinction between evolutionary and revolutionary was moot. As discussed in Section 2.1, there was a strong preference among respondents for a top down approach rather than gradual modification to the current SEM rules.

Based on the views expressed by respondents and having considered the options further, we do not see merit in further developing any evolutionary options. In particular, we are concerned that Options 1-3 risk overcomplicating the market and may not meet the requirements of the European Target Model.

We also recognise that Option 4 (the 'Contracts for Difference Option') is not a fully coherent market design though some elements of this option may be worth revisiting during phase 2 of the project. It is useful to note that a financial day ahead market combined with a real time spot market that is integrated with the pricing of imbalances and ancillary services similar to the centrally dispatched markets in the United States (such as PJM, New York and New England) would, in principle, be compatible with the European Target Model.

With respect to the 'revolutionary options' – either replacing the SEM with a bilateral contracts market along the lines of BETTA or merging the market on the island of Ireland with BETTA. In considering these options, the following considerations are noteworthy:

- the findings of the TSOs report and the RA's consultant's review of the dispatch model for the island of Ireland that central dispatch is the optimal means of dispatching the All Island system<sup>12</sup>. In addition Target Model implementation does not require a BETTA style market in SEM.
- a physical bilateral contracts market would potentially encourage vertical integration in a small island system leading to market power concerns.
- the SEM's success in producing transparent prices that reflect the long run costs of producing electricity.
- The BETTA market is changing. As well as their Significant Code Review (reforming the Cash Out mechanism that is central to BETTA) and Liquidity projects<sup>13</sup>, Ofgem have also consulted on whether to launch an overall project to implement changes to GB market to implement the Target Model<sup>14</sup>.
- It is the intention of SEM RAs to finalise working arrangements to work together to enable the efficient implementation of the Target Model both in SEM and BETTA including introducing design changes are needed to either market

SEM Committee therefore is of the view that either joining BETTA or adopting a similar market to BETTA does not necessarily arise at this stage as we are all working to implement a common European electricity market which facilitates efficient cross border trade.

Issues relating to renewable generation and market design are dealt with in Section 3.2.

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<sup>12</sup> The issue of self v central dispatch is discussed further in Section 3.1

<sup>13</sup> Ofgem has been investigating poor liquidity in the GB forward, futures and short time market for some time. It is considering a mandatory auction for forward physical contracts. Interestingly all of the big six now engage in gross bidding of at least 30% of their portfolios in a day ahead power exchange auction (SSE's figure is 100%). Furthermore, forward financial contracts are increasing – reaching 12TWH so far in 2012. These developments are changing the shape of BETTA and moving it closer to the Target Model and the SEM.

<sup>14</sup> <http://www.ofgem.gov.uk/Europe/Documents1/EU%20Target%20Model%20open%20letter.pdf>

### *Wider Market Design Context.*

The European Target Model may assume, but does not impose, a market design. It is also not the case that the SEM is an aberration. At least three other centralised markets exist in Europe and are planning to implement the European Target Model by 2014.

Furthermore, United States markets such as PJM, New York and New England are successful and efficient market designs (not dissimilar to the SEM) that share many features of the Target Model (day ahead firm contracts, forward markets supplemented by Financial Transmission Rights, an intraday re-bidding market and a real time balancing mechanism for deviations from day ahead contracted positions).

While the consultation paper did not consider the United States Standard Market Design as model for implementing the Target Model, our thinking has developed somewhat since then. It is instructive to consider changes to the SEM design in the context of the progression of most organised markets in the United States which began as centrally dispatch ex-post spot markets (much like the SEM) and later added features such as day ahead auctions and intraday rebidding markets, in part to engender more efficient cross border trade.

#### **SEM Committee Decision: Market Design**

Regarding future market design changes, the SEM Committee's Decision is that:

- The 'evolutionary options' described in the Consultation Paper should not be pursued further.
- The SEM RAs will work jointly with Ofgem on efficiently implementing the Target Model in SEM and BETTA, acknowledging the changes which potentially may take place in either market to facilitate this.
- There will continue to be market power mitigation measures in the SEM,

### 3. Developments in Thinking

The Consultation Paper was intended as the first step in the process of implementing the European Target Model in the SEM by 2016 and was designed to stimulate debate among market participants. It was acknowledged that further work was needed in certain areas before a decision on the best approach to changing the design of the SEM (to implement the Target Model) could be consulted on and made. Explicit reference was made to the further exploration of issues raised in the Consultation Paper, including but not limited to:

- the implications of the day ahead and intraday Target Models for central dispatch;
- the treatment of renewables in any future all island market; and
- the compatibility of a capacity payments mechanism with the Target Model.

This further work, in advance of a SEM Committee decision on next steps, was intended to inform the SEM Committee's decision on what options might be pursued in the light of the response to the Consultation Paper, particularly if that further work had implications for the particular design for an all island electricity market to replace the SEM.

This section briefly discusses these four areas in turn, beginning with central dispatch.

#### 3.1 Central Dispatch

The EirGrid/SEMO/SONI paper that accompanied the Consultation Paper noted that many of the arrangements for the Target Model were developed around larger interconnected electricity systems in mainland Europe; and that many of the larger European systems operate a self-dispatch model with generators and suppliers effectively managing exchanges of power between them with the System Operators only dispatching balancing plant. This raised a concern that central dispatch was incompatible with the Target Model.

EirGrid and SONI have been looking further at this issue since the publication of the Consultation Paper in January 2012. The conclusions of that work are that the island of Ireland has a unique combination of physical/technical attributes which mean that central dispatch makes sense in the all island context<sup>15</sup>. These attributes include:

- the size of the largest infeed relative to the size of the demand is a measure of the granularity of the system. On the all-island system, the loss of a large CCGT or the East West interconnector could result in a loss of up to 20% of the controllable generation that is running at the time. This means that the system operators need to dispatch all generation on the system to provide reserve (potentially constraining their output) and that if the largest infeed should trip then all that reserve needs to be called upon either automatically or through the issue of dispatch instructions;
- the level of intermittent generation on the island of Ireland can already reach up to 50% of system demand adding unique operational challenges not experienced in other power systems. Centralised control of the output of all generation on the island is required to manage this intermittency.

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<sup>15</sup> The TSOs report on the Dispatch Model for the All Island Market is published alongside this paper.

- because of the relative size of generators to system demand, transmission constraints on the all-island system, planned or unplanned, can have a significant impact on the technically feasible generation pattern that requires centralized control of the output of all generation.

EirGrid/SONI also argue that:

- self-dispatch is not a requirement of the Target Model and central dispatch is an efficient way to optimise a market with the unique characteristics of the all island market;
- if the market on the island of Ireland was to move to self-dispatch, the system operator would have to intervene to a significant extent to maintain system security and to balance the system, arguably taking away the self-determination and firmness of position that market participants would be trying to achieve through self-dispatch;<sup>16</sup>
- compensation mechanisms can be designed to keep market participants whole while running a centrally dispatched market which can in essence leave participants indifferent to the financial impact of the dispatch model chosen.

EirGrid/SONI conclude that there can be no doubt that the SEM will have to change to comply with the Target Model; but that central dispatch is not one of the factors that is required to change or that it would be sensible to change. They also point out that the SEM in its current form cannot facilitate continuous intra-day trading and that this is a problem all markets are facing.

Compliance with the day ahead requirements of the Target Model should pose no problems for a centrally dispatched market, since the day ahead implicit auction of the Target Model is essentially a centralised market.<sup>17</sup> By this we mean that day ahead market coupling involves a central party accepting bids and offers from market participants (albeit through local power exchanges) using a standardised set of parameters and an algorithm to match demand and supply and maximise social welfare, while satisfying a number of constraints, such as indivisibility and load gradient constraints.

However, the same cannot be said of continuous intra-day trading (IDT), which poses problems of timing; such that new functionality is required much closer to real time than is currently the case in the SEM. These requirements could be difficult to implement in a centralised market because of the need to incorporate continuous implicitly-determined cross border trades in physical dispatch decisions close to real time, such that market participants in the re-designed SEM will be able to reschedule physical flows on the DC interconnectors with Britain up to one hour before real time. But these new requirements will present challenges to implement regardless of which market model is used.

For the reasons set out above, EirGrid and SONI are of the view that, given the physical and technical characteristics of the all island market, central dispatch is an important principle to maintain for the re-designed market. They are continuing to work in detail on how a

<sup>16</sup> According to EirGrid/SONI, system operator intervention in the SEM amounts to about 30% of the total system energy demand over a typical week. In other words, 30% of what they believe to be a normal and efficiently matched set of transactions could not be physically delivered firm owing to a mixture of system services provision, constraint management and plant unavailability.

<sup>17</sup> On the assumption that the bidding formats (i.e., simple vs. complex) are compatible.

centralised market could be made compatible with the intraday and balancing market requirements of the Target Model, to ensure that a centralised market design can comply with the various Network Codes, while meeting the other objectives the SEM Committee has for the all island market, including security of supply, mitigating market power, promoting renewables and efficiency of dispatch.

The RAs are engaging with their counterparts in Italy and Spain, which also have centralised markets, to better understand how the authorities propose to adapt their markets to comply with the Network Codes.

The SEM Committee engaged an independent expert consultant to challenge the TSOs findings and recommendations relating to system operation issues and in particular the dispatch model for the island of Ireland in the context of the European Electricity Target Model. The consultant's report is published alongside this paper and its main conclusions are:

- There is no compelling reason to change the method of electricity system operation on the island of Ireland from a central dispatch to a self dispatch model
- Such a change is not required for compliance with the Target Model
- While a system of self dispatch would be feasible on the island of Ireland, the advantages of moving to self dispatch anyway would not outweigh the disadvantages for the following reasons:
  - Complying with the requirements of the Target Model will cost broadly the same regardless of whether a central dispatch or a self dispatch model underlies the trading arrangements
  - Moving to a self dispatch model would incur significant additional costs that would not be incurred by staying with central dispatch
  - There is widespread agreement that the SEM with central dispatch has been a success and has served the island of Ireland well. There is a risk that moving to trading arrangements based on self dispatch would not serve the needs of the island of Ireland as well as the current arrangements do
  - Physical firmness cannot be guaranteed by either self or central dispatch
  - Financial firmness is financially equivalent to physical firmness and is available under either central or self dispatch. Under self dispatch implementation of side payments would be necessary to ensure financial firmness and this could increase market costs.
  - Central dispatch was evaluated five years ago as being the best choice for the island of Ireland and nothing appears in the meantime to have changed that conclusion
  - As wind penetration reaches high levels it points increasingly to central dispatch which provides the maximum availability of dispatchable thermal generation necessary to maintain system control
  - Market power mitigation would be problematic under self dispatch



For a detailed discussion of this matter see the TSOs and consultants report which are published with this paper.

### **SEM Committee Decision: Central Dispatch**

The SEM Committee's Decision is that there will be a working assumption that changes to the SEM high level design will be based on central dispatch.

## **3.2 Renewables**

Both Ireland and Northern Ireland have ambitious renewable targets of 40% of electricity consumption from renewable sources by 2020<sup>18</sup>.

To facilitate this, EirGrid and SONI have established the Delivering a Secure Sustainable Electricity System (DS3) programme, which is designed to manage the achievement of Ireland and Northern Ireland's RES-E targets from a grid perspective. The programme includes enhancing generation portfolio performance, developing new operational policies and system tools to efficiently use the generation portfolio to the best of its capabilities and regularly reviewing the needs of the system as the portfolio capability evolves.

It is also worth noting that wind resources in Ireland and Northern Ireland represent a significant export opportunity and it is in that context that:

- the Irish Government is committed to working with the UK Government, under the auspices of the British Irish Council, to create the framework and conditions for renewable energy export, using the co-operation mechanisms provided for in the Renewables Directive (Directive (EC) 2009/28/EC).
- the North Seas Countries' Offshore Grid Initiative, of which both Ireland and the UK are members, is working to maximize the potential of the renewable energy resources of the Northern Seas.<sup>19</sup>
- The UK Government has announced reforms to the UK's electricity market to help achieve its decarbonisation targets, which involve substantial investment to develop a mix of clean energy sources in the years to come. These reforms, which will affect Northern Ireland, include:
  - a capacity payments mechanism in the form of a capacity market;
  - the system operator (i.e., National Grid) delivering a feed-in tariff with Contracts for Difference (FiT CfD) and the capacity mechanism; and
  - a floor to the carbon price

<sup>18</sup> These compare with an outturn total in Ireland of just under 15% in 2010 and in Northern Ireland of 10%

<sup>19</sup> Comprising the North Sea, English Channel, Irish Sea and Atlantic.

Given these UK and Irish targets the design of the all island electricity market should accommodate efficiently the increased penetration of renewable sources of energy in the coming years.

EirGrid and SONI have carried out pioneering studies over the past number of years to better understand the changing behaviour of the power system and examine the technical challenges with integrating significant volumes of wind power generation. The results of these studies can be found in the 'Facilitation of Renewables'<sup>20</sup> and 'Ensuring a Secure, Reliable and Efficient Power System in a Changing Environment'<sup>21</sup> reports. The key message from these studies is that the 2020 renewables targets are achievable; however, significant challenges to the operation of the system will have to be overcome.

A number of facets of market design were highlighted by respondents to the consultation as being important for renewables. We deal with these in turn below.

### *Imbalance settlement*

At a broad level, compliance with the Target Model should accommodate rather than hinder the exploitation of the island of Ireland's wind resources, since it will allow the use of spare capacity on the interconnectors for accommodating deviations between forecast and actual wind generation closer to real time. On the other hand, there are aspects of the Target Model which will potentially be more challenging for the development of the island of Ireland's wind resources. One example is how to manage the treatment of an exposure of wind generators to imbalances between firm day ahead and intraday physical positions and metered generation.

Currently in the SEM, there is no issue with the accuracy of the availability profiles of wind generators as actual availability values are used to calculate *ex post* prices. Moving to market arrangements where *ex ante* prices and quantities at the day ahead and intraday stages are firm, as mandated by the Target Model, will require the use of forecast information at both the day ahead and intraday stages. While this is true of all generators, i.e., all units are subject to unforeseen failure, the volume of forecast wind generation error between day-ahead, intraday and actual availability could be significant.

Ways of approaching this issue in market design will be consulted upon above during the next phase of the project. To illustrate, approaches include:

- wind generators could pay (or be paid) the amounts arising from any imbalances between their *ex ante* traded quantities and their metered outputs. This would incentivise investment in methods of mitigating this forecast error but may have an adverse impact on the delivery of targets for generation from renewable sources.<sup>22</sup>
- wind generators might be insulated to a greater or lesser extent from imbalance settlement, perhaps through the appointment of an aggregator to account for imbalances. Aggregating at a central level could help make Irish wind generation less volatile than the output of an individual wind farm, leading to more reliable

<sup>20</sup> <http://www.eirgrid.com/media/FacilitationRenewablesFinalStudyReport.pdf>

<sup>21</sup> [http://www.eirgrid.com/media/Ensuring\\_a\\_Secure\\_Reliable\\_and\\_Efficient\\_Power\\_System\\_Report.pdf](http://www.eirgrid.com/media/Ensuring_a_Secure_Reliable_and_Efficient_Power_System_Report.pdf)

<sup>22</sup> It might also incur profits which, if the forecast errors are unbiased, might be expected exactly to equal losses taking one period with another. But financiers will tend to discount expected profits and concentrate on expected losses, simple because the consequences of losses for any project are more serious than expected gains of an equivalent size, particularly under a regime of penal imbalance prices.

estimations of overall output and enabling more electricity to be sold further ahead of real time.<sup>23</sup> This could increase the ability of the market to absorb power from intermittent generation and make the achievement of renewables targets easier to achieve and at lower cost. But there would likely still be differences between aggregate ex ante firm physical positions and aggregate metered output. It would be for consideration as to who would bear the imbalance costs arising from that aggregate imbalance.

- Intermediate approaches have been adopted in other countries. In Belgium and Spain, for example, smaller intermittent generators can avoid certain imbalance charges as long as they operate within a defined tolerance zone of forecast output

#### *Priority dispatch*

The re-designed SEM will need to be measured against the objectives and provisions of the Renewables Directive. The Renewables Directive does not deal explicitly with the design of wholesale electricity markets. But it includes a number of provisions that need to be incorporated into the new market design. The main provision is that of priority dispatch.

Article 16(2)(c) of the Directive states that *“Member States shall ensure that when dispatching electricity generating installations, transmission system operators shall give priority to generating installations using renewable energy sources in so far as the secure operation of the national electricity system permits and based on transparent and non-discriminatory criteria.”*

The SEM Committee has decided to adhere to an ‘absolute’ interpretation of priority dispatch whereby economic factors are taken into account only in exceptional situations and only where this can be done in a manner that does not threaten the delivery of renewables targets.<sup>24</sup> The SEM Committee has also now decided that this decision will also apply in a re-designed SEM.

#### *Curtailement*

Curtailement of wind generation is an unavoidable consequence of high levels of wind penetration. Curtailement occurs when there is excess wind generation available to meet system demand when taking account of system operation restrictions. In situations such as this, the TSOs must “turn down” some of this wind generation. This is due to there being insufficient quantities of the system services necessary to run a safe and secure electricity system, including adequate capacity in flexible plant. A market design that accommodates renewables should therefore provide efficient signals for appropriate investment in flexible plant and demand side management. As with efficient import/export signals, an efficient market design that delivers accurate price signals in this regard should reduce the need for curtailement of wind generation.

The treatment of curtailement in a tie-break situation involves dividing up the total level of system curtailement between different wind generators. In December 2011, the SEM Committee decided to treat curtailement issues in a tie-break situation on a firm access quantity basis, i.e. applying a grand-fathering approach to curtailement issues. Subsequently,

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<sup>23</sup> . In France and Germany intermittent generation can opt to be balanced centrally.

<sup>24</sup> <http://www.allislandproject.org/GetAttachment.aspx?id=5d635a6f-f9b4-494c-bd3a-722af770354c>

the SEM Committee decided that further consultation was necessary to provide an additional opportunity for all members of the industry and the public to comment on the merits of the options for the treatment of curtailment issues in a tie-break situation.<sup>25</sup> Following the consideration of responses to that consultation, a proposed decision was published on 3 October 2012<sup>26</sup>.

The SEM Committee has decided that its decision on the Treatment of Curtailment in Tie Break Situations will also apply in a re-designed SEM and this will be taken into account in its decision.

In conclusion, the EU and national governments' twin overarching policies of creating the internal electricity market (see section 2.3) and moving toward a low carbon generation mix (which includes government targets for renewable energy) will be best delivered by an efficient market design on the island of Ireland. From a regulatory perspective, we are satisfied that the High Level Principles set out in recommendation two are the most appropriate framework through which to assess the efficiency of such a market design in protecting the short and long term interests of electricity consumers on the island.

### **SEM Committee Decision: Renewable Energy Sources**

The SEM Committee's Decision is that changes to the SEM High Level Design should promote, where appropriate, the use of energy from renewable energy sources, as set out in legislation.

### **3.3 Capacity Payments**

One key theme in the responses to the consultation was the importance of the capacity payment mechanism to the SEM because of its advantageous effect on the financeability of generation projects. The SEM Committee is of the opinion that a capacity payment mechanism of some form should remain in place as part of the design changes to the SEM.

At the same time, it is important to note that capacity payment mechanisms are now the subject of review at European level, although as it stands, the European Target Model neither requires (nor prohibits) a capacity payment mechanism from being put in place.

A Capacity Payment Mechanism (CPM) should work alongside the electricity market in conjunction with the other revenue schemes in the electricity market. A capacity mechanism may be used to increase investment and improve security of supply and be interlinked with considerations in the energy market and ancillary services framework to cover the total revenue requirement to maintain an effective long term adequate capacity balance.

There are a number of varieties of capacity mechanisms. Examples of implicit and explicit capacity payments exist in markets around the world; their choice and design being influenced by different market frameworks, generation mixes, stakeholder interests, and the

<sup>25</sup> See SEM-12-028, 26<sup>th</sup> April 2012

<sup>26</sup> [http://www.allislandproject.org/en/transmission\\_current\\_consultations.aspx?article=85a37c0a-9082-43e4-bc2f-ee2584649993&mode=author](http://www.allislandproject.org/en/transmission_current_consultations.aspx?article=85a37c0a-9082-43e4-bc2f-ee2584649993&mode=author)

mix of political, regulatory and economic characteristics relevant to that market. The current capacity payments mechanism in the SEM was chosen for a number of reasons: stable cash flows, reduced risks for new entrants and greater transparency. The prospect of more stable prices was established through short run marginal pricing, which in turn mitigates dominance on generation market as generators with market dominance are forced to bid their SRMC even in periods of reduced system margin.

Over the coming years, the generation mix on the island of Ireland and across Europe will change as part of the EU's goals of decarbonisation of the electricity sector and creation of the internal electricity market (see the EU's 2050 Roadmap). While the percentage of thermal generation is expected to decline, the percentage of renewable generation (such as wind) and cross border interconnection will significantly increase. This portfolio change will influence revenues from the energy market and may drive the creation of an explicit capacity mechanism or changes to existing capacity mechanisms in many Member States. A revised capacity payment framework in Ireland and Northern Ireland must be very closely interlinked with changes to the energy market and the ancillary services framework in order to reward flexibility and maintain an effective long term adequate capacity balance. It will also be important to avoid double payments for the provision of capacity.

To date and as we move towards 2014, different countries within the EU will have differing capacity issues with regard to adequacy and firmness of their own generation mix and this will evolve with increasing renewable penetration. These issues may impact the reference prices associated with the ability to trade with neighbouring member states.

Other countries in Europe have capacity payments mechanisms (Spain as well as Sweden, the Netherlands and Greece); and several other countries are now thought to be looking at introducing measures to address concerns about the adequacy and firmness of their generating capacity (France, Germany, Italy and the UK). The form of capacity payment mechanism differs from market to market. The mechanism in SEM is centralised and regulated while other markets may opt for a more market-based approach. For example, the market-based GB mechanism is expected to work as follows:

- a forecast of future peak demand will be made as part of the capacity assessment provided by Ofgem, the SO or other technical experts;
- Government will decide the total amount of capacity needed to ensure security of supply. This will be contracted through a competitive central auction run by the SO. The auction will take place around 4-5 years ahead of the delivery year in which providers are required to make capacity available;
- providers of capacity who are successful in the auction will enter into capacity agreements. In the delivery year/s specified in these agreements, they will receive a predictable revenue stream to cover the costs of their capacity. In return, they commit to provide electricity when needed or face penalties;
- the costs of the capacity payments will be shared between all electricity suppliers in the delivery year.

The European Commission is expected to give its views on the issue of capacity mechanisms and their impact on the internal electricity market in its 'Communication on the Internal Energy Market' which is planned for November 2012. An emerging theme at EU level is that, where capacity mechanisms are put in place, a level of harmonisation may be

required to avoid distortions to the internal market. Until the European Commission's policy is clear and until there are EU level rules on capacity mechanisms, the SEM committee's position is as follows:

- The capacity payment mechanism in the current SEM design has been acknowledged to add significant value;
- Capacity mechanisms are being developed throughout European electricity markets;
- Any capacity payment mechanism must not provide double payments to generators;
- Any future capacity payments mechanism will need to avoid distortions in the internal market and comply with relevant EU rules.

#### **SEM Committee Decision: Capacity Payment Mechanism**

The SEM Committee's Decision is that:

- It is important that the total remuneration from energy payments, capacity payments and ancillary services is sufficient to ensure security of supply.
- The capacity payments mechanism will need to avoid distortions in the internal market and comply with relevant EU rules.

## 4. Governance and Project Management

### *The Roles of Government and Regulatory Authorities*

It is important to recognise both the role of Government in setting the overall energy policy framework and initiating primary legislation and the strengthened role of national regulatory authorities under the Third Package.

As stated in the Consultation Paper, given the overarching policy and legislative responsibilities of the respective Government Departments in Ireland and Northern Ireland in establishing the SEM and considering EU Member States' adoption of the Third Package, any decision that would lead to new electricity market arrangements will be made by means of the SEM Committee making a recommendation to DCENR in Ireland and DETI in Northern Ireland. This paper serves that purpose and accordingly, Section 5 of this paper sets out the SEM's Committee's Recommendation to Departments on the next steps in the process of implementing the European Target Model in Ireland/Northern Ireland.

### *Legislative Framework*

The SEM has its origins in the All-Island Project (AIP) which was established in 2004 by the Minister for Enterprise, Trade and Investment in Northern Ireland and the Minister for Communications, Marine and Natural Resources in Ireland. The aim of the project was to create and establish a single market in natural gas and electricity on the island of Ireland. In November 2004, both governments, NIAUR and the CER ('the RAs') jointly published a Development Framework for an All Island Energy Market, setting out the dates by which they expected to achieve these unified markets.

The first phase of the All-Island Energy Market is the Single Electricity Market (SEM), which comprises a single competitive wholesale electricity market on the island of Ireland. On 5 December 2006, the government of the United Kingdom and the Government of Ireland signed a Memorandum of Understanding (MoU) on the establishment and operation of the SEM. The MoU set out the broad objectives of the SEM along with high level guidelines on the structure of the new wholesale market. This provided the legislative basis upon which the SEM was to be established in both Ireland and Northern Ireland. The subsequent legislation then established the SEM Committee, the sub-committee of both CER and NIAUR which has sole jurisdiction to make decisions on SEM matters on behalf of the RAs. This primary legislation set out the objectives of the SEM Committee, when developing and making policy decisions on the SEM.

On 1 November 2007 the Single Electricity Market (SEM) went live, commencing the trading of wholesale electricity in Ireland and Northern Ireland on an All-Island basis. The SEM Committee was established on the same day, as the all-island decision making body for all SEM matters.

Since 2007, the government of Ireland and the government of the United Kingdom have adopted the Third Electricity Package. This provided for the creation of the internal electricity market through network codes that are annexed to Regulation (EC) No 714/2009 and as such will be directly applicable across in Member States from 2014. In order to meet the requirements of these Network Codes, as part of phase 2 of this project to implement the Target Model in the SEM, further engagement will be required on the legislative basis for the



changes to design which may be required. Phase 2 can proceed with this as a work stream, as was the case when the SEM developed. The timing of delivery of legislation initiated by the Departments will be crucial given commitments made by the Departments and SEM RAs to deliver implementation of the Target Model in the SEM by 2016. Potential issues in a legislative work stream are:

#### Primary Legislation

- The SEM Committee principal objectives as stated
- SEM Committee *vires* for implementing the Target Model and the definition of a SEM matter
- New arrangements on regulatory cross border cooperation.
- New cross border functions for the market operator

#### Secondary legislation

- Amendments to secondary legislation such as Statutory Instrument 406 of 2007 in Ireland

#### Intergovernmental Agreements

- Memorandum of Understanding descriptions of the SEM

#### *Joint Regulatory Arrangements – SEM Committee and Ofgem*

The Third Package has created a reinvigorated impetus for regulatory cooperation going forward. To date the integration project has already required close cooperation between SEM RAs and ACER colleagues, primarily at times, Ofgem. The SEM Committee is committed to strengthening and formalising this cooperation in the future as SEM RAs and Ofgem seek to implement efficiently the Target Model in both markets.

Ofgem published an Open Letter on the Implementation of the European Electricity Target Model in GB on 28 March 2012 and is expected to publish a follow up in Q4 2012.<sup>27</sup> Given the links and complementarities between the SEM Committee and Ofgem projects it makes sense to ensure that there is close working cooperation between the SEM RAs and Ofgem going forward to deliver SEM / BETTA coupling as required by the Target Model. Cooperation between us is further emphasised by the ever closer cooperation between the UK and Irish Governments on energy matters through such *fora* as the British Irish Council, the Isles Initiative and the North Seas Countries 'Offshore Grid Initiative..

Recognising this, the SEM Committee and Ofgem are developing joint regulatory working arrangements for implementing the Target Model in Ireland, Northern Ireland and in GB.

#### *Roadmap to ACER*

As part of the two year derogation secured for SEM in relation to complying with the Capacity Allocation and Congestion Management Network Code the Regulatory Authorities (SEM RAs and Ofgem) are committed to cooperating to agree and publish a joint roadmap outlining how day ahead and intraday arrangements and other relevant provisions will be implemented in SEM by 2016. The roadmap is to include clear milestones and

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<sup>27</sup> See <http://www.ofgem.gov.uk/Europe/Documents1/EU%20Target%20Model%20open%20letter.pdf>



responsibilities and there will be quarterly reporting by SEM RAs and Ofgem of progress achieved as part of ACER regional initiatives programme.

This roadmap is due to be provided to ACER by the end of 2012. The recommendation to government set out in Section 5 and the draft timetable in Annex 3 will provide the basis for this roadmap. Quarterly updates on the project will be provided to ACER by SEM RAs and Ofgem.

### *Project Resourcing*

Most respondents made the point that given its potential scale and importance the Regulatory Authority-led Market Integration project should be adequately resourced and supported by independent market expertise.

The SEM Committee agrees that both Regulatory Authorities (RAs) should devote adequate resources to the project as well as procure market design consultancy and other relevant expertise. One of the recommendations set out below is the establishment of a Project Office within the RAs with overall responsibility for implementing the Target Model and this will be done. As is usual best practice, and as happened for SEM originally, a project initiation document will be drafted and published for the next phase of the project. This document will outline the project scope and work streams, reporting and governance arrangements, projects risks and resources. A procurement strategy will also be required.

### *Implementation Costs*

In the consultation paper indicative implementation costs were presented associated with a number of design options. Adopting a top down approach, going forward the SEM Committee in proposing and implementing required design changes to SEM will seek to minimise costs in the interests of customers while efficiently implementing the Target Model.

### *Role of SEMO and the TSOs in implementing the European Target Model*

A number of respondents commented on the role of the TSOs and SEMO in the Market Integration Project to date. There was a general concern that both parties had been given a privileged position relative to that of market participants in the project and were exerting an inappropriate level of influence.

The SEM Committee is aware of market participants' concerns regarding the role played by the TSOs and SEMO thus far and potential or perceived conflicts of interest that might arise given the various roles that the EirGrid Group has in the SEM (System Operator, Market Operator, Interconnector Owner) and the development of the Target Model at a European Level (EirGrid and SONI are active members of ENTSO-E and have been appointed to the drafting teams of various Network Codes). For the purposes of this project, the SEM Committee has conveyed these concerns to the TSOs and SEMO and asked that the TSO consider their different roles being: EirGrid Interconnector Limited, EirGrid Transmission System Operator and the Single Electricity Market Operator.

The SEM Committee is also conscious of the important role that EirGrid and SEMO have at the European level through their membership of ENTSO-E and Europex respectively. The Third Package established a clear structure for implementing the European Target Model where ACER sets the high level guidelines for the internal market (the so called Framework

Guidelines), ENSTO-E drafts the detailed cross border market rules (the Network Codes) and the power exchanges/market operators and market participants feed into this process through bespoke liaison groups (such as the AESAG or its predecessor AHAG). Furthermore, the Governance Guideline for the day ahead and intra-day market currently being developed by the European Commission in conjunction with the Capacity Allocation and Congestion Management (CACM) Network Code will give power exchanges a formal role in the internal market. Finally, the Network Codes, once approved by the European Commission, go through the comitology process before becoming law.<sup>28</sup>

This structure should be mirrored on a national level to ensure consistency in European representations and the implementation of the European Target Model on the island. In view of this and considering the existing licensing, regulatory and policy framework in which the TSOs and SEMO operate, the SEM Committee intends that there should continue to be a close working relationship between the RAs' project team and their counterparts in the SEMO and the TSOs. The TSOs role in system dispatch, DS3 and the integration of renewable generation into the system and other key areas that impact on the market design means that their input will continue to be invaluable.

#### *Stakeholder Engagement*

The SEM Committee is committed to ensuring that both current and prospective market participants are fully involved in the implementation of the Target Model and considers their input to be essential to the success of the project. The establishment of a formal project office within the Regulatory Authorities will ensure that industry participants and consumer groups are given as much opportunity as possible to contribute their expertise and views. A specific forum for stakeholders to engage with the RAs and the TSOs/SEMO on the various Network Codes and development of the Target Model will be established as part of this project structure.

Given the nature of electricity markets, it will always be appropriate and in the interests of consumers and competition for the Regulatory Authorities to engage with the TSOs/Market Operator on a bilateral basis at certain junctures. The SEM Committee will ensure that this engagement and the SEM Committee's decision making process will continue to be transparent and consultative.

#### *Communication Strategy*

SEM Committee is committed to continuing its inclusive approach to this project and this will be facilitated as outlined below and further expanded upon in the project initiation document.

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<sup>28</sup> Comitology refers to the committee system which oversees the delegated acts implemented by the European Commission. The European Parliament and the Council of the European Union can confer such powers on the European Commission, but the Commission must act in conjunction with committees of representatives of Member States who have the power to block the Commission's proposals and refer the matter to the Council.

## **SEM Committee Recommendation: Governance and Project Arrangements**

In conclusion, the SEM Committee recommend that the following be established:

**A DCENR – DETI Sub Committee of the Joint Steering Group** as the forum for interaction between governments and regulators. This committee should also review the SEM Legislation and ensure that there are appropriate cross border joint regulatory arrangements in place for when the Target Model is implemented by the end of 2016.

**A UK-Ireland Steering Committee on European Market Integration** chaired by DCENR and DETI, with input from DECC as required. This Committee would meet on a biannual basis to discuss overarching policy issues for the UK and Ireland related to the internal European market in electricity.

**A Regulatory Authority Project Office for the implementation of the European Target Model.** The RAs will have overall responsibility for the implementation of the European Target Model under the aegis of the all island energy framework.

**Joint Regulatory Arrangements with OFGEM.** The SEM Committee and Ofgem will establish formal cross border working arrangements to ensure that the European Target Model is implemented in a consistent and compatible manner in both jurisdictions. These arrangements will complement the FUI regional initiative and will provide a link between the SEM and the NWE region.

**A Stakeholder Forum on the European Internal Market** which will be jointly chaired by the RAs and TSOs. This will meet on a bimonthly basis, or more often if required, with the purpose of discussing the Network Codes and other European Union policy developments related to the Internal Electricity Market. The SEM Stakeholder forum will also hold joint meetings with the DECC-Ofgem Stakeholder forum on an ad hoc basis.

## 5. SEM Committee Recommendation to Governments

In January 2012, SEM Committee issued a Consultation Paper on Implementing the Target Model in SEM. SEM RAs have hosted a number of workshops on related issues and engaged with stakeholders through a series of bilateral meetings. Discussions have also taken place with Ofgem and ACER colleagues, as required. In addition, SEM RAs have reflected on the 22 responses received to the consultation which we have discussed with the respective Government Departments (DETI and DCENR).

Given the issues discussed in this paper and the acknowledged role of the Departments in creating the SEM legislative framework as described in this paper, the SEM Committee now requests that the Departments reflect on the next steps in this project required to achieve compliance by 2016, providing guidance as appropriate. Below, the SEM Committee proposes recommendations to government for consideration and also sets out its positions on the Next Steps to implementing the Target Model in SEM by the target date:

### 5.1 SEM Committee Recommendation to Departments: High Level Principles for the Market

Following consideration of consultation responses, the SEM Committee recommends the following High Level Principles to govern the re-design of the SEM which are required to implement the Target Model in Ireland and Northern Ireland:

- i. **Security of Supply:** the chosen wholesale market design should facilitate the operation of the system that meets all relevant security standards.
- ii. **Stability:** the trading arrangements should be stable and predictable into the foreseeable future, for reasons of investor confidence and cost of capital considerations.
- iii. **Efficiency:** Market design should, in so far as it is practical, result in the most economic (i.e., least cost) dispatch of available plant. This shall include cross border TSO balancing arrangements that are at least cost to consumers.
- iv. **Practicality/Cost:** the cost of implementing and participating in the wholesale market arrangements should be minimised; and the market design should lend itself to an implementation that is well defined, timely and reasonably priced.
- v. **Equity:** the market design should allocate the costs and benefits associated with the production, transportation and consumption of electricity in a fair and reasonable manner.
- vi. **Competition:** the trading arrangements should promote competition between participants; incentivise appropriate investment in generation and demand reduction as well operation within the market; and should facilitate efficient entry or exit, all in a transparent and objective manner.
- vii. **Environmental:** while a market cannot be designed specifically around renewable generation, the selected wholesale market design should promote renewable energy sources and facilitate national and EU targets for renewables.

- viii. **Adaptive:** The governance arrangements should provide an appropriate basis for the development and modification of the arrangements in a straightforward and cost effective manner.
- ix. **The Internal Electricity Market:** the market design should efficiently implement the European Electricity Target Model and ensure efficient cross border trade.

It is recommended that the relative priority of these assessment principles will be determined by reference to the SEM statutory objectives as set out in legislation in Ireland and Northern Ireland.

Following consultation and consideration the SEM Committee now requests that the Departments reflect on these proposed high level principles and assessment framework, communicating with the SEM Committee and stakeholders as they deem appropriate as the project moves to its next phase which will involve significant changes to SEM design to implement efficiently the Target Model by 2016.

## 5.2 SEM Committee Recommendation: Governance and Project Arrangements

It is the view of SEM Committee that SEM cannot implement the Target Model without significant design changes and this would be most efficiently carried out as part of a dedicated re-design project. Such a project to implement the Target Model (beginning by SEM RAs consulting on the design changes required) should commence as soon as possible in order to meet the target date of 2016 and the Departments may consider it necessary during the project to initiate future legislative changes to the existing SEM framework.

The SEM Committee therefore recommends that the following governance arrangements be established:

- **A DCENR – DETI Sub Committee** of the Joint Steering Group as the forum for regular interaction between governments and regulators. This committee should also review the SEM Legislation and ensure that there are appropriate cross border joint regulatory arrangements in place for when the Target Model is implemented by the end of 2016.
- **A UK-Ireland Steering Committee** on European Market Integration chaired by DCENR and DETI, with input from DECC as required. This Committee would meet on a biannual basis to discuss overarching policy issues for the UK and Ireland related to the internal European market in electricity.
- **A Regulatory Authority Project Office** for the implementation of the European Target Model. The RAs will have overall responsibility for the implementation of the European Target Model under the aegis of the all island energy framework. This will require appropriate resources.
- **Joint Regulatory Arrangements with Ofgem.** The SEM Committee and Ofgem will establish formal cross border working arrangements to ensure that the European Target Model is implemented in a consistent and compatible manner in both jurisdictions. These arrangements will complement the FUI regional initiative and will provide a link between the SEM and the NWE region.
- **A Stakeholder Forum on the European Internal Market** which will be jointly chaired by the RAs and TSOs. This will meet on a bimonthly basis, or more often if required, with the purpose of discussing the Network Codes and other European

Union policy developments related to the Internal Electricity Market. The SEM Stakeholder forum will also hold joint meetings with the DECC-Ofgem Stakeholder forum on an ad hoc basis.

We request that the Departments confirm their agreement to the above governance and project structure.

For information, in addition to the above recommendations to Government, the following represents the current views of the SEM Committee in relation to issues consulted upon in the paper.

PROPOSED DECISION

## 6. SEM Committee Decisions

### 6.1 The European Target Model will be implemented in the SEM by 2016 in a coherent and stable manner

In this regard, the SEM Committee makes the following Decision:

- **Target Model:** At a minimum, changes to the high level market design of SEM must provide for the following five pillars of the Target Model by 2016:
  - Capacity Calculation and zones delimitation
  - Cross Border Forward Hedging and Harmonisation of Allocation Rules
  - Day Ahead Market Coupling
  - Intra-day Continuous Trading
  - Cross Border Balancing
- A review of the **bidding zones** in the SEM will be considered as part of the implementation of the Target Model.
- **SEM Design Stability to 2016:** We commit to maintaining the current structure of SEM until 2016 where possible and will not approve material market changes between now and then.
- **Impact Assessment:** In addition to these, the final market design shall be subject to a regulatory impact statement consulted upon and a cost benefit analysis, where appropriate, that take into account the key energy policies that are materially affected by the wholesale electricity market.

### 6.2 Market Design

Regarding market design, the SEM Committee Decision is that:

- The 'evolutionary options' described in the consultation paper should not be pursued further.
- SEM RAs will work jointly with Ofgem on efficiently implementing Target Model in SEM and BETTA, acknowledging the changes which potentially may take place in either market to facilitate this.
- There will continue to be market power mitigation measures in the SEM.

### 6.3 Central Dispatch

The SEM Committee's Decision is that there will be a working assumption that changes to the SEM high level design will be based on central dispatch.

## **6.4 Promotion of Renewable Energy Sources**

The SEM Committee's Decision is that changes to the SEM High Level Design should promote, where appropriate, the use of energy from renewable energy sources, as set out in legislation.

## **6.5 Capacity Payment Mechanism**

The SEM Committee's Decision is that:

- It is important that the total remuneration from energy payments, capacity payments and ancillary services is sufficient to ensure security of supply.
- The capacity payments mechanism will need to avoid distortions in the internal market and comply with relevant EU rules.



## Annex 1: Summary of Responses to the Consultation

### Summary of Market Integration Responses

The RAs received 22 responses to the Consultation on Implementing the Target Model in SEM. The following parties submitted a response: The Joint Business Council (IBEC/CBI), the National Electricity Association of Ireland (NEAI), the Irish Wind Energy Association (IWEA), Meitheal na Gaoithe, AES, Airtricity, Aughinish, Bord na Mona, Bord Gais, Dalkia, Endesa Ireland, Energia, the Electricity Supply Board (ESB), Gaelectric (confidential), Moyle, Power NI, PPB, Tynagh, RES, IDA/ Enterprise Ireland and Forfas, Shannon LNG, ESRI.

The following sets out the key points from the individual responses received:

#### Industry Associations

##### *Joint Business Council (JBC) representing IBEC and the CBI*

The JBC acknowledge progress made to date on the project and the importance of the consultation paper. However they stress that the current process should be ‘augmented’ by having a top down approach where the high level design principles of a new market are set out.

The JBC also calls for quantitative analysis of options for integration and a plan to address the outstanding issues not covered in the consultation (capacity payments, renewables, uplift and central dispatch). They suggest that joint bilateral meetings should be held with Ofgem and DECC on the wider context of market reform in the UK and Ireland.

##### *National Electricity Association of Ireland (NEAI) (Irish Member of EURELECTRIC)*

The NEAI welcome the ‘consultative’ approach taken by the RAs in the project to date and that the work done by the RAs to date has been ‘extremely valuable in bringing out some crucial insights into the complexities of the project’. They also note that there is ‘general satisfaction’ with the SEM though a number of changes in energy policy such as the need for new flexible generation to back up wind, the balancing costs of wind generation and intergovernmental plans for the export of renewables from Ireland.

The NEAI do not support any of the ‘evolutionary options’ presented in the paper and suggest that the distinction between ‘revolutionary’ and ‘evolutionary’ is artificial and should be abandoned. Regarding the ‘evolutionary options’, the response points out that the options as set out represent significant change, are not easy fixes are ‘reusing some of the SEM IT platform’ and that this approach does not minimise the operational complexity, risk and cost to consumers’. These include an annex of detailed questions on the four options.

The NEAI argue that the RAs should ‘revisit and restate’ the objectives of the modified market and initiate a high level principles paper that set out the objectives of a new market. Such an exercise should be undertaken “holistically” in an RA led project using independent market design experts, they argue. It is also urged that participants are included in the project in a similar fashion to the SEM design process or ACER’s Electricity Stakeholder Advisory Group.

### *Irish Wind Energy Association*

IWEA argues that any new market design must ensure a stable future for renewables. The key issues they identify in this regard are: imbalance pricing, efficient market signals for import and export, reference prices, priority dispatch, modern settlement and credit facilities.

IWEA argue that the RAs should outline 'the objectives that will govern the redesign process' and 'the constraints that will apply to this redesign process'. They point out some of the characteristics of the SEM that they believe should be retained (such as central dispatch, priority dispatch etc.)

IWEA does not support any of the 'evolutionary options' in the paper as adopting a market design based on its impact on central market systems is 'ill conceived'. In summary, they believe that the 'evolutionary options' in the paper lack commercial perspective.

IWEA caution against adopting a BETTA style imbalance market that would damage investment in renewables. However, they signal that they are not opposed to replacing the SEM in its entirety, providing that this does not disadvantage wind in any manner.

### *Meitheal na Gaoithe*

Meitheal na Gaoithe argue that the implementation of the Target Model on the island of Ireland should: maintain supply security, meet the requirements of the Renewables Directive, keep the market separate from support schemes for as long as possible, incorporate measures to mitigate constraints and curtailment, facilitate the trading and export of renewable electricity and provide for trading as close to real time as possible such that renewables are not penalised in balancing markets.

### Market Participants

#### *AES*

AES take the view that assumptions on the high level principles need to be presented to participants for them to be able to adequately assess the options. They argue that the possibility of minimal change to the SEM 'now looks remote' and as a result urge the SEMC should to set up a holistic project which starts with high market level principles and objectives rather than progressing with the bottom up approach adopted to date.

AES argue that in light of developments since the Project Initiation Document was published in August 2011, the SEMC should review it and reassess its accompanying timetable.

#### *Airtricity*

Airtricity argue that the SEM has met its objectives but does not meet the objective of the European Target Model – frequent and flexible cross border trade. They argue that the establishment of high level principles based on analysis of Network Code is required. Airtricity argue that the 'Integration with BETTA should be explored further'.

#### *Aughinish*

Aughinish support the European Target Model but caution against abandoning the principles and design of the SEM, which has a number of advantages over bilateral markets. Aughinish

support the roll out of a pilot project based on evolutionary option 4 by the end of 2012. They argue that this route 'offers the best value for money to the electricity consumers, by opening the Irish market up to the rest of Europe whilst still maintaining all the stated benefits of the gross mandatory pool'.

#### *Bord na Mona*

Bord na Mona (BnM) also argue for a retention of the SEM design. They argue that the Target Model is a 'moving target' and that changes should be made to the SEM only once the final Target Model is in place.

BnM argue that any market redesign must be cognisant of the physical realities of the power system. In addition, the redesigned market must be 'RES friendly' in order to ensure that key EU and National policy objective are met and confidence among existing and prospective investors is fostered.

BnM are strongly of the view that the Capacity Payment Mechanism and the features of Central Dispatch should be retained and that the characteristics of the SEM that promote renewables must be retained, and perhaps enhanced. In addition, financial 'overlays' such as Option 4 in which minimise structural changes to the SEM, must continue to be investigated.

#### *Bord Gais*

BGE argue that the European Target Model 'only partially' informs the structure of the new market' and that national policies and requirements should not be compromised in meeting the Target Model.

BGE set out the core market attributes of any redesign as being: efficient pricing mechanisms, market power mitigation, liquidity, an aggregate approach to balancing and an appropriate single reference price.

BGE advise that the appropriate next steps are to re-assess/re-confirm the SEM's HLD principles and set out a project plan linked to related developments in GB and Europe by end 2012.

#### *Energia*

Energia stress the need for the current project to be replaced with a comprehensive market design work stream. They give no support to the evolutionary options and argue that the project has suffered from 'undue influence of SEMO/TSOs' that has led to vague, unnecessarily narrow and potentially restrictive options. Energia's main other points are:

- The project needs independent expertise with TSO/SEMO asked to contribute their technical expertise as required but on same footing as other participants
- Market power will continue to need mitigating unless substantial ESB divestment
- Either pool or bilateral market can meet objectives of Target Model and both should be considered

- a number of design principles should be adhered to include separation of market and dispatch, market power mitigation, CPM, Uplift, locational signals

### *Endesa Ireland*

Endesa argue that the project should be approached from first principles and that at this point it would be premature to narrow down options for the future of the SEM. Regarding the Assessment Criteria proposed by the SEM Committee, Endesa suggest that compliance with the EU's Internal Market should be an initial screen for all design assessments. They call for a more in depth description of the assessment criteria and also suggest the addition of 'Non-discrimination' and 'Promotion of Efficient Use of Interconnection'.

Overall, Endesa wish for the Market Integration to remain at a high level at this point, until the Target Model has been fully defined and all the network codes completed. They also question the SEM Committee *vires* to decide on a regional market decision 'as their duties are limited to the SEM'. In this regards they suggest that the requirements and timeframes for legislation and licence changes must be considered as soon as possible. Endesa state that they have a general preference for maintaining (the benefits of) the SEM providing that compliance with the Target Model is guaranteed.

### *ESB*

While acknowledging the work done and industry engagement by the project team, the ESB believe that 'the approach of taken the SEM HLD and incrementing CACM compliance unduly restrictive and fails to take account of the regional market context'. Rather, the ESB proposes an approach with an overriding objective of maximising the benefits of market integration.

The ESB argue strongly for a move to bilateral trading arrangements to replace the SEM on the grounds that it would mean closer market integration with GB and beyond. They point out that both self and central commitment are possible under a central dispatch regime and that market design options based on self-commitment need to be more fully evaluated so as to achieve the full benefits of market integration and the Target Model. The response provides detail on the price reductions that occurred in Great Britain at the time of a move from pool to bilateral market arrangements that the ESB claim was a result of the change in market design. They signal their support for the 'expanding BETTA' option and urge the RAs to explore this further.

The ESB 'has serious misgivings' about the potential commercial implications of the four incremental options set out in the paper and argue that the risk disadvantaging SEM players vis-à-vis other market participants in the European Internal Market.

The ESB also argue for the establishment of a formal project based approach to market integration with formal milestones and regulatory impact assessments. They stress that the project should be RA led with participants and TSOs given equal opportunity to engage.

### *Gaelectric*

*(response confidential)*

## *Moyle*

Moyle voice support for a solution that meets the Target Model while retaining the key features of the SEM, and while they acknowledge that this may be 'extremely difficult', they caution against 'throwing the baby out with the bathwater'.

Of the 'evolutionary options', Moyle favour Option 3 as it includes the benefits of both options 1 and 2 whilst avoiding the negatives.

Overall, Moyle stress the importance of efficient interconnector flows and trading between Ireland and Great Britain and in particular to avoid curtailing wind generation.

## *Power NI*

Like many respondents, Power NI stresses the importance of establishing high level principles for the market design. As nonvertically integrated supplier, Power NI is concerned that any new market may reduce available hedging and risk management opportunities. They note that the lack of liquidity in the SEM financial forward market has added a price premium 'that is ultimately paid by consumers'. Accordingly, their response focuses on the importance of the forward market and risk management opportunities and urges that the RAs address this as part of the market integration project.

## *PPB*

The Power Procurement Business call for a reaffirmation of the market design principles that will underpin the new market. They urge that a review be undertaken to 'establish the framework for detailed consideration of the design of a sustainable market' that meets consumers and participants needs.

Regarding the evolutionary options, PPB argue that:

- The proposals don't consider commercial risks
- Many issues are still outstanding
- Limitation of bilateral trading to capacity holders is discriminatory
- Central dispatch debate is diversionary
- All options are significant change

PPB suggest that 'external assistance' should now be procured to identify the most suitable options.

## *Tynagh*

Tynagh argue that it would be premature at this point to rank the various options presented in the paper and caution against focussing overly on minimising the costs of adapting the SEM to the Target Model as this could lead to 'complexity and inefficient results'.

They are of the view that the new market should:

- encourage efficient use of existing interconnectors
- encourage fair competition
- maintain a stable investment environment

## Other Respondents

### *Dalkia*

Dalkia, an international energy services company with a significant presence in Ireland, emphasise the importance of retaining a form of capacity payment mechanism in order to encourage investment in flexible generation and 'maintain supply to customers at best price'. If the current SEM capacity mechanism is to be abandoned, they recommend a capacity market along the lines of those in ISO New England and PJM.

Dalkia emphasise the importance of flexibility from demand side participation, aggregated generation and storage and recommend that these are taken into account when implementing the Target Model.

Overall, Dalkia takes the view that the SEM has benefitted consumers and recommends that the SEM design should be retained as much as possible. Their key concern is significant changes to the SEM would reduce investment in flexible generation and increase costs to consumers.

### *Paul Gorecki (Economic and Social Research Institute)*

The ESRI submission sets out the historical problems and challenges that the SEM was designed to address and examines the degree to which integration with the European internal market would tackle or mitigate these. The response summarises and evaluates the options set out in the Consultation Paper.

Regarding the 'evolutionary options', the response suggests that Option 1 and 3 should not be explored further as they both contain elements of a bilateral market which would compromise the transparency and liquidity of the SEM. The response argues that Option 2 and Option 4 are worth exploring as they retain much of the current SEM. It is suggested that Option 2 could be implemented with a requirement that the forward pool is mandatory while option 4 has a number of issues to be resolved but is nevertheless 'an option worth pursuing'.

Regarding the 'revolutionary options', the response argues that it is not the appropriate time to contemplate replacing the SEM design. It sets out five reasons as to why:

- The SEM has performed well, delivering competitive prices through mitigating market powers, facilitating energy and providing adequate capacity.
- No clear alternative market design has been identified by the SEM Committee.
- European electricity markets face a number of new challenges in the near future (such as harmonisation of renewable support schemes, capacity payments and incorporation of high levels of renewable generation) that likely to affect wholesale market design and it may be premature to undertake a radical review of SEM before these issues are resolved at EU level.
- A debate over market design took place when deciding on the SEM model in 2005-2007. It is not clear that things have changed significantly to reopen this matter.
- There may not be sufficient time to debate, design and implement a new market. A CBA, new legislation and ACER approval would all be required and it is not clear that all of this can be achieved by 2016.

The response concludes that the best means of implementing the Target Model in Ireland and Northern Ireland would be to adapt the current SEM, possibly using Option 2 or 4 set out in the Consultation Paper and wait until the European internal market is fully operating and the network codes have all been adopted before consider radically revising the market design

*IDA/ Enterprise Ireland and Forfas (the Joint Development Agencies)*

The Joint Development Agencies stress the importance of ensuring that market design changes deliver efficiencies and least costs to consumers.

The Development Agencies outline a number of areas that require consideration by the SEM Committee:

- Central Dispatch – An in depth assessment should be carried out. Reliability of electricity supply shouldn't be compromised in any model
- Capacity Payments – These should be retained
- Interconnection – interconnectors should be used efficiently but Irish consumers shouldn't subsidise exports

The Development Agencies are of the view that the SEM has been 'a positive development' and that 'retaining the benefits of the SEM but without making the market very complicated and opaque will be very challenging, but is vital for Ireland's future energy competitiveness.

*RES*

RES, an international renewable energy developer with assets (250 MW) in Ireland and Northern Ireland, signal support for the IWEA position that the SEM C should set out design principles for the market redesign process and 'the constraints' that will apply.

RES are of the view that the SEM has delivered on many of its objectives and that these objectives should remain for the new market. Regarding options for market design, RES caution against adopting market arrangements such as BETTA that have low liquidity, especially so in Ireland where there are a small number of participants and limited competition. RES argue that 'bilateral trading arrangements are unlikely to result in an efficient and fair marketplace for smaller independent participants in the SEM'.

*Shannon LNG*

Shannon LNG do not favour any particular option in the Consultation Paper at this point. They point out that the SEM has worked well, delivering transparent cost reflective prices with demand on the island met at least cost. They argue that any new market design should be benchmarked against these.

They also stress the importance of the clear price signal that the SEM has provided to developers of new power generation and express their concern that there will be insufficient regulatory certainty regarding the market design for developers to progress their projects between now and 2016.

Shannon LNG request clarity on how priority dispatch will work under each option to be considered under the project. This is particularly important given the high levels of priority dispatch generation on the island of Ireland in the future, they stress.

PROPOSED DECISION



## Annex 2: Proposed Timetable for Implementation

Market Integration High Level Milestones to 2016	Start	Finish
<b>Phase 1 -Next Steps Decision</b>		
Drafting Next Steps Decision Paper	11/06/2012	06/09/2012
Resource Planning	01/07/2012	16/11/2012
EU - ACER Approval of CACM	30/08/2012	31/12/2012
SEM Committee and Ministries Approval of Next Steps and Project	30/09/2012	07/11/2012
EU: Submission to ACER of SEM Roadmap	16/11/2012	31/11/2012
<b>Phase 2 - High Level Design</b>		
Project Office, Planning and Resource Readiness	16/11/2012	31/12/2012
High Level Design - Drafting, Approval and Publication	01/12/2012	01/05/2013
EU -Comitology CACM Network Code	01/01/2013	31/03/2013
High Level Design Consultation Period and Review	01/05/2013	01/08/2013
Cost Benefit Analysis/Impact Assessment	01/05/2013	31/09/2013
High Level Design - Drafting, Approval and Publication	01/10/2013	31/12/2013
<b>Phase 3: Implementation</b>		
EU - Comitology on Forward and Balancing Network Codes	01/01/2014	31/03/2014
Deliver Detailed Market Rules	01/02/2014	31/10/2016
Legislation and Governance	01/02/2014	31/10/2016
SEM GB Coordination	01/02/2014	31/10/2016
Market Power	01/02/2014	31/05/2015
Renewables	01/02/2014	31/05/2015
Capacity Payments	01/02/2014	31/05/2015
NEMO Implementation	01/02/2014	31/10/2016
TSO Readiness	01/02/2014	31/10/2016
Ancillary Services	01/02/2014	31/10/2016
Transitional Arrangements from SEM to 2016 Market	01/01/2016	31/10/2016
Participant Readiness	01/01/2015	31/10/2016
Go - No Go Decision	31/11/2015	31/11/2015
Market Go Live	<b>01/11/2016</b>	

Note – Timelines in the above table are indicative. A full project timetable will be published by the RAs in due course.