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Alcan Smelting and Power UK

Lynemouth Smelter
Ashington
Northumberland
NE63 9YH
England
#

Tel.: +44 1670 39 3731
Fax: +44 1670 39 3546
www.alcan.com

Colin Sausman
Associate Director - Transmission
Office of Gas and Electricity Markets
9 Millbank
London
SW1P 3 GE

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Dear Colin

Enduring transmission charging arrangements for Distributed Generation

Alcan welcomes the opportunity to respond to this consultation on enduring transmission-charging arrangements for distributed generation (DG). We believe that this consultation is long overdue and the issues that it addresses are crucial in delivering the government's wider targets on energy policy and security of supply.

Alcan is an industrial aluminium producer. We have two primary aluminium smelters at Lynemouth and Lochaber. In support of the smelting activities, Alcan operates three licence-exempt industrial generators connected to the distribution system:

- Lynemouth – an on-site coal-fired power station connected at 132kV to the Northern Electric Distribution network;
- Kinlochleven – a hydro-electric generator connected at 33kV to the Scottish Hydro Electric Power Distribution Ltd (SHEPDL) network ; and
- Lochaber – an on-site DC hydro-electric generator connected at 33kV to the SHEPDL network, which cannot export power (the Lochaber site is a substantial importer of power).

Alcan's primary concern is the security of supply to its smelters. Alcan operates these generators to provide additional security of supply, beyond that which would be available from the transmission and distribution networks alone – so to minimise the risk of a catastrophic loss of power to our smelters, which would result in hundreds of millions of pounds worth of damage, or plant closure.

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Alcan is proposing the following high-level solution comprising three components.

- The contractual relationships are managed through agency agreements with the distribution network operator (DNO).
- DG is charged for net flows on to the transmission network on a GSP Group basis during times of system stress, whereby the DNO is responsible for procuring sufficient TEC to cover export flows.
- Existing DG that have made investment decisions to connect and use the distribution system on the basis of the present arrangements should have these rights recognised. New DG connections, which lead to export flows from a GSP Group could become liable for new DG transmission charges, with the DNO apportioning its costs of acquiring TEC across these liable generators.

A more detailed description and rationale for this preferred solution is given in Section 1 of the attached paper.

We have also commented, in Section 2, on the scope of the consultation, which we believe needs to be widened to ensure equivalent treatment of demand and generation, not just transmission- and distribution-connected generation. As an industrial generator with both on-site and offsite supply to energy intensive processes it is vital that Alcan's assets supplies receive consistent, equitable treatment.

Alcan's additional comments and opinion of the various options outlined in the consultation document is given in Section 3.

Alcan is keen to work with Ofgem and the electricity industry in developing appropriate enduring transmission-charging arrangements for distributed generation. To that end Alcan would welcome an urgent meeting with Ofgem to discuss further the solutions proposed in this paper and to ensure that the needs of industrial generators are taken fully into account in the development of the enduring arrangements.

Yours sincerely

Robert Nicholson

Power Commercial Manager

1. ALCAN'S PREFERRED SOLUTION

1.1 This section outlines Alcan's preferred treatment for access, charging and contractual management for DG in respect of the transmission system. It must be borne in mind, at the outset, that this solution should not be treated as definitive. We have attempted to set out at a high-level what we believe should be used as an enduring framework. Alcan would be pleased to work with Ofgem in refining this solution. We believe that this solution provides for an equitable and commensurate treatment of DG – a viable solution that will facilitate a cost reflective basis on which to make investment decisions, both in the transmission system and generation capacity.

Access rights

1.2 Alcan believes that DG that is already connected to the distribution networks must have these rights recognised. Considerable investment has been undertaken on the basis of the present arrangements and without imposing to date any quantifiable cost on the transmission system. Any change to the access rights of DG should be implemented purely in relation to new connections.

1.3 Kinlochleven and Lynemouth have been operational for about 100 years and 30 years, respectively. This has been primarily to meet demand at the local offsite and onsite smelters. The smelters absorb most of this generation, with the remainder absorbed within the respective GSP Groups. During this period, both of these stations have had unrestricted access to the distribution network.

1.4 Moreover, these generators have made their investment decisions under different charging and regulatory environment. In many cases, these generators have paid "deep connection charges" for secure connection and use of the distribution network. This would have usually meant incurring a large capital cost for the provision of secure connection and usage of the network.

1.5 Historically, Alcan has invested heavily in network capacity to enable its generators to supply power to the smelters, and also to provide secure "islanded" power in the event of network failure. This investment has been necessary since Alcan needs a very high standard of supply security for its smelters. Without the supply from its own generation (secured through Alcan's onsite network at Lynemouth and a unique Islanding agreement across the SSE network between Kinlochleven and Lochaber) a network outage of greater than four to five hours could lead to irreparable damage to the smelter potlines.

1.6 Alcan's generating sites were connected at a time when all GSP Groups were net importers. If new DG connections cause the GSP Groups to export, potentially imposing a cost to the transmission system, only new DG should be liable for charges in respect of those costs.

1.7 Alcan's Lynemouth facility does not use the transmission system. Output from Lynemouth's 420MW plant is predominantly consumed on-site by our smelter but the facility can ordinarily export around 70MW to the distribution network. This export is absorbed by demand below the Blyth GSP by local demand.

1.8 Alcan's Kinlochleven generator provides its power to the Lochaber smelter through a sale and buyback arrangements. Any additional generation can be absorbed within the Northern Scotland GSP Group. Whilst it may be argued that the supply uses the 132kV link between Kinlochleven and Fort William, Alcan funded the investment in this line. Whilst the physical power flow may utilise a short distance of 132kV line, defined as transmission, it is as a distribution function in providing power to Alcan's own demand. Any liability for charges under the proposed arrangements must recognise the local supply from Kinlochleven to Lochaber.

Charging arrangements

1.9 Firstly, we accept that the current charging arrangements may be not be sustainable in the long-term. And we believe that DG that is deemed to *use* the transmission system should be liable for charges (either positive or negative, as appropriate), where a material cost or benefit has been established. However:

- use of the transmission system must be clearly defined and
- any liability for charges must be commensurate with the firmness of access to the system.

1.10 Secondly, Alcan maintains that the unique characteristics of DG (in that it normally reduces flow from the transmission network) should be considered in any charging regime. This usually has benefits to the transmission network and can reduce the Transmission Owner's future infrastructure costs.

1.11 Thirdly, NGET has stated that over 90% of its infrastructure costs are to ensure that there is sufficient capacity to meet demand during peak times. It would seem cost reflective that any charging for DG should be related to its effect on the transmission network during times of system stress. This would be consistent with the charging arrangements for demand.

Charging on the basis of net from GSP Groups

1.12 Alcan believes transmission charges should be levied on net injection and net offtake from the transmission system on a *GSP Group* basis: those causing the net export facing charges, whilst recognising the rights of existing DG. Such an arrangement would be best administered through DNOs acting as agent for their GSP Groups.

1.13 We believe that this provides for a robust arrangement, which maintains cost-reflectivity, recognises the value that DG provides for overall system stability and protects the rights of existing DG.

1.14 Charging on a gross basis (connection capacity) would be wholly inappropriate and not cost-reflective as this would not consider the proportion of generation absorbed in the respective GSP Group. Nor would it recognise that much of the DG capacity is intermittent (e.g. wind, CHP and industrial generators), whose peak export may not coincide with system stress and therefore may not impact on transmission costs. There is also the difficulty of treating DG on private networks or even domestic microgeneration where it may not be possible to apply a gross mechanism.

Contractual framework

1.15 The contractual framework for charging DG should be via an agency agreement with the DNO. The following steps illustrate what the outline solution could entail.

- The DNO calculating *net flows* from the network on a GSP Group basis at times of system stress on the transmission system (set either on an ex-ante or ex-post basis) and procuring TEC from NGET for these net flows.
- The DNO apportioning the costs (or benefits) of incurred TNUoS charges to Liable DG (new DG connections leading to exporting flows). DNOs would be required to publish the basis for apportion this Generator TNUoS charge in their charging statements as approved by Ofgem, but might be pro-rata with generation at times of system stress.
- In the event that the DNO cannot acquire sufficient TEC, it would be unable to offer firm connections to new DG until such time as NGET can provide sufficient TEC. The DNO would be responsible for constraining non-firm liable DG to its allocated TEC.

1.16 Table 1 shows how the DNO could apportion the cost of TEC it needed to acquire in respect of a 35MW export at times 'system stress' scenario.

Table 1 – Apportioning TEC to meet net flow at times of system stress

Market participant	Installed capacity (MW)	Flow at time of 'system stress' (MW)	Eligible export (MW)	Charging liability (MW)
Demand	–150	–105	N/A	N/A
Existing DGs	90	70	0	0
New DG 1	60	40	40	20
New DG 2	40	30	30	15
Total	**40**	**35**	**>>>>>>>>**	**35**

1.17 There is merit for the DNO agency approach on thee main principles: efficiency, simplicity and knowledge of networks.

Efficiency

1.18 It will be more efficient for a single agency to administer arrangements for access and charging for the transmission system in each GSP Group, than for each individual generator to contract separately. Individual generators cannot efficiently acquire sufficient information on demand and other generators' behaviour in order to adjust their own positions to respond to available network capacity (indeed to do so could be anti-competitive).

Simplicity

1.19 Existing DG already has a contractual relationship with the DNO for the provision of information and services and so this could easily be extended to cover transmission usage.

1.20 There is already an appropriate mechanism for applying these obligations: the Distribution Code. And if amendments are required, there exists and appropriate forum for such changes: the Distribution Code Review Panel – a Panel where DG is adequately represented.

1.21 An alternative model of entering into an agreement with NGET would add increasing complexity to the market arrangements (which can be considered a barrier to market entry) and increase the administrative burden for NGET. *In extremis*, if there were no *de minimus* threshold for DG in having a contract with NGET and there were a large increase in domestic microgeneration, this could mean NGET having in place thousands of use-of-system agreements.

Knowledge of networks

1.22 The DNO is the appropriate body to understand the flows on its network and in particular, the net injections and withdrawals from the transmission system.

1.23 If there are technical issues arising from large increases in DG, which could affect the transmission system, the DNO will have the knowledge and expertise to enforce relevant technical conditions on DG. This is consistent with the proposed treatment of “medium” embedded power stations (the LEEMPS proposal).

1.24 Within the bounds of confidentiality, it is also important that suitable and replicable information and models are provided by the DNO and that appropriate licence requirements are applied so that DG can make informed investment decisions and have confidence, in the process. We are therefore supportive of Ofgem’s commitment to improve transparency in this area.

2. SCOPE OF CONSULTATION

2.1 Without prejudice to the proposed solution outlined above, this section highlights some of the flaws that Alcan sees in the consultation which may, potentially, undermine any discussion/debate in finding an enduring solution.

Liability for TNUoS charges

2.2 Alcan believes that in describing the present arrangements for DG, Ofgem has misunderstood the key criteria in evaluating whether a party is liable for TNUoS charges. The options in chapter five of the consultation seem to suggest that either size or voltage connection is the key determinant in deciding whether a party is liable for TNUoS charges. This is not the case. DG is not liable for TNUoS charges if it is licence-exempt (as illustrated in Appendix 2 of the consultation, sourced from NGC). The size of the generator is only one of a number of criteria for determining licence-exemption. This is not mentioned at all in the consultation. Alcan considers that licence-exempt generators should not be liable for TNUoS charges.

Quantifying the problem

2.3 The consultation document makes continued reference to the expected growth in DG, but has not quantified the anticipated capacity for new DG. For example, there are no figures on the likely number, regional location or timing of new DG projects in the next five to ten years; no data on which GSPs and GSP Groups are, or are likely to be, exporting in the future; and perhaps most significantly, no attempt to quantify the likely cost and materiality to the transmission system of such. The potential cost and benefit of changes to both the system and market participants must be established for informed debate.

2.4 Alcan does not accept that the problems highlighted in the consultation, and which are the trigger for the review, are immediate. The Majority of Grid Supply Points (GSPs) do not export on to the transmission system. Indeed most DG provides benefits to the system, not all of which are fully recognised and rewarded at present. A formal definition of what constitutes ‘use of the transmission system’ should therefore be consulted on.

2.5 However, Alcan fully accepts that if the likely growth in DG were to occur, that the present charging/access arrangements might be inadequate in certain parts of the UK. We, however, contend that the focus of the consultation is too narrow. From reviewing the possible options for change, Ofgem seems to suggest that establishing the equivalent treatment of transmission and distribution-connected generation will resolve the identified problems. Alcan thinks that any enduring solution should not only address this, but also look at the equivalent treatment of demand and generation. Indeed, many of the issues identified are merely symptoms of the asymmetric treatment of demand and generation charging and the arbitrary floor to supplier TNUoS charges.

2.6 The present charging treatment of DG has largely developed to ensure equitable treatment between on-site and off-site generators – to avoid artificial incentives to locate generators behind the meter at demand sites – thereby promoting generation competition. Amending the treatment of DG to provide

equity with transmission-connected generators must also ensure that the equity with on-site generation is maintained – which can only be achieved if the review also considers the charging and access arrangements for demand.

Interaction with LEEMPS and EELPS

2.7 Alcan believes that an enduring solution cannot be achieved in isolation from other areas of work. There have been previous consultations on the treatment of large Embedded Exemptible Large Power Stations (EELPS) and Licence Exempt Embedded Medium Power Stations (LEEMPS), which have attempted to find a solution to similar issues, and these should be reconsidered where they are relevant, to ensure a consistent set of arrangements.

2.8 More specifically, Alcan is concerned at the different contractual treatment of DG – differences based on arbitrary size distinctions. An enduring solution must treat all connections equitably, whilst recognising the investment made by existing connections.

2.9 The GCRP's preferred option for the treatment of LEEMPS, proposes that DG should contract with the DNO, who in turn has a contract with NGET to comply with relevant Grid Code obligations. This is in contrast with the direct bilateral contract with NGET required for EELPS, who have to put in place either a BEGA or BELLA. Alcan believes that the enduring solution should not differentiate treatment on the basis of arbitrary sizing thresholds. We believe that this consultation provides the perfect opportunity to harmonise the contractual and commercial arrangements for all DG.

Implementation

2.10 Alcan has concerns about the manner in which any solution proposed under the current consultation process can be implemented. Ofgem does not intend (and may not have the ability to) impose a solution but instead proposes that the industry will implement the solution through CUSC Amendments, Modifications to the BSC and changes to the Grid and Distribution Codes. Alcan is concerned that this approach allows interested parties to 'cherry-pick' elements of the solution that suit their commercial position and that an enduring proposal may never be fully implemented. Alcan is further concerned that DG is under-represented on the applicable industry panels and may be discriminated against in the implementation process – particularly in consideration of CUSC Amendments, where NGT has considerable influence.

Embedded benefits

2.11 Alcan maintains that DG offers considerable benefits to the transmission and distribution systems and that such benefits (as well as the potential costs identified in the Ofgem consultation) should be recognised and rewarded through the charging regime. We maintain allowing DG to net-off demand, thus reducing offtake from the transmission system reduces transmission usage and, as a consequence, reduces the Transmission Owner's future infrastructure cost, ultimately benefiting the consumer.

3. ENDURING CHARGING OPTIONS

3.1 Table 2 provides Alcan's opinion on the pros and cons on each of the options highlighted in the discussion paper. From a high-level evaluation, Alcan believes that none of the options provides for an all an encompassing solution that effectively addresses the charging, contractual and access issues. We think that any enduring solution may either mean combining two or more options or refining some of the existing options, so as to include equivalent treatment of demand.

Table 2 – Alcan's evaluation of the proposed charging options

Option description		Pros	Cons
1	Do Nothing	Alcan does not believe there is presently a material issue with exporting GSPs, but accepts that the existing arrangements maybe inadequate in the long-term for certain regional areas.	The existing arrangements may not be robust in the long-term, especially if the expected increase in DG were to occur, in line with Government targets
2	De-energise all DG that spills onto system which does not firm access right	[None identified]	This would be a disproportionate response. It may be difficult to allocate export to DG and legally not possible since the right to de-energise comes from the CUSC, which DG is not a signatory. As an industrial generator, de-energisation would risk security of supply to Alcan's smelters, without which Aluminium smelting could not continue in the UK.
3	Amend DCLF Model to harmonise 132kV treatment	This would harmonise the treatment of charging between 132kV generators in Scotland and England & Wales.	Without concurrent changes to charging methodology, this would only serve to re-distribute the charges between existing paying parties. 132kV connected generation in E&W does not utilise the transmission system – as its power is absorbed below the GSP. Lynemouth's generation is consumed onsite, with the remainder below the Blythe GSP.

Option description		Pros	Cons
4	Extend DCLF Model to certain voltages on Distribution network	Harmonises treatment of transmission and high-voltage distribution generation.	Would mean that the perceived perverse incentives would still exist at lower voltages. May be difficult to administer in tandem with GDUoS charges, which are likely to be different in DNO areas, as each DNO will have a different cost recovery requirement. The option also does not address the inconsistencies between generation and demand charges.
5	Amend size definitions for charging	[None identified]	This incorrectly assumes that size is the only criteria in assessing liability for TNUoS charges. It does not consider the effect of licence-exempt generators. Also, if there were sufficient numbers, what about the cumulative effect of domestic microgen plants?
6	Decouple the locational and residual elements of TNUoS	Attempts to treat all generation (transmission, distribution and onsite) equally (removing size and voltage distinction) and would treat generation and demand equally (equal and opposite charges).	It is unclear how this option would fully work. For example, would the current floor in negative demand charges in Scotland be removed? How would the residual charge be recovered: demand, transmission-connected generation or all generation? Is the residual charge based on net offtake for demand?
7	Agency Models	Reduces the administrative burden on NGET and DG. Allocates cost to body most appropriate to deal with access.	Does not deal with the charging liability and would increase the administrative burden on the DNO or Supplier and so may require formalising an incentive arrangement.