

Generator Connection Process

Allocation of Transmission FAQ in N Ireland & ITC Methodology to determine FAQs

Response and Further Consultation Paper

8 March 2013



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1 Introduction

On 25th October 2011, SONI as Transmission System Operator (TSO) in Northern Ireland (NI), published a paper for consultation entitled “Generator Connection Process; ITC Methodology to determine FAQs & Generator Output Reductions Analysis.”¹ The paper outlined SONI’s proposals to implement a policy of firm and non-firm transmission access in NI for generator connections. The proposed Incremental Transfer Capability (ITC) methodology to calculate the transmission Firm Access Quantity (FAQ) for each generator connecting to the transmission or distribution system was described in detail. This document also set out proposals to provide existing and potential new developers with an estimate of the likely incidences of generator output reductions at each node over a number of years and the modeling assumptions that SONI intends to apply to produce such data.

In summary the Oct ’11 consultation document set out the following proposals. The assumed starting point of the indicative ITC analysis would be on the basis that all existing generators, i.e. those already connected to the NI transmission or distribution networks, would have a FAQ equal to its Maximum Export capacity (MEC). Going forward generators would be added sequentially to this ITC list based on the planning approval date for their connection and assessed in turn using the methodology outlined. SONI would perform full contingency analysis to determine the incremental transfer capability at each node on the transmission system. This would be used for the calculation of the FAQ that can be offered to all new connection applications or connection modifications on the transmission system and for new connection applications or connection modifications at connection points with an MEC of 5MW or more connecting to the distribution system. Finally, analysis of possible Generator Output Reductions (GOR) shall be conducted annually in order to provide existing and potential developers with an updated estimate of the likely incidences of generator output reductions at each transmission node, across a number of years.

In the consultation responses and in the resulting dialogue between UREGNI, NIE and SONI the central issue became the establishment of the listing of connecting generators in NI and the identification of the starting point for allocation of transmission FAQ. This was particularly important because there are parties connected or about to connect that, by the application of the proposed ITC process, were physically (electrically) non-firm but were being considered as firm in the Market. This matter was discussed in the October 2012 SEM Committee meeting and the SEM Committee welcomed the SONI/NIE proposal to proceed and consult on the proposed decisions regarding connection arrangements contained in this paper.

In this intervening period there has been further progress regarding off-shore renewable generation and discussions are ongoing with parties regarding the connection of other generation technologies. In this paper SONI / NIE will seek the views of respondents’ on how these categories of generator should be considered in the connection application process.

The purpose of this paper is to propose the establishment of a NI generator listing that will facilitate the introduction of transmission FAQ allocation, explain how parties should be added to the listing, respond to all related issues raised by the initial consultation and set out the processes proposed to be adopted by both NIE and SONI going forward regarding the connection of generation. The paper will refer jointly to SONI / NIE or the separate entities as appropriate.

¹ The consultation paper can be found on SONI’s website at www.soni.ltd.uk

SONI do not believe it is appropriate at this stage to conclude the discussions regarding generator output reductions as there is still a significant amount of ongoing consideration by both Industry and Regulator. These issues will not be included in this paper and SONI will conduct a further consultation responding to issues raised by respondents in the Oct '11 consultation paper and propose a way forward. SONI believe it is essential to deliver reports on Generator Output Reductions, in conjunction with EirGrid, on an all-island basis once all the decisions regarding relevant policies have been formally agreed and implemented.

The paper is structured in the following manner:

- **Section 1** provides an introduction to these issues.
- **Section 2** provides a background to the initial consultation paper and the interactions that have taken place in the interim.
- **Section 3** outlines the proposed decision regarding N Ireland Generator listings and the allocation of transmission FAQ.
- **Section 4** deals with the assumptions used in the ITC analysis.
- **Section 5** provides a summary of any other decisions and clarifications resulting from the consultation.
- **Section 6** set out the conclusions and next steps
- **The Appendices** set out starting point FAQs, Connection/FAQ processes, indicative ITC studies and FAQ definitions for various generation connection arrangements.

All responses to this paper should be sent in electronic format to Gareth McLoughlin (gareth.mcloughlin@soni.ltd.uk) by the close of business 12 April 2013.

SONI and NIE have consulted with UREGNI prior to issuing this consultation document and will revert to UREGNI on completion of this consultation period with a summary of responses and recommendations. SONI, NIE and UREGNI will reach agreement before SONI publish a final position.

2 The Oct '11 Consultation

The Oct '11 consultation paper entitled "Generator Connection Process; ITC Methodology to determine FAQs & Generator Output Reductions Analysis" provided interested parties with the opportunity to express their views on a number of issues. In particular respondents were asked to indicate their views on:

1. Whether the proposed assumptions of the ITC methodology, which shall be applied to calculate a FAQ for each connecting generator are reasonable.
2. If it is reasonable that connecting generators will be added to the ITC analysis list in order of date of obtaining planning permission.
3. If a reasonable threshold for calculating FAQs for distribution generator connections is those connection points with an MEC of 5MW or more.
4. If the proposed assumptions on which the Generator Output Reductions (GOR) analysis shall be based are considered to be correct.

The consultation period was initially for five weeks, however this was later extended by a further two weeks in order to allow all parties additional time to assess the proposals and make known their views. During the consultation period SONI held a workshop with industry groups to discuss the paper and answer any queries. The consultation period ended on 9th December 2011 and SONI was pleased to receive fifteen responses.

This report provides an overview of the submissions received to questions 1 – 3 above, outlines SONI's response to the issues raised and reports on subsequent discussions between UREGNI, NIE and SONI. The Oct '11 consultation considered on-shore wind generation connection applications. In this report consideration will also be given to other forms of generation seeking to connect to the N I transmission network.

As previously stated the proposed processes to be established and the delivery by SONI of Generator Output Reductions Reports will be the subject of a separate consultation.

This report has been produced by SONI in collaboration with NIE (DSO and TO). It outlines revised proposals having taken account of the comments received and having considered these with UREGNI. These proposals, when agreed and implemented, will apply to all forms of generation connections in N Ireland. Additional flowcharts have been provided in Appendix B of this report to illustrate the detailed steps involved in the proposed new generator connection process.

2.1 Responses to the Oct '11 Consultation

Fifteen submissions were received in response to the Oct '11 consultation, two of which were marked confidential. The thirteen non-confidential responses are available on SONI's website (www.Soni.ltd.uk). These were submitted by:

1. Northern Ireland Renewables Industry group (NIRIG)
2. ESB Wind Development
3. Bord Gáis Energy
4. Renewable Energy Systems Limited (RES)
5. TCI Renewables
6. B9 Energy offshore Developments Ltd.
7. Energia

8. Endesa Ireland
9. NIE
10. DW Consultancy Ltd. (DWC)
11. SSER
12. Gaelectric Developments
13. ABO Wind

Nine of the respondents listed above expressed their support, in full or partially, for the NIRIG response. All data relating to respondent numbers presented in this report are derived on the basis that unless any of these nine respondents have specifically noted otherwise, it is assumed that each supports the NIRIG position in full and is counted as doing so for the issues discussed in the later sections of this paper. The views expressed in the two confidential responses are included in the respondent numbers quoted throughout this paper although no comments have been extracted from these responses in order to ensure confidentiality is maintained. SONI have attempted to interpret each response in the manner it was intended and portray the numbers as accurately as possible.

SONI / NIE would like to thank all of the respondents who took the time to submit comments on the generator connection process. The comments received were very informative and SONI / NIE have given careful consideration to these in preparation of this final report. Almost all respondents welcomed the implementation of a firm access policy for NI and the provision of data on FAQs and likely incidence of generator output reductions.

The remainder of this report deals with specific issues raised regarding FAQ allocation in these submissions.

In each section SONI /NIE's or SONI's responses to the comments are set out along with any changes to the original proposals.

3 Proposed decision regarding N Ireland Generator listings and the allocation of transmission FAQ

3.1 Starting point of allocating FAQs.

Based on initial ITC analysis it was clear that there was more generation connected to the N I transmission system than there was available physically firm capacity. SONI proposed, as a starting point for the ITC analysis processes to be established, that all existing generators, connected to the NI transmission and distribution system, should be considered to have a FAQ equal to its MEC, as referenced in the TUoS agreement under “Basis of TUoS Charging”.

In relation to this point, ten respondents expressed disagreement with the starting point for calculating and allocating FAQs. Eight respondents argued that all existing contracts and accepted offers, which they considered provided for firm capacity, should be considered to have a FAQ set equal to its MEC. Two respondents felt very strongly on this point, of these, one respondent highlighted fears for generating units that currently hold signed connections offers which they have assumed to be on a firm access basis. One respondent believed all generators with executed connection agreements should be held financially firm. Another respondent said that pre 2011 connection offers were understood by developers to be for firm access onto the transmission system; up to this consultation no information was provided in connection offers to highlight any potential deep reinforcements or limitations to receiving firm access, therefore this respondent believes projects with executed or live connection offers pre 2011 should be assumed to have firm access in the ITC analysis.

Four respondents made no comment in relation to this issue and one respondent indicated support for SONI’s proposal.

3.1.1 SEM Committee Discussion

SONI / NIE sought guidance on this matter from Utility Regulator and they in turn felt this was a matter that should be brought to the attention of the SEM Committee. SONI / NIE made a presentation to the June 2012 SEM Committee meeting outlining the position regarding total physical FAQ available on the NI transmission network, the status of each of the generators; either connected, awaiting connection or proposing to connect and when firm access would be available. The SEM Committee, in the October 2012 meeting, welcomed proposals from NIE/SONI to publish a further consultation on proposed decisions relating to connection arrangements in Northern Ireland.

3.1.2 SONI’s Response, SEM Committee discussion and revised proposal

The NI transmission system, due to network limitations, cannot facilitate physical firm access for all existing generators and all generators currently in the connection process. If all existing contracts and all parties currently in the connection process were allocated a FAQ set equal to its MEC the total FAQs would significantly exceed the capacity presently available on the transmission network. To allocate firm access in excess of the capacity available on the transmission network is contrary to the SEM High Level Design Decision document, published in June 2005² which stated that *“Where deep reinforcements are not completed and the generator is permitted to connect and export at the shallow connection date its access shall have an amount of capacity which is deemed physically firm and an amount deemed physically non-firm.”* The SEM ‘Generator Connection Policy’ decision paper³, published in September 2006, also states that *“The Regulatory authorities consider that firm*

² “SEM high level design paper “ 10th June 2005, AIP/SEM/42/05

³ “Generation Connection Policy” Decision paper, September 2006. AIP/SEM/114/06

access should be provided only from the actual completion date of deep reinforcements.” Allocating FAQs where capacity is not available on the transmission system would lead to increased constraints costs which are then borne by demand users in the all-island market.

Consideration needs also to be given to the fact that there are a number of generators at various stages of the connection process. Some with an accepted connection offer, some with an offer that is not yet accepted and some without a connection offer. It is therefore obvious that the starting point of the process will have differing impacts on certain generators. It is also accepted that all parties presently in the listing (by whatever means listed) will not have physically firm access until planned transmission reinforcement has been completed.

Clearly, bearing in mind the lack of physical firm capacity available, it would not be sustainable to facilitate firm access for all generation presently connected and in the connection process. SONI / NIE propose that existing generators and those with an accepted connection offer in NI should be considered for FAQ allocation as follows:

- All wind farm generators already connected to the distribution or transmission network as of 31st of March 2012 are considered financially firm, that is, these generators will have a FAQ equal to MEC. The initial consultation was conducted in Oct 2011. This paper stated available FAQs and so all parties from 31 March 2012 have been aware that there was no firm access available on the majority of the NI transmission system.
- All wind farm generators with an accepted connection offer as of 31st December 2010, that are awaiting connection, will be considered financially firm, i.e. have their FAQ equal to the MEC. For various reasons there were no generators quoted terms in NI between Dec 2010 and the commencement of this consultation process.
- All other parties currently in the connection process and all future new connections will have a FAQ allocated using the new ITC methodology when this has been implemented.

To clarify, this means that all other NI generators who are presently involved in the connection process with either SONI or NIE will be allocated a FAQ on approval of the new methodology and processes. This starting point is considered to be a fair and reasonable proposal that does not unduly discriminate against any party. This proposed starting point will initially result in the allocation of some financial firm access in excess of that currently physically available on the system however the completion of NIE's medium term plan for development of the transmission system would provide for these connections to have full firm access. The allocation of firm capacity to existing generators and those with an accepted connection offer beyond what is physically available is therefore a short-term issue.

A listing of generators on the basis of the above proposal is contained in Appendix A.

3.2 Entry to the NI generation listing

The Oct '11 consultation paper related to onshore generation projects only and applied the established principle of generation connection applications only being considered once Planning Approval for the generation project had been obtained. Three respondents stressed that a different approach is required for offshore connections. The main problems highlighted relate to the planning application and connection application criteria. SONI / NIE consider it appropriate to broaden the scope of the existing consultation and consider other forms of generation as well.

Since the Oct '11 consultation development opportunities have been identified for three zones of the coast of N Ireland. The first offshore leasing round was conducted by The Crown Estate, with the rights to develop offshore renewable energy projects offered to three successful consortia announced in October 2012. The granting of these first development rights will lead to the necessity for grid connections for the offshore generation. The three development zones are as follows:

- An offshore wind area, off the south east coast of County Down, for a single development company to deliver up to 600 MW of wind generating capacity.
- A tidal development at Torr Head for 100MW.
- A tidal development at Fair Head for 100MW.

As these are the first offshore renewable projects in NI waters, new connection arrangements which deal with the relevant issues are presently being considered by UREGNI and will be consulted upon shortly.

There is also another party (Gaelectric) wishing to provide generation from a Compressed air energy storage (CAES) project.

In view of the different and additional permissions required for these types of projects it is felt that this consultation needs to consider whether a different approach to the entry to the generation listing is required.

3.2.1 Response and revised proposal

The proposals set out in the original consultation were intended for onshore connections only and SONI/NIE continue to believe that it is a reasonable requirement for on-shore generators to have planning permission for their generation project before applying for a Connection offer. The rationale for having this requirement is that it provides a level of reassurance that the project will proceed, hence justifying entrance to the generation FAQ listing. In addition it provides the developer with some level of transparency and certainty over accessibility to transmission capacity.

3.2.2 Further considerations regarding other generation technologies

The additional question that now needs to be considered is what level of permission is appropriate, prior to connection application and hence inclusion within the FAQ listing, for other forms of generation such as offshore and CAES, which will require a number of consents. One option would be to require all necessary consents to be in place before a connection application may be submitted. However, if the purpose of having a requirement is primarily to test commitment to justify entrance to the FAQ listing the question could be asked as to whether this threshold goes beyond that applied to on shore wind. If such a threshold is considered unreasonable the question then becomes what is reasonable? At present, the off shore developers have secured unique development rights from Crown Estates. Similarly Gaelectric and other companies have conducted detailed assessments of the geological potential for CAES on the island of Ireland. The geological potential for grid scale CAES is confined to a limited portion of the salt deposits of the Larne area. A Mineral Prospecting Licence covering this area was granted to Gaelectric by DETI in December 2011. This Licence lasts for two years and can be extended twice by a period of a further two years. A question for consideration is what level permission is appropriate for the legitimate submission and acceptance of a connection application.

UREGNI will also be consulting on the above issue for off-shore generation as part of their consultation on off shore connection arrangements in NI. SONI / NIE however wish to include all generation technologies in their revised processes and would therefore invite views on the most appropriate stage for all forms of generation to enter the FAQ allocation and connection application

process. To ensure consistency of approach SONI / NIE will also consider the outcome of UREGNIs consultation, before making any overall decision on both off shore and CAES.

3.3 Order in which applications are assessed in the ITC model

It was proposed in the Oct '11 paper that, going forward, on-shore generators will be added to the ITC list based on the planning approval date for their connection and assessed in turn, with the resulting FAQs allocated on this basis.

Ten respondents expressed the view that connection application date should be used to determine order in the ITC model rather than planning approval date. One of these respondents argued that using planning approval date increases the risk for projects that apply for a connection as they may see the date for getting full FAQ in subsequent runs of ITC being delayed should other projects with prior planning permission appear in later runs of the ITC. Another respondent made a similar point adding that there is no obligation for a generator to submit a connection application within a certain time following receipt of planning approval, in the event of a generator receiving planning approval and delaying its connection application, relative to other later consented projects, SONI may have to revise FAQs.

One respondent stated that connection offer acceptance date should be used for ordering the ITC list stating that this will avoid capacity hoarding taking place because connection offer acceptance involves payment of the connection deposit and demonstrates a financial commitment to the project, as opposed to the “free” option of making a connection application.

Two respondents expressed support for the planning approval date to be used, as proposed, and the remaining two respondents made no comment in relation to this issue.

3.3.1 SONI’s Response and revised proposal

SONI / NIE have considered the comments received and agree with the concerns raised regarding the use of planning approval date for assessing applications. The majority of respondents favored using “Connection Application Date” for ordering applications in the ITC model and consistent with this view SONI now propose that “Connection application date” will be used to determine the order for the ITC list⁴ rather than using planning approval date, as proposed in the Oct '11 consultation paper. It is extremely important that this date is clearly defined. In the ITC methodology the “Connection application date” will be the date on which an application to connect to the transmission or distribution system is received by the relevant System Operator. The connection application date used for the purpose of ITC studies is not necessarily the date when all relevant information has been provided by the applicant which will allow a Connection offer to be made. This definition of connection application date is slightly different from that contained in the TSO and DSO licenses however SONI feels that in order to provide connecting generators with FAQ information as early as possible in the connection process that using this date will be most beneficial. Only applicants that have submitted a connection application to the relevant System Operator will be included in the ITC analysis. The same rules will apply to all new connection applications and applications for a connection modification including those connecting as part of a cluster.

Given that any connecting generator can apply to the relevant System Operator for a connection as soon as planning permission has been granted it is possible that a list put together using planning permission date could be identical to one put together using Connection Application date as proposed.

⁴ In NI it is necessary for a party applying for a connection to have planning permission in place.

In relation to the one suggestion to order the list on the basis of Connection Offer acceptance date, because it demonstrates a financial commitment to the project, SONI / NIE feel that having obtained planning approval a connecting generator has already shown significant commitment to a project and as such there is no strong case to use Connection Offer acceptance date. In addition, calculating FAQs for each connection and making these available at the connection offer stage of the process will increase transparency for connecting generators, who will be fully aware of the FAQ that is available as part of the connection offer.

The FAQ for any connecting generator will remain valid for the connection offer period, which is currently 90 days from issue of the offer. Should a generator fail to accept a connection offer within the connection acceptance period then the FAQ shall be reallocated under the normal ITC rules. In these circumstances should the generator continue with a new connection application this generator connection would be added to the ITC list based on the connection re-application date. The FAQ available in the original connection offered would no longer apply.

3.4 Same Date Applications

When more than one connection application has been received by the System Operators on the same date and the capacity is interchangeable any available capacity will be allocated on a pro-rata basis based on MEC. This will apply in the situation where the connection applications are from the same or different applicants and where the applications relate to the same or different sites. When more than one application has been received on the same date and the capacity is not interchangeable, available capacity will be allocated using the normal rules of the ITC methodology.

3.5 Off- shore generation and CAES generation connection applications

If it is accepted that these other forms of generation can be treated in a similar way to on-shore generation and that there is an entry requirement considered equivalent to Planning Approval and Connection Application date then that entry requirement will be used for other forms of generation as described in points 3.3.1 and 3.4 above.

4 Assumptions of ITC analysis

The Oct '11 consultation paper described in detail the various assumptions which would be made in the proposed ITC model. There was a general acceptance amongst respondents that these assumptions were appropriate, not taking account of the issues just discussed in Section 3. Almost all respondents agreed that the proposed ITC methodology should be implemented for calculating FAQs in NI. Many respondents welcomed this further harmonization with the EirGrid generator connection process. The main issues that were raised in relation to the ITC methodology are set out below.

4.1 Time Horizon

One issue which raised concern was the time horizon for publishing FAQs as determined by the ITC methodology. Almost all respondents stated that indicative FAQs beyond 2016 are required.

Ten respondents interpreted the consultations indicating that firm access and deep reinforcement data will not be provided beyond 2016 and these respondents were understandably very concerned regarding this.

On a related note, one respondent suggested that annual ITC runs are conducted until all generators in the listing receive full FAQ, rather than for a fixed period of time such as seven years as proposed.

4.1.1 SONI's response

As outlined in the consultation paper, SONI proposes to provide ITC results per transmission node on an annual basis, possibly in October of each year, for a seven year horizon. Two sets of indicative results, for years 2012 and 2016, were provided in the Oct '11 consultation paper. Until the ITC methodology is approved it seemed inappropriate to carry out studies for more years, given the high volume of work involved. As stated in section 2.3 of the Oct '11 paper *"At this stage, before approval of the methodologies, it was deemed inappropriate to perform the analysis for a larger number of years. It should be noted that once the methodologies have been agreed, SONI shall endeavor to provide results for a seven year horizon."*

SONI are committed to providing ITC results beyond 2016 and have included indicative results as calculated in June 2012 for years 2012 to 2018 inclusive with this paper. SONI hopes that connecting generators will find this additional data beneficial. Regarding performing ITC runs until all generators in the listing receive full FAQ, rather than for a fixed period of time such as seven years. NIE plan the network on a seven year horizon and therefore the necessary data files in the required format will not be available to calculate FAQs beyond seven years. Should industry arrangements change such that network planning data is available on a longer horizon then SONI will provide FAQs for that time period.

4.2 Transmission reinforcements

In relation to provision of data on deep reinforcement, SONI / NIE acknowledge that the provision of details on transmission works required to give full firm access to a generator connection is very important and can confirm that these details will be provided as part of the generator connection process. As stated in section 3.3 of the Oct '11 consultation paper *"SONI will also make known to the generator details of the specific transmission reinforcements that need to be complete and when*

(according to NIE plans as represented in the SONI Seven Year Transmission Capacity Statement⁵) these are expected to be complete, in order to provide this connecting generator with full firm access for all of its MEC”.

4.2.1 SONI’s response

Details of the necessary transmission reinforcements required to provide a connection with FAQ equal to MEC and the expected completion dates of these works will be provided to the generator at the same time as the Connection offer is issued. The reinforcements required to provide a connection with firm access will be known as the Associated Transmission Reinforcements (ATRs). The details of the specific ATRs for a connection shall be set out in a report prepared by SONI, this report will be called the “SONI FAQ and ATR Report”. SONI will prepare the report for each connection and it will be issued by the relevant System Operator along with the Connection Offer. The report will be individual to each connecting generator and will specify the specific reinforcements that are required to provide a generator with FAQ equal to MEC and when these reinforcements are scheduled to be complete, according to NIE development plans.

Obviously there can be no guarantee that the transmission reinforcements will be carried out within the timescales anticipated, also the ATRs may be planned projects that are not yet in receipt of either NIE or UR approval. In order to provide additional information to connecting generators SONI will also publish a ‘Transmission Reinforcement Schedule’ which will be available on the SONI website and will contain up to date information on scheduled completion times for transmission reinforcements that are associated with the provision of firm capacity for any generator.

Once all ATRs for a connection are complete the connection will have full firm access. For some connections there may be a number of ATRs required in order to provide full firm access and in this situation as the reinforcements are complete the FAQ may increase in stages. When a reinforcement which allows a revision to the generator’s FAQ has been completed, NIE shall inform SONI and the ITC model will be re-run to calculate the updated FAQ. Following confirmation that reinforcements are complete SONI will inform the DSO of the revised FAQ for a distribution generator connection and the DSO will forward this notification to the generator. For transmission connections SONI will directly notify the generator of the revised FAQ in writing within the same timescales. This notification will be part of the Connection Agreement package. It will be the generators responsibility to then inform the market of any changes to FAQ.

4.3 All-island ITC model

Three respondents requested that ITC studies are carried out on an all-island basis. One respondent highlighted that if the TSOs are moving towards an all-island application of FAQs careful consideration must be given to the fact that there are different processing rules for applications in both jurisdictions.

4.3.1 SONI’s response

SONI agree that this appears to be a reasonable course of action and are prepared to consider developing a harmonized all-island approach to ITC analysis with EirGrid. The TSOs will investigate the resolution of any outstanding issues so that the different connection processes that apply in each jurisdiction can be harmonised to the extent that no party is treated less favourably.

⁵ This Statement now been renamed “All-Island Transmission Forecast Statement” and the latest published version covering 2012 – 2018 is available on the SONI website

4.4 Moyle assumptions in ITC model

Two respondents commented on the treatment of the Moyle interconnector in the ITC studies. One respondent felt that EirGrid do not include Interconnectors in ITC studies and so this should be the case also in the Northern Ireland ITC model. The other respondent believed treatment of Moyle in the ITC model, as outlined in section 5.3 of the paper is not correct, it is suggested that various scenarios should be considered.

4.4.1 SONI's Response

In the ITC methodology the Moyle interconnector is initially dispatched to reflect typical present transfers to and from GB. However, as levels of renewable generation increase, transfers on Moyle may be varied to ensure all renewable generation can be accommodated, as well as ensuring that all system security rules in relation to the use of conventional generation are observed. The ITC studies will see flows on Moyle ranging within the physical import and exports limits. SONI believes it is appropriate to treat the Moyle interconnector as outlined in the proposal and dispatch at various levels within the physical limitations. While EirGrid also include interconnection in ITC analysis we will liaise closely during the exercise mentioned in 4.3.1 to ensure there is a consistency in our approach.

4.5 Threshold for assessing FAQs

In the Oct '11 paper SONI suggested a threshold for allocating FAQs as those applications where the total MEC at a connection point on the distribution system is 5MW or more, highlighting that to consider every distribution generator connection application seems impractical. Nine respondents indicated that they were of the view that given the increasing number of small renewable connections it would be appropriate for SONI to carry out impact analysis of these connections and if deemed appropriate to further consult with industry should it become necessary to amend the threshold. One respondent felt it was appropriate to set a lower threshold, and another respondent believed the 5MW suggested threshold seemed reasonable. Four respondents made no comment on this issue.

4.5.1 SONI's Response

The majority of respondents are of the view that SONI should carry out impact analysis on the threshold level for assessing and allocating FAQs to distribution connection. SONI believes this is a reasonable way to proceed. Before undertaking such analysis it is imperative that SONI, NIE and UREGNI agree on the scope of the analysis. The results of the impact analysis shall be communicated to industry for further consideration before application of any revised threshold. In the interim, given the desire to implement the proposed changes in the generator connection process as soon as practical, SONI believes it is appropriate to proceed on the basis of using 5MW as a threshold for distribution connections until such times as a lower level is deemed necessary.

4.6 Temporary Firm Access

It has been suggested that the introduction of a policy of 'Temporary firm access' would promote efficient use of the network. Temporary access is described by one respondent as granting those generators that may have non-firm access, "temporary firm access" to the FAQ that has been allocated to another project but is delayed in using its FAQ, until that other project can energise. One respondent felt that such a policy would be overly complicated to implement.

4.6.1 SONI's Response

Non-firm access is designed to promote efficient use of the network, in that parties without firm access can use the network when it is available and it is only when constraints occur that the party possibly faces an output reduction. Non-firm access ensures that network use is maximised without increased financial risk to customers. Providing temporary firm access to the transmission network as suggested is unlikely to reduce financial risks for projects, given that temporary access could be removed at any time and therefore will not provide any financial certainty. Such a mechanism would most likely be difficult and costly to administer. Implementing temporary access would present a number of difficulties and for these reasons its introduction is not proposed.

4.7 Special Protection Schemes

One respondent requested clarification on the treatment of generators connected to the network via the use of a Special Protection Scheme (SPS). Another respondent requested SONI to re-examine the possibility of using 110kV Special Protection Schemes and Dynamic Line Rating schemes to increase the available firm capacity on the transmission system.

4.7.1 SONI's Response

As stated in the initial consultation paper certain generators have already been connected in conjunction with Special Protection schemes (SPS). The normal arrangement is that these generators will be disconnected for certain network operations to prevent overload of remaining circuits. For the purposes of the proposed ITC studies new SPS schemes will be ignored and, going forward, it is proposed that such generators will be treated no differently to any other generator. In relation to the second point, NIE and SONI have already established a number of 110kV Special Protection Schemes to facilitate the connection of additional generation. Going forward SONI and NIE will continue to investigate the use of such schemes on a project specific basis.

4.8 Provision of data on FAQ

In section 3.3 and 4.1 of the Oct '11 consultation paper and also in step 4 of Figure 1 and Figure 3 of the original paper it was stated that the FAQ for a connection will be included in the Connection Offer.

4.8.1 SONI / NIE proposal

It is now proposed that rather than inserting the FAQ figure directly into the connection offer the FAQ will be included in the "SONI FAQ & ATR Report" which will be issued by the relevant System operator along with the Connection Offer. This is preferred on the basis that the FAQ is, in practice, a separate matter from the commercial/contractual arrangements that relate to the local connection. By providing a generator with a separate document alongside the connection offer it allows the generator to focus on each separately whilst still enabling him/her to make an overall assessment. This report will form part of the connection agreement package. The report will be referenced in the Connection Offer and Connection Agreement.

5. Clarifications

In the responses to the Oct '11 paper SONI has been requested to provide clarification on the following specific points which have not been addressed previously in this paper.

5.1 One respondent held the view that FAQs must apply from the date the reinforcement is complete. SONI would like to clarify that there will be no delay in amending FAQs once a reinforcement has been complete. For distribution generator connections SONI will write to the DSO, advising of the revised FAQ, as soon as possible after carrying out the calculation of the revised FAQ having received notification from NIE that the necessary reinforcement is complete. This notification will be forwarded by the DSO to the generator. A Transmission generator connection will receive notification from SONI directly. The generator will then be responsible for informing the market that its FAQ has changed.

5.2 One respondent asked for clarification that FAQs will not ever be reduced. SONI can confirm that this is the case and FAQs will not be reduced.

5.3 The following question was highlighted in relation to non-firm access:

Q. Having carried out the ITC calculation and identified a constraint at n-1 which causes a generator to have a "Non-firm" access quantity which will be "Firmed" by a later development, would the interim non-firmness apply independent of the cause of the overload or which network circuit is overloaded? For example is it proposed to treat as "Non-firm" a generator for a risk on the N-S interconnector (in relation to the loss of that double circuit) if a year later the creation of a 110kV circuit local to the generator would otherwise make that generator "Firm" including for the N-S interconnector issue.

SONI confirms that non-firm access will be allocated irrespective of the particular circuit causing the constraint. If n-1 studies show that there is no firm access available for a unit then only non-firm access will be granted. If a year later the addition of a new a circuit makes full firm access or partial firm access possible then this will be granted on completion of the necessary reinforcement.

5.4 The following question was asked, *"In the case of a cluster where a generators MEC is less than initially expected will the unused MEC be reallocated to the next project within the cluster?"* A similar comment is made which suggests that connection rules should incentivise developers to reduce their MEC as soon as possible, when they have used a higher rating in the connection application than that actually installed.

All transmission connected generators and any distribution connected generators with an MEC of 5MW and above is required to pay capacity based TUoS charges. These charges, given that they are levied on each MW of MEC should serve to encourage generators to set MEC's as accurately as possible. Generators with MEC's in excess of the installed capacity of the unit will be paying higher TUoS charges than necessary if they do not amended their MEC.

5.5 Clarification is requested on what date SONI will use as the freeze date for the ITC studies. SONI intends to use the end of the previous quarter for the freeze date in order to capture as many new generator connections as possible. For example if ITC runs are performed in October of each year the freeze date for the October 2013 ITC run would be set as 30th June 2013. If the timing of the ITC runs was to change, perhaps to align with all-island studies then a more suitable date might need to be applied. The freeze date applied in the ITC analysis will be communicated to Industry along with the results.

5.6 The question was raised in relation to the MEC that will be applied to the test generator in the ITC studies when no generator exists at a particular node. In the ITC analysis the test generator will be varied in size until it reaches the maximum FAQ that can be accommodated at that node.

5.7 One respondent states that it is not enshrined in legislation that a generator must have planning permission before submitting a connection application. This respondent believes developers may seek to challenge this to push for early connection application date. SONI have discussed this matter with NIE and have concluded that the current requirement for on-shore generators to obtain planning permission prior to submitting a connection application has become accepted custom and practice and applies in other established processes.

5.8 One respondent suggested that the arrangements for producing ITC results might benefit from more flexibility e.g. a study being carried out and published as a result of a significant change in the situation. SONI feels it is important that the studies are carried out at least every year in order to provide potential new connections with FAQ information, even if in some years the results may not be significantly different from previous years. The ITC analysis will be carried out in each of the three situations as follows:-

- Annually for a seven year period ;
- When a new connection application is received, in order to calculate a FAQ for the connection;
- When a transmission reinforcement has been complete to allow FAQs to increase.

5.9 A question was raised as to the reason why only one generator is granted a partial FAQ in the indicative results for summer min scenario in 2016. Only one generator is granted firm access, which is partial firm access, i.e. less than the MEC of the generator, in the indicative studies for summer minimum scenario in 2016 due to restricted network capacity at this time.

5.10 One respondent requested that the concept of deemed firm access should be retained. The SEM Committee stated in their decision paper "Principles of Dispatch and the Design of the Market Schedule in the Trading and Settlement Code" published on 26th August 2011 that "Deemed firm access whereby FAQ or MEC is allocated in advance of the completion of necessary transmission infrastructure reinforcements will not be introduced to the SEM. This issue is outside the scope of this consultation paper.

5.11 Whilst it was not raised specifically by respondents to the Oct '11 consultation SONI / NIE consider that it is appropriate to clarify FAQ in respect of how it is assessed in terms of access to the transmission system.

In the Trading and Settlement Code FAQ is defined as "the quantity of Output that a Generator Unit has firm rights under a Connection Agreement to be able to export onto the system at the point of Connection."

SONI / NIE consider that the above definition was intended to relate a generator connected to the transmission system. The method of connection to the transmission system is also relevant as a party choosing to connect via a single circuit will only be considered for FAQ allocation at the point where the single circuit connects to the transmission system. For distribution connected generation SONI / NIE interpret the transmission FAQ allocation relates to the point at which the output of the generator would export onto the transmission system if there was no demand on the associated distribution system. Therefore, transmission FAQ applies only to that element of the transmission

system that is designed and operated to provide $n - 1$ capability in the event of a transmission outage. Where a single 33kV circuit, 110kV circuit and/or transformer is employed at the request of a connecting generator there is no level of FAQ taken into account on that element of the network. Refer to Appendix D for schematic representations of these connection arrangements.

6. Conclusions and Next Steps

In conclusion, SONI / NIE are very grateful to all respondents for their valuable comments and suggestions regarding the proposed Generator Connection process. SONI / NIE have considered all the issues raised and would now seek views on the following proposals and recommendations.

The proposed starting point for the allocation of FAQs will be based on the following rules:

- Those parties already connected to the distribution or transmission network as of 31st March 2012 are considered financially firm, that is, these generators will have FAQ equal to MEC.
- All parties with an accepted connection offer as of 31st December 2010, that are awaiting connection, will be considered financially firm, i.e. have their FAQ equal to the MEC that is outlined in their connection offer.
- All other parties will have a FAQ allocated, using the ITC methodology, when the new process has been approved and implemented. For the avoidance of doubt this includes all parties involved in the connection process since January 2011.

In the ITC methodology the order of the list will be based on Connection application date. For the purposes of ITC studies the "Connection application date" will be the date on which an application to connect to the transmission or distribution system is received by the relevant System Operator. The connection application date used for the purpose of ITC studies is not necessarily the date when all relevant information has been provided by the applicant which will allow a Connection offer to be made. It will continue to be necessary for on-shore generation to have planning permission in place before making a connection application. This report, and an forthcoming UREGNI consultation, seeks views on the inclusion of other forms of generation in these revised connection processes. It is necessary for SONI / NIE to understand if there is an equivalent permission that could be in place before other generation technologies can be allowed to make a connection application and therefore be entered into the listing. Once agreement has been reached on this point following these consultation processes SONI / NIE will notify all parties accordingly regarding implementation and associated time lines.

The following points provide clarification regarding the proposed processes to be applied by SONI and NIE:

- Transmission reinforcements necessary to provide a generator with firm access equal to the level of the MEC will be known as Associated Transmission reinforcements (ATRs). For any connection application that cannot be given full firm access details of the necessary ATRs will be outlined in the "SONI FAQ & ATR Report" which will be provided to the generator along with the connection offer by the relevant System operator. As ATRs are complete and FAQs increase SONI will prepare written notification of the increased FAQ and this will be provided to the generator by SONI.
- FAQs will be outlined in the "SONI FAQ and ATR Report" prepared by SONI and issued to the generator by the relevant System Operator along with the Connection Offer. The FAQ will remain valid for the Connection offer period. Failure to accept a connection offer within the 90 day offer acceptance period will result in this FAQ being re-allocated. A generator which subsequently continues with a new application will be assessed in the ITC model based on the re-application date.
- "The Connection Offer and the Connection Agreement will make reference to the "SONI FAQ & ATR Report". The Connection agreement will also reference the 'FAQ schedule' with

regard to the level of firmness. The 'FAQ schedule' will detail the FAQ for each connection and will be updated as necessary by SONI and made available on the SONI website.

- When a generator holds both an executed Connection Agreement and a formal letter of notification from SONI to confirm that all ATRs have been complete for this connection to allow FAQ to be set equal to MEC, this party will then have full firm access to the transmission system.
- FAQs will be allocated to all transmission connected generators and all distribution connected generator, where the total MEC at the connection point is 5MW or more. In future, impact analysis shall be conducted by SONI to assess if a lower threshold for distribution connections is warranted.
- SONI have provided ITC results, as part of this paper, on an annual basis for a seven year horizon. Carrying out harmonized all-island ITC analysis is currently under consideration. In conducting the ITC analysis the Moyle interconnector has been dispatched at various levels within the physical limitations of the interconnector.

Appendix B of this document provides flowcharts and process steps to demonstrate the proposed revised connection process for generators connecting to the transmission and distribution systems in NI. Upon final agreement and approval these processes will be formalised between SONI and NIE before being incorporated into the TIA. The revised TIA will be published on the SONI website. It is intended that this process will become effective as soon as possible after the date that UREGNI issue their decision on this consultation. An illustration of the data flows between the relevant parties is also provided for information, this has been updated since the Oct '11 consultation paper.

SONI / NIE would like to invite interested parties to respond with any additional comments or issues that they would like to be considered in relation to the revised proposals as detailed in this report. SONI would encourage parties to respond as fully as possible by 12 April 2013 at the latest.

It would be appreciated if comments are clearly aligned with the sections and sub sections of this consultation paper to which they relate. In addition respondents are asked to consider the following questions in their response:

1. Do you agree with the proposal for establishing a generator listing for N Ireland?
2. Do you agree with the proposal for adding generators to the N I listing?
3. What is your view on allowing other forms of generation to enter the FAQ allocation process and make application for connection based on permissions other than the receipt of Planning Approval?

On completion of the consultation period SONI / NIE shall submit a summary of the consultation responses to UREGNI alongside a proposal on the processes to be implemented in NI following approval. SONI / NIE will publish a final position.

Responses should be forwarded electronically to gareth.mcloughlin@soni.ltd.uk. Please note that SONI intends to publish all responses to this paper on the website at www.soni.ltd.uk. Respondents who wish to have their response remain confidential should highlight this when submitting the response.

Appendix A: FAQs at the starting point

Table A.1: FAQ FOR EACH EXISTING DISPATCHABLE GENERATOR IN NI

CONVENTIONAL GENERATOR UNIT	MEC (MW)	FAQ (MW)
BALLYLUMFORD UNIT 7	53	53
BALLYLUMFORD UNIT 8	53	53
BALLYLUMFORD CCGT 20	479	479
BALLYLUMFORD CCGT 10	98.4	98.4
BALLYLUMFORD UNIT 4	170	170
BALLYLUMFORD UNIT 5	170	170
BALLYLUMFORD UNIT 6	170	170
COOLKEERAGH GT 8	53	53
COOLKEERAGH C30	413	413
KILROOT GENERATING UNIT 1	240	240
KILROOT GENERATING UNIT 2	240	240
KILROOT GT 1	23.6	23.6
KILROOT GT2	23.6	23.6
KILROOT GT 3	42	42
KILROOT GT4	42	42
IPOWER AGU	47	47
CONTOUR GLOBAL	9	9

Table A.2: FAQ FOR EXISTING RENEWABLE GENERATORS AS OF 31ST MARCH 2012

WIND FARM	110kV NODE	MEC (MW)	FAQ (MW)
RIGGED HILL	COLERAINE	5	5
CORKEY	BALLYMENA	5	5
ELLIOT'S HILL	LARNE	5	5
BESSEY BELL	OMAGH	5	5
OWENREAGH	STRABANE	5.5	5.5
LENDRUM'S BRIDGE 1	OMAGH	5.94	5.94
LENDRUM'S BRIDGE 2	OMAGH	7.26	7.26
ALTAHULLION	LIMAVADY	26	26
TAPPAGHAN	OMAGH	19.5	19.5
SNUGBOROUGH	AGHYOULE	13.5	13.5
CALLAGHEEN	ENNISKILLEN	16.9	16.9
LOUGH HILL	STRABANE	7.8	7.8
BIN MOUNTAIN	STRABANE	9	9
WOLF BOG	LARNE	10	10
SLIEVE RUSHEN	AGHYOULE	54	54
ALTAHULLION 2	LIMAVADY	11.7	11.7
BESSEY BELL 2	OMAGH	9	9
OWENREAGH 2	STRABANE	5.1	5.1
GARVES	COLERAINE	15	15
GRUIG	COLERAINE	25	250
SLIEVE DIVENA	OMAGH	30	30
TAPPAGHAN 2	OMAGH	9	9
CROCKAGARRON	DUNGANNON	17.5	17.5
HUNTER'S HILL	OMAGH	20	20
SCREGGAGH	OMAGH	20	20
CURRYFREE	LISAGHAMORE	15	15
SLIEVE KIRK	KILLYMALLAGHT	27.6	27.6
CHURCH HILL	MAGHERAKEEL	18.4	18.4
CRIGSHANE	MAGHERAKEEL	32.2	32.2
TOTAL		450.9	450.9

Table A.3: FAQs FOR GENERATORS WITH ACCEPTED CONNECTION OFFERS AS OF 31ST DECEMBER 2010

SCHEME NAME	110kV NODE	MEC (MW)	FAQ (MW)
SLIEVE DIVENA 2	FALLAGHEARN	20	20
THORNOG	MAGHERAKEEL	10	10
LONG MOUNTAIN*	LONG MOUNTAIN	24	24
CARRICKATANE	KILLYMALLAGHT	22.5	22.5
CARN HILL**	CARNMONEY	13.8	13.8

LONG MOUNTAIN
CARN HILL

This refers to an accepted LCTA offer
Will be firm under all circumstances due to network location

Appendix B: Process Flowcharts

Figure B.1: Flowchart for a connection or modification to the Distribution system

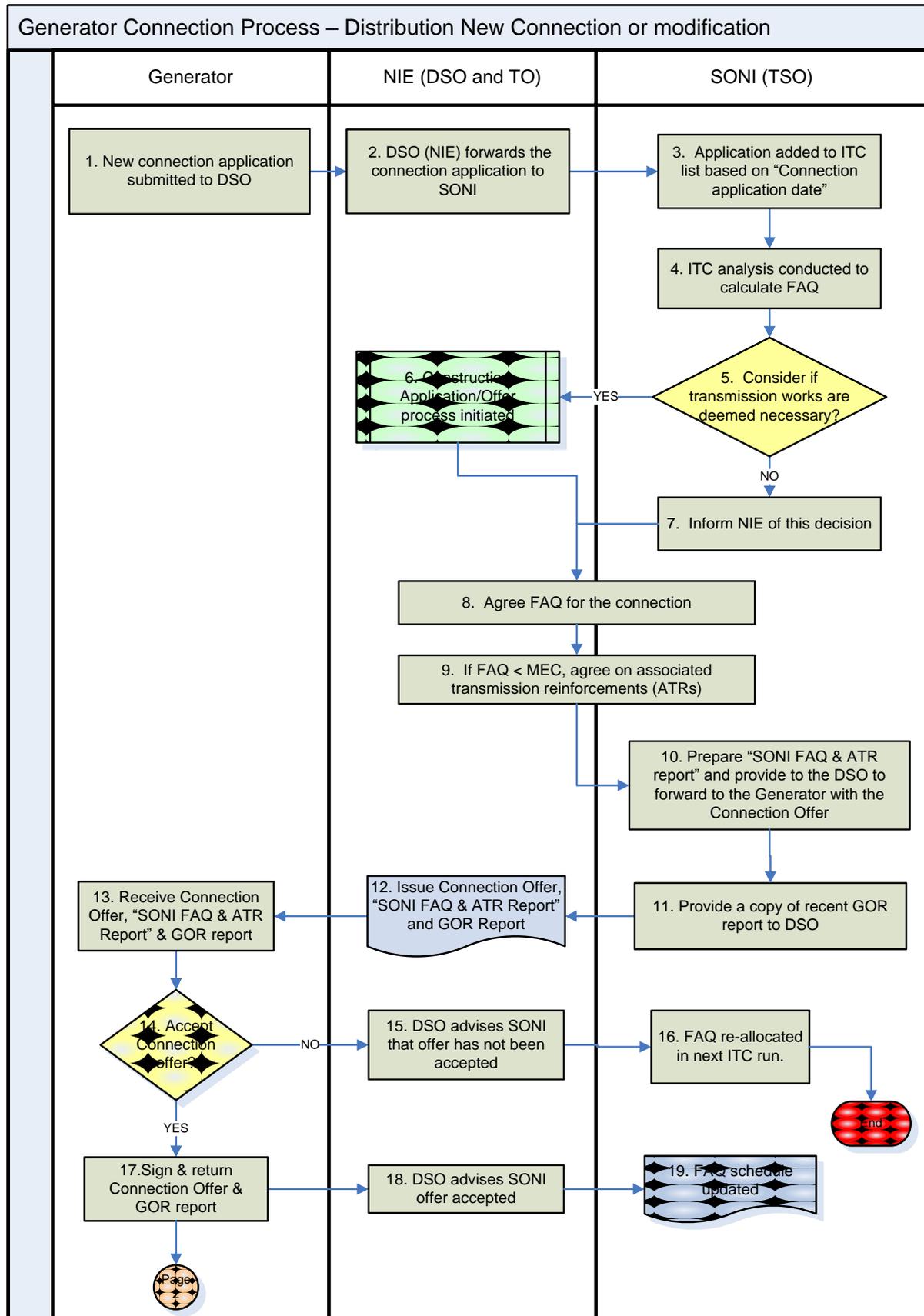


Figure B.1 Continued : Flowchart for a connection or modification to the Distribution system

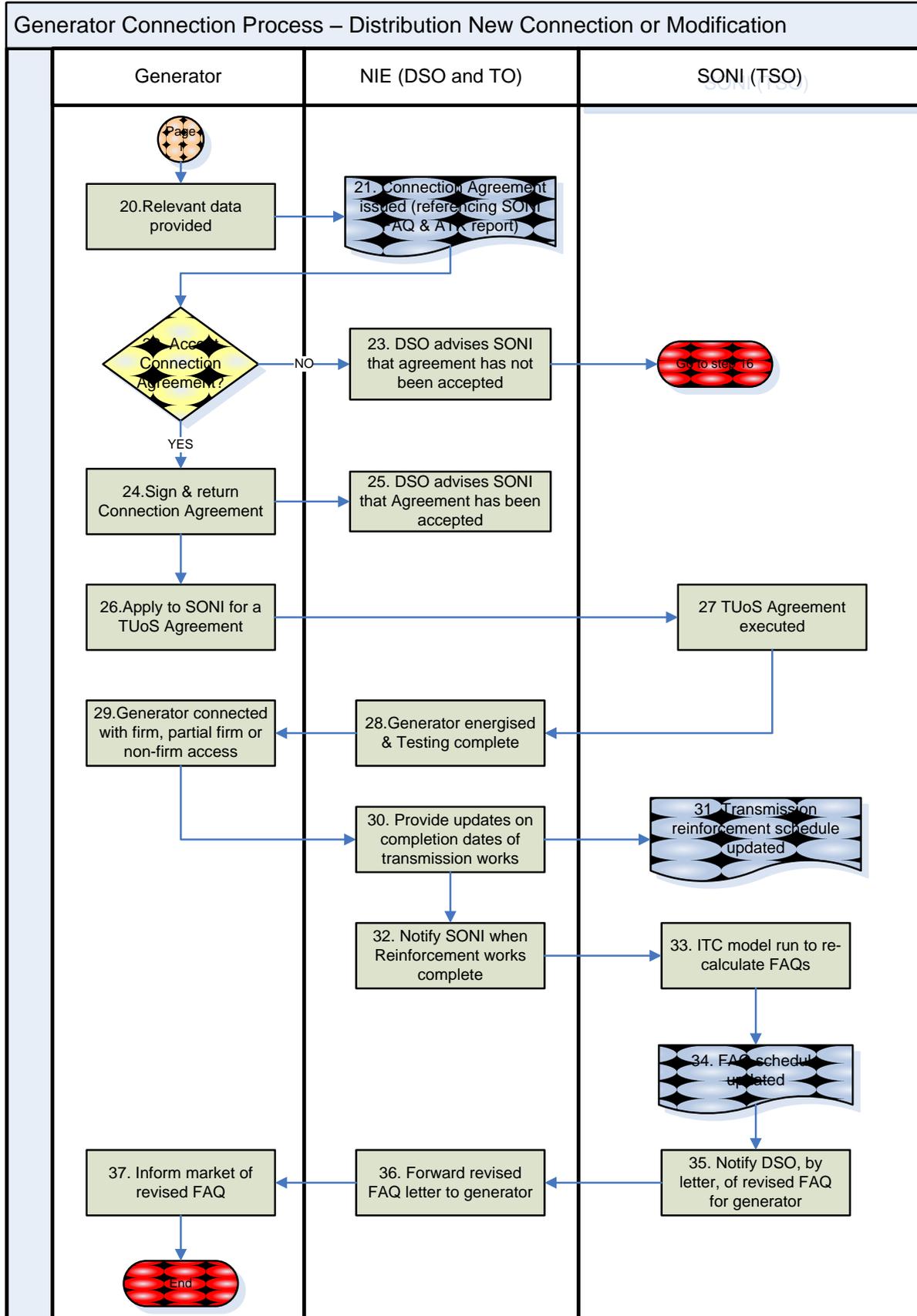


Figure B.2: Process Steps for a new connection or modification to the Distribution system

Step #	Step	Description	Party Responsible	Timing
1	New connection application submitted to DSO.	This step triggers the Generator Connection process. A generator wishing to connect to the distribution system, or modify an existing connection, submits a connection application to the DSO, following planning permission approval for the connection.	Generator	At generator's discretion after receipt of planning approval
2	DSO (NIE) forwards the connection application to SONI	The DSO (NIE) will pass details of the application to SONI for the purposes of calculation the FAQ for the connection and assessing any necessary transmission works that are required in order to provide full firm transmission access.	DSO	Within 2 business days of receipt of application
3	Application added to ITC list based on "Connection application date"	SONI add the new connection application to the ITC list. The order on the list is based on the connection application date.	SONI	Within 3 business days of receipt of application
4	ITC analysis conducted to calculate FAQ	SONI perform ITC analysis to calculate FAQ for the new connection application	SONI	Within 3 business days of receipt of application
5	Consider if transmission works are deemed necessary?	SONI consider if transmission reinforcements are necessary in order to provide the connection with FAQ equal to the MEC. <ul style="list-style-type: none"> • If Yes go to step 6 • If no go to step 7 	SONI	Within 3 business days of receipt of application
6	Construction Application/Offer process initiated	The TIA sets out details of the process in place whereby SONI submit a construction application to the TO (NIE) for works to the transmission system. This process will be followed when SONI deem that transmission reinforcements are necessary.	SONI	As set out in TIA
7	Inform NIE of this decision	If SONI feels additional transmission works are not necessary in order to provide the connection with FAQ equal to MEC then this decision will be communicated to NIE.	SONI	Within 5 business days of receipt of application

Step #	Step	Description	Party Responsible	Timing
8	Agree FAQ for the connection	SONI will provide NIE with the calculated FAQ that can be facilitated based on the existing network. This value is produced using the approved ITC methodology. This value will be agreed with NIE.	SONI/DSO	Within 5 business days of receipt of application
9	If FAQ is less than MEC, agree on associated transmission reinforcements (ATRs)	In the situation where full firm access cannot be granted SONI and the TO (NIE) will agree on the necessary transmission reinforcements that are required to provide the connection with FAQ equal to MEC. These required reinforcements are known as the Associated Transmission Reinforcements (ATRs). The ATRs are specific to each connection. SONI and NIE will also agree the expected dates when the ATRs are scheduled for completion according to NIE development plans.	SONI /TO	Within 80 days of connection application date (consistent with TIA timelines)
10	Prepare "SONI FAQ & ATR report" and provide to the DSO to forward to the Generator along with the Connection Offer	SONI will prepare a "FAQ and ATR report" for each Generator connection. This report will detail the following: <ol style="list-style-type: none"> 1. The FAQ for the connection, based on ITC calculations. 2. In the situation where full firm access cannot be granted it will detail the ATR's required to allow the generator to have full firm access equal to MEC. 3. Dates when the ATRs are scheduled for completion, according to NIE development plans 4. The FAQ schedule will be referenced. The FAQ schedule is a document which will be prepared and published by SONI, on the SONI website, and will outline up to date FAQs for all generator connections. <p>The "SONI FAQ & ATR Report" will be sent to the DSO to forward to the connecting generator along with the Connection Offer. Both the Connection Offer and the Connection Agreement will make reference to the "SONI FAQ and ATR report".</p>	SONI	On completion of step 9.
11	Provide a copy of recent GOR report to DSO	SONI will provide the DSO (NIE) with a copy of the most recent GOR report which will also be forwarded to the generator along with the Connection Offer.	SONI	Within 3 business days of receipt of application

Step #	Step	Description	Party Responsible	Timing
12	Issue connection Offer, “SONI FAQ & ATR Report” and GOR Report	The DSO (NIE) will issue a Connection Offer for the connection. The “SONI FAQ & ATR Report” will form part of the connection Offer as it will be referenced in the Connection Offer and will be forwarded to the generator, by the DSO, along with the Connection Offer. A copy of the GOR report will be issued along with the Connection Offer.	DSO	As set out in DSO licence
13	Receive Connection Offer, “SONI FAQ & ATR Report” & GOR report	The generator receives the documents described in step 12.	Generator	
14	Accept Connection offer?	The generator assesses the Connection Offer. The offer is valid for 90 days from issue. If it is not accepted in this time the FAQ will be re-allocated in the next ITC study. <ul style="list-style-type: none"> • If the answer is No go to step 15 • If the answer is Yes go to step 17 	Generator	As detailed in the Connection Offer
15	DSO (NIE) advises SONI offer has not been accepted	When a Connection Offer is not accepted within the validity period of 90 days from issue, the DSO (NIE) will inform SONI that the offer is no longer valid	DSO	ASAP or 91 days after offer issue date
16	FAQ re-allocated in next ITC run	If SONI has been advised that a Connection Offer has not been accepted within the validity period this connection application will be removed from the ITC model and the FAQ will be re-allocated in the next ITC study. In this situation the connection process ends.	SONI	91 days after offer issue date
17	Sign & return Connection Offer & GOR report	When a generator accepts an offer the Connection Offer document will be signed and returned within 90 days of issue. The GOR report will also be signed and returned to NIE	Generator	As set out in Connection Offer
18	DSO (NIE) advises SONI offer has been accepted	The DSO (NIE) will advise SONI when a party accepts a Connection Offer.	DSO	Within 1 day of Connection Offer acceptance
19	FAQ schedule updated	SONI will update the FAQ schedule which is available on the SONI website to confirm that FAQ that is allocated to a connecting generator.	SONI	Within 3 business days of acceptance

Step #	Step	Description	Party Responsible	Timing
20	Relevant data provided	Connecting Generator provides all relevant data that is required in order for the DSO to issue a Connection Agreement.	Generator	As outlined in Connection Offer
21	Connection Agreement issued (referencing "SONI FAQ & ATR report")	The DSO (NIE) will issue a Connection Agreement to the generator which will refer to the "SONI FAQ & ATR report".	DSO	As outlined in Connection Offer
22	Accept Connection Agreement?	The generator decides whether to accept the connection agreement. <ul style="list-style-type: none"> • If Yes go to step 23 • If not the connection process as detailed cannot be completed. Depending on the circumstances that are preventing the generator from accepting the agreement, it may be necessary to apply actions 15 and 16. 	Generator	As outlined in Connection Agreement
23	DSO advises SONI that agreement has not been accepted	When a connection Agreement is not accepted within the validity period, the DSO (NIE) will inform SONI that the Agreement is no longer valid	DSO	As outlined in Connection Agreement
24	Sign & return Connection Agreement	The generator signs and returns the Connection Agreement to DSO (NIE).	Generator	As outlined in Connection Agreement
25	DSO advises SONI that Connection Agreement accepted	The DSO (NIE) will advise SONI when a party accepts a connection Agreement.	DSO	Within 1 day of Connection Agreement acceptance
26	Apply to SONI for a TUoS Agreement	The generator must apply to SONI for a TUoS offer. This application can be made any time following submission of the connection application.	Generator	ASAP after submitting a connection application
27	TUoS Agreement executed	SONI and the generator enter into a TUoS agreement. The TUoS agreement will also make reference to the FAQ schedule.	SONI	ASAP

Step #	Step	Description	Party Responsible	Timing
28	Generator energised & Testing complete	NIE will complete necessary testing and energise the generator	DSO	As agreed
29	Generator connected with firm, partial firm or non-firm access	The generator may have firm access, or partial firm access and the remainder with non-firm access or all non-firm access to the transmission system until reinforcements are complete. The generator is responsible for informing the market of the FAQ that has been allocated to it.		As agreed
30	Provide updates on completion dates of transmission works	If the completion of an associated transmission reinforcement (ATR) is delayed, the TO (NIE) will provide an update of the scheduled completion time to SONI so that the Transmission Reinforcement scheduled can be updated and the generator can be made aware of the revised scheduled completion time.	TO	When information becomes available
31	Transmission reinforcement schedule updated	SONI will update the transmission reinforcement schedule as necessary following step 28.	SONI	When information becomes available
32	Notify SONI when Reinforcement works complete	As transmission reinforcements are complete the TO (NIE) will inform SONI so that FAQ can be increased as soon as possible	TO	Within 2 days of completion of reinforcement
33	ITC model run to recalculate FAQs	When an ATR has been complete SONI will recalculate FAQs so that any FAQ can be increased.	SONI	Within 3 business days of notification
34	FAQ schedule updated	SONI will update the published FAQ schedule with revised FAQs.	SONI	Within 3 business days of notification
35	Notify DSO, by letter, of revised FAQ for generator	SONI will inform the DSO (NIE) in writing of the revised FAQ for any generator connections. This formal notification will be forwarded to the generator by the DSO.	SONI	Within 3 business days of notification

Step #	Step	Description	Party Responsible	Timing
36	Forward revised FAQ letter to generator	The DSO will forward the letter from SONI, outlining the revised FAQ, to the generator. This notification of updated FAQ forms part of the overall "Connection Agreement Package". When a generator holds an executed Connection agreement <u>and</u> a formal letter of notification that all ATRs have been complete and FAQ is equal to MEC, this party has then full firm access to the transmission system.	DSO	Within 3 business days of notification
37	Inform market of revised FAQ	The generator must inform the market of the new FAQ and its effective date.	Generator	ASAP
	End			

All timings stated are indicative and will have to be formally agreed by NIE and SONI for inclusion in the TIA

Figure B. 3: Revised Information flow for a connection to the distribution system

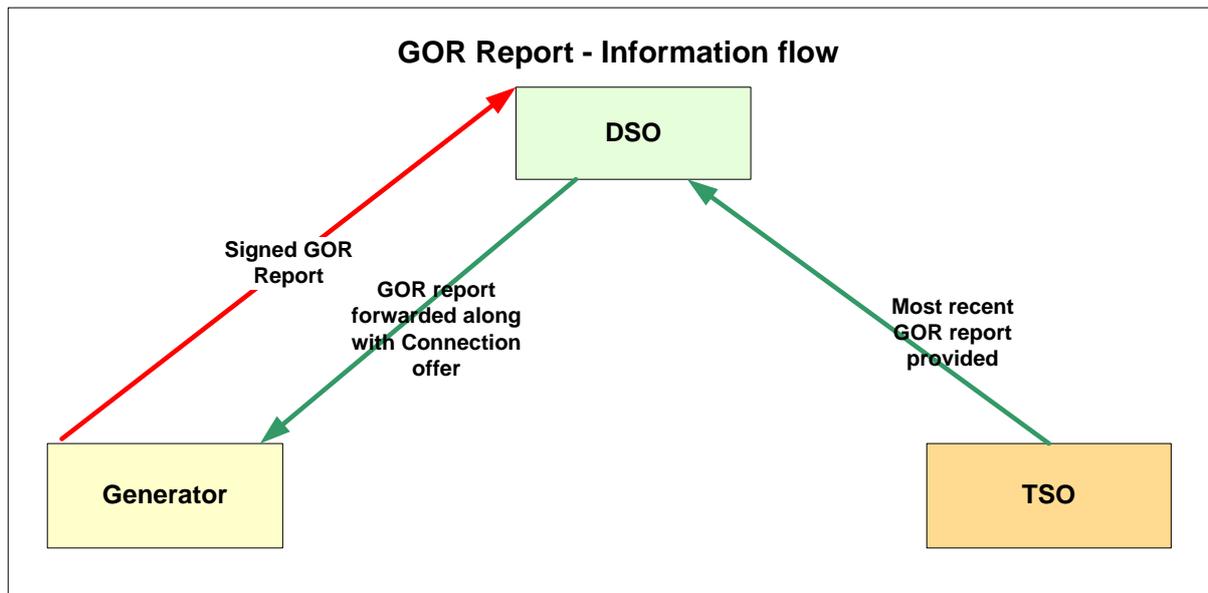
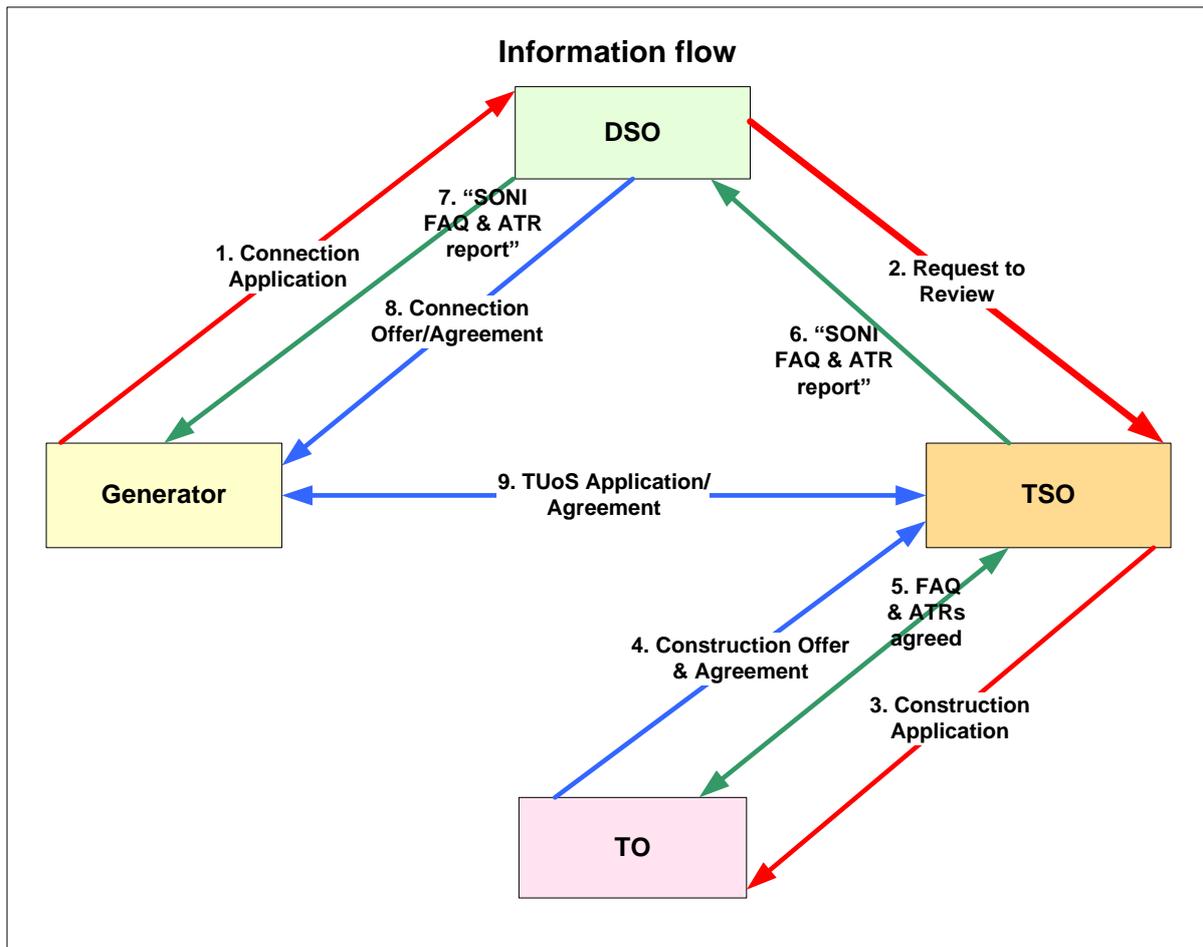


Figure B.4: Flowchart for a new connection or modification to the Transmission system

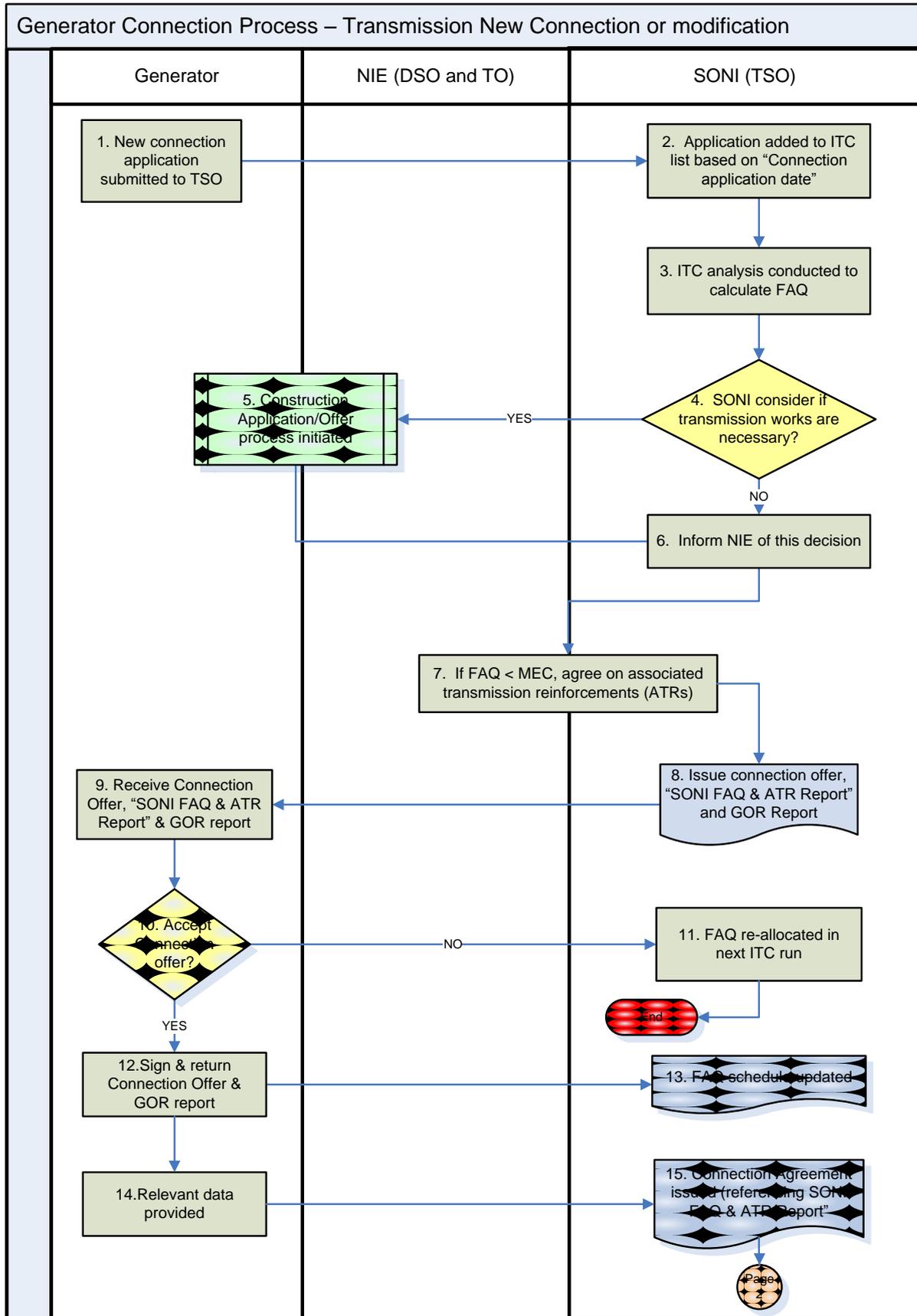


Figure B.4 Continued: Flowchart for a new connection or modification to the Transmission system

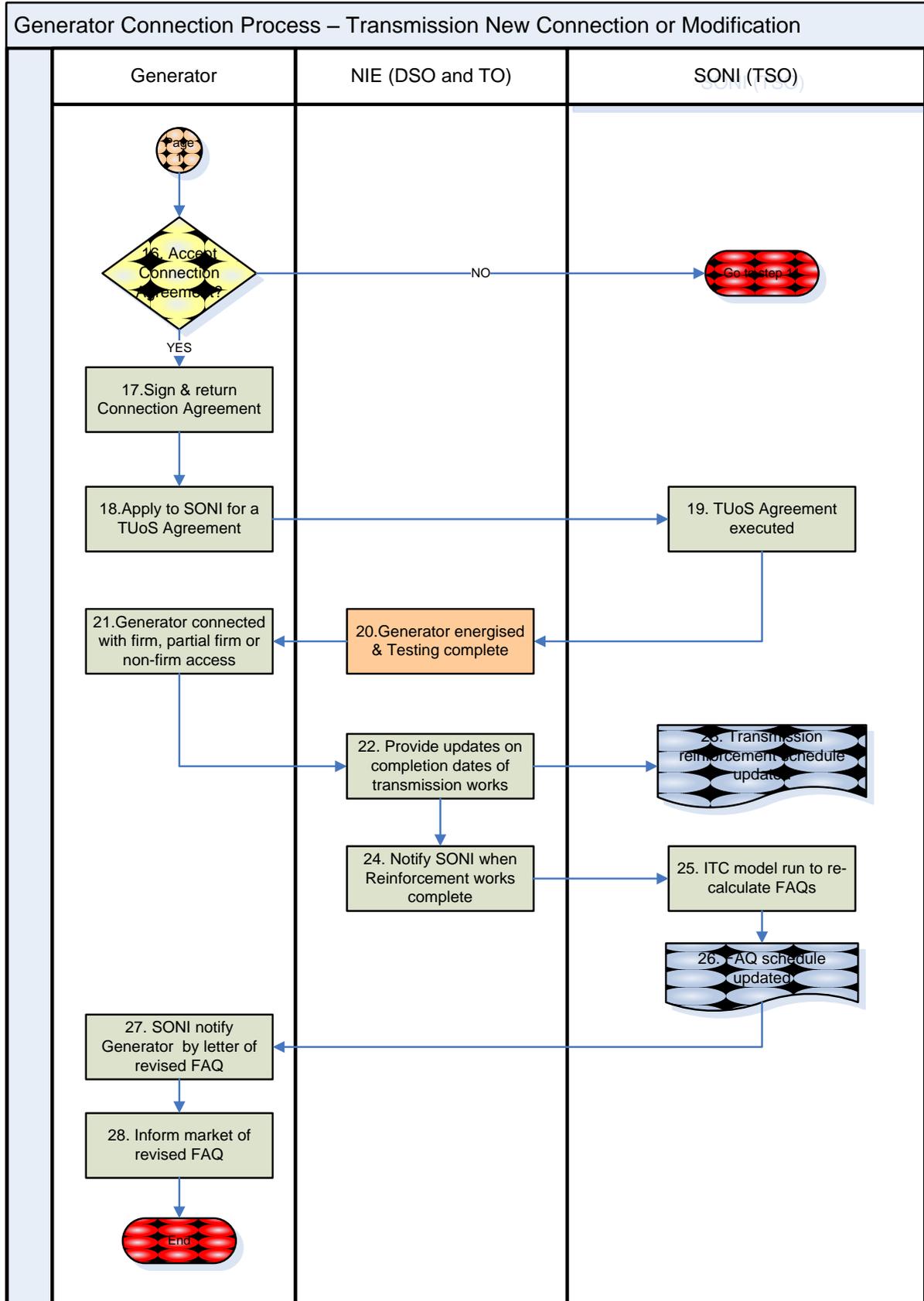


Figure B.5: Process Steps for a connection or modification to the Transmission System

Step #	Step	Description	Party Responsible	Timing
1	New connection application submitted to TSO	A generator wishing to connect to the transmission system submits a connection application to the TSO following planning permission approval for the connection.	Generator	As soon as possible after receipt of planning approval
2	Application added to ITC list based on "Connection application date"	SONI adds the new connection application to the ITC list. The order on the list is based on the connection application date which is the date on which the TSO receive the connection application.	SONI (TSO)	Within 3 business days of receipt of application
3	ITC analysis conducted to calculate FAQ	SONI will calculate the FAQ that can be facilitated based on the existing network, using ITC methodology. This value will be included in the "SONI FAQ & ATR Report" that is issued to the generator along with the Connection offer.	SONI	Within 3 business days of receipt of application
4	Consider if transmission works are deemed necessary?	SONI will consider if transmission reinforcements are necessary in order to provide the connection with FAQ equal to the MEC. <ul style="list-style-type: none"> • If Yes go to step 5 • If no go to step 6 	SONI	Within 3 business days of receipt of application
5	Construction Application/Offer process initiated	The TIA sets out details of the process in place whereby SONI submit a construction application to the TO (NIE) for works to the transmission system. This process will be followed when SONI deem that transmission reinforcements are necessary.	SONI/NIE	As set out in TIA
6	Inform NIE of this decision	If SONI feels additional transmission works are not necessary in order to provide the connection with FAQ equal to MEC then this decision will be communicated to TO.	SONI	Within 5 business days of receipt of application

Step #	Step	Description	Party Responsible	Timing
7	If FAQ is less than MEC, agree on associated transmission reinforcements (ATRs)	In the situation where full firm access cannot be granted SONI and the TO will agree on the necessary transmission reinforcements that are required to provide the connection with FAQ equal to MEC, these are known as Associated Transmission Reinforcements (ATRs).	SONI and TO	Within 80 days of connection application date (consistent with TIA timelines)
8	Issue connection offer, "SONI FAQ & ATR Report" and GOR Report	<p>SONI will make a Connection offer to the generator. In addition, SONI will prepare a report detailing the FAQ that is available for the connection. In the situation where FAQ is less than the MEC this report will outline the specific ATRs necessary for the connection to have full firm access and when these are scheduled for completion, according to NIE development plans. This report, known as the "SONI FAQ & ATR Report" will be given to the generator along with the Connection Offer. The "SONI FAQ & ATR Report" will also explain the FAQ schedule and how this will be updated as FAQs change. The "SONI FAQ & ATR report" and the FAQ schedule form part of the Connection Agreement package.</p> <p>A copy of the GOR report will be issued along with the connection offer. A connecting generator will sign the GOR report and return with the connection offer to acknowledge receipt of this data.</p>	SONI	As set out in TSO licence
9	Receive Connection Offer, "SONI FAQ & ATR Report" & GOR report	The generator receives the documents described in step 8.	Generator	
10	Accept Connection offer?	<p>The generator assesses the connection offer and either accepts this or declines this. The offer is valid for 90 days from issue. If it is not accepted in this time it becomes invalid and the FAQ will be re-allocated in the next ITC study.</p> <ul style="list-style-type: none"> • If the answer is No go to step 11 • If the answer is Yes go to step 12 	Generator	As detailed in Connection offer

Step #	Step	Description	Party Responsible	Timing
11	FAQ re-allocated in next ITC run	If a connection offer has not been accepted and it has lapsed the connection application will be removed from the ITC model and the FAQ will be re-allocated in the next ITC study.	SONI	91 days after offer issue date
12	Sign & return Connection Offer & GOR report	When a generator accepts an offer the connection offer document will be signed and returned within 90 days of issue. The GOR report will also be signed and returned to SONI.	Generator	As set out in Connection offer
13	FAQ schedule updated	SONI will update the FAQ schedule which is available on the SONI website to confirm the FAQ that is allocated to a connecting generator.	SONI	Within 3 business days of acceptance
14	Relevant data provided	The connecting Generator provides SONI with all relevant data required to issue a Connection Agreement.	Generator	As outlined in connection offer
15	Connection Agreement issued	SONI issue a Connection Agreement to the generator which will refer to the "SONI FAQ & ATR report" and the FAQ schedule. The FAQ schedule is a document maintained and published by SONI on the SONI website and will outline all up to date FAQs.	SONI	As outlined in Connection Offer
16	Accept Connection Agreement?	The generator decides if it will accept the connection agreement. <ul style="list-style-type: none"> • If Yes go to step 17 • If not the connection process cannot be completed, go to step 11. 	Generator	As outlined in Connection Agreement
17	Sign & return Connection Agreement	The generator signs and returns the Connection Agreement.	Generator	As outlined in Connection Agreement
18	Apply to SONI for a TUoS Agreement	The generator must apply to SONI for a TUoS offer. This application can be made any time following the connection application.	Generator	ASAP after submitting a connection application
19	TUoS Agreement executed	SONI and the generator enter into a TUoS agreement. The TUoS agreement will also reference the "SONI FAQ & ATR Report" and the FAQ schedule.	SONI	ASAP
20	Generator energised & Testing complete	SONI / NIE will complete necessary testing and energise the generator	SONI	As agreed

Step #	Step	Description	Party Responsible	Timing
21	Generator connected with firm, partial firm or non-firm access	The generator may have firm access, partial firm access (some firm and some non-firm capacity) or non-firm access to the transmission system until reinforcements are complete. The generator is responsible for informing the market of the FAQ that has been allocated to it.		As agreed
22	Provide updates on completion dates of transmission works	If the completion of an associated transmission reinforcement (ATR) is delayed, TO will provide an update of the scheduled completion time to SONI so that the Transmission Reinforcement schedule can be updated and the generator can be made aware of the revised scheduled completion time.	TO	When information becomes available
23	Transmission reinforcement schedule updated	SONI will update the transmission reinforcement schedule as necessary following step 22.	SONI	When information becomes available
24	Notify SONI when Reinforcement works complete	As transmission reinforcements are complete NIE will inform SONI so that FAQ for a connection can be increased as soon as possible	NIE	Within 2 days of completion of reinforcement
25	ITC model run to recalculate FAQs	When an ATR has been complete SONI will recalculate FAQs so that any FAQ can be increased.	SONI	Within 3 business days of notification
26	FAQ schedule updated	SONI will update the published FAQ schedule with revised FAQs	SONI	Within 3 business days of notification
27	Notify Generator by letter of revised FAQ	SONI will inform the generator in writing of the revised FAQs. When a generator holds an executed Connection agreement <u>and</u> a formal letter of notification from the System operator that all ATRs have been complete and FAQ is equal to MEC, this party has then full firm access to the transmission system.	SONI	Within 3 business days of notification from SONI
28	Inform market of revised FAQ	The generator must inform the market of the new FAQ and its effective date.	Generator	ASAP

All timings stated are indicative and will have to be formally agreed by NIE and SONI for inclusion in the TIA

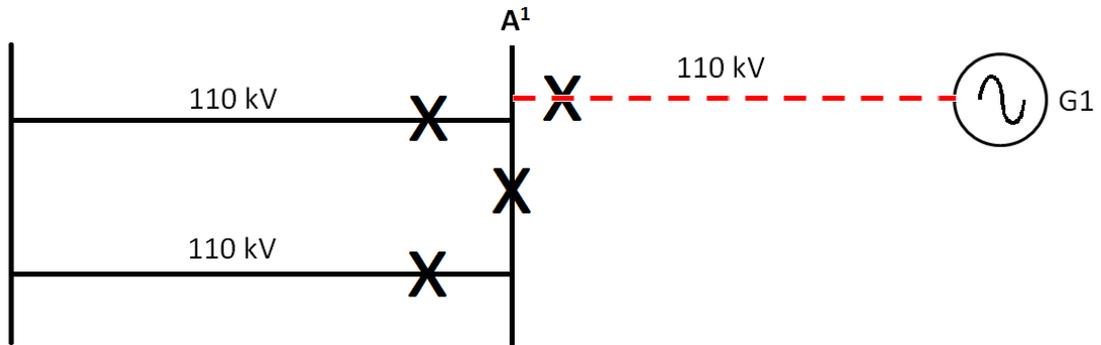
Appendix C: Results of indicative ITC Studies 2012 - 2018

Please see separately published document:

Appendix C - ITC Results 2012 - 2018 paper June 2012

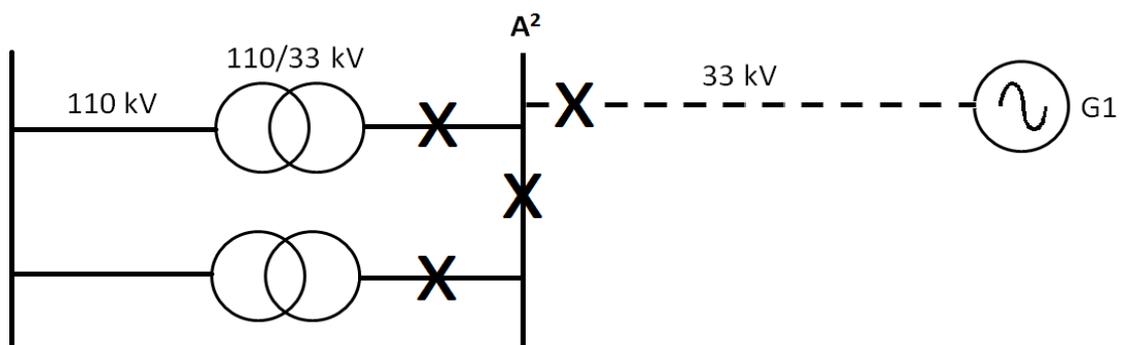
Appendix D: FAQ considerations for various connection arrangements

110 kV Connection



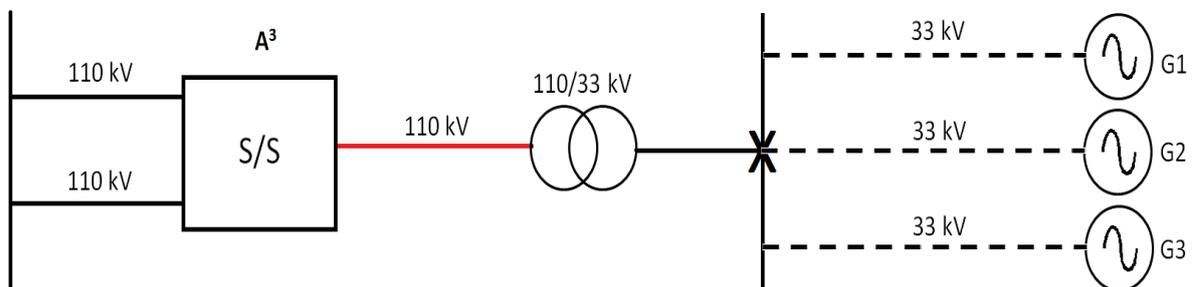
FAQ is considered at Point A¹ only.
The 110 kV single CCT is not considered.

33 kV Connection



FAQ is considered at point A² only.
The 33 kV CCT is not considered.

33 kV connections via a single 110 kV circuit cluster arrangement



FAQ is considered at point A³ only.
The single 33 kV CCTs and the 110 kV CCT are not considered.