

PLEXOS Market Simulation Data and Model Validation Project

A Note to Interested Parties

12th February 2008

1. Introduction and Background

The Commission for Energy Regulation and the Northern Ireland Authority for Utility Regulation (the Regulatory Authorities) have developed a single all-island electricity market, the Single Electricity Market (SEM), which came into operation on November 1st 2007. Further details on the project can be found on the AIP website (www.allislandproject.org).

Energy Exemplar's PLEXOS for Power Systems was chosen as the electricity market model to carry out modelling work during the all island project. The purpose of this modelling work was primarily to assist all industry participants in developing a greater understanding of the new electricity market arrangements and to provide quantitative support in assessing the potential impacts of the arrangements both on the industry and on the final customer.

The PLEXOS modelling software was also used by the RAs to simulate and forecast the operation of the market in order to implement Directed Contracts (DCs) as part of its market power mitigation strategy for the first eleven months of the market, and for other regulatory pricing workstreams, such as the required input into the 2008 Capacity Payment Mechanism. The RAs intend to continue to use the PLEXOS model for the forthcoming Directed Contract year (1st October 2008 to 30th September 2009), and through to the end of 2009.

2. The First PLEXOS Validation Project

In January 2007 the Regulatory Authorities engaged consultants KEMA to independently validate both the PLEXOS model against the SEM Trading and Settlement Code and the input data in the model. The purpose of this exercise was to provide the RAs and the industry with a model that could accurately predict electricity prices in the SEM.

The validation project was carried out with the input of market participants and was completed in April 2007. The validation reports, validated dataset and the PLEXOS input

Commission for Energy Regulation, The Exchange, Belgard Square North, Tallaght, Dublin 24, Ireland
Ph: 353 1 4000800 Fax: 353 1 4000850

NIAUR, Queens House, 14 Queen Street, Belfast, BT1 6ER, Northern Ireland
Ph: 0044 28 90 311575 Fax: 0044 48 90 311740

web: www.allislandproject.org

database from the first validation project are published on the AIP website and can be found at the link below.

<http://www.allislandproject.org/en/modelling%20group-info-documents.aspx?article=bc74bdcb-e61d-4d2e-b95d-390d50e06504>

3. The Second PLEXOS Validation Project

As part of the RAs' annual model requirements for the second tariff year of the SEM, beginning on 1st October 2008, the simulation model's input data needs to be re-validated to reflect developments since the previous exercise, not least the price outcomes in the SEM since its inception in November 2007. The RAs have engaged NERA Economic Consulting to undertake this project. The project should be completed around mid March and will comprise two main elements:

- **Validation of the PLEXOS model input data for 2008 and 2009**

Among other things, this will include updating generator technical characteristics, demand data, wind forecasts, generation outage data, variable operation and maintenance costs etc.

NERA Economic Consulting will be in contact with the relevant market participants over the course of the next few weeks to update the input database. As the involvement of participants was key to the successful completion of last year's validation project, the RAs would ask all generator participants, the Market Operator and System Operators to engage effectively and in a timely manner on all information requests from NERA.

- **Calibration of PLEXOS against actual half hourly *ex post* data on unit schedules, shadow prices, uplift and SMPs for the period from 1st November 2007.**

The RAs intend to publish the validated input Access database and any accompanying Excel spreadsheets upon completion of the project. Any confidential information submitted by participants to NERA should be marked as such and will not be published.

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The findings of the project will be presented at a workshop which will take place in mid to late March, details of which will follow in due course.

4. Queries and Information

For any queries on the above or further information on this matter please contact James Curtin in CER (jcurtin@cer.ie) or Paul Bell in NIAUR (paul.bell@niaur.gov.uk).

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