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Promoting choice and  
value for all customers

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Cc: Jonathan Purdy and Oliver  
Day - by email only

Date: 5 September 2008

Dear Colleague,

**Decision in relation to use of system methodology modification proposal EDFE 021: Introduction of a power flow/LRIC<sup>1</sup> based methodology along with HV<sup>2</sup>/LV<sup>3</sup> generator charging in EDF Energy Networks Limited's (EDF) south east (SPN) network area**

On 19 May 2008, EDF submitted to the Gas and Electricity Markets Authority (the Authority)<sup>4</sup> proposals to modify the use of system (UoS) charging methodology for its SPN distribution area. The proposals sought to modify their UoS charging methodology to introduce a new methodology for calculating charges for demand and generation customers connected to the EHV<sup>5</sup> portion of their SPN network. The proposals also sought to change HV/LV generator UoS charges along with other minor changes to the existing HV/LV demand methodology.

On 13 June 2008, the Authority notified EDF of its intention to consult on their proposal. On 2 July 2008, the Authority published its consultation on EDF's proposal<sup>6</sup>.

Having carefully considered the proposals made by EDF and responses to our consultation, we have decided **to veto** EDF's modification proposal, EDFE 021.

This letter sets out EDF's proposal, the views of consultation respondents and the reasons for the Authority's decision.

***Background to the proposal***

Licensed distributors have licence obligations<sup>7</sup> to have in place three charging statements: i) the statement of UoS charging methodology, ii) the statement of UoS charges and iii) the statement of connection charging methodology and charges. The statement of UoS charging methodology is a complete and documented explanation of the methods, principles and assumptions that apply in relation to determining charges for UoS. Distributors also have obligations to keep their methodology under review and bring

<sup>1</sup> Long run incremental cost.

<sup>2</sup> High voltage.

<sup>3</sup> Low voltage.

<sup>4</sup> Ofgem is the office of the Authority. The terms 'Ofgem' and the 'Authority' are used interchangeably in this letter.

<sup>5</sup> Extra high voltage.

<sup>6</sup> The consultation is available on our website at:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=457&refer=Networks/ElecDist/Policy/DistChrgMods>

<sup>7</sup> Standard licence conditions (SLC) 13 -14.

forward proposals to modify the methodology that it considers better achieve the relevant objectives<sup>8</sup>.

The Authority has for some time stressed the need for distribution network operators (DNOs) to develop longer term charging arrangements. To date, only one DNO company, WPD, has had a longer term charging methodology approved<sup>9</sup>. Partly due to the slow progress from other DNOs in developing longer term proposals, and partly due to the benefit to end consumers<sup>10</sup>, in July 2008, the Authority decided that all DNOs should develop a common charging methodology<sup>11</sup>. The Authority stated in its decision document that it would consider those modification proposals already submitted to it, and requested that DNOs do not submit any further modification proposals pending the Authority's decision on commonality. We currently envisage that the Authority will take its final decision on the common charging methodology in Autumn 2008.

### ***EDF's proposal***

EDF propose to replace their current EHV UoS charging methodology with a new methodology based on a LRIC model approach<sup>16</sup>. The new LRIC methodology will apply to the derivation of demand and generation charges at EHV levels and will feed EHV costs into the existing HV/LV methodology. The LRIC model calculates nodal incremental costs. These costs represent the brought forward (or deferred) reinforcement costs caused by the addition of an increment of demand or generation at each network node. The method attempts to model the impact changes in users' behaviour have on system costs.

EDF also propose to introduce revised arrangements for HV/LV generator charging along with a few changes to HV/LV demand charges.

The proposal is described in detail in EDF's modification report and proposed charging methodology, which are published on our website<sup>17</sup>, and is summarised in Annex 1 of our July consultation document<sup>18</sup>.

Prior to submitting their modification report, EDF consulted the industry on the EHV aspects of their proposed methodology in June 2007 and January 2008. EDF published these consultation documents and subsequent responses on their website<sup>19</sup>.

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<sup>8</sup> The relevant objectives for the UoS charging methodology, as contained in paragraph 3 of SLC 13 are:

- (a) that compliance with the UoS charging methodology facilitates the discharge by the licensee of the obligations imposed on it under the Electricity Act 1989 and its licence;
- (b) that compliance with the UoS charging methodology facilitates competition in generation and supply of electricity, and does not restrict, distort or prevent competition in the transmission or distribution of electricity;
- (c) that compliance with the UoS charging methodology results in changes which reflect, as far as is reasonably practicable (taking into account of implementation costs), the costs incurred by the licensee and its distribution business; and
- (d) that, so far as is consistent with sub-paragraphs (a), (b) and (c), the UoS charging methodology, as far as is practicable, properly takes account of developments in the licensee's distribution business.

<sup>9</sup> WPD's proposal was not vetoed in February 2007. Our decision letter can be found at the link below:

<http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistChrgMods/Documents1/16856-2007.pdf>

<sup>10</sup> We consulted on commonality in April 2008, see

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=396&refer=Networks/ElecDist/Policy/DistChrgs>. In responses to this consultation a number of parties made a case setting out the detriment caused by multiple charging methodologies.

<sup>11</sup> This decision is contained in the following document:

<http://www.ofgem.gov.uk/NETWORKS/ELECDIST/POLICY/DISTCHRGS/Documents1/FINAL%20July%20consultation%20letter%2022.07.08.pdf>. In this decision letter, the Authority stated that should responses back our intention to pick a model, that it would take a decision on the detail of the methodology comprising the common approach in September 2008.

<sup>16</sup> Whilst this approach is similar to WPD's LRIC model, it is by no means the same, as EDF employ different assumptions in their EHV model, most notably in their power flow analysis.

<sup>17</sup> See

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=426&refer=NETWORKS/ELECDIST/POLICY/DISTCHRGMQDS>.

<sup>18</sup> The consultation is available on our website at:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=457&refer=Networks/ElecDist/Policy/DistChrgMods>

<sup>19</sup> <http://www.edfenergy.com/products-services/networks/knowledge-centre/public-information.shtml>.

## ***Respondents' views***

Our consultation on EDF's proposals closed on 13 August 2008. We received eight non-confidential responses, which can be found on our website as associated documents to the original consultation document<sup>20</sup>. Responses were unanimous in specifying that we should veto EDF's proposal, although the reasons for this view differed. Respondents' views are summarised in **Appendix 1** below.

## ***The Authority's decision***

The detail for our decision is in **Appendix 2** below. In making our decision, we have had to consider whether on balance the proposal better achieves the relevant objectives against the methodology EDF currently has in place in relation to its SPN network area.

We note the amount of work that EDF have put in to this proposal and consider this to be a positive attempt to develop their UoS charging methodology in advance of our decision for a common UoS methodology.

We consider that certain aspects of EDF's proposal sought to introduce positive changes to their UoS methodology. In particular, we consider that from a high level the proposal appeared to achieve many of the principles we would like to see in a longer term UoS methodology. For example, the proposal sought to implement a broadly common methodology for generation and demand, a forward looking incremental approach, power flow modelling and associated nodal based costs. We also consider that the proposed changes to EDF's HV/LV generation charging methodology would have been a positive step forward that could have facilitated competition in generation and represented an improvement in cost reflectivity. Using a fixed revenue adder and proposing to publish a working copy of the model on the internet were also positive elements of the proposal.

However, our concern over the detail of certain aspects of its EHV charging methodology outweighs any potential improvements associated with EDF's proposal. Areas of particular concern include:

- the representation of negative years to reinforcement within the proposed charging model;
- the scaling of power flow outputs from the LRIC power flow analysis which have a detrimental impact on cost reflectivity of the proposals;
- the level of transparency and clarity of the proposal; and
- its overall level of justification.

Consequently, on balance the Authority has decided to **veto** EDF's proposal in respect of its SPN distribution network area.

If you have any questions in relation to this decision letter or the issues raised within it please contact Nicholas Rubin on 0207 901 7176, email [nicholas.rubin@ofgem.gov.uk](mailto:nicholas.rubin@ofgem.gov.uk).

## ***Interactions with a common methodology***

As stated in the background to this letter, on 18 July the Authority published its decision to move towards a common methodology for electricity distribution charging, subject to the necessary licence changes being secured. The proposed implementation date for the common methodology is 1 April 2010. EDF has cited April 2009 as the date they would implement their proposal. We note the concern which both IDNOs and suppliers have raised over the prospect of two drastic charge changes within 12 months – first for EDF's proposal

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<sup>20</sup> See our website at:

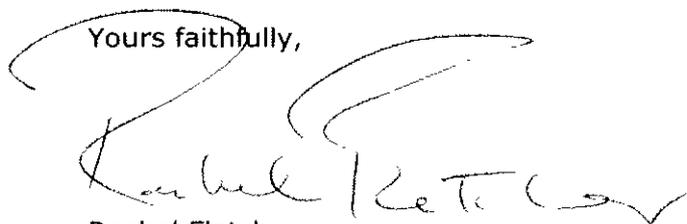
<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=457&refer=Networks/ElecDist/Policy/DistChrgMods>

and then, potentially, further significant changes a year later to adopt the common approach.

One of the relevant objectives against which this proposal is considered is to better facilitate competition in supply. In coming to a decision on this proposal we have taken into account the possible impact on the supply market of this potential for a double pricing change. We believe that it would be highly detrimental to the business models of small suppliers, and other parties, for EDF to implement this proposal and then, within 12 months or so, implement a different common charging methodology. We have therefore concluded that implementing this proposal could potentially have a detrimental impact on competition in supply.

We should also point out that Ofgem's primary statutory duty is to protect the interests of customers. Given the potential for a double pricing change and the impact this can have on suppliers, we believe that customers could potentially be adversely affected if EDF's proposal was implemented and a different methodology was implemented as the common approach a year later. Whilst we appreciate that there is a degree of hypothesis to this situation, as the final decision on the shape of the common methodology has yet to be taken, we believe that given our wider statutory duties, we are bound to take the move to commonality into consideration in reaching our decision.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Rachel Fletcher', with a large, sweeping flourish above it.

Rachel Fletcher  
**Director, Distribution**

## Appendix 1 – Consultation responses

This appendix provides a brief summary of responses to our June consultation document. These responses are available on our website as associated documents to the original consultation document.

In general, there were no supportive responses to EDF's proposal. Respondents' reasons for their views on the proposal varied. Some did not like certain details within the proposal itself whilst others were not supportive due to Ofgem's decision letter flagging a common methodology for UoS charges from April 2010.

### *Power flow scaler*

EDF's proposed use of a power flow scaler attracted considerable criticism. On the one hand responses from Scottish Power Energy Networks (SP), Scottish and Southern Energy (SSE) and the Renewable Energy Association (REA) considered that the proposal lacked justification and commented that the choice of scaler was arbitrary. Western Power Distribution (WPD) considered that the need for a scaler was a consequence of problems with power flow data. They considered that use of a planned/year-ahead network and effective cleansing of power flow data could reduce the need for a scaler. Robin Hodgkins's<sup>21</sup> (RH) response considered that EDF could have capped utility to 100% of capacity for nodes experiencing demand in excess of 100%.

SSE, SP, Central Networks (CN) and RH considered that the use of a power flow scaler was recognition that LRIC fundamentally produces inappropriately high charges, particularly where utilisation is high and growth low, and that EDF's proposal should therefore not be adopted. CN considered that typical levels of network growth and the downward trend in changes to growth figures further enforced the unsuitability of LRIC to current industry circumstance. RH considered that the use of a power flow scaler should improve the charges derived by EDF's model because in his view it reduces the perverse effect LRIC has at high utilisation and low growth.

Whilst respondents were in general critical of the use of a power flow scaler, only SP stated that it inappropriately distorted charges.

### *Transparency*

A number of responses stated that there was a lack of transparency in EDF's proposals. SP believed that EDF's modification report is not clear enough whilst WPD said it was difficult to understand the detailed method and assumptions being used. In particular, WPD noted that there was hardly any description of EDF's DRM<sup>22</sup> in the proposed charging methodology and said that they struggled to follow how revenue reconciliation took place. SSE raised similar concerns with the proposal, suggesting that the modification report is not transparent by virtue of a lack of detail and supporting evidence. SSE was also concerned about charge predictability.

### *Time bands and calculation of unit rate charges (incorporation of National Grid exit charges)*

WPD's response raised concerns that use of multiple time bands can lead to multiple counting of incremental asset costs. SSE stated that they support time of season and day charges but recognise our concern with EDF's capacity charge being based solely on customers' level of maximum demand during the winter peak time band. ESP Electricity Limited (ESP) considered time bands to be an unnecessary complication that could increase charging volatility and that consumers will not notice the effects of the time band approach.

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<sup>21</sup> Robin Hodgkins works for a consultancy called Mathematical & Computer Modelling (MCM). He is currently employed by SSE to advise them on the development of their longer term UoS model.

<sup>22</sup> Distribution reinforcement model, used to calculate HV/LV demand UoS charges.

SSE agreed with our analysis that EDF's proposed calculation of final unit rate charges distorted the original marginal cost signals and considered that this was unacceptable.

#### *Increment size*

EDF's choice of a 1MVA increment was questioned by SSE, RH and WPD. Respondents all considered that the increment should be as small as possible in the LRIC model. A couple of respondents explained that it would not be sensible to use an increment that is too big and used the example of adopting an increment similar in magnitude to the capacity of assets. In such an example, applying the increment would either cause the asset to require reinforcement very soon or immediately. RH considered that ideally, where results can be expressed analytically, as for LRIC, it is desirable to use an infinitesimal increment thus using differentiation rather than an arbitrary finite increment.

#### *Annuity factor*

SP, SSE and RH all considered that EDF's use of a 40 year annuity period is arbitrary. In particular they expressed concerns that the 40 year period does not reflect the actual cost recovery period for an asset which will vary depending on its usage and associated growth. WPD considered that a 40 year annuity period was appropriate.

#### *Winter / summer assumptions driving charges*

WPD said that they did not understand EDF's assumption that demand charges should be driven by maximum levels of demand and generation charges by minimum levels of demand. They explained that what was necessary was to determine whether it was winter or summer demand conditions that drive the need for reinforcement. If it is winter conditions, then an increase in demand accentuates and an increase in generation defers the need for reinforcement. If it is summer, then an increase in demand defers and an increase in generation accentuates the need for reinforcement. REA considered that the use of maximum and minimum levels of demand for determining demand and generation charges, respectively, is acceptable but only if this is representative of drivers of reinforcement.

#### *Generator charging*

The development of generator charging by EDF attracted a mixture of responses. SP and SSE raised similar concerns that EDF's proposals do not consider the effects generation have on fault levels or reverse power flows and that the lumpiness of generation is not captured by the LRIC approach. Conversely, WPD believe that fault level costs are taken in to account in connection rather than UoS charges. Both WPD and REA said that a symmetric approach to demand and generation is appropriate.

SSE stated that EDF was proposing a significant improvement to its charging approach by the offer of a credit to generators that defer reinforcement and that this approach is consistent with the P2/6 engineering standard. The REA's response said that the proposal seemed reasonable but only if it could be effectively justified.

#### *IDNOs*

ESP raised concerns that EDF's proposal falls short of taking account of IDNO issues, for example through IDNO-specific charges. They raise concerns over potential volatility and margin squeeze. SSE states that the lack of IDNO tariffs is a serious omission from EDF's proposal.

#### *Revenue Reconciliation*

As noted above, WPD suggested they cannot understand exactly how revenue reconciliation works under EDF's proposal. SSE considered that EDF's split of revenue between voltage

levels is arbitrary and unfair because it could, for example, impose costs by LV users on HV users. In their view, fixed adders should be calculated for each voltage level because the remainder of allowed revenue that is scaled is asset related revenue (for example it relates to factors such as asset depreciation costs). REA expressed the view that using metered generation to split allowed generation revenue did not appear to be particularly cost reflective.

#### *Common method*

REA consider that given ongoing work towards a common method it would not be in consumer interest to allow EDF to implement its proposed change from April 2009 and then to introduce a common method from 2010. Similarly, British Gas' response stated that EDF's proposal should be withdrawn so as to concentrate on commonality and that in view of commonality they were choosing not to provide any detailed comments on EDF's modification proposal.

## **Appendix 2 – The Authority’s decision**

The Authority made its veto decision having considered EDF’s proposed modification against the relevant objectives and the Authority’s principal objective and wider statutory duties. This appendix explains, primarily in relation to the relevant objectives, the rationale for the Authority’s decision to veto EDF’s modification proposal.

### ***Specific areas for concern prompting veto decision***

#### *Power flow scaling*

EDF’s proposal scales power flows within their charging model by a factor of 0.6. In EDF’s view the scaler is employed to take account of very high charges that their model produces as a consequence of their modelled network being, in places, i) highly utilised with low growth and ii) over utilised, which leads to the calculation of periods of time to reinforcement that are negative.

As illustrated in our consultation<sup>23</sup>, the use of a power flow scaler affects the relativity of UoS charges between customers. We consider that power flow scaling significantly dilutes and distorts the cost reflectivity of charges and that this approach is not an improvement on EDF’s current charging method.

Our analysis of site specific incremental £/kVA reinforcement costs at EHV level shows that the ranking of nodal charges is distorted by applying a power flow scaling factor. The scale factor will have the effect of scaling all incremental cost signals regardless of whether it was a naturally accurate cost signal (i.e. by scaling nodal cost signals that have levels of utilisation and growth that are perceived not to result in excessively high cost signals). Consequently, we consider that EDF’s proposal to use a power flow scaler would cause final charges calculated by their proposed methodology to be non-reflective of the costs on their network and of a customer’s change in behaviour.

We also consider that EDF’s rationale for using a scale factor is not clear from their modification report or having reviewed the models they provided to us. As mentioned, EDF argue that the use of a scale factor is to avoid very high charges in certain circumstances, but it is not clear from their submission whether these circumstances indeed need correcting. If they do, there is no quantitative consideration of materiality or the costs and benefits of alternative solutions. For example, as part of their current EHV UoS model, WPD use a planned network for their power flow analysis so as to take account of planned reinforcement. We consider that this is a better alternative, and one which more effectively takes account of developments in the distributor’s business. Responses to our consultation also identify other alternatives that could have been considered.

Furthermore, we consider EDF’s specific method of scaling then annuitising marginal costs contributed to EDF’s belief in the need for power flow scaling. That is, EDF’s model when run without a power flow scale factor results in a large over-recovery of allowed revenue. Consequently, to compensate, the model calculates a large negative fixed adder, which causes the majority of EHV site specific cost signals to become negative. We are concerned that EDF did not explain the rationale for their approach to scaling and annuitising in their proposal and did not consider alternatives, which in our view could return a smaller fixed adder and may have negated the need for a power flow scaler.

#### *The transparency of EDF’s methodology*

Distributors are obliged to have in force a UoS charging methodology that is a complete and documented explanation of the methods, principles and assumptions that apply in relation to determining UoS charges. This methodology should be coherent and consistent and be set out in a statement that is published in order to ensure adequate publicity.

<sup>23</sup> Please see schedule 1 of our consultation letter.

In our consultation document, we raised concerns in relation to the level of transparency and predictability of EDF's proposal and the manner in which they developed their proposal. In particular, we were concerned that members of the industry had not had sufficient access to the model to assess it properly, that the modification report and proposed methodology lacked clarity and contained errors, and that we were required to clarify numerous elements of the proposed model, despite having a privileged level of access to their EHV model.

Following our July consultation, respondents raised further concerns relating to the transparency of the development of EDF's proposal as well as the detail of the proposal. We note that some respondents were concerned that the proposal was particularly complex and EDF had not sufficiently explained the proposal, rationale or costs and benefits for the proposal, and that consequently these factors undermined the proposal and their ability to assess it.

We share respondents' concerns that EDF's proposal is not adequately transparent. In particular, we are concerned that the modification proposal does not effectively explain or justify EDF's proposed approach. Consequently, we have concerns that the lack of transparency and clarity does not better facilitate competition or provide cost reflectivity particularly given that the methodology based on this proposal lacks adequate clarity. We are particularly concerned about the transparency around power flow scaling and the method of revenue reconciliation, areas where we had to carry out significant analysis to understand EDF's approach before contemplating assessing it.

#### *Counterintuitive results for some kWh unit charges*

Due to the way EDF's proposed methodology incorporates capacity charges and National Grid (NG) exit charges into the calculation of final tariffs, the relative ranking of time band unit rates for some final EHV tariffs is counterintuitive. That is, the unit rate charges do not always reflect the original time band incremental cost signals produced in the charging model. We identified this issue in our consultation document under schedule 2.

We note some respondents' concerns in this area and consider that these distorting effects, particularly in relation to the calculation and incorporation of capacity charges, are inappropriate and that EDF's proposed methodology would result in the calculation of non-cost reflective charges for certain customers. This is because customers' final unit charges provide relative signals that may not reflect the initial marginal cost signals a change in their behaviour is considered to have on the network and its need to reinforce. Where the rankings change as a result of EDF's conversion from capacity to kWh based charges we cannot see how this approach to converting charges is appropriate.

Once kWh unit rates have been established EDF's final step is to incorporate NG exit charges in to the winter peak time band kWh rate. We note EDF's argument that incorporation of NG exit charges into the winter peak time band unit rates is appropriate as peak demand at a grid supply point (GSP) coincides with the winter peak time band on their network. However, it appears inconsistent to allocate the whole cost of NG exit charges to the winter peak time band when EDF's own network costs are allocated over all time band periods. We consider that EDF's modification report could have done more to explain and justify this element of their proposal.

#### **Additional thoughts**

Based on our assessment and responses to consultations, we consider that EDF's proposal has highlighted a number of areas that require careful consideration when developing a UoS methodology.

Below we set out some additional thoughts we have in relation to EDF's proposal.

## *IDNOs*

The development of UoS charging methodologies that take into account the role of IDNOs in the market is a policy area that Ofgem are keen for DNOs to progress. However, we note, as do respondents to our consultation, that EDF's proposal did not make efforts to make changes in this area.

We consider the development of UoS charging methodologies that take forward this policy area to be an important challenge for DNOs, who – as we have said previously<sup>24</sup> - should be taking steps to bring forward appropriate (and now common) changes to ensure that they comply with the requirements of the Competition Act 1998.

### *Use of maximum and minimum levels of demand*

EDF propose to use maximum and minimum levels of demand to determine incremental cost signals for demand and generation customers, respectively. We note WPD's concern that it is not clear whether EDF have justified this assumption. Furthermore, we concur that the choice of demand level for determining demand and generation charges should correspond with those levels of demand which are driving reinforcement as a consequence of either demand or generation behaviour.

### *Time bands*

A significant aspect of EDF's proposal was the use of five time band incremental cost charges and eventually unit rates. This would have meant customers would receive time of day and seasonal cost signals. We agree with one respondent that this may be a positive development in UoS charging.

However, we also note another respondent's concern that EDF's proposal may have the effect of double counting of costs in the calculation of final charges. If time band charges are to be developed we are keen to better understand the costs each charge represents and the benefits they will deliver to customers, who as one respondent noted, may not appreciate the nuances of the tariff because UoS charges are often passed onto them by a third party, for example a supplier.

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<sup>24</sup> See, for example, our July 2007 decision letter on WPD's IDNO modification proposal WPD/WEST/WALES/UOS003, available on our website at <http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistChrgMods/Documents1/WPD%20S%20Wales%20IDNO%20DNO%20charging%20mod%20FINAL%20120707.pdf>. This letter urged DNOs to review their approach to IDNO charging without delay and emphasised that it is the responsibility of each DNO to ensure that it complies with the requirements of the Competition Act.