

PLEXOS Market Simulation Data and Model Validation Project

A Note to Interested Parties

14th December 2010

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 website www.allislandproject.org.

Energy Exemplar's PLEXOS for Power Systems was chosen by the RAs as the electricity market model to carry out modelling work for the SEM. The PLEXOS modelling software is 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 four years of the market, and for other regulatory pricing workstreams, such as the required input into the Capacity Payment Mechanism. The RAs intend to continue to use the PLEXOS model for the forthcoming Directed Contract year (1st October 2011 to 30th September 2012), and through to the end of 2012.

2. The First Four PLEXOS Validation Projects

In November 2009 the RAs engaged consultants Redpoint to undertake the re-validation of the Plexos simulation model's input data and settings to cover the period from the 1st October 2010 to end of 2011. This exercise included a calibration of PLEXOS against the price outcomes in the SEM for November 2007 to September 2010. The validation report and the PLEXOS input database from the fourth validation project are published on the AIP website and can be found at the link below.

http://www.allislandproject.org/en/market_decision_documents.aspx?page=2&article=cb4ee33b-a83a-47ce-956a-6cff30900495

The previous 3 years' validation exercises can be found at the following links:

2009-10

http://www.allislandproject.org/en/market_decision_documents.aspx?article=f31fe1f6-3219-4e1e-a658-57515fc0ce8c

2008-9

http://www.allislandproject.org/en/market_decision_documents.aspx?page=2&article=130d38a3-f5fe-4947-816c-c36a4dd67088

2007-8

<http://www.allislandproject.org/en/modelling%20group-info-documents.aspx?article=bc74bdc-b95d-4d2e-b95d-390d50e06504>

3. The Fifth PLEXOS Validation Project

As part of the RAs' annual model requirements for the fifth tariff year of the SEM, beginning on 1st October 2011, 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 for the last 30 months or more. The RAs will be undertaking this project through the Market Modelling Group (MMG) with support from the Market Monitoring Unit (MMU). The project should be completed by March 2011 and will comprise two main elements:

- **Validation of the PLEXOS model input data for 2011 and 2012**

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

The MMG will be in contact with the relevant market participants over the course of the next few days and weeks to update the input database. As the involvement of participants was key to the successful completion of the previous four validation projects, 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.

- **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 database, any accompanying Excel spreadsheets and a validation report upon completion of the project. Any confidential information submitted by participants to the MMG should be marked as such and will not be published. The findings of the project will be presented at a workshop which will take place in 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 (jcurtin@cer.ie) or Kevin Hagan (khagan@cer.ie) in the CER.