



Commission for Energy Regulation

An Coimisiún um Rialáil Fuinnimh

***REVIEW OF THE SPILL PRICE MECHANISM UNDER THE TRADING AND
SETTLEMENT CODE***

***A CONSULTATION PAPER BY THE COMMISSION FOR ENERGY
REGULATION***

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1. EXECUTIVE SUMMARY

Background

The Minister for Public Enterprise issued a Policy Direction in July 1999 setting out the high level principles for the electricity trading system to be put in place for the transitional period. Under this Direction, a regime for the provision of 'top-up' and 'spill' was to be put in place allowing the independent sector to purchase power shortfalls from and sell power surpluses to ESB Power Generation when their production does not exactly match the aggregate demand of the customers of the independent sector. The Direction stated that the sale of spill to ESB Power Generation by independents will be at ESB's avoidable fuel cost for an initial tranche of 25% of total eligible customer demand with any spill beyond this initial level priced at the Best New Entrant's avoidable fuel cost, subject to a cap of ESB's avoidable fuel cost.

Under this Direction the Commission was required to carry out a review of the effectiveness of the pricing arrangements vis-à-vis the stated objective of the trading arrangements, i.e., the promotion of efficient competition amongst licensed generators and suppliers within the market segment being opened to competition, early in 2002. The Commission initiated this review in September 2001 and issued a consultation paper (Ref: CER/02/07) reviewing the pricing arrangements on January 11th, 2002.

This consultation paper examined the effectiveness of the then pricing arrangements and presented a number of approaches that could be adopted to meet the stated objective more effectively. Subsequently, the Commission published a discussion paper on market pricing (Ref: CER/02/32) and published its decision on the review of market prices on August 16th 2002 (Ref: CER/02/113). This introduced a number of amendments to the Trading and Settlement Code ("the Code") including, *inter alia*, the following:

- the payment of a capacity related spill payment to non-green, non-CHP, non-VIPP participants who spill energy in addition to the bilateral imbalance payment previously in place;
- the capping of this capacity payment to ensure that it does not exceed the difference between the spill price and the top up price;
- the introduction of a 350MW limit to the amount of spill energy that receives the capacity related spill payment;
- the abolition of the spill cap then in place;
- the introduction of a minimum spill price at the best new entrant avoidable fuel price.

In recent months a number of parties have made representations to the Commission regarding the spill price mechanism. Parties have queried the frequency with which the spill price is reset by the minimum and the plants that are setting the spill price in the Ex-Post Unconstrained Schedule

("EPUS"). In addition, the mechanism for calculating the spill price minimum has been questioned. In response to these queries, the Commission held a spill price forum on May 26th, 2003 where the mechanism for setting the spill price in EPUS was illustrated and the issues outlined above were discussed. Subsequent to this a number of submissions have been received by the Commission as follows:-

I. Availability of Expected Daily Load Data and Outage Information to ESB Power Generation

ESB Power Generation have proposed that ESB National Grid provide them with expected daily load data a day ahead and updated load demand curves as appropriate during the trading day. They argue that this would allow ESB Power Generation to nominate its portfolio of plant in a manner which reflects more closely the demand it must meet. To this end and as an interim measure, from March of this year ESB Power Generation have based their nominations on 850MW less than the System Demand Forecast as published by ESB National Grid.

In addition, ESB Power Generation have proposed that ESB National Grid provide them with forward information regarding the aggregate expected unavailability of IPPs due to outages.

II. Setting of Incremental and Decremental Prices for ESB Power Generation Plant

At present, ESB Power Generation base incremental and decremental prices on historic costs. ESB Power Generation have proposed that, in the interest of transparency, they base these prices on forward pricing mechanisms going forward.

III. Determination of Avoided Fuel Cost and the Spill Price Floor

ESB Power Generation contend that, at present, the minimum spill price is not based on the BNE's avoided fuel cost as should be the case as per the Commission's Review of Market Prices decision (Ref: CER/02/113). ESB assert that the present figure of €28MWhr is calculated on an average rather than a marginal basis and, therefore, is too high.

IV. Change of Methodology for Calculation of the Spill Price

Viridian have proposed that the methodology for setting the spill price in EPUS be changed from that outlined above. It is suggested that this methodology be revised so that the spill price is set by the highest decremental price on the system without reference to the ability of the unit to be decremented in EPUS.¹

The complete submissions as received by the Commission from the various parties are contained below.

¹ Ref: PM163 dated June 11th2003, as presented to the Modification Panel meeting of June 20th 2003.

2. Current Methodology

2.1 Current Spill Price Calculation Methodology

At present the spill price is set ex-post in the Ex-Post Unconstrained Schedule (EPUS) by the highest decremental price of any Unit with an ex-post energy nomination (“XNOM”) greater than zero that can be decremented in EPUS.² A unit is incapable of being decremented if this would result in it being desynchronised or being scheduled at less than its declared minimum generation. For example, a unit (“Plant A”) that is at its declared minimum generation in EPUS cannot set the spill price even if it has the highest decremental price of plant that is on in EPUS at a given point in time. Here, if EPUS needs to move plant down from what has been nominated (Ex-Ante Energy Nominations or “ANOMs” submitted) it will move to the plant with the next highest decremental price that is on and that can be decremented (“Plant B”). As a result, the spill price is set at the relatively lower decremental price of Plant B and not at that of Plant A.

In setting the spill price, EPUS adheres in the first instance to the principle of respecting as far as possible generator nominations or ANOMs. It does this by employing an objective function which attempts to minimise the MW difference between self schedule nominations submitted (ANOMs) and EPUS output across a period of 60 trading intervals. In addition, certain plant operational characteristics (ramp rates, minimum up and down times and minimum and maximum generation levels) are considered. EPUS sets the spill price in a given trading interval with reference to the above and the decremental prices submitted.³

2.2 Current Minimum Spill Price Calculation Methodology

At present the minimum spill floor is calculated as the BNE avoidable fuel price as determined by the Commission in its Review of Market Prices decision (Ref: CER/02/113). The Commission determined the corresponding figure on publication of this decision to be €28/MWhr. This figure was taken from the Best New Entrant 2002 paper published December 27th, 2002 (Ref: CER/01/180).⁴ On February 4th, 2003 the Commission decided that this floor price would remain in place until further consideration was given to the submission received regarding the basis for the calculation of this figure and therefore, would not be updated in the settlement system on the publication of the BNE for 2003.

² An XNOM is calculated in EPUS based on how the system would have been dispatched assuming perfect foresight of demand and availability and an absence of system constraints while respecting the submitted generator nominations.

³ Note that both hydro and pumped storage (energy limited) plant receive an XNOM equal to their ANOM while allowing for changes in their availability. As these plants cannot be moved within EPUS, they never set the spill price.

⁴ Ref: Table 5.1 BNE Component Summary, Item 26.

3. PARTY SUBMISSIONS

The following submissions, as summarised above, have been received by the Commission from the parties named and are reproduced below in order to facilitate comment from interested parties.

3.1 Submission of ANOM and OCID Data for ESB PG Plant

ESB PG is obliged under the terms of the Ministers Directive to buy and sell electricity in the market via the Top Up and Spill mechanisms. ESB PG is also required under the T&S Code to supply to NG on a day ahead basis nominations for the plant PG wish to run to meet PG's expected demand. The demand that has to be met is dependant not only on the PES demand but also on VIPP demand, Top Up and Secondary Top Up demand, Interconnector trading and Spill. It is not currently possible for ESB PG to know these on an ex-ante basis and as a result PG's daily nominations can be significantly different from the actual demand that it has to supply.

A further complication arises when an Independent Generator declares itself either unavailable or available at short notice. This is due to the fact that PG is required either to run more plant or turn down plant to accommodate this situation. A further consequence of IPP outages is that ESB PG may face difficulties in arranging short notice gas and gas capacity to cover these outages with no notice of the event or its possible duration.

To allow PG to nominate its plant in a manner which would more closely reflect the demand it must meet, PG would suggest that the following information be made available to PG:

- On a daily basis NG supply ESB PG with an expected daily load that PG is expected to meet in the following day, taken account of total expected system demand and all other generation sources. PG would then nominate with reference to this load and put gas and gas capacity in place as appropriate.
- NG to provide updates to the load demand curves as required during the day, reflecting any changes that may have occurred.

With regard to scheduled IPP outages PG suggests the following:

- NG to provide forward information to PG regarding the expected aggregated unavailability of IPP generation when either forced or scheduled out
- The Committed Outage Program (COP) for plant scheduled Outages and any updates to be published on the NG web site.

It should be noted that PG is not interested in specific plant. To get around this NG could refer to increments of 100MW at all times when discussing expected non-availabilities and return dates with regard to such outages.

3.2 Setting of Increment and Decrement Prices for ESB PG Plant

Under the Minister's Directive ESB are required to purchase spill at its avoided fuel cost. Up to now ESB PG set these decremental prices based on historic costs. There has been much debate in the market about how the spill prices are determined and indeed whether ESB PG is doing anything to depress the spill price. However, it should be noted that the same PG decremental prices are used to solve both constraints and spill price determination. Therefore it would be counter productive for PG to try and manipulate a lower spill price. Also, ESB's bids are only one element in the determination of the spill price with the EPUS model having a significant influence.

In order to facilitate a more transparent view of PG's bids, PG propose to move to a forward pricing mechanism driven off recognised and established fuel market indices to set it's incremental and decremental bids.

The following paragraphs sets out the mechanism PG propose to employ in this regard.

General

ESB PG intends to submit revised incremental and decremental prices on a monthly basis or more frequently in exceptional circumstances. ESB may move to more frequent submissions at a later date.

Gas

- The INC/DEC prices for all units except the Aghada CT's will be based on the forward market price (IPE Index as defined below)
- The INC/DEC price for Aghada CTs will be based upon the contract prices for gas arranged for these units and /or distillate as appropriate

The IPE Index is defined as:

'IPE Natural Gas Index for the Current Month' (where Month M is the Current Month) as published following expiry of "Month M", by PH Energy Analysis Limited in the publication 'European Spot Gas Markets'.

Coal

The Coal price to be basic forward price quoted on the 2nd last business day of the relevant previous month by TFS for API# 2 for the upcoming quarter adjusted for CV to Standard Tonne and including any duty or local costs and differentials as per the vesting contract.

For clarity:

2 nd last business day, Jun/Jul/Aug	forward price is Q4
2 nd last business day, Sep/Oct/Nov	forward price is Q1
2 nd last business day, Dec/Jan/Feb	forward price is Q2
2 nd last business day, Mar/Apr/May	forward price is Q3

HFO

The HFO price for Month M to be the basic forward price quoted on 2nd last business day of month “M -1” by Morgan Stanley for 1% S cargoes CIF NWE for delivery Month “M+1”, plus any duty or local costs and differentials as per the vesting contract.

Note: Platts is not a suitable reference as it gives historic prices only.

Gasoil

The Gasoil price for Month M to be the basic forward price quoted on 2nd last business day of the Month “M-1” by Morgan Stanley for Gasoil cargoes CIF NWE for delivery Month “M+1”, plus any duty or local costs and differentials as per the ESB’s most recent tender.

Exchange rates

The exchange rates used to convert all of the preceding prices to Euro are those quoted in the FT on the day the prices are set (2nd last business day of the month).

Example for January Prices 2003

FT		
Euro Spot Forward against Euro		
USD	One Month	Three Months
30/01/2003	1.0853	1.0826
STG	One Month	Three Months
30/01/2003	0.6602	0.6614

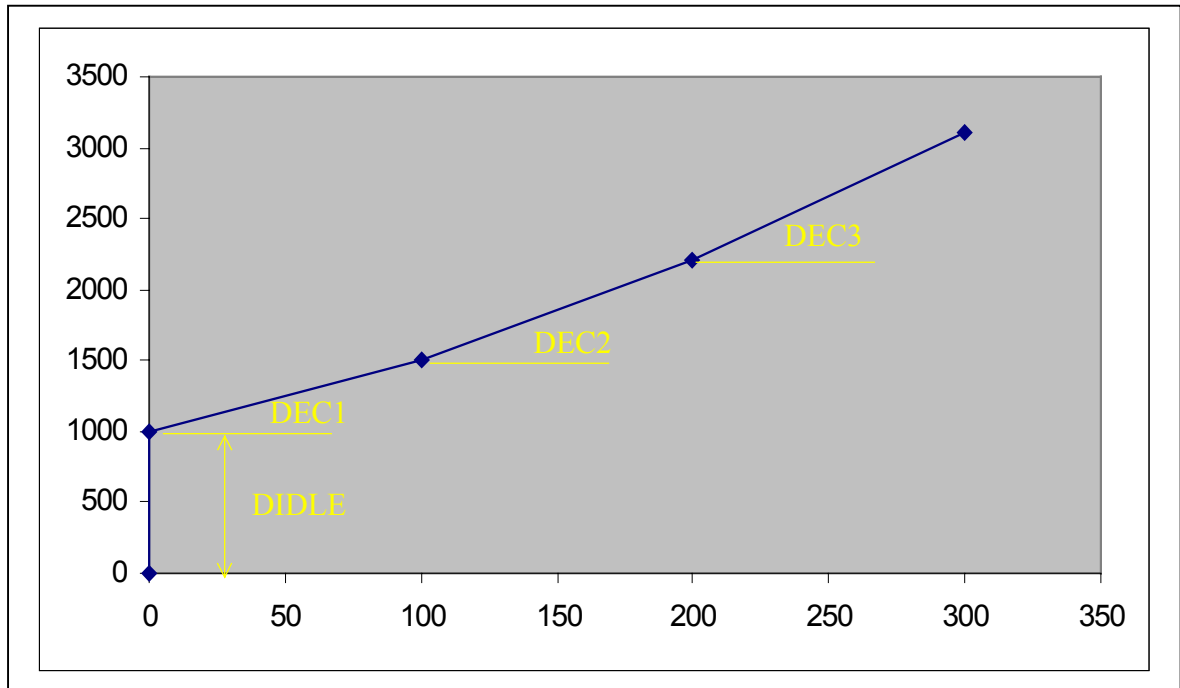
Specifically:

1. The exchange rate applicable to Coal is taken as the 3 month Forward Euro/Dollar exchange rate.
2. The exchange rate applicable to HFO, Gasoil and LFO is taken as the 1 month forward Euro/dollar exchange rate.
3. The exchange rate applicable to Gas is taken as the 1 month forward Euro/Sterling exchange rate.

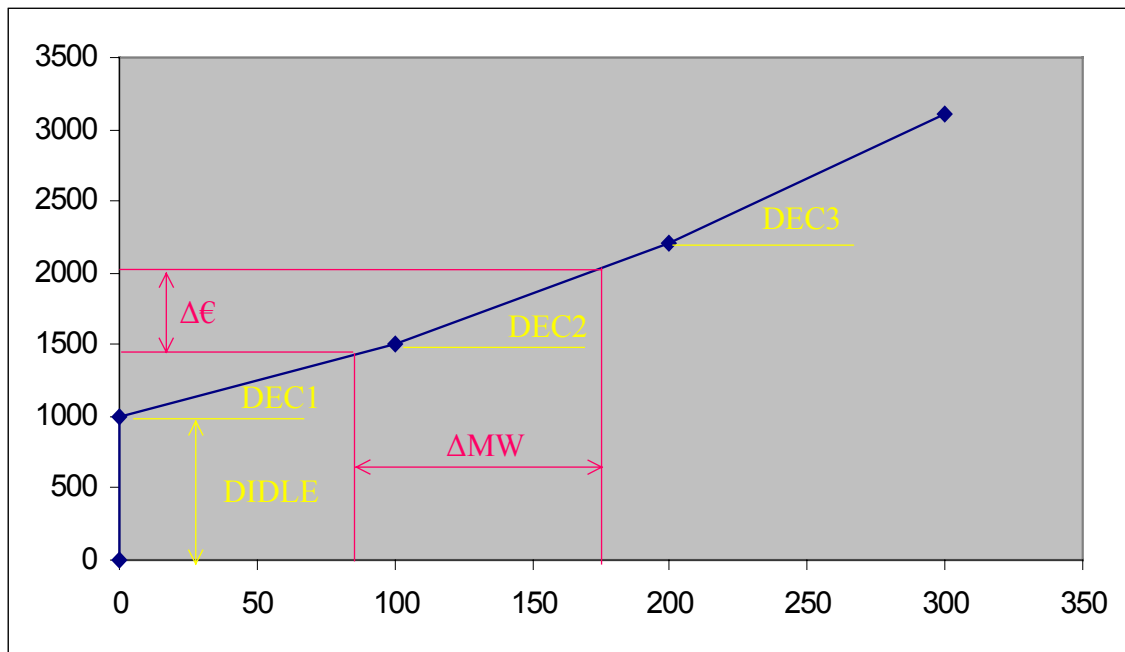
3.3 Determination of Avoided Fuel Cost and the Spill Price Floor

The Avoidable Fuel Cost for use in spill price calculations should have a consistent method of calculation. ESB PG in this paper propose a methodology that is consistent with the CER paper “Spill Prices and EPUS”

and propose that this methodology be adopted for all avoidable fuel price calculations, including determination of the minimum Spill Price.



The above chart shows the DEC bid structure as determined in the trading and settlement code. This is a simplification of a generating units heat rate curve. Each unit bids in an idling price DIDLE, which is the cost of keeping the unit on load but producing no output. Then the unit bids in a number of DEC bids and break points, the DEC bids are the slope of the line between the break points and are the extra cost of changing output by a MW. Each unit is required to submit bids from zero to their full output.



This example is purely illustrative and does not correspond to any actual unit.

An example of the calculation of the avoided fuel cost of a unit decreasing load is shown in the above graph. The unit's is running at 175MW at a fuel cost €2050/h. If this unit were to reduce load to 90MW its fuel costs would drop to €1450/h. Therefore for a reduction of 85MW it saves €600/h and therefore has an avoidable fuel cost of €7.06/MWh.

ESB PG propose that, as currently, the avoidable fuel cost be calculated based on decremental bids and therefore, decremental bids continue to determine the Spill price.

The cost of an IIP unit producing an extra MW is determined by its incremental heat rate and therefore the minimum spill price should be set at the BNE's avoided fuel cost. This ensures that an IPP that matches or beats the BNE heat rate will not make a loss while spilling and will make a contribution of the spill capacity payment.

It should be noted that the price that PG sells power to PES at is almost €4/MWh less than the current minimum spill price.

3.4 Change of Methodology for Calculation of the Spill Price

A Proposed Modification was submitted to the Modification Panel (PM163) by Viridian proposing a change to the spill price calculation on June 11th, 2003. PM163 proposes that the calculation be modified so that the spill price is set by the highest decremental price on the system without reference to whether the unit can be decremented in EPUS or not.

In justifying this proposal, it is submitted that the implementation of this modification would:

- result in an internationally recognised method for calculating market prices;
- be consistent with the principles set out by the CER in the new market structure to be implemented by 19 February 2005. Changing the current T&SC will reduce the differences between today's and the coming market structure and allow a more seamless transfer between the markets;
- allow efficient decisions about nominating higher price units to run at part load over the night valleys;
- signal more accurately the need for greater or less capacity in the system; and
- encourage participants to be more accurate in setting nomination levels.

4. Conclusion

Interested parties are invited to comment on these submissions by 15th August, 2003. The Commission will host a second spill forum, as agreed at the forum of May 26th, on August 29th. Submissions and confirmation of intention to attend the second forum should be forwarded to:

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