Proposed Bidding Code of Practice in the SEM

Consultation Paper

18 May 2007

AIP/SEM/07/198

Introduction

The introduction of the Single Electricity Market (SEM) on 1 November 2007 necessitates the amendment of Generation Licences in Northern Ireland and the Republic of Ireland to reflect the new trading arrangements. As part of the development of the SEM the Regulatory Authorities (RAs) developed a market power mitigation strategy which requires, *inter alia*, that market participants adhere to principles that price bids be submitted at Short Run Marginal Cost.

Principles requiring Short Run Marginal Cost (SRMC) bidding were consulted on in July 2006 [AIP/SEM/73/06], with a decision paper [AIP/SEM/116/06] issued in September 2006. This requirement to bid SRMC has been reflected in proposed conditions in electricity licenses currently being consulted on in both jurisdictions.

The proposed licence conditions require that market participants adhere to a Bidding Code of Practice which sets out the principles to be used in calculating the costs to be reflected in the commercial offer data which they submit to the Market Operator. The Regulatory Authorities are responsible for publishing and amending the Bidding Code of Practice.

The purpose of this paper is to outline the proposed contents, and the rationale behind them, of the Bidding Code of Practice. The proposed Bidding Code of Practice is attached at Annex A

Request for Comments

The Regulatory Authorities request comment from interested parties in relation to the proposed contents of the Bidding Code of Practice.

The Regulatory Authorities intend and prefer to publish all comments received, but are prepared to facilitate those respondents who wish certain sections of their submission to remain confidential. Accordingly, respondents that so wish should submit these sections in an appendix that is clearly marked “Confidential”.

Comments on the licence should be forwarded, preferably in electronic form, to tadhg.obriain@niaur.gov.uk or post to;

Tadhg O’Briain
NIAUR
Queens House
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BELFAST
BT1 6ER

The deadline for receipt of comments is 1700h on 15 June 2007.

DISCUSSION

Background

The Bidding Code Of Practice sets out how generators are to calculate Opportunity Cost, which they are obliged to use when submitting bids according to licence conditions in Northern Ireland and Republic of Ireland generator licences currently under consultation relating to Cost Reflective Bidding. It is designed to formalise the contents of the Bidding Principles decision paper [AIP/SEM116/06] and Consultation paper [AIP/SEM/73/06] which set out the basis on which generators would be expected to bid in the SEM.

The aim of the Bidding Code of Practice is to achieve the benefits of competition in the SEM. The SEM is a concentrated market and one with an explicit capacity payment mechanism. Both attributes support the requirement on generators to bid at Short Run Marginal Cost, in the first instance by preventing the exercise of market power and in the second by preventing the double payment of scarcity rents. Bidding at SRMC also prevents the gaming of constraint payments.

The additional or incremental costs incurred by a generator by the decision to generate electricity on any particular day are the Short Run Marginal Costs of generating electricity. This is captured in generators' licences by defining Short Run Marginal cost as being the difference between total costs "attributable to the ownership, operation and maintenance of a generation set" on a day when it operates to generate electricity and on a day when it does not. These costs are not ordinarily confined to the direct financial costs incurred. They should instead represent the opportunity costs incurred. The Regulatory Authorities believe that real economic costs are minimised when opportunity costs are minimised.

Principles in the Code of Practice

The Code of Practice sets out the principles by which Opportunity Cost is to be calculated which have to be followed by generators submitting bids to the Single Market Operator. It has been divided into general principles for calculating opportunity cost and principles as they apply to particular cost items.

General Principles

Opportunity Cost is usually defined as the benefit foregone from the best alternative use of a resource, and the RAs have followed this definition in the Code of Practice.

Wherever possible this is to be defined by reference to prevailing market prices. Logically this is the price at which an additional unit of a cost item could - if the generator wished and could benefit from it - be acquired or at which a unit of a

cost item be disposed of. It is true that the actual price that a generator may pay for a cost item may differ from the market price, for example because he has purchased on forward markets, or has a contract to purchase at a set price. However, even in this situation the market price is the correct measure of opportunity cost. This is because where there is a discrepancy between prices specified in a contract and market prices, arbitrage opportunities exist.

The Regulatory Authorities also recognise that prices on markets are subject to change, and that the requirement to submit day-ahead bids may impose risks on a generator. For this reason the Bidding Code of Practice allows generators to account for the risk of a significant change in market prices between the submission of a bid and the time to which that bid applies.

There are also occasions where it is foreseeable that the dispatch decisions of the System Operator will impose costs on a generator (for example the decision to dispatch a Combined Cycle Gas Turbine in Open Cycle). In these situations the generator may account for the impact of these decisions in its Commercial Offer Data. The RAs do not anticipate that this will be frequent, and expect that any provision made on this basis will be clearly justified. In particular, the RAs will guard against this provision being used as a spurious justification of economic withholding.

Principles in relation to specific cost items

Fuel

Fuel is usually the most important cost item in the generation of electricity. Most fuels are actively traded on markets, and bids should reflect the price of the fuel on those markets. The RAs also recognise that fuel must be transported to the place where it is used – and where this varies with the quantity of fuel actually transported, it is clear it should be included as part of the cost of that fuel.

There are no markets on the island of Ireland for some fuels. However, this does not mean that making reference to the market price outside the island of Ireland for such fuels is inappropriate. For a generator to remain in business of generating electricity he must keep his fuel stock at some level sufficient to satisfy expected demand. Thus the decision to use fuel in the generation of electricity necessitates the replacement of that fuel – the cost of which will be the market price of that fuel plus transportation costs. The concept of replacement cost also applies to situations where there is no market for the fuel used to generate electricity.

Carbon

Carbon emissions from the generation of electricity impose social costs through their impact on the concentration of greenhouse gasses in the atmosphere which

contribute to global warming. The EU Emissions Trading Scheme (ETS) is an attempt to reduce these social costs in an efficient manner by reflecting the social cost in the decisions of producers of emissions. The tradability of Credits allocated under the ETS is central to this, and in line with the general principle that Opportunity Costs be calculated by reference to market prices, Credits should be valued at their market price.

Variable Operating and Maintenance

Only operating and maintenance costs which are truly variable with production should be included. Therefore the cost of annual servicing should not be included, nor should normal depreciation, which is not an economic cost.

The RAs also recognise that the capacity of a unit is not immutable. From an engineering perspective the heat rate is likely to be reduced and the possibility of increased wear-and-tear on a unit is a clear economic cost. In certain situations a generator might well offer emergency quantities to the system at higher prices, representing levels of power above his normal rated output. In principle, the calculation of the SRMC related to these quanta of energy is clear: the cost will reflect both the heat rate in this area of operation as well as the expected value of generator damage. Estimations of the expected generator damage should be made in such a way that they can be clearly justified, and should not normally include the routine risk of damage which is usually best considered as part of normal [fixed?] Operating and Maintenance costs.

Start up and no load costs

The EPUS software used to calculate SMP should take account of start up and no load costs in deciding whether to commit a unit in the EPUS schedule. The software will also adjust prices to recover these startup and no-load costs. As a general rule, when a cost is bid in one place, it would be wrong to bid it somewhere else as well. Thus, if startup and no-load costs are correctly bid, they ought not form a part of the incremental costs in the daily bid.

Nonetheless given the complexity of the calculations involved it is possible that EPUS software will not work as intended. Moreover wear and tear associated with start ups may increase with frequency. Where a generator can demonstrate that the actual operation of EPUS software results in scheduling decisions which do not reflect the true cost associated with the operation of plant, it may be appropriate that bids be correspondingly adjusted to reflect the true marginal costs.

Energy, Emissions or Time Limited Units

Energy generated from these plants in one half–hour is lost to future periods. For example hydro units must use the limited water at their disposal at the

maximal prices they can earn, subject to the various hydrological constraints the plant is subject to. A plant which can only emit a set amount of pollutants (and for which there is not a tradable emissions right) in a year will likewise wish to include in its bid the forgone revenue from periods when it cannot emit - for example the high price of electricity in the winter peak when submitting bids during the summer. Therefore the pricing of these units will optimally depend on expected market prices in a way that the SRMC of other units will not. So long as the optimisation program underlying the bids takes no account of the effect of the bidding on the profitability of other owned units, the scheduling inputs should suffice to justify the bidding.

Co-generation

Where the generation of electricity is undertaken in conjunction with other processes, such as for example the production of alumina, the benefit foregone from the best alternative use of the resources used to generate electricity may be related to that industrial process.

For example the heat in the steam produced as a by-product in the generation of electricity may be a important input in the refining of alumina. The value added by that heat in the production of alumina should be netted off the bids submitted to the Market Operator by the generator (as if it is not run that value added is lost).

Once more it is important the optimisation program underlying the bids takes no account of the effect of the bidding on the profitability of other owned units.

Changes to the Code of Practice

The Regulatory Authorities are responsible for making changes to the Code of Practice, which they will implement after suitable consultation. It is open to other participants to propose changes to the Code of Practice, and it is envisaged that this will be done through the Market Monitor.

The RAs may in the future establish a mechanism which allows for more direct involvement by market participants in the consideration of changes to the Bidding Code of Practice. At this point in the development of the SEM however it is not felt to be either necessary or appropriate to have such a mechanism.

CONCLUSION

The Regulatory Authorities request comment from interested parties in relation to the proposed contents of the Bidding Code of Practice.

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Annex A Proposed Bidding Code of Practice

BIDDING CODE OF PRACTICE

INTRODUCTION

1. This Bidding Code of Practice (**the Code**) is published jointly by:

   a. the Northern Ireland Authority for Utility Regulation (**the Authority**), in accordance with paragraph 5 of the following conditions of licences in Northern Ireland:

      (i) Condition 17 of the licence of each electricity generation licence; and

      (ii) Condition 55 of the electricity supply licence treated as granted to NIE Energy; and

   b. the Commission for Energy Regulation (the **Commission**), in accordance with paragraph 5 of the following conditions of licences to generate electricity in the Republic of Ireland:

      (i) Condition 17 of the electricity generation licence granted to the Electricity Supply Board;

      (ii) Condition 16 of the electricity generation licence granted to Synergen; and

      (iii) Condition 15 of electricity generation licences granted to all other licensed generators of electricity.

2. For the purposes of the licence conditions under which it is made (**the relevant conditions**), this Code defines the concept of Opportunity Cost, makes provision for the calculation of specified cost-items and sets out other principles of good behaviour in the Single Wholesale Market.

3. In accordance with paragraph 6 of each relevant condition:

   a. electricity generators are required to comply with the provisions of this Code in submitting Commercial Offer Data under the Single Electricity Market Trading and Settlement Code, whether by themselves or through Intermediaries; and

   b. the Power Procurement Business of NIE Energy is required to comply with the provisions of this Code in submitting Commercial Offer Data under the Single Electricity Market Trading and Settlement Code.

4. This Code aims to facilitate the efficient operation of the Single Electricity Market by ensuring that:

- in combination with the Capacity Payment Mechanism established under the Single Electricity Market Trading and Settlement Code, generators are appropriately compensated for the availability and sale of electricity in the Single Electricity Market; and

- generators cannot exercise market power in the generation of electricity in the island of Ireland or any part thereof.

5. Words and expressions used in this Code and not defined shall, unless the context otherwise requires, have the same meaning as when used in the licences containing the relevant conditions or (where appropriate) in the Single Electricity Market Trading and Settlement Code.

DEFINITION OF OPPORTUNITY COST

6. When calculating the Short Run Marginal Cost of a generation set or unit in respect of a Trading Day, constituent cost-items are to be valued at their Opportunity Cost, and so that a reasoned explanation of the calculation of that Opportunity Cost is capable of being given to the Authority or the Commission on request.

7. The Opportunity Cost of any cost-item shall comprise:

   a. the financial value of the most valuable alternative use of that cost-item for purposes other than electricity generation, representing the benefit foregone by a generator in employing that cost-item for the purposes of electricity generation; and

   b. any other cost element expressly permitted by the following provisions of this Code.

8. The most valuable alternative use of a cost-item should be calculated by reference to the prevailing price of that cost-item on a recognised and generally accessible trading market in any case in which such a market exists

9. The calculation of the Opportunity Cost of a cost-item may include (where relevant) reasonable provision for risks of significant changes in the prevailing price on a recognised and generally accessible trading market occurring between the submission of Commercial Offer Data and the use of the cost-item in the generation of electricity.

10. The calculation of the Opportunity Cost of a cost-item may include reasonable provision for the impact of reasonably foreseeable generation dispatch decisions on the efficient operation of the plant and equipment of the relevant generator.

GENERAL PRINCIPLES

11. Subject to paragraph 21, all Commercial Offer Data submitted in respect of a generation set or unit are to reflect the costs relating to that set or unit when considered on a stand-alone basis.

PRINCIPLES IN RELATION TO SPECIFIC COST ITEMS

Fuel

12. Where there exists a recognised and generally accessible trading market in the relevant fuel, the Opportunity Cost of that item should reflect the prevailing price at which that cost-item could be acquired or disposed of by the generator in that market at the relevant time.

13. The reasonably associated variable costs of the transaction and of the transportation of a relevant fuel should be included when estimating the price at which an item could be acquired or disposed of in any market.

14. Where a fuel cannot be acquired or disposed of on a recognised and generally accessible market, the Opportunity Cost of the fuel should be calculated as the cost which would be incurred in replacing the fuel used in the generation of electricity.

Carbon

15. Rights, credits or other forms of entitlement to emit Greenhouse Gases under the European Union Emissions Trading Scheme, or similar

schemes which govern the emissions of pollutants, should be valued on the basis of the prevailing price for those rights, credits or entitlements on recognised and generally accessible markets.

Variable Operating and Maintenance Costs

16. The calculation of the Opportunity Cost of a cost-item may include (where relevant) reasonable provision for risks to plant and equipment in excess of normal wear and tear as a result of the operation of a generation set or unit.

17. Aspects of operating cost-items which vary relative to output should be valued at their incremental cost.

18. Personnel costs should not be treated as varying relative to output.

Start-Up and No Load Costs

19. Start-up and no load costs are to be recovered as part of the SMP and SMP uplift as set out in the Single Electricity Market Trading and Settlement Code. An electricity generator (or its Intermediary) should reflect the actual start-up and no load costs of the generation set or unit in the price components of Commercial Offer Data it submits, unless it can satisfactorily demonstrate to the Authority or the Commission (as the case may be) that the scheduling algorithm and associated software operates in such a way that the bidding of actual start-up and no load costs would distort the true economics of the set or unit.

Energy, Emissions or Time Limited Units

20. Where there is a constraint on:

    a. the total time a generation set or unit may run, or

    b. the total emissions a generation set or unit may emit over a period of time; or

    c. the total amount of energy available to a generation set or unit for a period of time,

    bids should reflect the Opportunity Cost of the generation set or unit over that period of time.

Co-Generation

21. Where the generation of electricity is associated with additional processes other than generation, the Opportunity Cost of generating electricity for delivery to the Single Electricity Market should reflect the value of the use of electricity, or heat used to generate electricity, or both, in those associated processes.

DIRECTIONS

22. In accordance with paragraph 5 of the relevant conditions, the Authority and the Commission may each from time to time issue directions to any one or more electricity generators or Intermediaries as to their submission of Commercial Offer Data under the Single Electricity Market Trading and Settlement Code, and any such direction shall be complied with until it is revoked or replaced by a subsequent direction.

CHANGE MANAGEMENT

23. This Code may be amended from time to time in accordance with directions issued by the Authority and the Commission under paragraph 5 of the relevant conditions.

24. The Authority and the Commission shall consider any reasonable proposals made by electricity generators or Intermediaries for amendments to this Code and will publish a response stating their reasons for accepting or rejecting any such proposal within a reasonable period of time after it is made.