



## ANNUAL CAPACITY PAYMENT SUM

### FINAL VALUE FOR 2007

DATE: 18 MAY 2007

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### Introduction

On 13 February 2007 the Regulatory Authorities published an indicative value for the 2007 Annual Capacity Payment Sum (APSC<sub>y</sub>)<sup>1</sup>. On 14 March 2007 the Regulatory Authorities published a Decision document regarding the methodology for the determination of the Capacity Requirement<sup>2</sup> and have today published a Decision document regarding the Best New Entrant peaking Plant fixed cost for 2007. On the basis of these latter two Decision documents the final value of the Annual Capacity Payment Sum for 2007 has been determined. This paper sets out this value, its allocation into monthly amounts (Capacity Period Payment Sums - CPPS<sub>c</sub>) and the basis upon which these numbers have been derived. Although values are provided for each of the Capacity Periods in 2007, only the values associated with November and December 2007 will be applicable under the Trading and Settlement Code for the Single Electricity Market.

To provide further information to participants the Regulatory Authorities intend to publish indicative values of the Annual Capacity Payment Sum and associated Capacity Period Payment Sums for 2008. Work on determining an estimate of the inframarginal rents for 2008 is currently underway and is expected to conclude next week. As soon as this work has been completed the Regulatory Authorities will publish indicative values of APSC<sub>y</sub> and CPPS<sub>c</sub> for 2008.

### Background

The Capacity Payment Mechanism (CPM) under the Single Electricity Market (SEM) is a fixed revenue mechanism which allocates an amount of money (the Annual Capacity Payment Sum – referred to here as *the annual sum*) determined prior to the start of each year into monthly amounts (Capacity Period Payment Sums). This money is collected from Suppliers pro-rata based on their actual demand and is paid to Generators pro-rata based on their availability<sup>3</sup>. Determination of the annual sum is based on the product of two numbers:

- A volume element (the Capacity Requirement) - the quantity of capacity required to just meet an all-island adequacy standard; and
- A price element – the fixed costs of a Best New Entrant (BNE) peaking plant.

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<sup>1</sup> <http://www.allislandproject.org/en/capacity-payments-consultation.aspx?article=8f023c38-87c8-4241-aeae-1ff58e836558>

<sup>2</sup> <http://www.allislandproject.org/en/capacity-payments-consultation.aspx?article=64eb1095-92de-4ae2-a053-19a3cfc2307b>

<sup>3</sup> The payment mechanism considers the value of capacity at any given point in time rather than paying out on a purely pro-rata basis. Precise details of the payment and charging process can be obtained from the Trading and Settlement Code (<http://www.allislandproject.org/en/change-control.aspx>)

A Decision document setting out the methodology for the determination of the Capacity Requirement was published by the Regulatory Authorities in February 2007 and the Regulators have worked closely with the Transmission System Operators to ensure the value calculated for 2007 has conformed to the methodology set out in that document.. A Decision document setting out the methodology for the determination of the fixed costs of a BNE peaking plant has also been published today.

## Values of $ACPS_y$ and $CPPS_c$ for 2007

The following sets out the basis of the determination of each element of the value of the Annual Capacity Payment Sum ( $ACPS_y$ ) annual sum for 2007.

### ***Capacity Requirement***

#### **Data and Methodology**

The Capacity Requirement has been determined in accordance the methodology set out in the *Methodology for the Determination of the Capacity Requirement for the Capacity Payment Mechanism* Decision document. The data employed to determine the requirement was as follows:

- The Demand forecast was based on the forecasts employed by the TSOs for the 2007-2013 Generation Adequacy Report (GAR) and the 2007-2013 Seven Year Generation Capacity Statement (SYGCS)<sup>4</sup>;
- In discussion with the TSOs the Regulatory Authorities concluded the median forecasts for both jurisdictions to be the most appropriate for 2007 and otherwise made no suggestions to adjust the forecasts provided;
- Unit capacities were provided by market participants at the request of the Regulatory Authorities:
  - each Regulator wrote to the Generation License holders in the respective jurisdictions to request unit capacity data;
  - values at an ambient temperature between 10 and 15 degrees Celsius were employed where output varied with temperature – this represents a reasonable maximum temperature in winter months when peak demand would be expected;
  - in addition the Regulators contacted a number of other organisations who could potentially register Generator Units to ascertain a view as to the likelihood of them registering such units – this work contributed to the determination of the market registered generation (see below);
- Since the Trading and Settlement Code is not yet in force, an assessment of the Generator Units likely to be registered in the market systems (and therefore entitled to CPM payments in 2007 and, consequently, considered in the determination of the Capacity Requirement) needed to be undertaken. In undertaking this assessment the Regulatory Authorities employed the registration requirements in the Trading and Settlement Code such that all Generator Units with capacities (as advised by the respective License holders) in excess of the de minimis level set out in the Trading and Settlement Code would be registered in market systems. In addition, as noted above, the Regulatory Authorities obtained information from a number of potential new registrants and incorporated these Generator Units, as appropriate, into the stack of generation to be considered in determining the Capacity Requirement for 2007;
- The Scheduled Outage Duration for each Generator Unit was determined from 5 years of historic data held by the TSOs. As required by the Decision document on the Capacity Requirement methodology, where a Generator Unit had less than 5 years history, data for similar units was used in order to construct an appropriate Scheduled Outage Duration for all relevant Generator Units being considered in the determination of the Capacity Requirement;

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<sup>4</sup> Note that this document has yet to be published.

- The Forced Outage Probability for each Generator Unit (other than Wind Power Units and all units associated with Interconnectors – see below) was set to 4.23% as per the Decision document. The Forced Outage Probability for the Moyle Interconnector<sup>5</sup> was set at 0.3% as advised by the TSOs;
- Commissioning and Decommissioning dates for Generator Units in 2007 were as provided by the TSOs based on best available data and as supplemented by information provided to the Regulatory Authorities during the process to obtain unit capacity data (see earlier);
- The Capacity Credit for Wind Power Units was established by reference to Figure 2-2 in the 2007-2013 GAR and the entire wind capacity on the island of Ireland for 2007, as taken from the 2007-2013 GAR and SYGCS; and
- The Generation Adequacy Standard was set to 8 hours Loss of Load Expectation per year – this followed work undertaken by the TSOs to review and advise on an appropriate adequacy standard for the all-island system which was presented to the AIP Steering Group at the beginning of May 2007.

### **Capacity Requirement for 2007**

Using the above data and the methodology set out in the Decision document, the Capacity Requirement for 2007 was determined as:

Capacity Requirement for 2007 = **6960MW**

### ***Fixed Costs of a BNE Peaking Plant***

#### **Fixed Costs of a BNE Peaking Plant for 2007**

The data and methodology employed to estimate the fixed costs of a BNE peaking plant is as presented in the *Fixed Cost of a New Entrant Peaking Plant for the Capacity Payment Mechanism* Decision document published today. This data gives an annualised fixed cost for the identified technology choice (and location) of €85.04/kW/yr. This amount was adjusted to account for the estimated inframarginal rent for 2007 derived through runs of the recently validated version of the Plexos model and associated input data. The Plexos runs resulted in an estimated inframarginal rent for the BNE peaking plant for 2007 equating to €14.19/kW. A further adjustment to account for the estimated revenue resulting from Ancillary Services was made. This adjustment was based on the applicable contract rates for the Republic of Ireland for 2007 (given the location of the BNE peaking plant in the south-west of Ireland). The estimated Ancillary Service revenue for the BNE peaker for 2007 equated to €6.12/kW, giving a totals deduction for 2007 of €20.31/kW. This gave the final value for the Fixed Cost of a BNE Peaking Plant for 2007as:

Fixed Cost of a BNE Peaking Plant for 2007 = **€64.73/kW**

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<sup>5</sup> The determination of the Capacity Requirement considers the Interconnector as a whole rather than the individual Interconnector Units, Interconnector Residual Capacity Units and Interconnector Error Units.

## Final Values of ACPS<sub>y</sub> and CPPS<sub>c</sub> for 2007

On the basis of the above calculations the value of the Annual Capacity Payment Sum (ACPS<sub>y</sub>) for 2007 is:

$$\text{ACPS}_y \text{ for 2007} = \mathbf{€450,517,348}$$

Using the methodology set out in the Decision document on Capacity Payment Factors published in December 2006<sup>6</sup> the values of the Capacity Period Payment Sums (CPPS<sub>c</sub>) for 2007 have been calculated. For 2007 the Regulatory Authorities have decided to use the demand forecast employed in the derivation of the Capacity Requirement to determine the values applicable to each Capacity Period, rather than the Annual Load Forecast prepared under the auspices of the Trading and Settlement Code (and from which the values of Forecast Demand (FD<sub>h</sub>) referred to in the aforementioned Decision document are derived). The Regulatory Authorities have taken this decision since the Trading and Settlement Code has yet to come into force and therefore an alternative forecast of demand was required. The Regulatory Authorities have concluded that the forecast used in the determination of the Capacity Requirement provides a suitable and consistent alternative.

Accordingly, the values of CPPS<sub>c</sub> for 2007 are:

Month	Amount
Jan	€42,277,947
Feb	€40,677,812
Mar	€40,532,345
Apr	€33,990,746
May	€32,088,658
Jun	€30,501,747
Jul	€30,722,151
Aug	€32,661,709
Sep	€32,685,953
Oct	€38,969,679
Nov	€47,131,249
Dec	€48,277,352

Note that the only values which will apply for 2007 are those for November and December 2007.

<sup>6</sup> <http://www.allislandproject.org/en/capacity-payments-decision.aspx?article=a73007f4-0743-4ed2-89ce-0bdc80564ff4>

