

Decision on Changes to Over Install Policy for Single Technology & Hybrid Co-Located Technology.

6th October 2023



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Executive Summary

This decision paper follows a consultation process that sought to gain feedback from stakeholders on NIE Networks' and SONI's (the SO's) joint proposal to amend existing arrangements for Over Install. The consultation closed on the 21st July 2023 and a total of 16 responses were received. The SO's welcome the level of engagement received from all sections of industry throughout the process. This engagement has provided a helpful insight on stakeholder views on the topics raised in the consultation and has influenced the decision presented within this paper.

The consultation document explained that the SO's are proposing to remove the 120% limit for Over Install. There were separate proposals for Single technology sites and Hybrid sites made in the consultation document to meet this objective. They are summarised below:

- Single Technology Sites:
 - Distribution Connected - For Single technology sites seeking to connect to the Distribution System, the current 120% limit for Over Install would be removed and NIE Networks would follow the relevant offer process.
 - Transmission Connected - For Single technology sites seeking to connect to the Transmission System, the current 120% limit for Over Install would be removed once any remaining areas requiring possible change are adequately addressed (See Appendix 1). SONI would then follow the relevant offer process.
- Hybrid Sites:
 - Distribution Connected - For Hybrid Co-Located sites seeking to connect to the Distribution System, the current 120% limit for Over Install would be removed and NIE Networks would follow the relevant offer process. This is not dependent on the outcome of any other consultation or change process.
 - Transmission Connected - For Hybrid Co-Located sites seeking to connect to the Transmission System, the current 120% limit for Over Install would be removed once remaining areas requiring possible change are adequately addressed (See Appendix 1). SONI would then follow the relevant offer process.

However, as explained in section 2.2 of this decision paper and highlighted in the consultation, there are additional issues that need to be resolved to allow for the uptake of over installed Transmission and Distribution Hybrid Co-Located sites that have generators that would be required to or choose to register in the Single Electricity Market (SEM), in addition to other operational changes needed to facilitate over installed Co-Located Hybrid Sites.

Currently, the Over Install policy has a limit of 120% and is set out in the Alternative Connection Application and Offer Process ("ACAOP") Decision Paper of May 2016¹. It is intended that the connections process contained within the ACAOP will no longer be applied to applicants received after the Go Live Date of **7th November 2023 at 10:00am**, for distribution connections, as described in section 4 of this decision paper.

¹ [https://www.nienetworks.co.uk/documents/generation/alternative-connection-application-and-offer-p-\(1\).aspx](https://www.nienetworks.co.uk/documents/generation/alternative-connection-application-and-offer-p-(1).aspx)

Decision

The SOs recognise the important role generation plays in achieving the wider objectives of the Energy Strategy for Northern Ireland. This, coupled with the fact there was overwhelming agreement with the proposals outlined in the consultation paper, means the proposals are accepted as proposed under the below conditions. These updated arrangements will apply to Connection Offer and Agreements that arise from applications received after the Go Live date of **7th November 2023 at 10:00am** for distribution connections.

For Transmission connected Single Technology sites, the Over Install limit will be removed once the areas identified in Appendix 1 are adequately remedied. For Hybrid Co-Located sites that would be required to or choose to register in SEM, the Over Install limit will be removed once the Sharing of MEC behind a single connection point is enabled (see Appendix 2). For distribution connected Hybrid sites which are not required to or which do not wish to register in SEM, the current 120% limit for Over Install will be removed.

For the avoidance of doubt, removing the 120% Over Install limit will only overcome one challenge in facilitating over installed Co-Located Hybrid Sites that have Generators that choose to or are required to be registered in the SEM. Generation units that wish to Over Install with a different technology will not be able to register in the market without increasing the MEC at the connection point and assigning a divided MEC for each unit type. Considering the market and operational challenges that remain, the over installation for both Transmission and Distribution Co-Located Hybrid Sites that choose to or are required to register in the SEM will not be facilitated in the SEM until the sharing of MEC behind a single connection point is enabled (see Appendix 2). The TSO is running an internal programme to address the challenges related to Hybrid Co-located Sites. The TSO plans to release expected implementation timelines for the removal of the Over Install limit for Transmission connections in Q1 2024. If the items stated in Appendix 1 are materially addressed before Q1 2024, SONI will update this policy accordingly for Single Technology sites.

For the full detailed decision and next steps please see section 4 of this decision paper.

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1 Introduction

To achieve renewable policy targets set out in the Climate Change Act (Northern Ireland) 2022² in the most economical and efficient manner, the SO's understand the need to make best use of existing assets on the system today. A significant number of stakeholders are keen to make use of existing or planned connection assets by augmenting the capacity factor of their generation sites by installing additional generation behind the same connection point without increasing their Maximum Export Capacity ("MEC"). This is referred to as an Over Install project, that allows for projects to Over Install generation capacity, but where a self-imposed cap is applied to the output, so that the contracted MEC at the point of connection is not exceeded. Prior to the changes proposed in this decision paper, the ACAOP Decision Paper of May 2016 outlined that the SO's would accept applications for 120% Over Install projects.

1.1 Existing Over Install Policy in Northern Ireland

Existing Over Install Policy in Northern Ireland was set out in the consultation paper. This included outlining the ACAOP decision paper and how NIE Networks applied the Over Install rule in practice, which is detailed below:

- Total Installed Capacity can be no greater than 120% of MEC.
- The Total Installed Capacity ("TIC") is the name plate rating of a generator/inverter (or sum of) that can be simultaneously connected in parallel with the electricity network.
- If the generator has undergone "hard derating" i.e., physical changes have been made to the generator to reduce the capacity, the reduced rating shall be taken as the TIC.
- If a generator is limiting output through software or control mechanisms and no physical change has been made to the generator i.e., "soft derating", the name plate rating remains as the TIC.
- A single physical generator cannot split its capacity between export and non-export elements of a connection.
- The Over Install rule is applied in the same way for both Hybrid sites and Single technology sites connecting to the distribution network.

The consultation paper also outlined that there have not been transmission connected Over Install projects in Northern Ireland under the current Over Install policy to date.

1.2 Over Installation Technical Assessment

To identify the potential benefits and implications of removing the Over Install limit, the TSO's in Northern Ireland and Ireland conducted a set of all-Island technical studies and these were outlined in the consultation paper.

Based on the outcomes of the technical assessment, the SO's observed that removing the existing 120% limit would increase the current forecast levels of Total Dispatch Down (TDD) in the case of Single technology Over Install. However, the expected increase was minimal in comparison to current forecast levels. In the case of Hybrid Co-Located Grid scenarios, the level of TDD forecast was found to reduce slightly when compared to the current forecast levels in every study year. This

² <https://www.legislation.gov.uk/nia/2022/31/contents/enacted>

was to be expected due to the complimentary correlation of the technology combinations. It should be noted that assumptions have been made for these scenarios and as such the outcomes of the studies may be impacted in the future, depending on the level of generation, demand, interconnection, network build out, market rules and other system operational limits.

In all study scenarios, there was a positive impact on the total RES-E integrated on the system. The SO's outlined that removing the limitation for Single and Hybrid Co-Located technologies may benefit the Transmission and Distribution systems by maximising the efficient use of existing assets, assuming strict adherence to contracted MEC in the connection agreements at the connection point.

The consultation paper also noted that, while the SO's supported removing the existing limit of 120%, there is limitation of what is possible due to market and contractual factors. As a result, in order to move forward with the removal of the limit, in the consultation paper the SO's developed a proposal for both Single technology and Hybrid Co-Located technology sites.

2 Consultation Proposal for Future Policy

2.1 Single Technology

In the case of Single technology sites, the SO's proposed to remove the current 120% Over Install limit associated with a single unit of the same technology, as set out below:

- For Single technology sites seeking to connect to the Distribution System, the current 120% limit for Over Install would be removed and NIE Networks would follow the relevant offer process. This is not dependent on the outcome of any other consultation or change process.
- For Single technology sites seeking to connect to the Transmission System, the current 120% limit for Over Install would be removed once any remaining areas requiring possible change are adequately addressed (See Appendix 1). SONI would then follow the relevant offer process.

2.2 Hybrid Co-Located Technology Sites

The SO's also proposed to remove the limitation for Hybrid Co-Located technology combinations to Over Install above 120%, detailed below:

- For Hybrid Co-Located sites seeking to connect to the Distribution System, the current 120% limit for Over Install would be removed and NIE Networks would follow the relevant offer process. This is not dependent on the outcome of any other consultation or change process. However, as stated below, there are additional obstacles that need to be solved to allow for the uptake of market registered Hybrid Co-Located sites.
- For Hybrid Co-Located sites seeking to connect to the Transmission System, the current 120% limit for Over Install would be removed once remaining areas requiring possible change are adequately addressed (See Appendix 1). SONI would then follow the relevant offer process. Again, there are further issues that need to be resolved to allow for the uptake of market registered Hybrid Co-Located sites as explained below.

There are challenges that need to be resolved to facilitate over installed Hybrid Co-Located sites that have Generators that choose to or are required to register in the SEM. In addition to the areas identified in Appendix 1, currently, units registered in the SEM must specify a MEC for each unit type, and the individual units' MECs must summate to the overall MEC at the connection point. The sharing of MEC behind a single connection point cannot currently be facilitated in the market or TSO scheduling and dispatch systems. As such, generation units that wish to Over Install with a different technology will not be able to register in the market without increasing the MEC at the connection point and assigning a divided MEC for each unit type. To allow for greater utilisation of MEC at the connection point for Hybrid Co-Located technology sites the TSO is running an internal programme to address the challenges related to Hybrid Co-located and Over Install connections.

3 Consultation Questions and Responses

Respondents to the consultation were asked to respond regarding perspectives on the proposal to remove the 120% Over Install limit. There were three questions set out in the consultation paper. All sixteen respondents provided answers to these questions. Some respondents had queries which are discussed further below.

3.1 Consultation Question 1

The first consultation question asked:

Do you believe that the above proposal, to remove the current 120% Over Install limit, is a suitable approach relating to:

- **Single Technology Sites,**
- **Non- SEM registered Hybrid Co-Located Sites,**
- **Market registered Hybrid Co-Located Sites.**

All respondents were in support of the proposals, with one respondent commenting that they *'believe the existing 120% Over Install limit has had many unintended consequences and so we welcome this proposal for its removal. We agree that this proposal is a suitable approach for each of the three sites mentioned. We believe that removing the 120% Over Install limit will increase grid stability and flexibility.'* Another respondent outlined that *'developers should be free to determine the most optimal design for their energy project sites in conjunction with the System Operators (SO's) through the relevant offer process. We believe this process should be site-specific. It should not be unconstrained/influenced by artificial Maximum Export Capacity (MEC) limits which were designed around non-solar technologies, long before Ireland and the UK agreed to establish ambitious all-island targets for solar and hybrid technologies.'*

One respondent while in support of the removal of the 120% limit on Over Install expressed a concern that *'the list does not cover all the technologies that are being impacted by the 120% Over Install policy. We believe that the 120% should be removed from IDS³ that can show full controllability and compliance with the MEC of the site.'* The SO's would like to highlight that existing sites are able to avail of the removal of the 120% Over Install limit and increase their TIC. This would require the generator to engage with NIE Networks or SONI through the relevant application process and would result in a new connection agreement.

³ Individual Demand Site

3.2 Consultation Question 2

The second consultation question asked:

Do you have any additional suggestions for the SO's to consider prior to removal of the Over Install limit?

Some respondents took the opportunity to respond to this question by adding comments. There were multiple respondents who highlighted that the removal of the 120% limit would only remove some of the barriers that hybrid sites face and that one solution would be to implement dynamic sharing of MEC, with one respondent stating that *'Many wind and solar projects could install battery storage on existing sites relatively easily provided that they can make use of their existing MEC, once barriers to hybrid projects are removed. It is important that dynamic sharing of MEC is addressed as soon as possible by stakeholders to provide clarity to developers on how hybrid opportunities can be unlocked.'* The SO's accept this and would like to point out that the TSO is running an internal programme to address the challenges associated with implementing the Sharing of MEC behind a single connection point.

Another respondent commented *'The technical assessments found that there could be an increase in the Total Dispatch Down (TDD). Since the dispatch down is already quite high in Northern Ireland, this should be closely managed.'* The SO's acknowledge stakeholders' wider concerns around this and continue to focus on the management and mitigation of TDD.

One respondent suggested that *'To enhance control options for SOs and provide evidence for further evolution of networks, sites which can provide 'near real-time' accurate data should be actively encouraged by being put in a 'fast track' process for connection.'* The SOs would like to draw attention to the fact that under current queuing principles that the SOs are subject to when offering connection offers / connection agreements, as outlined in the relevant connection offer process documents^{4,5}, there wouldn't be the possibility of introducing such an arrangement. For the avoidance of doubt; for applications that are deemed valid when received by the SOs, the queue position will be based on the date and time of receipt of the application and all relevant milestones will continue to apply.

3.3 Consultation Question 3

The third consultation question asked:

Where stakeholders disagree with any of the above approaches, we ask that you provide reasons and an alternative approach for consideration.

While no respondents offered alternative approaches to that proposed in the consultation, some respondents chose to highlight other issues. One respondent requested additional clarity surrounding areas that require additional change, including limiting the output, metering and

⁴ <https://www.nienetworks.co.uk/documents/connections/distribution-application-offer-statement-jan-2022.aspx>

⁵ <https://www.soni.ltd.uk/media/documents/SONI-Connections-Policy.pdf>

timetables for enactment. The SOs wish to clarify that no changes were proposed to output limitation or metering, although they were discussed as part of Appendix 1 with regards to transmission system connections. The timetables for implementation have been laid out including the Go Live date for Distribution Connections while the TSO intends to release implementation timelines in Q1 2024 for Transmission connected Over Install.

4 Decision and Next Steps

The SOs recognise the important role generation plays in achieving the wider objectives of the Energy Strategy for Northern Ireland, and this coupled with the fact there was overwhelming agreement with the proposals outlined in the consultation paper, the proposals are accepted as proposed, under the following conditions:

- Single Technology Sites –
 - For Single technology sites seeking to connect to the Distribution System, the current 120% limit for Over Install will be removed and NIE Networks will follow the relevant offer process.
 - For Single technology sites seeking to connect to the Transmission System, the current 120% limit for Over Install will be removed once any remaining areas requiring possible change are adequately addressed (See Appendix 1). SONI will then follow the relevant offer process. SONI will release expected implementation dates in Q1 2024. If the items stated in Appendix 1 are materially addressed before Q1 2024, SONI will update this policy accordingly.
- Hybrid Sites
 - For Hybrid Co-Located sites seeking to connect to the Distribution System, the current 120% limit for Over Install will be removed and NIE Networks will follow the relevant offer process. This is not dependent on the outcome of any other consultation or change process.
 - For Hybrid Co-Located sites seeking to connect to the Transmission System, the current 120% limit for Over Install will be removed once remaining areas requiring possible change are adequately addressed (See Appendix 1) and the sharing of MEC behind a single connection point is enabled (see Appendix 2). SONI will then follow the relevant offer process.

For the avoidance of doubt, removing the 120% Over Install limit will only overcome one challenge in facilitating over installed Co-Located Hybrid Sites that have Generators that choose to or are required to be registered in the SEM. Other market and operational challenges remain and as such the over installation for Distribution and Transmission Co-Located Hybrid Sites that chose to or are required to register in the SEM will not be facilitated in the SEM until the sharing of MEC behind a single connection point is enabled (see Appendix 2).

The TSO is running an internal programme to address the challenges related to Hybrid Co-located Sites. The TSO plans to release expected implementation timelines for the removal of the Over Install limit for Transmission connections in Q1 2024 . The updated policy as described in this decision paper will apply from Connection Offer and Agreements that arise from applications received after the Go Live date of **7th November 2023 at 10:00am** for distribution connections.

It should also be noted that the interactions to remove the 120% Over Install limit and the SEMC decision, SEM-22-009 on Dispatch, Redispatch and Compensation Pursuant to Regulation (EU) 2019/943 and the implementation of this decision, which will involve an update to SEM-11-062 to reflect the new requirements introduced by the Regulation (EU) 2019/943 in relation to priority dispatch, have not been considered as part of this decision. It will also involve an update to SEM-13-010 regarding compensation for curtailment to reflect the new requirements introduced by the Regulation. As a decision is yet to be made in respect of compensation in relation to supports under Article 13 (7) of the Clean Energy Package, the potential impact of this future decision on costs to consumers has not been considered. Neither have any potential interactions between removing the 120% Over Install limit and other future renewable energy support schemes been considered. Additionally, the decision in this paper is made with the assumption that any interactions between the future outcomes of the above mentioned regulatory and policy decisions and the removal of the Over Install limit will not have any material negative impact on consumers.

Appendix 1 – Areas Requiring Possible Change

The below items highlight areas that may need to be addressed by SONI to ensure future requirements are adequate to facilitate Over Install connections at transmission level. For NIE Networks, the completion of the below items will not be a prerequisite for issuing terms to connect to the Distribution system for Over Install sites.

Requirement	Areas requiring possible change
Grid Code	A review of the Grid Code by the SONI is being undertaken. Should modification be required, this will be subject to the standard Grid Code modification process separate to this consultation. Any modification would be subject to UR approval.
Limiting the Output	In order to ensure the output of the plant does not breach the MEC at the connection point, engagement with industry on the options for limiting the output may be needed. This may require the installation of a reverse power relay, or tripping of the generator if MEC is breached at the connection point.
Reactive Power Contribution	An increase in the installed capacity of a site will result in a larger internal collector network. In scenarios of zero wind/solar at night this may lead to exacerbating high voltages. Engagement with industry to define reactive power contribution from OI sites will be required to ensure system security is not impacted.
Signal Requirement & Output Monitoring	For Over Install projects, there may be a need to introduce new signal requirements that allow for monitoring the output to ensure MEC at the connection point is not exceeded.
Metering	Depending on the project configuration, the meter export arrangements and subsidy schemes in place, metering of the units may need modification
Scheduling & Dispatch	A review of data feeds will be required to ensure the data is referencing MEC and not registered capacity, and units cannot over declare above contract MEC.
Trading and Settlement Code	The TSC does not reference Over Install projects specifically, however, a review of defined terms is required to ensure the changes are compliant. This will also be subject to SEMC approval.

Appendix 2 - Sharing of MEC Concept

4.1 Current Approach to MEC Allocation

Currently MEC is stated in connection agreements for generators. Generators wishing to register in the Single Electricity Market (SEM) must hold MEC for the generating units that they wish to register in the market and sharing of this MEC is not possible at present. For example, a windfarm allocated a 50 MW MEC at the connection point can register a 50 MW generating unit in the market against this MEC. If the site wishes to add a 50 MW solar plant at the same connection point this would require a total of 100 MW of MEC at the point of connection, in order to register the additional 50MW of the solar plant as a generation unit separately in the market.

4.2 Sharing of MEC Approach

To optimise the use of existing grid infrastructure the SO's are investigating the potential for sharing of MEC at a single connection point. This would mean that each Generator Unit in the Hybrid Co-Located Site would not require a separate dedicated MEC. Instead, the MEC would be allocated to the connection point and could be shared between generating units.

For the example explained in Figure 1, this would mean the Hybrid Co-Located Site would be allocated the full MEC associated with the connection point i.e. 50 MW. This MEC could then be utilised between the technologies, with the aim of optimising the output at the connection point based on the resource availability at a given time. It is the view of the SO's that the management of MEC between technologies would be a matter for market participants to manage appropriately and in line with existing policy and rules. The net power export from the site would not be allowed to exceed the contractual MEC at the connection point, meaning that the combined generation, and combined dispatch, of the units behind that connection point would be limited to the contractual MEC. The TSO is running an internal programme to address the challenges associated with implementing the Sharing of MEC behind a single connection point.

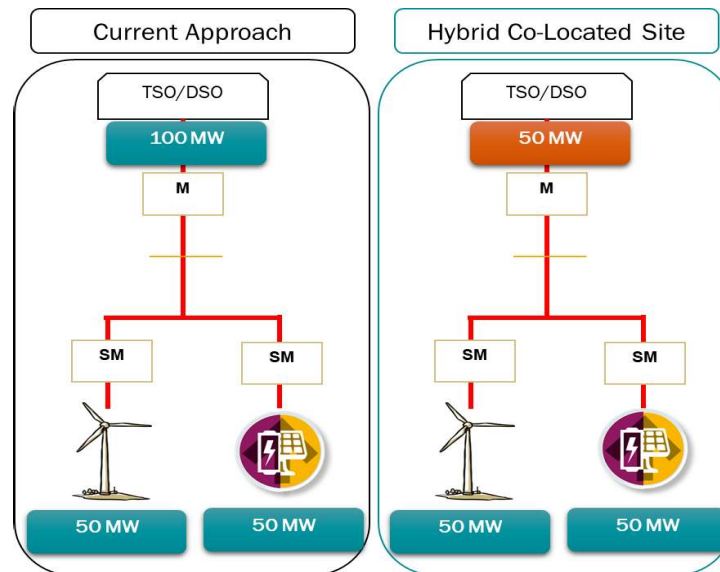


Figure 1 Current approach to allocation of MEC vs Hybrid Co-located Sharing of MEC at a single connection point [M – meter, SM – sub-meter].