

Connect and Manage Guidance

March 2013



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Introduction

Background Information

On 27 July 2010, DECC published the government response to their technical consultation on the model for improving grid access¹, explaining that the Government has decided to implement an enduring Connect and Manage (C&M) approach to transmission access. This new approach became live on 11 August 2010, and from this date the necessary industry code and licence modifications became effective.

The new arrangements continue the principle introduced under Interim Connect and Manage (ICM), where generation projects are allowed to connect to the transmission system in advance of the completion of the wider transmission reinforcement works. Under C&M the works that are required to be completed prior to a generator connecting are classed as 'Enabling Works'. The criteria for identifying "Enabling Works" is contained in DECC's consultation response and also set out within the new section 13² of the Connection and Use of System Code (CUSC). Section 2 of this document details National Grid's interpretation and application of these criteria.

Under C&M any derogations against the National Electricity Transmission System Security and Quality Supply Standards (NETS SQSS) required to facilitate connections ahead of the completion of the wider transmission reinforcement works will be managed by the relevant Transmission Owner (TO), subject to final approval by the System Operator (SO). This is a change to the ICM regime where Ofgem granted any necessary derogations.

From 1 April 2011, User commitment for connected Generators will increase from one year to two years of Transmission Network Use of System (TNUoS) Charges. This increase has been implemented to allow the SO further information regarding generation and to allow more accurate network planning.

C&M replaces the previous Invest and Connect regime (i.e. prior to May 09) and the temporary ICM arrangements for connecting new generating stations (between May 09 and Aug 10). The government response detailed the requirements and timescales for the transition of ICM connection agreements. This is further explained in page 10 of this document.

¹ <http://www.decc.gov.uk/assets/decc/Consultations/Improving%20Grid%20Access/251-govt-response-grid-access.pdf>

² http://www.nationalgrid.com/NR/rdonlyres/E88C7976-D4A8-40AB-B185-D0C51BDB66B5/42627/CUSCSection13_Connectandmanage_11August2010.pdf

Enabling and Wider Works

When a new generator connects to the transmission system it may be necessary to undertake network reinforcements to ensure compliance with the NETS SQSS. Under C&M these reinforcement works are classified as either enabling or wider works.

‘Enabling Works’ are the minimum transmission reinforcement works which need to be completed before a generator can be connected to and given firm access to the transmission network (i.e. between the generator and the nearest suitable point on the network).

‘Wider Works’ are the other transmission reinforcement works (i.e. not Enabling Works) associated with reinforcing the network to accommodate the new generating station and ensure compliance with the NETS SQSS.

The boundary between ‘Enabling Works’ and ‘Wider Works’ will vary depending on the individual circumstances of a particular project and, as such, each connection will be assessed by National Grid and/or the relevant TO on its own merits.

To enable a consistent approach and to give prospective generators an understanding of how Enabling and Wider Works would be decided in the case of individual applications, DECC defined criteria in CUSC section 13. The criteria are largely based on a subset of the criteria contained in the NETS SQSS chapter 2 (Design of Generation Connection), and are substantially the same criteria used for the ICM arrangements established by National Grid and the TOs in May 2009.

CUSC section 13.2.4 defines the minimum that Enabling Works will include as the works required to:

- achieve compliance with the “Pre-fault Criteria” set out in Chapter 2 (Generation Connection Criteria Applicable to the Onshore Transmission System) of the NETS SQSS
- achieve compliance with the “Limits to Loss of Power Infeed Risks” set out in Chapter 2 (Generation Connection Criteria Applicable to the Onshore Transmission System) of the NETS SQSS
- enable The Company to operate the National Electricity Transmission System in a safe manner
- resolve any fault level issues associated with the connection and/or use of system by the C&M Power Station
- comply with the minimum technical, design and operational criteria and performance requirements under the Grid Code
- meet other statutory obligations including but not limited to obligations under any Nuclear Site Licence Provisions Agreement
- avoid any adverse impact on other Users

National Grid, as SO, needs to ensure that there are diverse constraint management options ahead of completion of Wider Works. This level of diversity allows National Grid to operate the system until those wider works are completed without incurring excessive costs.

Subject to the criteria above it is anticipated that the Enabling Works are only expected to be greater than works necessary to connect to a Main Interconnected Transmission System (MITS) substation in exceptional circumstances (for example, in long radial parts of the network). It is expected that in many cases sufficient diversity of operations could be provided at a point less than a MITS substation. The concept of a MITS substation is described below.

MITS Substation & MITS Connection Works

A MITS Substation is a Transmission substation with connections to more than 4 Transmission Circuits, excluding Grid Supply Point transformer circuits. This definition of a MITS substation is designed to reflect the need for a connection to be sufficiently deep into the main integrated transmission system to provide the diverse constraint management options described above.

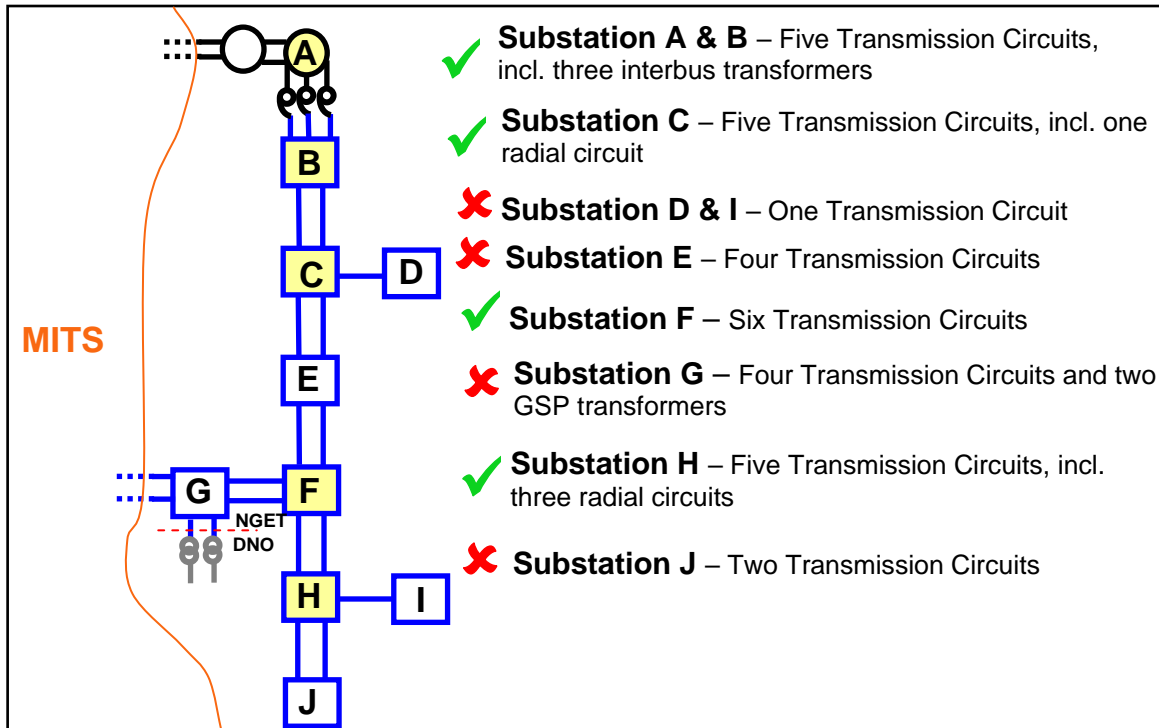
MITS Connection works are defined as those transmission reinforcement works required from the connection site to a MITS Substation.

To enable prospective generators to identify MITS substations and therefore gain an understanding of the expected maximum extent of their potential Enabling Works and potential MITS Connection Works, National Grid has published MITS maps on its website and will continue to do so in the Seven Year Statement.

<http://www.nationalgrid.com/uk/Electricity/GettingConnected/ContractedGenerationInformation/TNQuUpdate/>

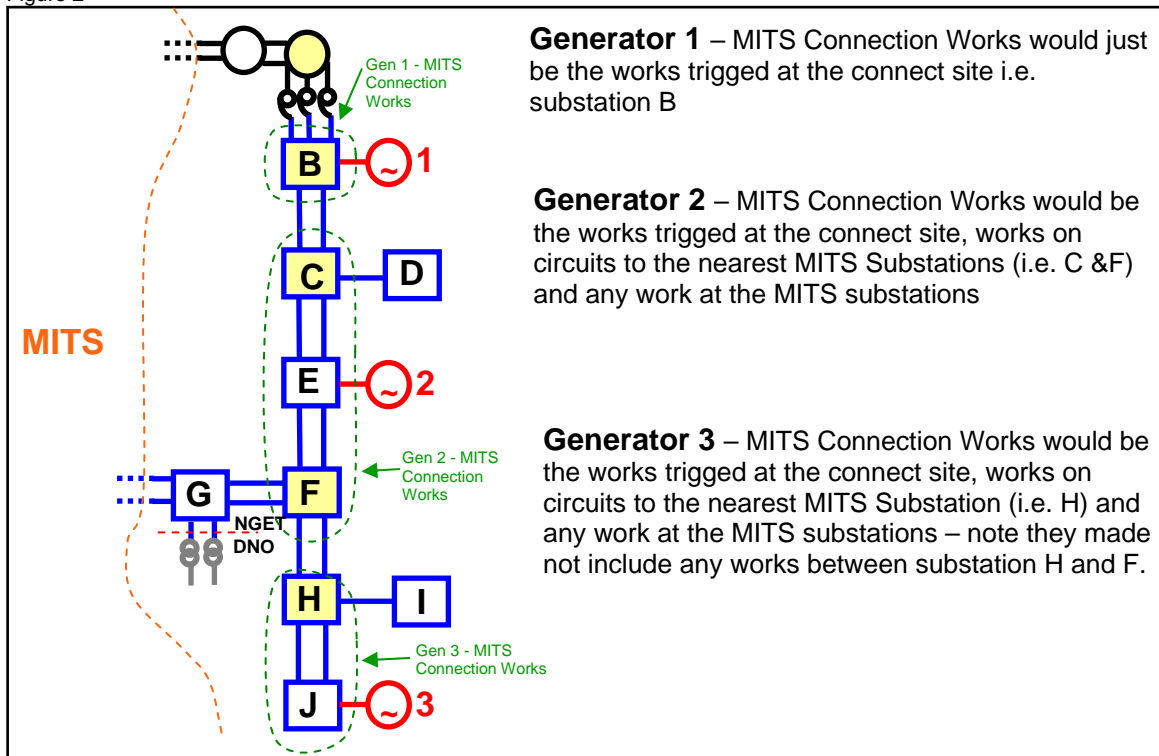
Figure 1 and Figure 2 below further explain the definitions of MITS Substations and MITS Connection Works on the previous page.

Figure 1 Example MITS Substations



Example MITS Connection Works

Figure 2



Identification of Enabling Works

As described above, it is expected that Enabling Works would only extend beyond the MITS substation in exceptional circumstances; however, the extent of Enabling Works for each project is determined by individual circumstances and the application of the criteria detailed previously.

For each generator, the SO and/or the relevant TO(s) will follow the steps below to identify the extent of Enabling Works.

- Step 1.** The relevant TO(s) will identify all reinforcement works needed to achieve compliance with NETS SQSS, Grid Code and other statutory obligations
- Step 2.** The relevant TO(s) will apply the minimum enabling work criteria and identify those works that can be categorised as Enabling Works
- Step 3.** The relevant TO(s) will identify and categorise all the remaining reinforcements beyond the MITS Substation as Wider Works
- Step 4.** For the remaining works (i.e. those between the connection point and the MITS Substation and NOT required to meet the minimum Enabling Works criteria) a review will be carried out jointly by SO and relevant TO(s) of what operational management options are available to resolve non-compliance ahead of the reinforcement work. If diverse management options exist then the work can be categorised as Wider Work, if not then categorised as Enabling Work
- Step 5.** The relevant TO(s), with support from the SO, will look to identify potential temporary works to offset the increased operational costs

Reinforcements which are both Enabling and Wider.

It is a natural consequence of applying the criteria in CUSC 13 and the steps detailed above, that where the maximum capacity of that part of the network has been reached, there will be instances where the same reinforcement is Enabling Works for one generator and Wider for another. This could also result in deeper Enabling Works than would otherwise be expected. Figure 3 and 4 provide examples of this:

Figure 3 – Wider for Generator 1 and Enabling for Generator 2

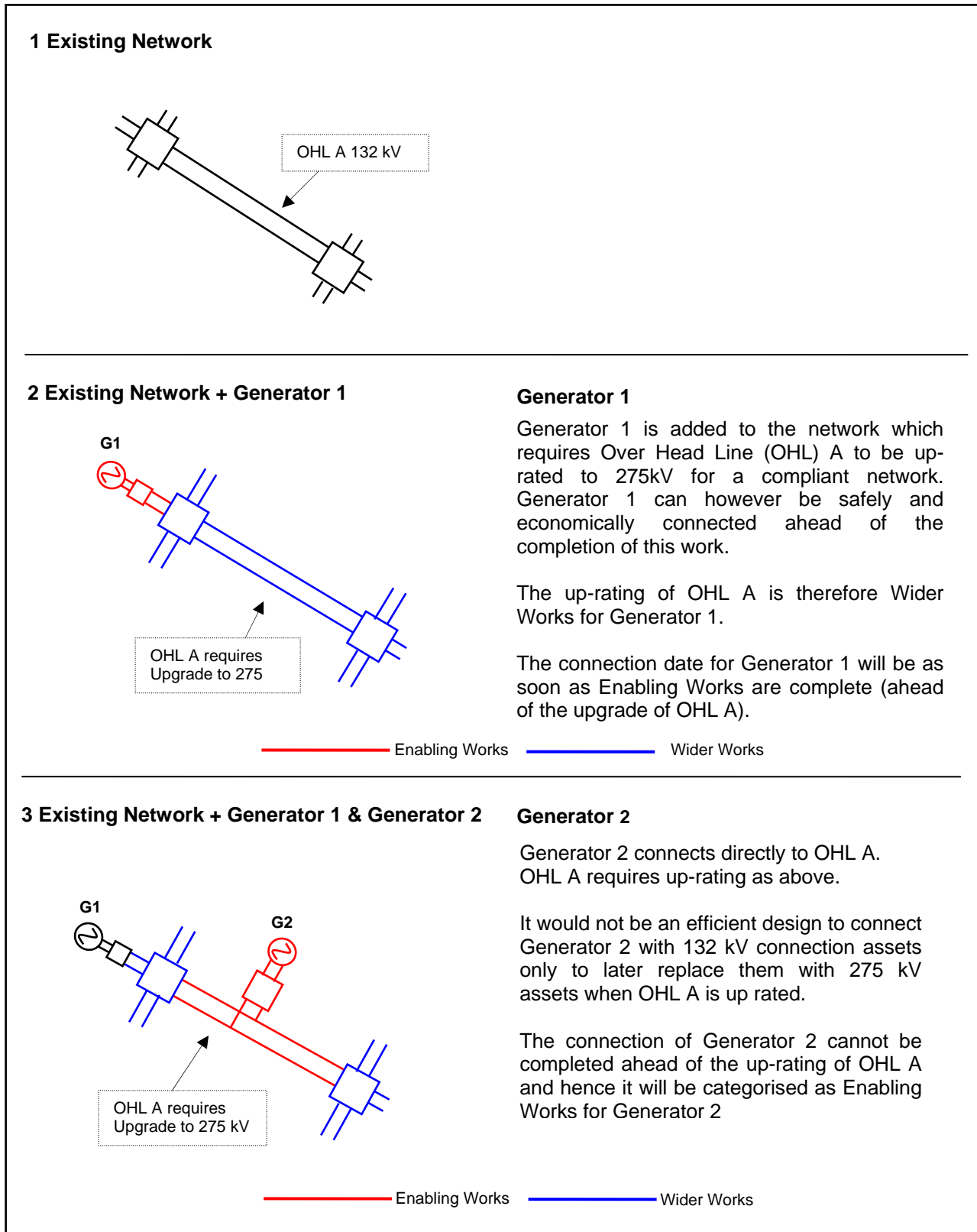
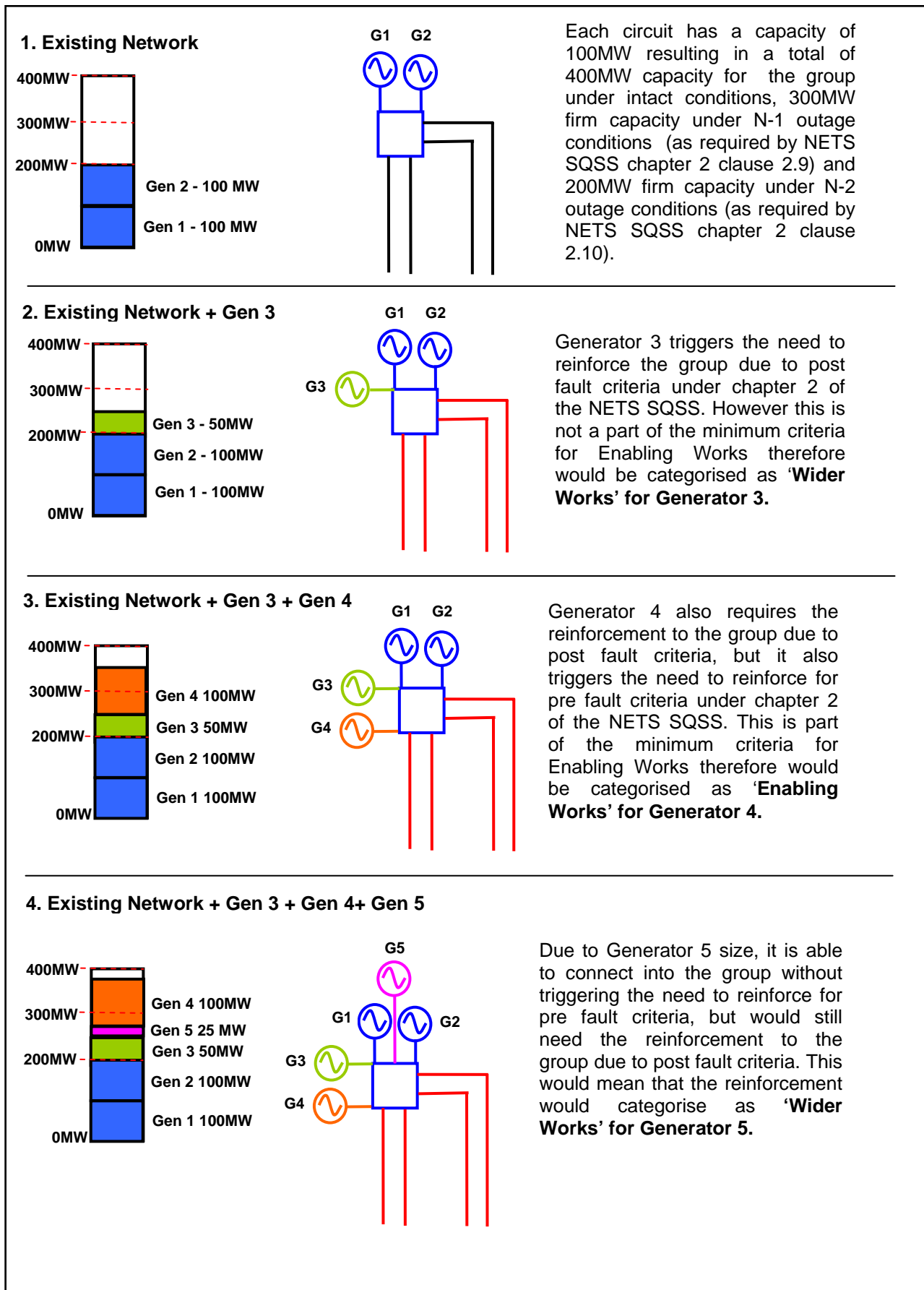


Figure 4 – Efficient Utilisation of Assets



Connect and Manage Derogations

Connection of generators ahead of the completion of Wider Works means that parts of the Transmission System will not be compliant with the NETS SQSS until these works are completed. Under C&M, derogations from the planning criteria of NETS SQSS are required to allow these generators to connect ahead of the completion of the Wider Works. Unlike ICM where the TOs would request Ofgem to grant the derogation, C&M allows the TO to submit a derogation report as part of an associated TO offer (subject to SO approval).

National Grid, as SO, in reviewing a derogation report from the TO, will consider the following derogation criteria;

- The criteria set out in CUSC section 13
- System security
- The running of an economic and efficient network
- Any adverse impact on other network users

If the System Operator takes action to impose a restriction on a Generators' output due to constraints caused by, 'Wider Works'(subject to Connect and Manage Derogation), then that party will be eligible for compensation under the Balancing Mechanism.

Process and Governance

The derogation process is split into two parts. Part 1 completed by the TO during the connection application process, Part 2 by National Grid in its function as SO.

Part 1 - Technical description of non compliance

- Sections of NETS SQSS that derogation will cover
- Parts of network that will be non compliant
- Cause of non compliance
- Long term solution
- Length of derogation

Part 2 - Expected consequence of non compliance

- Cost of managing non compliance
- Carbon benefits of connection
- Proposed SO action to manage non compliance

Following the completion of Part 1 and Part 2, National Grid assesses the derogation report to ensure it complies with the derogation criteria detailed above. National Grid expects that the norm will be that the derogation is approved and that the connection offer will be made to the generator in the normal offer timescales. Should there be circumstances where this is not the case, it may be necessary for National Grid to seek an extension to the offer period, to allow us, in conjunction with the TO, to consider the appropriate actions, which may include;

- Reviewing the scope of Enabling Works
- Exploring additional opportunities to reduce operational costs
- Discussing options with the customer
- Discussing options with Ofgem

Derogations for individual projects

Derogations will be granted on an individual project basis using the current assumptions (e.g. demand, current and future generation background, completion dates for reinforcements and forward energy prices etc.).

DECC have confirmed that should any of these assumptions change, individual project derogations will not be revisited. This provides connectees that benefit from the derogation with some certainty regarding the offered connection date.

If for any reason changes in assumptions or circumstances result in concern over the aggregate impact of the derogations in place, this would not be addressed through the re-opening of an individual derogation. Instead, DECC's Government Response sets out the actions that might be taken in such circumstances, noting in particular the expectation that National Grid and Ofgem would consider the full range of constraint cost management options available to them.

Connection Applications

This section describes the impact of the new C&M regime on new and existing connection offers.

New Connection Applications

All generation related Offers and Modification Applications being issued after 11 August 2010 will be issued in accordance with the C&M regime.

ICM Agreements

All prospective generators with an ICM agreement will be offered a new C&M Agreement by 11 February 2011. There will not be a fee for the move from interim to enduring arrangements.

It is DECC's intention that no project is adversely affected by the transition to the enduring arrangements. In practice, this means for many transiting projects the C&M enabling works will be the same as or very similar to the ICM Local Works identified in their current agreement.

Invest and Connect Agreements

For customers on pre-ICM agreements (i.e. connections that continue to depend on the completion of all transmission works), there is no need to transition any agreements and no action is required. Should a generator (or DNO) want to transition to C&M, they can apply for this at any time. If you are interested in this please discuss this with your Customer Account Manager.

Scottish offers without confirmed connection dates

National Grid and the Scottish TO's have undertaken to provide full connection offers for the Scottish projects that at the time of application it was not considered practical or efficient to fully identify a programme of works required. These projects will receive full C&M offers by 11 August 2011 and National Grid have contacted these projects to discuss individual requirements.

User Commitment

Post Connection User Commitment

From 1 April 2011 User Commitment will increase by one year to two years. In the event of notification of a reduction in generating capacity (TEC) or complete plant closure, Connected Generators will be liable for two years Transmission Network Use of System (TNUoS) charges at their contracted capacity.

Generators will continue to be able to give a minimum notice of five working days ahead of reducing TEC; however, a TEC Reduction Charge will be incurred if the generator does not give notice for the remainder of the current financial year and the next financial year (i.e. a minimum notice period of one year and five days).

The TEC Reduction Charge will comprise of TNUoS charges for the following year plus the liability for the remainder of the current financial year. Where a plant is closing completely, this will mean invoices continuing as usual for the remainder of the current financial year, and a payment of a lump sum for the future year. The rate for the future year will be set at the same level as the current year.

For the avoidance of doubt, where generators are in negative TNUoS charging zones and are reducing TEC without notice, generators would not receive a TNUoS payment for either the first or second year.

The notice periods for TEC reduction and full closure will still apply and are detailed in CUSC section 3.

It was the intention of DECC that the extension of User Commitment would provide evidence that could in future lead to further extension through the usual industry governance.

Pre Connection User Commitment

Under C&M it was DECC's intention that a User's requirement to secure any derogated wider works will fall away on connection and the User would then begin to pay TNUoS charges. DECC also do not expect that a third party who is yet to connect to be assigned the liabilities for wider works previously covered by the newly connected C&M party.

Pre-connection securities are currently being reviewed as part of Ofgem's project TransmiT³. TransmiT is an independent review of the charging arrangements for Gas and Electricity Transmission Networks, and the connection arrangements explicitly left for Ofgem and the industry to resolve.

In the interim, National Grid is working with Ofgem with a view to continuing with the temporary Final Sums Liabilities approach introduced in July 2010⁴ whereby developers are required to secure their Local⁵ Works and do need to secure their Wider Works (see paragraph below for the securities definition of Wider Works). This approach also takes into account the intentions outlined by DECC.

It is important to note that there are different definitions of Wider Works used in the security arrangements and under Connect and Manage.

- **Security** - Wider Works are those works required to meet Chapter 4 (Design of the Main Integrated Transmission System) of the NETS SQSS.
- **Connect and Manage** – Wider Works are those works not defined as Enabling Works. This may include works required by Chapter 2 (design of Generation Connections) or Chapter 4 (Design of the Main Integrated Transmission System) of the NETS SQSS.

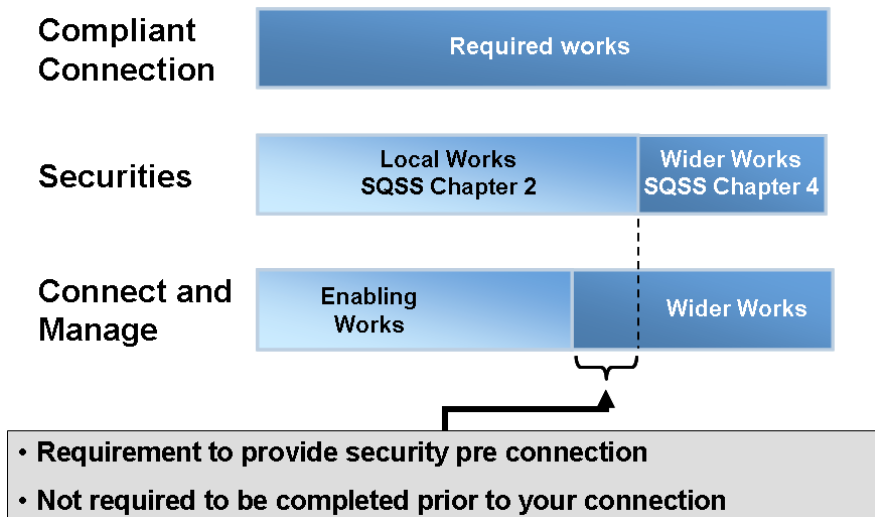
These two definitions of Wider Works arise as a consequence of trying to minimise the Enabling Works and hence are potentially a subset of the works required by Chapter 2 of NETS SQSS, see figure below.

³ <http://www.ofgem.gov.uk/Networks/Trans/PT/Pages/ProjectTransmiT.aspx>

⁴ http://www.nationalgrid.com/NR/rdonlyres/6302C1A3-B7B5-42BF-9054-81B4AFA858F5/42130/SecuritiesConsultationReportv1Final_PDF.pdf

⁵ "Local" is defined as, those works required to meet Chapter 2 of the NETS SQSS (design of Generation Connections).

Figure 5 – Security Definition compared to Connect & Manage Definitions



National Grid are committed to developing an enduring security regime that balances risk between the industry and consumers and will continue to work with Ofgem and the industry within the scope of project TransmiT to achieve this. In the interim we expect to continue with the two approaches described above, and will work with Ofgem to confirm this approach for the next security period.

Reporting and Monitoring

The Government response and the newly implemented CUSC section 13 outlines a set of reports that National Grid with the support of the TO's will produce to monitor the implementation and ongoing progress of C&M.

The reports are to be developed and agreed with DECC and Ofgem within the Transitional period and published in the agreed format going forward.

Monitoring Impacts Report

In support of Ofgem's monitoring of the impacts of the Connect and Manage regime, National Grid will report regularly on aspects such as connection timescales and levels of constraint costs.

Ofgem is due to issue the first report to the Secretary of State for energy by 31 March 2011.

MITS Report

National Grid will publish annually a report highlighting connection offers where the Enabling Works were greater than the MITS Connection Works.

Enabling Works

National Grid will also publish annually a report showing the period of time taken to complete Enabling Works.

Derogation Information

Derogations will be published on the National Grid website within two months of the applicant accepting the C&M Offer.

<http://www.nationalgrid.com/uk/Electricity/Codes/gbsqsscode/ConnectManageDocs/>

Code Changes

The implementation of C&M has resulted in amendments to the Connection and Use of System Code (CUSC) and the System Operator – Transmission Owner Code (STC).

Changes were implemented from 11 August 2011 following instruction from the Secretary of State.

The DECC government response highlighted changes the following Sections, Exhibits and Schedules:

Connection and Use of System Code

- CUSC Section 1
- CUSC Section 5
- CUSC Section 6
- CUSC Section 11
- CUSC Section 13
- Exhibits to the CUSC (B, C, D, E, I, J, Q, R and V)
- Schedule 2 Exhibit 1 (Bilateral Connection Agreement) and Exhibit 2 (Bilateral Embedded Generator Agreement)
- Schedule 2 Exhibit 5 (BELLA)
- Schedule 2 Exhibit 3 (Construction Agreement)
- Schedule 2 Exhibit 3A (Offshore Construction Agreement)

System Operator – Transmission Owner Code

- STC Section J (Definitions)
- STC Schedule 5
- STC Schedule 6
- STC Schedule 7
- STC Schedule 8
- STC Schedule 9
- STC Schedule 13

Additional Points

Embedded Generation

Embedded generation which is large enough to have, or is deemed to have a significant impact on the Transmission System will be eligible for a connection offer in accordance with C&M.

Any generator wishing to connect to a Distribution Network should in the first instance contact the relevant Distribution Network Owner (DNO). The DNO will be able to advise whether a particular connection is likely to have to be assessed for its impact on the Transmission System.

Interactivity

Interactivity occurs where two or more connection applications are made that would require the same Transmission Reinforcement Works. Under C&M, although possible, National Grid envisage that there will be a reduced level of interactivity as interactivity is largely driven by Wider Works.

National Grid's Policy on Interactivity can be found at the following link:

<http://www.nationalgrid.com/uk/Electricity/GettingConnected/PoliciesAndGuidance/>

Design Variation

Although C&M will be the default position, Developers may wish to discuss with National Grid design variation options to further accelerate their connection date using Non Firm access products. To discuss any such options, please do not hesitate to contact your Customer Agreement Manager.

<http://www.nationalgrid.com/uk/Electricity/GettingConnected/Contacts/>

Author (for this version):	Paul Mullen
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