



**Single Electricity Market – Scope of
CPM Medium Term Review
(SEM-09-035)**

A Response by EirGrid and SONI

June 2009

Executive Summary

EirGrid and SONI welcome the opportunity to comment on the Regulatory Authorities' (RAs) consultation paper on the Medium Term Review of the Capacity Payments Mechanism (CPM).

This response has been prepared jointly by EirGrid and SONI as licensed Transmission System Operators (TSOs) in the Republic of Ireland and Northern Ireland respectively and as Market Operator licensees through the Single Electricity Market Operator (SEMO). EirGrid and SONI support the Regulatory Authorities' objectives for the CPM of adequacy, stability, simplicity, transparency, efficiency and fairness and believe these should guide the outcome of this mid term review.

The CPM cannot be looked at in isolation. It is therefore important as part of the review to outline and consider all aspects of what is required to maintain a secure, economic and sustainable electricity system and to examine how this will evolve over time. Without this it will be impossible to determine whether the CPM and indeed the whole market structure is effective or not. In this the Regulatory Authorities must be cognisant of a considerable number of parallel and inter-related work streams including locational signals, ancillary services harmonisation and scheduling, dispatch and access.

As outlined in our response to the consultation on the BNE calculation EirGrid and SONI wish to see:

1. Well functioning transparent markets which provide appropriate short and long term signals and incentives;
2. Appropriate incentives for investment in additional capacity in order to maintain adequate generation margins;
3. Incentives to provide this capacity to the market and to the system at times of greatest need;
4. Incentives to invest in the appropriate plant mix; and
5. Reward for plant performance, and in particular plant flexibility.

Within this EirGrid and SONI are keen to see advanced as part of this review:

1. Consideration of the balance between the short and long term signals in the CPM;
2. Consideration of the degree to which the CPM provides adequate investment signals and signals for the provision of the appropriate technology;
3. The balance and interaction of CPM and other payments streams, especially Ancillary Services;
4. Amendments to the CPM to reward only utilisable capacity, however utilisability is defined but to include consideration of the degree to which there is adequate network provision;

5. Consideration of whether the CPM provides appropriate exit signals and whether the absence of these signals distorts the market.
6. Consideration of the treatment and reward of interconnection.

EirGrid and SONI welcome a recognition by the Regulatory Authorities that they wish to engage further with us as part of the review and look forward to such further engagement in both their guise as System and Market Operators.

Introduction – Discussion of Philosophy underpinning Capacity Payments

The provision of capacity services are integral to an electricity market. Capacity is, to some degree, a bi-product of the production of energy, however, the nature of generation, and its lack of availability at certain times, and low load factor running regime for certain types of plant, mean that capacity must be rewarded over and above energy costs alone. This can either be through an uplift to payments for energy or through a separate mechanism. The Single Electricity Market is an energy only market with marginal cost bidding principles supported by a separate Capacity Payments Mechanism.

While provision of adequate capacity is crucial, excess capacity brings costs to either consumers or shareholders who will either pay for more capacity than is necessary or receive lower returns than desired. The matter is further complicated in electricity by the fact that investments in new generation are very large, lumpy in nature, have a long lead time and are largely sunk and irreversible. It is well known from work in the real options area¹ that, where investments are sunk and uncertainty pertains, there is a higher hurdle rate for investment, and indeed a higher hurdle rate for exit.

Consumers, and regulators acting on their behalf, wish to adequately, but not overly, reward the provision of capacity services. The approach to date has involved a calculation of the cheapest cost of providing the capacity services to the market over the number of MW of such capacity demanded by consumers. This has determined a capacity pot. The pot is then divided out among generators on the basis of a profiled stream of payments with a certain amount fixed at every point in time across the year and a degree of sculpting of the payments stream to reward capacity when it is scarce and therefore most valuable. The principle is that each MW of capacity provided at a given point of time is equally valuable.

Such an approach has some advantages. Most notably it provides strong investment signals for investors in new plant where there is inadequate capacity, and with that certainty, lower risk and consequentially a lower cost of capital. It is likely, however, to also give rise to a number of disadvantages: it rewards capacity even at times when there is excess capacity available – if capacity is rewarded only adequately overall this implies it is under-rewarded at other times; it rewards capacity regardless of whether it is utilisable and can be called upon by the System Operators; it provides little incentive to exit the system as any available capacity is rewarded – correspondingly if old and inefficient plant fails to exit the market the mechanism may give rise to less new investment than would otherwise be the case thus altering the longer run evolution of the portfolio.

The alternative is to reward capacity at a given point of time through uplift to energy prices. This has the advantage of rewarding capacity the greatest when it is most required and rewarding all capacity at the time at which it is provided regardless of

¹ Dixit and Pindyck (1994) among others

technology or network access status. It also has the advantages of rewarding only generation which is drawn upon or utilisable by the System Operators and in providing greater exit signals to old and inefficient plant. The current capacity payments mechanism has the potential to reward plant which is no longer part of a long run efficient portfolio. In so doing, and by spreading a fixed remuneration for capacity across all plant, it may frustrate entry by new plant which would otherwise be in the longer term interests of the evolution of the portfolio. However, reward for capacity in tandem with energy has its own shortcomings including uncertainty to income streams for generators and consequential higher cost of capital and potentially not adequately rewarding back up capacity with very limited running which is increasingly required. The balance of these different effects, and whether a combination of payment streams can deliver the benefits of both, is an important part of CPM and an important part of this review.

There is a balance between markets that are always and everywhere short run efficient and those that are long run efficient and where the plant portfolio evolves efficiently. We have discussed two general approaches to the determination of remuneration for capacity; each has its issues in terms of either short or long run efficiency. In our response we suggest that a key focus of this review should be to consider how best to retain the benefits of a long term capacity signal but reward other utilisable plant characteristics through other payment streams. These payment streams would be stable and provide certainty for generators but would also have the advantage of only rewarding those generators who were being utilised and providing valuable and utilisable services and could include additional payments through Ancillary Services. By extension we suggest further exploration in profiling capacity payments for differing technologies based upon their contribution to the provision of capacity services that in the interests of ensuring appropriate long term investment signals. In addition we believe the review should address some of the issues with the current sculpting/ profile of the Capacity Payments Mechanism.

EirGrid and SONI believe a measured reallocation of money should take place to increase the funding through Ancillary Services so as to allow it continue to incentivise the required flexibility in the market from the appropriate generators. These payments should be suitably targeted and provided in accordance with the statutory and licencing framework applying to the procurement of Ancillary Services; this should include any new system services (already considered as part of the SEM Committee's AS harmonisation decision paper a reference to which is included in Appendix 1 of this response).

EirGrid and SONI recommend the inclusion in the review of work to develop a second flattening power factor.

Finally we recommend linking the work currently underway by EirGrid and SONI looking at the requirements of the system going forward to allow for the incorporation of the renewable targets.

The remainder of the response addresses the questions outlined.

Assessment of CPM in SEM (historical analysis)

Consultation Point 1:

The RAs welcome comments and backup material from participants in relation to any historical analysis they have carried out in relation to the CPM.

EirGrid and SONI are conducting an analysis of the historical distribution of the capacity payments and effects of adjustment on these payments and would be happy, and keen, to share this as part of this review process

Impact of CPM on Customers

Consultation Point 2:

The RAs welcome comments from participants in relation to the impact of the CPM on consumers and the methodology for payments by suppliers

If the sole metric in measuring the success of CPM was its ability to attract adequate generation then the Capacity Payments Mechanism has been successful – indeed there is significant excess generation currently seeking to connect which may bring its own issues about its success although EirGrid and SONI believe that problem to be a little more complex than the CPM alone. EirGrid and SONI believe a limited reallocation of monies currently paid under the CPM in a clear and transparent manner would not, if the reallocation and its allocation itself was suitably predicatable, targeted and transparent, give rise to any significant investor uncertainty or undermine either the objectives, or any success, of the CPM thus far..

Incentives for Generators Capacity

Consultation Point 3:

The RAs welcome comments from participants in relation to incentives that could be introduced within the Capacity Payment Mechanism or covered under the Ancillary Services mechanism.

The RAs propose that there is the potential to expand the criteria that could be used to determine how the capacity pot is paid out. Some suggested parameters that have previously been discussed that could be used to further incentivise the generators and act as additional entry and exit signals to the market are detailed below:

- Fast Start
- Reliable Start
- Short Minimum Up and Down times
- High Ramp Rates

EirGrid and SONI would like to draw attention to the fact that a number of these criteria are already being incentivised and the others will be addressed in the rollout of the Ancillary Services harmonisation and GPI's (Generator Performance Incentives) on the 1st October 2009 as approved by the RAs in the AS harmonisation determination paper SEM-09-003 30th January 2009.

It has recently been decided to incentivise these services through ancillary services as this will deliver:

- A more targeted approach through charges and payments;
- A more targeted approach through using direct contracts picking up on the specifics of each unit; a direct ancillary service contract for a service allows for a specific condition of performance to be rewarded rather than general characteristic based methodologies for qualifying in the first place.;
- A lower cost approach because money can be targeted at specific required services rather than being spread over the whole market; procuring through ancillary services by the System operators means services are well-informed by system operations experience and vice-versa.

Ancillary Service arrangements allow for the ability for contracts to be developed which reward the particular technical capabilities of generators and also penalise the generators where service to the contracted levels are not provided or where there is an absence of adherence in respect of the appropriate technical parameters. It is furthermore proposed that Ancillary service payments would be made more predictable and transparent, to compliment current energy market arrangements.

An ancillary service system has already been developed with capability to incorporate new services (SEM-08-013). The ancillary Service mechanism also introduces to the island as a whole GPIs (Generator performance incentives). These are targeted at generators performance and reliability. All the new ancillary services rates and charges will go live on October 1 2009.

EirGrid and SONI are undertaking a major piece of work to determine what kinds of flexibility required to support the renewable targets and ensure system security going forward. This work will then be used to feed into the development of new ancillary services and indeed drive ancillary service policy on the island going forward all with a view to facilitating the provision of a platform for the achievement of the renewables targets going forward.

The main objectives of this work are:

1. Study the outstanding technical and operational issues to identify the measures required to ensure the operability of the power system with 42% renewable energy penetration.
2. Develop a comprehensive long term operational strategy for management of the power system with large amounts of wind power which strike the appropriate balance between renewable priorities, costs and system security.

In the absence of the results of this work the System Operators do not believe it is sensible to make any major changes which would preclude bringing forward new products which would facilitate achievement of the goals of the renewable targets while maintaining system security and facilitating a well functioning market.

Distribution of Capacity Payments

Consultation Point 4:

The RAs welcome comments from participants in relation to the timing and distribution of Capacity Payments as described in Sections 7.4 and 7.5.

The distribution of capacity payments can be assessed while considering a historical analysis of the CPM. Mod_44_08 to the TSC introduced a second Flattening Power Factor to the distribution of payments in the CPM. More analysis is required and it is proposed that this be included in the review.

The assignment of 70% of the pot based on Ex-Ante data and only 30% based on Ex-Post (actual) Margin has the potential to deliver the opposite of what may be intended. By smearing the pot so that the payments in the summer are lower than in the winter, this does not encourage the provision of capacity in the summer months. Generators will instead schedule outages for maintenance in the summer months based on the ex-ante weightings/pot sizes and may conversely deliver the tightest margin. This was discussed before SEM go-live as a potential problem. Looking at the MMU's report for 2009, section 5.1.3 seems to confirm that this concern has become an actual reality.

Capacity Requirement Calculation

Consultation Point 5:

The RAs welcome comments from participants in relation to the Capacity Requirement Calculation and what parameters should be considered in the review.

EirGrid and SONI have considerable input into the calculation of both the annual capacity pot and its allocation. We would welcome further discussion, perhaps in the form of a bilateral workshop as to how this could be refined and improved.

WACC Methodology

Consultation Point 6:

The RAs welcome comments from participants in relation to the calculation of WACC and the approaches that could be used in calculating the various WACC parameters.

We do not have comment to make on this element but do agree that it should be part of the medium term review. However, suffice to say that calculation of a WACC based upon a simple CAPM based approach alone may not always be appropriate.

Infra Marginal Rent & CPM

Consultation Point 7:

The RAs welcome comments from participants in relation to impact of Infra Marginal Rent on the BNE Peaker.

Inframarginal rent should not be subtracted from the Fixed Cost of BNE peaker. Modelling IMR overly complicates CPM and doesn't align with the principles of the CPM.

Impact of Exchange Rate in CPM

Consultation Point 8:

The RAs welcome comments from participants in relation to impact of exchange rate fluctuations may have on the CPM

The recent exchange rate movements mean that exchange rate methodologies are receiving more detailed examination than ever. However we are of the opinion that all methodologies have their draw backs and benefits while not expressing a preference for any one method. In terms of settlement EirGrid and SONI recommend that the review should consider the benefits and costs of changing the exchange rate more frequently over the year, e.g. on a monthly basis.. Changing values on an annual basis leads to step changes which are undesirable e.g Annual Capacity Payment Sum (ACPSy) increased from by 16% between 2008 and 2009 when considered in

euros. However, it increased by 33% when considered in GBP due to decrease in value of sterling.

Treatment of Wind in CPM

Consultation Point 9:

The RAs welcome comments from participants in relation to the Treatment of Wind within the CPM.

EirGrid and SONI do not see any specific treatment of wind in CPM, however, do believe that wind, as all technologies should be rewarded on the basis of its contribution of the provision of utilisable capacity services and that consideration as to whether this has been the case under CPM to date should form part of this review and build upon the Regulatory Authorities' earlier information paper. EirGrid and SONI would be interested in further understanding the Regulatory Authorities' analysis of this issue and have carried out some complimentary analysis of their own in this area.

Treatment of Interconnector in CPM

Consultation Point 10:

The RAs welcome comments from participants in relation to the Interconnector treatment within the CPM.

To date there has been only a single interconnector, Moyle, connecting SEM with Great Britain and the BETTA market. While this interconnector connects two systems and two markets it is not strictly an interconnector in European legislation given its intra jurisdictional nature. Given this it has not been subject to European legislative arrangements concerning interconnectors and Article 6 and 6(6) of EC 1228/2003 regarding the charging for the use of capacity and use of any congestion revenues, in particular. EirGrid is currently developing a regulated interconnector which will be subject to these provisions and there will likely be further interconnectors in the future both regulated and merchant – merchant interconnectors being those subject to an exemption under Article 7 of 1228/2003 from the provisions of Article 6. The arrangements for the capacity payments mechanism has to be robust to both types of interconnector and we believe consideration of the issues this might raise should form part of this review.

To date utilised interconnector capacity has attracted capacity payments to the traders in question undertaking the trades. The incidence of the payments, and whether these accrue to the trader or the interconnector owners is not determined simply by the market rules, however, but is premised upon the degree of congestion, and charging regime in place, for the interconnector in question. This may differ between merchant and regulated interconnectors and the presence of both may mean these issues need to be reconsidered. In respect of EirGrid's regulated interconnector this is not of direct benefit to EirGrid as the interconnector represents a simple flow of funds being supported by the final customer, but may mean that the consumer is better rewarded for his/her investment the capacity benefits from which would have been part of the business case put forward by EirGrid.

Unutilised interconnector capacity has not attracted capacity payments. While the provision of capacity services by, or over an interconnector does require the ability to enter into contractual or other arrangements to source energy from the market with which one is interconnected it is likely in assessing overall generation adequacy requirements that the ability to source energy via interconnection should be taken into account. To not do so would be likely to over-reward and provide remuneration for additional capacity margin in the market in question – again given that some interconnectors are regulated and supported by the consumer this could result in the consumer effectively paying for the same service twice.. This is particularly the case as the level of interconnection increases and may result in consumers paying for more for capacity, and greater investment in generation within the SEM, than is appropriate from a simple adequacy perspective.

It is also important to consider not only the market arrangements in SEM but also the corresponding arrangements in the BETTA market such that no distortions or perverse signals apply. In particular it is important with increased market integration and market coupling that the benefits of capacity services to the GB market by interconnection with SEM as a result of exports are recognised in a similar manner to the benefit accruing to GB traders from importing from BETTA into SEM.

EirGrid and SONI believe the lens for the treatment of interconnectors should be as for other sources of capacity and based upon utilisability of the capacity services provided. EirGrid and SONI would like to see any changes made to the CPM consider the future changes in terms of new interconnectors and new trading arrangements. Clearly EirGrid and SONI's roles are somewhat different here. While both EirGrid and SONI are System Operators and Market Operators, EirGrid is also a prospective interconnector owner/ operator.

Relationship of CPM with Ancillary Services

Consultation Point 11:

The RAs welcome comments from participants in relation to the relationship between the Ancillary Services and the CPM.

Ancillary services and CPM are two distinct revenue streams

With regard to the link, the current methodology of subtracting the AS revenue seems appropriate to us. However where the issues lies is the ability to reward participants for system services which are increasing in importance over time in a targeted manner. This is also vital for supporting our ability to deliver on our renewable targets.

EirGrid and SONI believe there needs to be an increase in the Ancillary Services allowance to allow the system services be developed and then contracted for in the appropriate way for the reasons outlined in the Incentives for Generators Section above. This could be achieved through a measured reallocation form the capacity pot to the ancillary services mechanism or through a direct increase in the allowance. Either way this increase will have to be considered in the way the capacity pot is calculated.

Consultation Point 12:

The RAs welcome comments from participants in relation to any other aspects of the CPM that should be included in the scope of the Medium Term Review

As mentioned above EirGrid and SONI believe the mid term review of CPM should also consider:

1. Amendments to the CPM to reward only utilisable capacity, however utilisability is defined; in particular this should consider the fact that the CPM mechanism is currently blind to the concept of firm and non firm access and therefore rewards capacity based upon availability whether or not the network is capable of supporting export form the plant, or aggregate of plants in question. While certain arrangements pertain to plant connected to the distribution system the ongoing robustness and appropriateness of these arrangements also need sot be kept under review.
2. Whether the CPM provides appropriate exit signals and whether the absence of these signals distorts the market. EirGrid and SONI would be interested in further exploring this issue with the Regulatory Authorities.

Summary and Conclusion

In summary EirGrid and SONI believe that:

- A balanced funding mechanism (Ancillary services, Capacity Pot and Energy Market) will be required to ensure renewable targets are met and system security/reliability is maintained.
- Some of the additions to the capacity pot suggested in the scoping consultation are already being rewarded through the ancillary service mechanism.
- EirGrid and SONI are keen to see advanced as part of this review:
 1. Consideration of the balance between the short and long term signals in the CPM;
 2. Consideration of the degree to which the CPM provides adequate investment signals and signals for the provision of the appropriate technology;
 3. The balance and interaction of CPM and other payments streams, especially Ancillary Services;
 4. Amendments to the CPM to reward only utilisable capacity, however utilisability is defined but to include consideration of the degree to which there is adequate network provision;
 5. Consideration of whether the CPM provides appropriate exit signals and whether the absence of these signals distorts the market.
 6. Consideration of the treatment and reward of interconnection.
 7. Consideration should be given to not subtracting Inframarginal rent from the Fixed Cost of the BNE peaker.
 8. The benefits and costs of changing the exchange rate more frequently over the year, thus moving the risk to participants who are better placed to manage it.
 9. EirGrid and SONI recommend the inclusion in the review of work to develop a second flattening power factor.

EirGrid and SONI look forward to further detailed engagement with the Regulatory Authorities throughout this process and welcome an indication by the Authorities that they wish and intend to engage with EirGrid and SONI in both their System Operation and Market Operation roles. EirGrid and SONI would intend to arrange a working level workshop in the coming weeks. In the meantime we are happy to discuss any aspect of our response.

Appendix 1 - Taken from decision paper SEM-09-003

“Some respondents to the August Consultation Paper have raised issues relating to the relationship between the Capacity Payment Mechanism (CPM) and Reserve. In order to clarify the relationship the RAs consider it necessary to briefly review the need for capacity payment in a market with the characteristics of the SEM. The detailed economic rationale of the CPM was explained in AIP/SEM/19/0510.

Reserve payments serve the purpose of ensuring that sufficient plants are available in the right locations, capable of providing the response required by the TSO. The issues relating to the design of the CPM (including how it interacts with the provision of AS) were consulted on previously by the RAs during the development of the CPM. The CPM does not, and was not designed to, ensure that generators offer sufficient reserve within certain geographical boundaries or to particular technical specifications. SONI SEM Grid Code dated 22/10/2007 and EirGrid Grid Code Version 3.0. Documents available from SONI and EirGrid web sites. “Capacity Payment Mechanism Options Paper”, 20th May 2005, [AIP/SEM/19/05].

It has been suggested that generators will be unable to respond to the short-term signals provided by the CPM but the RAs have already expressed its disagreement with this view.

The TSOs and RAs undertook a study to examine the incentive to withdraw capacity in order to maximise the capacity payment to the remaining generation under the CPM signalling. The study concluded that, although it was possible at certain times to profit from such strategy, the best overall strategy was to offer all the capacity to the TSOs. It was concluded that the variable payment system built in the design of the SEM CPM is designed to encourage capacity into the market and is robust to gaming by portfolio generators. A similar conclusion would be expected in case of reserve capacity being incentivised via variable payments.

However the CPM has its limitations as a capacity incentivisation scheme as it does not recognise that, although it may attract sufficient reserve capacity to the TSOs to secure the system from a demand-generation balance perspective, the available generation may not have the required technical response across the various reserve categories to secure the system. Furthermore, network constraints may require that sufficient reserve is offered within certain geographical boundaries. Hence reserve payments are needed to ensure that sufficient plants in the right locations, capable of providing the response required by the TSO, are available.

In the decision the RAs commented “This scheme will therefore take into account the characteristics of the capacity already made available to the TSOs due to the CPM signalling as discussed above. Similarly to the case of the CPM variable payment it is considered that the gaming options with the variable reserve payments 13 would not be a cause for concern.”