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Response to CRU consultation CRU/18/227 ESB Networks
proposals for changes to Generator Standard Charges

Submitted by

Irish Wind Energy Association, Irish BioEnergy Association, Irish
Wind Farmers Association, Irish Solar Energy Association.



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Executive Summary

This document is the response to the CRU consultation CRU/18/277 on ESB Networks (ESBN) proposals for changes to Generator Standard Charges (GSCs) by the Irish Wind Energy Association (IWEA), the Irish Solar Energy Association (ISEA), the Irish Wind Farmers Association (IWFA) and the Irish BioEnergy Association (IrBEA) (hereafter “the Associations”).

The CRU consultation states that the current GSCs are not cost reflective and has proposed revised GSCs to come into effect from 1 January 2019. The Associations consider that this is an unfounded statement and that the CRU has not performed the correct regulatory due diligence to come to this conclusion. It is of deep concern to the Associations and our members that the CRU would propose an increase in GSCs without providing any evidence in the consultation process to support the ESBN’s reasons for requiring substantial increases in a significant number of the connection charges. Indeed, when Price Review 2 was completed in 2010 it concluded an over-recovery from GSCs.

The CRU has taken a 2-phase approach to their review as follows:

1. Analysis and benchmarking against other utilities for similar services
2. Additional details were requested by the CRU from ESBN to understand the makeup of the cost in detail (this work has yet to be completed and is not available for the Associations to review at this time).

The Associations do not accept that the benchmarking completed to date can conclude that the proposed standard prices are appropriate and in line with other utilities. The fact that the CRU would carry out a consultation without completing their review of the charges leads the Associations to believe that the consultation process is fundamentally flawed and is only being carried out to rush through new charges for inclusion in the next batch of connection offer processing (ECP-1) by ESBN. The Associations are deeply concerned that the CRU consultation documents seem to indicate that the CRU has already decided that the increases are valid even though the consultation process is not complete, and indeed an appropriate review has not been carried out.

By taking this approach to regulation, the CRU is failing in its remit to protect consumers. It is not appropriate for the CRU to approve connection charges which will be ultimately be borne by consumers based on of reviewing a sample of the proposed charges. The proposed increase in the GSCs average 46% per charge and many charges have more than doubled. CRU must fully investigate all charges before approving of any cost increases, as these costs will be borne by customers for years to come given the future auction environment.

There has been a scope reduction of many of the charges that have increased, resulting in further unknown increases (i.e. pass through costs linked to civil works etc.). ESBN have proposed that a much greater share of connection costs will be charged on this pass-through basis and not included in the GSCs. To date, the Associations’ members have found the pass-through process very unsatisfactory, with detailed breakdowns of costs incurred seemingly impossible to obtain. We believe that the mechanism of pass-through costs should only be used to recover additional costs arising from unforeseen events and which are outside the control of ESBN. If pass-through charging is to be used



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more extensively, it is essential that increase transparency is introduced to the process, along with a formal route of challenge that would be independently adjudicated. A policy of passing additional risk and budget uncertainty to the Generators in an auction environment will undoubtedly have a negative effect on the level of renewables delivered in the future. It must be recognised that customers cannot sign a blank a cheque for connection with the hope of remaining competitive.

ESBN has identified material costs, changes to standards and experience gained by ESNB as the underlying reasons for an increase in the GSCs. The Associations demonstrate with this response that there is no evidence to substantiate the assertion that material costs have increased over and above the indexing applied since 2007. The Associations are very familiar with the standards used to construct the distribution network and are surprised to see them listed as a reason to increase the GSCs. It is the Associations' experience that work practices may account for some of the price differential between ESNB's GSCs and the cost of building the same assets contestably however, we do not believe those practices should form any basis or justification for an upward price review. On the contrary, the Associations believe that this is an area in which efficiencies could be implemented to reduce GSCs. Members of the Associations have accumulated years of experience in delivering there items contestably and are seeing decreases in costs across the board.

The Associations understand that one of the underlying principles for revising the GSCs is to avoid cross-subsidisation and minimise risk to the DUoS customer. However, excessive GSCs will result in higher capital requirements which will in turn lead to higher RESS auction clearing prices and costs to the electricity consumer. The Associations have seen no evidence that these risks to the consumer have been considered to date by the CRU in this consultation process. The charges as proposed will have a disproportionate impact projects pre and post costs update. This creates an uneven playing field for projects bidding into RESS auctions as two projects given an offer on the current charges may be able to bid in a lower price than those given offers under the proposed charges.

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1. Background

On the 17 October 2018, the CRU published consultation CRU/18/277 on ESBN proposals for changes to Generator Standard Charges. The aim of the consultation is to gain industry feedback on the proposed changes to the ESBN (ESBN) Generator Standard Charges (GSCs). This proposal is as a result of the ESBN recommended review of the GSCs in March 2018. The CRU notes that a review of the GSC has not taken place since 2007.

The CRU states that the current GSCs are not cost reflective of the actual costs in delivery of the works required to facilitate generator connections and until this is corrected Distribution Use of System (DUoS) customers will continue to subsidise these generator connections. Therefore, the CRU has decided to undertake a review of the GSCs in advance of the processing of ECP-1 offers to avoid any further cross-subsidisation.

2. Renewable Energy Associations

This is a joint submission from the following organisations:

1. Irish Wind Energy Association (IWEA)
2. The Irish Solar Energy Association

The Irish Solar Energy Association (ISEA) was founded in May 2013. ISEA is committed to bringing attention to the value of solar energy's contribution to Ireland's economic and environmental future. ISEA is committed to contributing to the development of viable renewable energy policies that support the development of solar in Ireland.

3. The Irish Wind Farmers Association

The Irish Wind Farmers' Association is Ireland's representative body for independent wind energy promoters, developers and service providers. Our members have over 200MW of installed wind capacity and a development pipeline of over 500MW.

4. Irish BioEnergy Association

The Irish Bioenergy Association (IrBEA) is the association representing the bioenergy sector on the Island of Ireland covering Biomass, Biogas/AD, Biofuels and Energy Crops. The membership is diverse. The aims of the association are to influence policy makers, engage in industry & public debate, offers networking opportunities and sharing resources and information within the membership

Throughout this document, the respondents to this consultation will be referred to as "the Associations".

3. Approach to Review

The consultation states "The CRU had initially considered evaluating the proposed charges as part of Price Review 5. However, given the impact on the DUoS customer the CRU is bringing forward its review in order to ensure the DUoS customer does not pick up the shortfall in generator contributions for grid



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connections.” Whilst timing may be a valid reason for these charges to be consulted upon outside Price Review 5, the same threshold of scrutiny and requirement for efficiency should be employed here.

Unfortunately, this is not the case here. The CRU Executive Summary states *“The current GSCs are not reflective of the actual costs in delivery of the works required to facilitate generator connections and until this is corrected Distribution Use of System (DUoS) customers will continue to subsidise these generator connections”*. This is an extraordinary statement for the CRU to make in the introduction to a consultation and leads the associations to believe that the CRU has already decided that the increases are valid even though the consultation process is not complete. Asserting this to be the case prior to a detailed review being completed is a failure of regulation and results in a fundamentally flawed consultation process.

The Consultation adds to the above statement by declaring: *“The CRU proposes that the revised charges as proposed by ESNB will take effect from 1st January 2019.”* We find it remarkable that the CRU proposes to introduce these charges while it is ostensibly completing an industry consultation. The Associations note that the CRU is motivated by its policy to have 100% of the costs associated with generator distribution connection works recovered from generators, but this does not mean that any cost increase sought for these works is justifiable.

The Consultation states *“By revising the existing GSCs, the CRU aims to:*

- *update the GSCs to be more cost reflective in the delivery of the works required to facilitate generator connections;*
- *recover 100% of the distribution connection works from generators; and*
- *minimise the risk to the DUoS customer.”*

The CRU’s enthusiasm to approve increased generator costs in order to protect the DUoS Customer is misplaced. Should the CRU approve increased costs, these costs will be borne by consumers, as the upcoming Renewable Energy Support Scheme is an auction-based system and all project costs will be factored into bid prices, which are ultimately supported by all electricity consumers. The CRU is failing in its consumer protection mandate by approving these costs increases without due analysis and evidence, and consumers would be better served if the CRU focused on the cost increases themselves, rather than their point of allocation.

The consultation continues *“The CRU has conducted its own initial review of the proposed GSCs supported by independent economic and technical advisors. The CRU considers that further detailed analysis is needed to understand the approach and logic that has been applied to determine these charges”*. These statements contradict other CRU assertions in the consultation that the GSCs are not cost reflective and need to be increased.

The consultation states that in the Phase 1 review *“there was only a sample of the GSC’s for which comparisons could be attempted In order for the CRU to undertake the required analysis, it is necessary to understand the formulation process and cost make up for each (or, at least, a sample) of the standard charges.”* It is not appropriate for the CRU to approve connection charges that will be



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borne by consumers on the basis of reviewing only a sample of these charges. All charges should be fully investigated before the CRU consider whether to approve any cost increases. When GSCs were first introduced the Commission engaged the services of a domestic-based consultant to propose charges based on a bottom-up pricing approach within an Irish context¹. The Associations consider that best practice in this regard has not changed since GSC was first introduced, and so CRU should as a minimum be applying the same approach to these proposed charges.

When standard charges were first evaluated, the CRU reviewed the outturn costs and did not simply seek to pass them on. As stated in CER/05/090

“Furthermore, the DSO stated that the proposed increases in charges were due to the fact that the DSO had under recovered on previous projects, and that the proposed charges were in line with actual experience. They provided figures showing actual under recoveries on a number of projects (as well as a small number of projects showing over recoveries). However, this submission from the DSO did not specify the reason for such under recoveries, beyond stating that the charges did not recover the costs incurred. The Commission could therefore not be confident that such under recoveries were wholly due to charges not being reflective of efficiently incurred connection costs, or that they were reflective of the total number of projects undertaken by the DSO.”²

“The Commission in reaching its decision was fully aware that the issue of connection costs is of prime importance to generators. To this end, the Commission sought to examine very closely the level of costs proposed, and to set charges that cover costs that are efficiently incurred and in line with best international practice.”³

The CRU should adopt the same approach in this consultation. It is wholly inappropriate to increase standard charges which will ultimately be borne by consumers, without evaluating the reasons for actual outturn costs and actively incentivising the mitigation of cost increases. There is no evidence presented that the CRU has completed this review.

3.1. Benchmarking

As set out by the CRU, Phase 1 of the review of the GSCs involved analysis and benchmarking against other utilities for similar services.

The Associations received a number of links that formed the basis of the SO/CRU phase 1 benchmarking against other system operator costs, but we have significant issues with the information provided. To start with, 4 of the links provided were to pages that don't exist, and a further link appears to provide information more relevant to ongoing charges, once a site is already connected. The cost items provided in the remaining links were not obviously comparable to the ESNB

¹ CER 05090 Standard Pricing Approach for Connection Renewable Generators to the Distribution Network, Section 16

² CER 05090 Standard Pricing Approach for Connection Renewable Generators to the Distribution Network, Section 20

³ CER 05090 Standard Pricing Approach for Connection Renewable Generators to the Distribution Network, Section 61



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standard cost breakdowns and in addition, some system operators did not provide relevant costs online for comparison. Detailed benchmarking is required where relevant cost-blocks from other system operators are compared to the ESN standard costs, while consistent scope of works for comparative costs and delivery programmes used are essential (i.e. level of civil, electrical, design, H&S works etc. included). As part of the benchmarking process the Associations also request that the grid connection delivery programmes are compared in depth to ensure that the benchmarking process is as robust as possible.

This week we have received the initial Ricardo review, which claims that the costs proposed by ESN underpinning GSC's are broadly within the ranges indicated by other utilities. However, the lack of available published data from other utilities for comparison with the ESN proposals meant that there was only a sample of the GSC's for which comparisons could be attempted and the Associations are not convinced that comparable costs have been used, (e.g.: ESN station works have had civil costs removed) and so the Associations consider that this is not consistent with the costs Ricardo are using for comparison.

Phase 2 of the review must address the shortcomings of the phase 1 review and should also take into account the feedback received from industry on contestable costs. The contestable costs provide a benchmarking against development costs in Ireland and should be used in the benchmarking for a complete and robust review.

The Associations do not accept that the benchmarking completed to date can conclude that the proposed standard prices are appropriate and in line with other utilities.

3.2. Monopoly Regulation

ESN are the monopoly DSO in Ireland. In the CRU's 2015 decision on ESN DSO revenue (CER/15/295) it was stated:

"It is the nature of monopolies (including natural monopolies) that the lack of competitive pressure can lead to inefficient operation which could result in prices that are too high, or services provided are too low or of poor quality. Therefore, as set-out in the Electricity Regulation Act 1999 (as amended), CER regulates the DSO's activities in order to protect the interests of electricity consumers in Ireland, while ensuring that the DSO can fulfil its obligations and deliver secure electricity supplies into the future."

ESN are a natural monopoly and the Associations are very concerned with the approach by the CRU to this consultation process. To protect both the consumer and generators we expect that the CRU will fulfil the same role in this cost review as it does in the System Operators price reviews. We believe a thorough approach to this cost review will achieve the benefits that the CRU set out in their 2015 price review decision:

"CER sets the amount of revenue through a combination of examining the specific underlying costs of the DSO and benchmarking against international companies in this field. Through this review the DSO is required to operate efficiently and to provide high levels of customer service."

It is important to note that a significant number of the costs included in ESN standard charges can only be completed as non-contestable works, i.e. ESN are the monopoly providers of these services.



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For example, works in existing live substations or upgrading existing circuits. It is also extremely complex for developers to agree for shared assets to be completed as contestable works, even more so in a RESS auction environment when generators are not guaranteed to be successfully awarded a contract at auction.

From reviewing the PR3 and PR4 consultation documents it is clear that driving cost and service efficiency should be a key objective of the price review process. ESNB included in their high-level objectives in their 2015 submission for PR4:

“Drive efficiency within ESNB to create customer and stakeholder benefit”

However, in the CRU and ESNB consultation and submissions documents on GSCs there is absolutely no evidence on any efficiency initiatives that have been undertaken by ESNB in the 11 years that the standard charges have been in place in order to reduce their costs and improve the level of services.

The impact of generator connection costs on DUoS is considered as part the ESNB price review process. In the documentation from the last price review in 2015 there is no suggestion by ESNB or the CRU that generator connection costs were impacting negatively on the DUoS customer. Included below is extract from the ESNB submission for PR4. The CRU’s consultants, Jacobs, also do not state there is any under-recovery of generator connection costs. The Associations do not understand how it has changed from there being no concerns in 2015 to there being under-recovery of €10m per annum in 2018. There is no evidence presented to explain how this problem has arisen in a three-year period. No evidence has been provided in the consultation process to support the ESNB reasons for requiring substantial increases in some of the connecting charges. Neither has any evidence been presented on how ESNB have made efficiency efforts to mitigate any under-recovery other than proposing increased costs.

Figure 1 Source: CER/15/198 ESB Networks PR4 Public Submission



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6.5 Generator Connections

The PR₄ period covering years 2016-2020, will cover the majority of the construction of the Gate 3 projects that have contracted in mid-2013, and the remainder of the Gate 2 projects which have not connected to date.

A projected renewable generation capacity of 1,250MW has been estimated to be connected to the distribution system in this 5 year time period. This is less than the current level of contracted generation, as it is generally expected and acknowledged that not all the contracted Gate 2 and Gate 3 connections will progress through to connection, for various reasons. Currently, ESB Networks' best estimate of renewables that will connect to the distribution system is as follows

	Distribution Connected
PR ₂	600
PR ₃	1200
PR ₄	1250
	3,050

Figure 11: Generator Connections Forecast PR₄

ESB's estimate of capital expenditure in this area for the PR₄ period is €109m. Given the expectations of receipts towards the close of PR₃ to meet the REFIT deadline, it is driving most of the PR₄ expenditure into the early years with almost 75% (€82m) of the total amount forecast to be incurred in the first two years (2016 and 2017), and the remaining 25% (€27m) spread out over the latter three years as further projects progress to completion.

When the previous price review was completed in 2010, it showed there was, in fact, an over recovery from generator connection charges in the PR₂ period. In the 2010 review SKM, the CRU's consultants, stated that the application of standard costs was a contributing factor to the over-recovery.

"Customer contribution for generator connections were €70.8m, giving a recovery rate of 112% compared with the allowed recovery rate of 100%. This over-recovery is partly due to phasing of contributions and expenditure and the use of standard costs to calculate contributions, which in individual cases may give rise to over-recovery."

We also note that only 20 plants items were included in the original consultation on standard charges. It appears that a longer list of standard charges was published by ESN in 2007. This list included 39 items. It does not appear that the additional items on the list were consulted upon with industry. Over time the list has been expanded further, with 54 items included in the 2016 list. Other than civil costs that were considered in the Gate 3 consultations, there does not appear to have been any consultation on the other new items on the standard charges list.

As part of the CRU's regulation of the System Operators they put in place incentives to drive the requirement to operate efficiently. There is currently only one incentive that impacts on generator connections. The System Operators are incentivised to deliver the connection offers under the ECP-1 process under the timeline agreed with the CRU. There are absolutely no incentives to drive ESN to deliver the connection works in a low cost and timely manner. Such incentives were to be brought in following the PR₃ process but for unknown reasons they were not progressed by the CRU and ESN. The renewable industry has been raising major concerns with ESN and the CRU on the timely delivery of distribution connections over the past 18 months. With no real progress on the grid delivery delays we are now also faced with major connection cost increases.



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We note that alongside the timeline incentive for the processing of ECP-1 offers the CRU permitted a substantial increase in connection application fees as part of the ECP-1 decision. As can be seen in the Table in Appendix 1 some of these increases in fees were up to 105% with average increases of 43% for connection applications >1MW. The renewable industry strongly challenged these increases during the ECP-1 process. Again, industry was provided with no evidence of the System Operators under-recovery of the cost of processing connection offers. After almost 20 years of processing large numbers of connection offers, there was also no evidence of any efficiency improvements in the System Operator approach to processing offers. These efficiency gains should have been driving down the real costs of processing connection offers rather than the substantial increases being requested by the System Operators and approved by the CRU.

From reviewing the CRU's approach to this price review, we can only come to the conclusion that, relative to the CRU's System Operator Price Reviews, the CRU is not taking a similarly rigorous approach to the regulation of ESBN generator standard charges. As outlined in Section 3 of this response, the CRU consultation documents already appear to have decided that the increases are valid, even though they have not completed the benchmarking or the consultation process. From reviewing the System Operators Price Reviews, it is clear that the CRU expects efficiency improvements from ESBN to minimise any increases in costs to the DUoS consumer. These efficiency improvements are also driven by appropriate incentives. As ESBN are also in a monopoly position to provide large sections of generator connections, it is critical that the CRU bring the same approach and rigour to this connection cost review. No proper evidence has been provided to justify the requirement to increase generation connection charges. Critically, there is no evidence that ESBN are using their vast experience of delivering generator connections to drive efficiencies.

4. Principles of Review

The core principles of the CRU's review are:

- to update the GSCs to be more cost reflective in the delivery of the works required to facilitate generator connections;
- to recover 100% of the distribution connection works from generators; and
- to minimise the risk to the DUoS customer.

4.1. Cost Reflective GSCs

The CRU considers that the GSCs are not cost reflective and is proposing a number of increases. The following reasoning for the increase of the GSCs has been provided:

- Increases to material costs;
- Changes due to standards etc;
- Extensive experience gained by ESBN since 2007 in the works required to deliver generator connections needs to be reflected in the GSCs.



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4.1.1. Material Costs

In relation to material costs, no evidence has been presented to substantiate the assertion that costs have increased over and above the indexing applied since 2007.

Copper and Aluminium are common materials used in electrical equipment and a review of the London Metal Exchange historical prices for these metals show no sustained price rise from 2007 to 2018. In 2007 Copper prices varied between \$5225/tonne and \$8260/tonne while in 2018 the price between \$5850/tonne and \$7200/tonne. Aluminium maximum and minimum prices were \$2900/tonne and \$2340/tonne in 2007 and \$2600/tonne and \$1950/tonne in 2018. While there has been considerable fluctuation in price in the intervening years there is no evidence of a sustained or consistent increase in these metal prices, see Fig 1 and Fig 2 below.

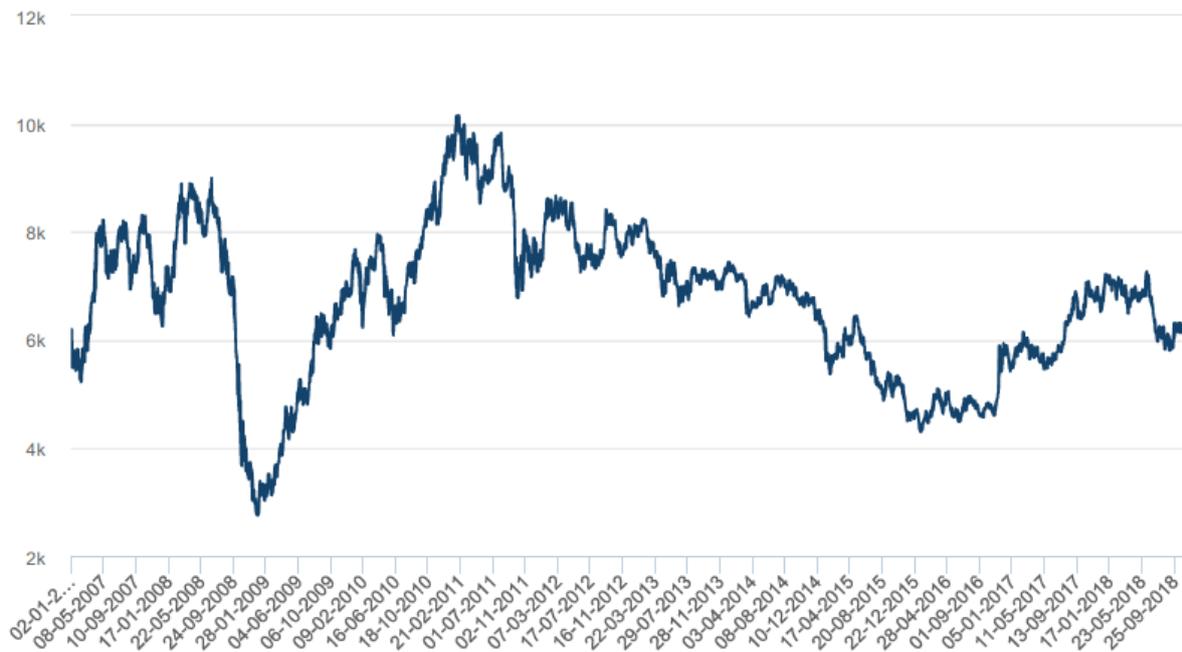


Fig 1 Copper Prices (\$/tonne) 2007-2018 Source: London Metal Exchange



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Fig 2 Aluminium Prices (\$/tonne) 2007-2018 Source: London Metal Exchange

Reference is also made to increased steel prices in the ESN submission. World steel prices vary with grade and source, but no evidence was found to indicate significant price increases since 2007. A summary of the price history of one grade, plate steel, is provided as an example in Fig 3 below. Other steel grades have a similar price profile over the same time period.

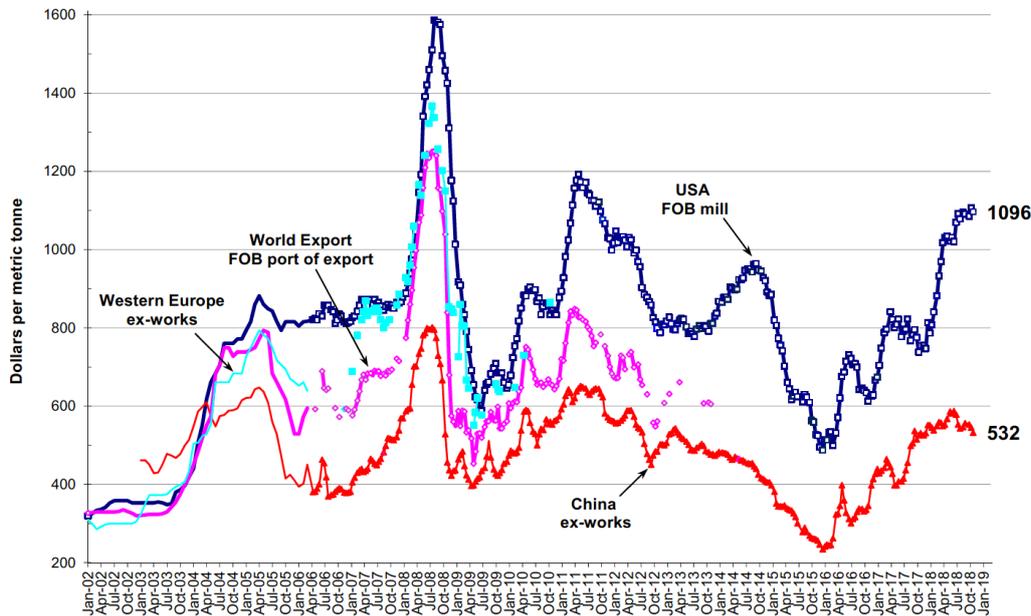


Fig 3 Plate Steel Prices (\$/tonne) 2002-2018 Source: SteelBenchmarker

4.1.2. Changes in Standards

Developers of renewable energy projects are familiar with the standards used to construct DSO and TSO assets through building out these assets contestably. They also use many of the same international and European standards in building out their own electrical infrastructure assets. Although these standards are revised and improved from time to time, the Associations are not aware of changes in the last 10 years that have driven significant cost increases in electrical infrastructure build-out for wind farm connections. No evidence to the contrary has been provided in the ESNB submission.

Developers are also very familiar with ESNB and EirGrid's work practices. While we believe that these work practices may account for some of the price differential between ESNB's standard charges and the cost of building the same assets contestably, we do not believe they should form any basis or justification for an upward price review. The Associations strongly believe that any increases in costs due to new health and safety requirements should be more than offset by efficiency gains achieved in the connection process. Unfortunately, we see no evidence of ESNB implementing efficiency improvements into the connection process.

4.1.3. Experience Gained by ESNB

In the ESNB submission the extensive experience gained by ESNB in delivering generator connections is cited as a further justification for the GSC review and price increase. We are surprised with this



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approach as, in normal circumstances, experience will drive efficiencies and cost savings in design and construction processes in line with generally accepted learning curve principles. The proposition that experience leads to higher costs is contrary to conventional economic thinking and it is our view that the 11 years of experience that ESBN has gained in building out assets under the GSC regime should be used to drive lower rather than higher costs.

In the ESBN 2027 strategy, ESBN commits to having implemented fully researched, developed and tested methods by 2027, to minimise generation connection costs through innovative, but secure, connections. The Associations consider that this proposal by ESBN is in direct conflict with that statement.

It is remarkable that *“Extensive experience gained by ESBN since 2007 in the works required to deliver generator connections needs to be reflected in the GSCs”* is presented as a reason for substantial cost increases. In any organisation extensive experience usually leads to increased efficiencies and a reduction in per unit costs. Increased volumes of activity drive efficiency in design, procurement, management processes and installation processes, yet the opposite is presented here. We also note *“changes in work practices”* is included as a reason for additional costs which needs to be fully investigated by the CRU.

“High volume of offers expected to be processed under ECP-1 (including projects that may elect to fold in), commencing in 2018 in line with CRU direction, adding further to the DUoS exposure if the charges are not corrected first”

It is acknowledged by ESBN and CRU that a high volume of offers is being processed under ECP-1, yet there is no allowance for increased efficiencies in performing a larger volume of works. The absence of these volume and experience efficiencies should be investigated by the CRU in the same manner as a Price Review.

Previously the CRU commented *“the Commission considers that the risk that the sum of all actual connection costs may exceed the sum of all standard charges for a given volume, or period, of connection offers, should not fall exclusively, or even largely, on the applicants in question. In other words, the standard charges should not be pitched at levels to virtually **guarantee** full cost recovery to ESBN from the applicants. A standard charge should be what it implies: a reasonable estimate of the likely average cost of the networks item in question when account is taken of all the known cost factors and variables”⁴.*

The current approach is completely at odds with this position, notwithstanding the merits or otherwise of any cost allocations.

It is clear that the DSO is not incentivised to act efficiently under standard pricing arrangements, given that any cost overruns can be passed through to generators and consumers. Furthermore, they are not incentivised to improve efficiencies and reduce generator pricing in line with experience and increased volumes. It is essential the CRU reviews GSCs thoroughly in a bottom-up manner to ensure

⁴ CER 05090 Standard Pricing Approach for Connection Renewable Generators to the Distribution Network, Section 13



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any cost padding is avoided and costs approved are reasonable and cost-reflective for a modern efficient system operator. The CRU should be focused on the key issue here which is the *level* of the standard pricing, rather than the risk of the DUoS Customer being obliged to pick up any shortfall.

By their very nature, the GSCs will result in either a shortfall or over-recovery. Does the CRU intend to review the GSCs periodically and apply a correction factor? The ESNB notes that the HICP is the current index that has been applied to the GSCs and that this index is inappropriate. Yet no other index has been proposed. If the costs are not indexed, then how frequently does the CRU intend to review them?

4.2. 100% Recovery from Generators

It is evident from the consultation document that the CRU is concerned that there may be cross-subsidisation of the Generator Standard Charges with the DUoS and, particularly in light of the high volumes of connection that is expected as a result of ECP-1, feels that it is appropriate to carry out a review of the GSCs. The CRU states that one of the drivers for the revision of GSCs is to reduce the risk of the DUoS customer paying costs that should be borne by the Generator.

However, costs should be efficiently incurred and the GSC should be as close to 'cost-reflective' as possible. The Associations are not satisfied that the CRU or ESNB has demonstrated either of these points.

To avoid cross-subsidisation, and a risk of significant over- or under-charging of connection costs the CRU should perform a complete and in-depth review of the proposed GSCs. As demonstrated throughout this response, the Associations are not satisfied that an appropriate regulatory review of the proposed costs has been undertaken.

4.3. Minimise risk to the DUoS Customer

The Associations agree that the risk to the DUoS customer should be managed through cost reflective GSCs. However, we do not believe that the proposed increases to the GSCs are reflective of the actual costs. Putting excessive prices in place does not mitigate the risk to the consumer, but rather results in the risk transferring to the consumer through other charges such as the PSO levy.

Excessive prices do not represent consumer value; and on the contrary transferring the risk of under recovery to the generators increases the capital costs of a project. Higher capital requirements may cause a blocking point for small and community-led projects, higher RESS clearing prices, an uneven playing field for projects bidding into the RESS auctions and make Ireland a less attractive place for developers. The Associations do not believe that these risks to the consumer have been considered to-date by the CRU in this consultation process.

4.3.1. Impact on Small and Community-Led Projects

Appendix 2 shows that the percentage increases in standard charges are significantly higher for smaller projects connecting at MV. Due to substantial increases in the costs of assets that cannot be



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contested, the three examples with contestable connection are seeing substantial cost increases (up to 85% increase).

Given concerns about inadequate analysis outlined in Section 3, the Associations believe there is a risk that smaller projects will be disproportionately subjected to excessive grid connection costs. This would disadvantage smaller projects at auction and negatively affect the community-led sector. This would not be in keeping with the RESS High Level Design to procure the cheapest forms of renewable electricity or be in keeping with government policy for increasing community engagement.

4.3.2. RESS

Substantial increases in the GSCs will increase the LCOE of projects offered connections based on the new price list. Since a connection offer is a pre-requisite for the RESS auctions, this increase in LCOE will be used to determine a project's bid price. Any policy decision that increases the LCOE of projects is likely to result in a higher clearing price for the RESS auctions and thus a higher cost to the PSO levy and consumer. Indeed, since RESS will 'pay as cleared', if only the marginal project is over-charged for connection costs as a result of excessive GSCs, then the whole auction will be over-priced.

There is also a risk that projects that received their connection offer under the current prices will be competing with those that will receive their offer through the proposed charges. This will cause an unequal playing field within the RESS auctions. As shown in Appendix 2, an increase of 85% of ESNB connection costs could be seen between two projects with the same connection requirements. This inequality undermines a fundamental objective of RESS to procure the cheapest forms of electricity and raises competition concerns for the Associations.

4.3.3. Discourage Development in Ireland

Developers of renewable electricity projects targeting RESS auction have been investing into projects on the basis of the existing standard charges, including the payment of recent ECP-1 application fees. Developers are now facing upward revision of grid costs potentially making their projects less competitive at auction and increasing the risk of losses. These unexpected regulatory changes are not helpful to maintaining investor confidence in the policy and regulatory stability of Ireland and will be a factor in deciding future investor risk premia, potentially putting upward pressure on auction clearing prices.

There is also a risk that this substantial increase in GSCs will result in low realisation rates for ECP-1 as many of the generators will have estimated their costs based on the current GSCs, which are up to 85% lower. It is considered poor regulatory practice that this consultation was not published prior to the deadline for payment of the balance of ECP-1 application fees. It is reasonable that generators be provided with the most up to date information when making commercial decisions in a regulated process.



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5. Contestable Civil Costs

Distribution connected generators have always been responsible for the civil works for the substation at the generator facility and for the civil works for underground cables connecting the generator. This gives industry experience of building 100s of substations and 100s of kilometres of civil works for underground cables. ESB Networks have more limited equivalent experience, for example their experience for civil works for underground cable is typically in urban environments where the costs are higher. It is also stated that the costs are to be used for rebating purposes, i.e. renewable projects paying other renewable projects for civil works completed. There is therefore no risk to the DUoS consumer from these costs.

The Associations have collected multiple actual costs from their members for these works. These are presented in appendix 3. The Associations believe that it is much more appropriate to use the Associations costs as the approved standard pricing charges for these items as they are cost reflective. The cost of civil works for cable is dependent on the ground conditions encountered and the specific requirements of local authorities regarding reinstatement where cables are installed in roads. For this reason, there is no standard price for such works. The industry examples do however include for a wide range of installation conditions and are considerably lower than the proposed ESNB charges.

6. Pass-Through Costs

The Associations are very concerned with the extended charging implemented on a pass-through basis. The Associations' members have found the pass-through charging process very unsatisfactory in the past, with a lack of transparency and no detailed breakdowns of costs incurred, particularly for civil works, provided. Members of the Associations have seen pass-through settlements for works with a greater than €1m cost increase for grid connection assets with the backing of less than a 1-page bullet point summary on the reason for these cost escalations. No credible business can stand by this basic lack of transparency afforded to a contracted customer.

We believe that the mechanism of pass-through costs should only be used to recover the costs of additional and unforeseen events, which are clearly outside the control of the DSO (e.g. changes to planning conditions). If pass-through charging is to be used on a more extensive basis, it is essential that increased transparency and predictability is introduced into the process.

It is the Associations' strong view that details of time and materials used, and rates applied for specific tasks should be issued to developers with back-up documentation including day-work sheets, material invoices, and site engineer records as a matter of course. It is also the Associations' view that an appeals and independent arbitration process should be put in place to deal with situations where pass-through charges are disputed.

The Associations are particularly concerned with the introduction of more extensive pass-through charging for items 22, 23, 29-32, and 35-39 for which an average standard charge increase of over 70% is sought along with removal of the civil works from the associated scope. The final real increase in



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these items would therefore be unknown and there is a strong likelihood that increases will exceed 100% in many cases.

A policy of passing on additional risk and budget uncertainty to the IPP in an auction environment will undoubtedly have a negative effect on the level of renewables delivered in the future. The DSO must be incentivised to provide transparency and keep pass-through costs at a minimum to avoid this.

7. Equipment to be included in the Standard Cost Consultation

The list of equipment included in the Generator Standard Charges has changed over time from the original 20 items included in the first consultation. The list included in the consultation now includes 53 items. We are surprised that the items listed below have not been included on the list included in the consultation. These items were not approved standard equipment used in Gate 1 and 2. However since Gate 3 and in subsequent modifications they are now being used for the connection of generators. For example, there is now at least three operational 63MVA 110/MV transformers being used for the connection of generators. We would not agree with the comments from the CRU that these items are not used with enough frequency for inclusion in the standard pricing list. We note that items like interface transformers are not regularly used for the grid connection of generators anymore but are included in the current list. When these new standards items were being brought in by ESB Networks the Associations were told by ESB Networks that these items would be included in future standard charges lists.

- 110kV/MV 63 MVA transformer
- 38kV/MV 31.5 MVA transformer
- 38kV cable 1000mmsq

There is also the regular requirement to upgrade 38kV circuits to accommodate new generation. ESB Networks use the standard price for new 38kV circuits rather than a specific 38kV upgrade cost. Considering the considered length of 38kV network that has been upgraded by ESB Networks there should be enough experience for ESB Networks to provide an appropriate standard cost.

8. Conclusion

The Associations do not accept that due process nor adequate due diligence has been demonstrated by the CRU in the review of ESNB's proposed GSCs. The lack of a thorough review of the GSCs by the CRU prior to consulting undermines the value of the consultation. The proposed approach to reviewing the GSCs is insufficient. ESNB is a monopoly service provider and many aspects of the GSCs are monopoly services. With this in mind, the CRU should undertake a thorough review of the proposed charges and apply appropriate regulatory practices. The Associations are not satisfied that the CRU has performed its duties adequately in reviewing the proposed GSCs.

As demonstrated throughout this response, the Associations consider that the proposed GSCs are not cost reflective and specific examples of charges that vary considerably from industry experience have been given in Appendix 2. The CRU's consultation claims that the current GSCs are not cost reflective due to increased material costs, changes in standards and experience gained by ESNB. The



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Associations have demonstrated in this response that no evidence has been presented to substantiate the assertion that material costs have increased over and above the indexing applied since 2007 and that changes to standards have not caused significant increases to costs in contestable projects.

Experience normally drives efficiencies and cost savings in design and construction processes in line with generally accepted learning curve principles. The proposition that experience leads to higher costs should be challenged by the CRU and it is our view that the 11 years of experience that ESBN has gained in building out assets under the GSC regime should be used to drive lower rather than higher costs.

It is understood that a key motivation for the proposed GSCs is to avoid cross-subsidisation between the DUoS and the GSCs, but insufficient evidence that this is currently occurring or evidence that the proposed GSCs would prevent any future cross-subsidisation has not been provided by ESBN and the evidence that has been provided has not been appropriately scrutinised by the CRU. No robust evidence has been provided to justify the requirement to increase generation connection charges. Critically, there is also no evidence that ESBN are using their vast experience of delivering generator connections to drive efficiencies. We remain concerned that there is no evidence that the CRU is regulating ESBN to provide efficiencies in the connection process.

The risk of inefficient GSCs is borne by the consumer who pays for the unnecessary costs through higher RESS costs on the PSO. Arduous hurdles on projects results in less likelihood of developers to consider Ireland an attractive environment resulting in less development and a greater risk of Ireland missing our RES-E targets and incurring EU financial penalties.

For the contestable civil works, based on industry's extensive experience of delivering these works and also considering that these costs are to be used as a basis for rebating other renewable generators, we believe there is a very strong argument in favour of using the Associations' costs in the approved standard pricing charges.

In the ESBN 2027 strategy, ESBN commits to having implemented fully researched, developed and tested methods by 2027, in order to minimise generation connection costs through innovative, but secure, connections. The Associations consider that the standard costs proposal by ESBN is in direct conflict with that statement.

The Associations request that the CRU undertake a full and proper review of the GSCs to ensure that they are cost reflective and efficient.



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Appendix 1 - System Operator fees for processing connection offers

In 2018 the CRU approved an increase in connection application fees. For connections over greater than 1 MW the average increase in application fees is 43%

MEC	ESBN Fees		
	Old Fees (excl. VAT)	New Fees (excl. VAT)	% Increase
0≤11kW	€0	€0	0%
>11kW≤50kW	€763	€763	0%
>50kW≤250kW	€1,557	€1,557	0%
>250kW≤500kW	€1,557	€1,557	0%
>500kW≤1MW	€8,841	€8,841	0%
>1MW≤4MW	€8,841	€18,111	105%
>4MW≤10MW	€27,276	€36,654	34%
>10MW≤20MW	€52,831	€67,557	28%
>20MW≤30MW	€52,831	€87,013	65%
>30MW≤50MW	€61,565	€87,013	41%
>50MW≤100MW	€73,836	€87,013	18%
>100MW	€86,426	€95,829	11%



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Appendix 2 – Examples of Cost Increases

The average increase in costs across the 54 items is 46%. This includes increases of up to 301%. To better understand the actual cost increases we have provided four examples of generator connections that are typical of connections offers that are issued in the grid offer process. See the Table below and the detailed breakdown in Appendix 3.

The connections examples presented range across MV and 38kV connections and consider contestable and non-contestable costs. The range of cost increases that we expect to see in ESNB connection offers range from 15-86%. The greatest increases in costs are for smaller projects connecting at MV. Due to substantial increases in the costs of assets that cannot be contested the three examples with contestable connections are also seeing substantial cost increases.

We also note that when the Government bring forward proposals to promote community projects it is likely these projects will be small to medium sized renewable projects, the projects that are expected to receive the highest cost increases.

Example	Current Standard Prices	Proposed Standard Prices	% Increase
4MW Non-contestable MV connection with 1km of MV cable	€ 319,490	€ 495,601	55.1%
4MW contestable MV connection with 1km of MV cable	€ 176,050	€ 327,111	85.8%
13.8MW MV contestable connection with 2km cable, 4km OHL and new 110kV/MV transformer	€ 2,598,530	€ 2,988,150	15.0%
22MW 38kV contestable connection with 10km cable and shared transformer upgrade from 2 x 31.5MVA to 2 x 63MVA	€ 1,777,805	€ 2,353,390	32.4%



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Appendix 3 – Review of Proposed Standard Charges

In this appendix the difference in the proposed charges compared to the latest approved charge is presented. We also present where possible a review of members experience in delivering the standard works on a contested basis.

The experience from the Associations’ members delivering the standard works on a contestable basis shows in many cases that ESBN are unable to provide standard items on a cost competitive basis. CRU must recognise that contestable works are built to the same standard as if ESB would do the works and are in most cases sourced from the same suppliers as ESB and installed by the same contractors which ESBN use to deliver non-contested works. In the analysis below, we will show that in some cases the ESBN proposed cost is more than double what industry can achieve for the same scope of works.

We recognise that the precise scope of the ESBN works and the examples from contested work will not in all circumstances be identical. However, for many items they are exactly the same. For example, cable pricing. Even accounting for possible differences in precise scoping of the works the cost differential is alarming and worthy of much more detailed examination than the timeline for response for this consultation process has afforded.

Overall the Associations can see many anomalies in the proposed charges presented. We note that ESB have explained that the current GSC cost no. 38 for MV cubicle, is the result of a sizeable error. Upon review of the suite of new charges it is apparent to the associations that more mistakes have been made in presenting the new charges. It is also unclear why any gross error on ESBNs part in the 2007 review would not have been addressed in any of the annual standard charge updates. Have ESBN just now realised a gross error after 10 years of experience installing MV switchgear? This assertion from ESBN wholly undermines the proposed cost increase now in this case.

Schedule 1 A Line Standard Charges:

Line work	2016 Standard Cost	Proposed 2018 Standard Charge	% Increase
1 110 kV SC Woodpole 300 mm2 ACSR 80oC	208,930	€250,040	20%
2 110 kV SC Woodpole 430 mm2 ACSR (< 10 km) 80oC (New Build only)	376,680	€360,850	-4%
3 110 kV SC Woodpole 430 mm2 ACSR (> 10 km) 80oC (New Build only)	325,770	€265,920	-18%
4 38 kV SC Woodpole 300 mm2 ACSR 60oC	110,260	€160,640	46%
5 38 kV SC Woodpole 150 mm2 AAAC 80oC	88,030	€76,490	-13%
6 38 kV SC Woodpole 100 mm2 ACSR 60oC	69,640	€74,310	7%
7 MV SC Woodpole 150 mm2 AAAC / 92 mm2 SCA 65oC	52,230	€34,700	-34%



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Given the dominance of underground cable connections for recently constructed wind farms industry has had limited experience delivering contested overhead line works in recent years.

The 46% increase proposed for 38 kV 300mm² lines stands out. This is of particular concern to the Associations as 38 kV line uprates are becoming unavoidable as more capacity is added to the existing 38 kV network. Line uprates cannot be currently be contested. We request that a full audit of the proposed increase of the 38 kV 300mm² cost and all other costs is carried out.

If design standards have increased, then these clearly have not been published or scrutinised by regulator or industry.

As per comment above we ask again where is the efficiencies, where is there innovation in technology, to reduce customer costs?

As per Section 8, we request also that thermal uprating of the 38kV network should be included as a standard cost as this is a prevalent component of recent connection offers.

SCHEDULE 1 B: CABLE STANDARD CHARGES

Cable Costs (EXCLUDES ALL CIVIL WORKS AND DUCTING)		2016 Standard Cost	Proposed 2018 Standard Charge	% Increase	Industry Average	% Difference
8	110 kV – 630 mm ² XLPE (AL) Single Circuit	354,010	€342,960	-3%	€270,000.00	-27%
9	38 kV – 630 mm ² XLPE (AL) Single Circuit	127,680	€253,210	98%	€ 85,765	-195%
10	MV – 400 mm ² XLPE (AL) Single Circuit	58,030	€52,870	-9%		
11	38 kV Cable End Mast	46,430	€86,060	85%		
12	110 kV Cable End Mast	162,490	€235,660	45%		
13	110 kV and 38 kV Cable Civils (for refund or estimating purposes only)	151,540	€379,210	150%	€150,000	-153%
14	MV Cable Civils (for refund or estimating purposes only)	52,620	€210,850	301%	€110,000,	-111%

In the past 10 years industry has built up a huge volume of cable installation experience. Underground cable delivery experience by industry for generator connection is much more extensive than ESNB recent experience.



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The 38kV cable standard price is vastly out of line with industry experience and we can only assume this is a gross error to be immediately addressed. The ESB proposed cost for cable only is more than that for cable and civil works delivered in recent contested connections. ESBN have stated that these costs are unlikely to be borne by developers as the works will most likely be progressed on a contested basis. The gross error in charging will still be felt by any party connecting to an existing asset paying for a rebate to the original connection. Also, these costs we assume will be passed through to all customers for 38 kV cable works carried out by ESBN on the network for other customers.

The proposed charge for 110kV and 38kV cable civil works should be broken out into separate costs for each voltage level as the scope of works is different.

The increases in end mast charges also require a detailed explanation. There has not been an 85% increase in metal prices so the 38kV cable end mast cost increase seems excessive in the extreme. Again, we ask has there been a massive increase in the design specification for this item? Has this been scrutinised in any way? An end mast is a relatively rudimentary apparatus and should not be capable of an 85% increase in cost. ESBN cannot be allowed to drastically amend the specification of a standard charge works which then results in a massive cost increase to generators.

SCHEDULE 1C: 110 KV STATION STANDARD CHARGES

Station Work (Site purchase and civil works excluded for all new stations)	2016 Standard Cost	Proposed 2018 Standard Charge	% Increase	Industry Average	% Difference
110kV stations					
15 New 110 kV AIS "H-Type" Single Busbar Outdoor Station (Strung Busbar)	2,742,430	€3,705,330	35%		
16 New Tail-fed (Single Supply) Outdoor AIS 110 kV Station (Strung Busbar)	1,360,750	€1,990,780	46%		
17 New 110 kV/MV Station (excluding Site Purchase & Civil Works)	3,017,800	€4,515,090	50%		
18 110 kV/38 kV 63 MVA Green Field Transformer Package	1,568,460	€1,818,740	16%	€1,208,487.25	-50%
19 110 kV/38 kV 31.5 MVA Green Field Transformer Package	1,212,540	€1,444,300	19%	€1,046,931.80	-38%
20 110 kV/MV 20 MVA Green Field Transformer Package	1,051,110	€1,172,030	12%		



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21	110 kV/MV 31.5MVA Green Field Transformer Package	1,285,460	€1,297,690	1%		
22	Uprate 1*31.5 MVA to 2*31.5 MVA Substation	2,641,730	€2,678,700	1%		
23	Uprate 2*31.5 MVA to 2*63 MVA Substation	2,901,730	€3,940,000	36%		
24	Civil works for a Typical Outdoor 110 kV Station Based on the layout of Item 15 (for refund or estimating purposes only)	1,087,960	€1,531,120	41%	€612,552.00	-150%

Note that for Item 16 +46% increase is proposed but the actual increase is much more that this as civils works which were included in the 2016 figure are now to be excluded. So effectively this represents an increase of much more than **100%** (based on the costs presented in item 24). Is this increase another example of a sizeable error in the original charge?

Regarding transformer costs, the increases in costs are very difficult to comprehend. Material prices will fluctuate for copper and iron, but a 20% increase has not occurred. For this charge, the scope has also reduced change from the 2016 charge which included civil works for the transformer plinth. Industry is aware from purchasing IPP transformers that costs have not risen to the levels presented by ESNB. Industry cannot match the purchasing power of ESNB through framework contracts for transformers, so the cost differential experienced even in the existing charge is not justified. The new charge warrants detailed investigation. ESNB have extensive experience of carrying civil works at existing substations. It should be possible include these costs into the standard charges where over and under recovery may occur to small degree where station conditions vary.

SCHEDULE 1D: 38 KV STATION STANDARD CHARGES

38 kV stations		2016 Standard Cost	Proposed 2018 Standard Charge	% Increase	Industry Average	% Difference
25	New 2*5 MVA Station	1,218,730	€2,166,980	78%		
26	5 MVA 38 kV/MV Green Field Transformer Package	507,020	€612,100	21%	€520,000	-18%
27	10 MVA 38 kV/MV Green Field Transformer Package	551,980	€690,050	25%	€610,000	-13%
28	15 MVA 38 kV/MV Green Field Transformer Package	581,440	€787,770	35%	€523,216	-51%



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29	Install 5 MVA 38 kV/MV Transformer into Existing Station with 38 kV Busbar Extension	520,370	€757,460	46%		
30	Install 10 MVA 38 kV/MV Transformer into Existing Station with 38 kV Busbar Extension	564,790	€858,870	52%		
31	Install 5 MVA 38 kV/MV Transformer into Existing Station without 38 kV Busbar Extension	411,750 (civils included)	€683,870	66%		
32	Install 10 MVA 38 kV/MV Transformer into Existing Station without 38 kV Busbar Extension	455,700 (civils included)	€785,270	72%		
33	Uprate 2*5 MVA Station to 2*10 MVA	1,741,040	€1,650,670	-5%		
34	Civil Works for a Typical Outdoor 38 kV Station (for refund or estimating purposes only)	435,180	€904,160	108%	€ 587,075	-54%

As per the comments above the transformer pricing is out of line with recent industry experience, particularly given scope reductions regarding civil works proposed.

SCHEDULE 1E: MISCELLANEOUS STATION STANDARD CHARGES

Miscellaneous Station Items	2016 Standard Cost	Proposed 2018 Standard Charge	% Increase	Industry Average	% Difference
35 New 110 kV AIS Line bay in existing 110 kV Single Busbar Outdoor Station	764,110	€886,860	16%	€490,000	-81%
36 38 kV Cubicle in 38 kV Station	156,700	€201,030	28%		
37 38 kV Cubicle in 110 kV Station	179,910	€236,930	32%		
38 MV Cubicle in 110 kV or 38 kV Station	58,030	€209,450	261%	€ 92,166	-127%
39 MV Cubicle with Interface Transformer	208,930	€496,770	138%		



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40	Half Busbar	230,030	SC to be discontinued	#VALUE!		
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For each of the charges 35 – 40 major increases are proposed. The percentage increase presented in the table does not include for the civil pass through costs which will be unknown and added at a later stage in the process. The current approved charges included for civil works, therefore, the actual proposed increase is much greater than initially evident. ESBN must present the real increases by including for civil works before CRU can accurately compare the proposed increases in these GSCs. As stated above ESBN should have extensive experience to rely on.

We find the MV cubicle proposed cost this particularly had to accept given the large volume of small-scale renewables hoping to connect to local stations at MV level. We have had it confirmed that the equipment and installation cost for a MV breaker in an ESBN substation is €47,200. The €92,000 cost above is the average cost from contestable projects but includes additional costs such as design preliminaries and contractor profit. The huge increase in the charge here will have a disproportionate impact on small scale and community renewable projects aiming to connect to local substations at 10kV or 20kV. See Appendix 2 for a comparison of how a typical sub 4 MW project located 1 km from an MV busbar could increase if these charges are adopted.

SCHEDULE 1F: METERING STANDARD CHARGES

Metering15		2016 Standard Cost	Proposed 2018 Standard Charge	% Increase	Industry Average	% Difference
41	38 kV Meter and Power Quality	58,030	€57,460	-1%		
42	MV Metering and Power Quality < 10 MVA	29,020	€28,660	-1%		
43	MV Metering and Power Quality < 10 MVA (where MV CB is being charged as part of EGIP installation, no need for KKK)	10,430	€21,200	103%		
44	MV Metering and Power Quality >= 10 MVA	36,280	€30,810	-15%		



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45	MV Metering and Power Quality >= 10 MVA (where MV CB is being charged as part of EGIP installation, no need for KKK)	17,700	€23,350	32%		
Communications/Protection						
46	Protection Implementation for MV Connections with MEC < 2 MW	15,590	€35,890	130%		
47	SCADA and Protection Implementation for MV Connections with MEC >= 2 MW	17,040	€49,770	192%		
48	SCADA Implementation for 38 kV Connections between 2 MW and 5 MW (and MV connections >= 2 MW and < 5 MW where there is no GPRS Coverage)	56,490	€65,910	17%		
49	Embedded Generation Interface Protection (EGIP) for an MV Connection (where NULEC option is LCTA)	68,370	€65,850	-4%		
50	Embedded Generation Interface Protection (EGIP) for an MV Connection (where NULEC option is not LCTA)	121,570	€90,720	-25%		
51	Embedded Generation Interface Protection (EGIP) for a 38 kV Connection	45,000	€37,050	-18%		
52	Embedded Generation Interface Protection (EGIP) for a 110 kV Connection	60,920	€59,290	-3%		

The proposed increases in the unavoidable scada, protection, metering and communications costs will have a disproportionate impact on small scale projects for which these costs make up a greater share of the overall works.

Scada, protection, metering and communications are all areas where technology improvements can have a major impact on costs. It is disappointing that ESBN have not been able to design lower cost solutions than those specified in 2007.

SCHEDULE 1H: 38 KV CUSTOMER COMPOUND [AT GENERATOR SITE] STANDARD CHARGES



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	2016 Standard Cost	Proposed 2018 Standard Charge	% Increase	Industry Average	% Difference
ESBN Compound with Over-the-Fence Connection to Developer – Overhead Connection	319,470	€497,110	56%		
ESBN Compound with Over-the-Fence Connection to Developer – Underground Connection	323,280	€522,580	62%	€ 280,485	186%

The costs here are most likely to be carried directly by connection generators and unlikely to be carried out by ESBN. The huge difference in cost is alarming however and is another reflection of how far removed from industry costs some of the proposed charges are.