

From the office of the Chief Executive

Mr Aaron McClean
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EP Kilroot Limited
Kilroot Power Station
Larne Road
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25th June 2021

Our Ref – NET/E/JF/400

Dear Aaron

RE: 36 Month Derogation request from SONI Grid Code Clause CC.S1.1.3.8 for proposed heavy gas turbine generating unit KTG7, to be operated at Kilroot Power Station.

I write in response to your letter dated 2 April 2021.

The letter requests that the Authority grant EP Kilroot Limited (**EPKL**) a direction relieving EPKL of its obligation – under Condition 4(1) of EPKL’s licence to participate in generation activities (the **EPKL Licence**) - to comply with certain provisions of the Grid Code. The Authority¹ has the power to grant a direction(s) of the type sought pursuant to Condition 4(2) of EPKL’s Licence.

The request (the '**derogation request**') is in respect of an Open Cycle Gas Turbine (**OCGT**) unit at Kilroot Power Station known as the **KTG7 Unit**. The **derogation request** is sought in order to relieve EPKL of its obligation to ensure that the KTG7 Unit is capable of remaining Synchronised to the NI System at an Output required by clause CC.S1.1.3.8 of the Grid Code. That clause of the Grid Code reads as follows:

CC.S1.1.3.8; *A Generating Unit must be capable of remaining Synchronised to the NI System at an Output which is no greater than the lower of 80 MW or 40% of maximum continuous rating.*

1. Background

- 1.1. By letter dated 31 March 2021 (the **Letter**) the UR advised EPK of its decision to decline to issue a direction in response to EPKL’s request for a lifetime derogation from its obligation to comply with clause CC.S1.1.3.8 of the Grid Code.
- 1.2. In the Letter we stated that *“We should of course confirm that UR will consider afresh any revised request that may be made by EPKL in due course”*.
- 1.3. On 2 April 2021 EPKL submitted the derogation request seeking a direction relieving it from the obligation in clause CC.S1.1.3.8 of the Grid Code in respect of the KTG7 Unit for a

¹ In this letter the terms “us” “we” “our” “UR” and “Authority” are used interchangeably and refer in each case to the Northern Ireland Authority for Utility Regulation.

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period of 36 months, commencing from the date and time the unit reaches commercial operation (anticipated to be Q1 2023).

2. The Derogation Request – April 2021

- 2.1. The KTG7 Unit will be a 350MW gross output OCGT operating as peaking generation in the Integrated Single Electricity Market (**ISEM**).
- 2.2. Clause CC.S1.1.3.8 of the Grid Code requires generating units to have a minimum generation of 80MW or 40% of their registered capacity, whichever is the lower, while remaining synchronised to the NI System.
- 2.3. The KTG7 Unit will have a 350MW registered capacity². EPKL asserts that it will not (in the short term at least) be capable of remaining synchronised to the NI System at an Output of 140 MW (i.e. 40% of the registered capacity), so as to meet the requirements of Clause CC.S1.1.3.8 of the Grid Code.³
- 2.4. In making the derogation request, EPKL –
 - (a) Confirms that it has, over the past 12 months, explored the heavy duty gas turbine equipment market and held discussions with various Original Equipment Manufacturers (**OEMs**).
 - (b) Confirms that it has recently completed a tendering package through the Official Journal of the European Union for heavy duty gas turbines and selected the Siemens SGt5-4000F as the most appropriate technology for the KTG7 Unit.
 - (c) Refers to the Clean Energy Package (**CEP**) requirement for gas turbines to have a minimum thermal efficiency and notes that this requirement limits the number of OEMs and technology choices available to EPKL for selection for the KTG7 Unit.
 - (d) Confirms that it has *“concluded that maintaining a stable generation level below 147MW (42% of registered capacity) will not be possible whilst also remaining compliant with the requirements of the Industrial Emissions Directive (IED) and, in particular, the LCP BAT Reference Document (LCP BRef) for CO₂ Emissions.”*
 - (e) Proposes that the Grid Code minimum generation requirement for the KTG7 Unit should be that *“KTG7 must be capable of remaining synchronised to the NI System at an output equal to or greater than 147MW”*.

² The term “registered capacity” is analogous to the term “maximum continuous rating” in the provisions of Clause CC.S1.1.3.8 of the Grid Code.

³ UR understands and proceeds upon the basis that because the KTG7 Unit 7 cannot remain synchronised at 140MW it therefore follows that it cannot remain synchronised at the lower level of 80MW.

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- 2.5. EPKL note, for the avoidance of doubt, that KTG7 will be capable of remaining synchronised to the NI system at circa 42% of its registered capacity, while also remaining emissions compliant.

3. EPKL Responses

- 3.1. As noted above, EPKL previously submitted a request for a lifetime derogation from clause CC.S1.1.3.8 of the Grid Code which was not acceded to by UR.

- 3.2. In now requesting to be relieved of the relevant Grid Code obligation for a period of 36 months, EPKL responds to the Letter and provides additional information (including supporting documentation) as follows –

- (a) EPKL has considered alternative options/actions available to meet the minimum generation requirement in reference to CC.S1.1.3.8 and also remaining compliant with Environmental Permit efficiency and emission limits as well as CEP CO₂ limits.
- (b) EPKL has concluded that there are no alternative options / actions possible due to the inherent design capabilities of heavy duty gas turbines of the output required for KTG7. It refers to the earlier correspondence submitted to the UR as supporting this conclusion.
- (c) The KTG7 Unit has a capacity contract to provide security of supply by 1st October 2023 and it represents the best available dispatchable technology to meet the needs of the electricity market today and going forward.
- (d) EPKL has concluded at this stage of the project that there are no known steps that EPKL can take during or after build to achieve compliance. However once the plant is commissioned, EPKL will as a matter of course, where practical, explore options for lowering the level of minimum generation as and when solutions become available.
- (e) EPKL notes, during the initial months and years of operation, EPKL will be able to monitor the actual unit emissions under a range of environmental and operating conditions. Should it become evident, that under certain conditions, the declared minimum generation can be reduced whilst still achieving environmental compliance, EPKL will update their Technical Offer Data accordingly.
- (f) EPKL has planned engagement with the OEM under a parts & service agreement. Should the OEM develop future upgrades that have the potential to reduce minimum generation, EPKL will evaluate their application to the units.

4. NIE Networks' Response

- 4.1. NIE Networks responded to the derogation request on 15 April 2021. In its response NIE Networks set out the following –

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- (a) As the derogation requested relates to the minimum generation level at Kilroot Power Station, then this is primarily an issue for SONI to comment on.
- (b) This derogation relates to the minimum generation output at which KTG7 can remain synchronised to the NI system. The DS3 program has worked with existing conventional Power Stations to, where possible, reduce the minimum generation level at which their plant can remain synchronised to the NI system.
- (c) This has allowed the TSOs to create additional headroom to increase the dispatch levels of non-synchronous generation whilst respecting the system security requirement of a minimum number of conventional generating units connected. Careful consideration should be given to how this derogation may impact on the future dispatch of non-synchronous generation.

5. SONI's Response

5.1. SONI responded to the derogation request on 7 April 2021. In its response SONI set out the following –

- (a) In conclusion SONI is satisfied that if a temporary derogation is proposed, it will still be able to operate the transmission system in a safe, secure and reliable manner; however the flexibility should be provided to SONI to monitor compliance in areas within our control.

5.2. SONI also provided the following analysis in their response –

- (a) As stated in previous correspondence, SONI does not support life time derogations and would caution against this in a changing portfolio where the decarbonisation of the energy system is now most pertinent in a climate change emergency. There is precedent in Northern Ireland of generators moving from permanent to temporary derogations. The energy transition demands a more flexible approach from plant and future market developments will no doubt incentivise this flexibility further building on current DS3 market. Therefore SONI would be more comfortable supporting a shorter temporary derogation that gives the flexibility and adaptability SONI require in monitoring the operational performance over the period of the temporary derogation.
- (b) At the time of procurement of the new plant at Kilroot, the requirement in Grid Code existed and therefore SONI would expect compliance to existing Grid Code clauses to be taken into consideration.
- (c) The energy transition still favours and will continue to favour the maximisation of renewables against heavy baseload machines which are reliant on fossil fuels and SONI would not support any perverse incentives that would cause compliant generator units to be dispatched down or displaced by non-compliant machines.

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- (d) There are Generator Performance Incentives applying through the 'Other System Charges' mechanism that counteract the non-compliance to Min Gen across the all island system. It is noted that currently on the NI System that there are other generators operating under temporary derogations in relation to this technical requirement in the Grid Code.
- (e) Notwithstanding the above, the proposed OCGT units at Kilroot are referred to as 'peaking' units and are unlikely to be running all of the time. Instead they will be dispatched in times of tight margins or impending amber alerts on the NI System, when levels of PPM and wind generation will be lower. In general, a higher min gen level does adversely affect renewables if the units are running at times of high wind e.g. SONI's System Services procurement currently provides a financial incentive for market participants to lower min gen levels.
- (f) From a legislative perspective SONI notes that the Industrial Emissions Directive (**IED**), the latest Best Available Technique Reference documents (**BREFs**) and the recently introduced Clean Energy Package place restrictions on the type of heavy duty gas turbines that can be installed and how they can be operated. Therefore, while not directly in SONI's remit to monitor emissions, statutory limits must be respected.
- (g) Peaking plants in a high RES-E power system are important for Security of Supply at times of system stress for example on low wind days, when power park modules are unavailable or under N-1, N-G conditions. Although SONI has not yet seen commercial offer data for these units this has been shown in 'Tomorrows Energy Scenario' studies. While SONI previously had a "must run" constraint for the large units at Kilroot, this has not been in place of a number of years.
- (h) The role of 'backup' or energy transition gas plants, will be critical to ensuring system adequacy and reliability as we migrate to a 70% RES-E target and beyond; therefore while there are certainly questions on a lifetime derogation, a temporary derogation is a more realistic, sensible and prudent option as TSO to support.
- (i) As stated above, with larger amounts of renewables required to meet at least 70% RES-E target for 2030, greater amounts of flexible generation will be required to ensure that targets can be achieved whilst maintaining security of supply. This is a key factor in SONI's assessment.
- (j) The min gen of the Kilroot OCGT machines should be considered in the context of the wider NI generation portfolio. When examined through this lens, they could be seen as not conflicting with decarbonisation, instead they would be expected to respond to backing off of renewable generation output, or following extreme contingency events on the system; meaning the OCGT model can be utilised in a short period of time thus minimising constraints. However without commercial and technical offer data available to SONI at this stage, it is difficult to assess how plant will be operated.

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- (k) Further, while there is work ongoing to develop future markets that will attract flexible plant which contributes to a seamless energy transition, the derogation request also needs to be considered in the context of a potential reduction in the future constraint rules, where SONI would intend to reduce the requirement of 3 sets down to 2 in NI once the second North South Interconnector is available in 2025 [current estimate].
- (l) SONI must meet its key licence obligation of security of supply while actively facilitating the energy transition. It would be open to working with a temporary derogation based on the points in its assessment. This would give some time to develop the knowledge and understanding of managing a system in transition while not comprising the decarbonisation of the system for future generations.

6. The Authority's Decision

- 6.1. We have considered the information provided by EPKL, SONI and NIE Networks and all other relevant factors relating to the derogation request, including our published 2017 Guidance on derogations⁴ and our principal objective and general statutory duties as set out in Article 12 of the Energy (NI) Order 2003.
- 6.2. Having considered these matters Utility Regulator is satisfied that the derogation request is, for the reasons offered by EPKL and supported by both SONI and NIE Networks, justified. It has, therefore, decided to grant the derogation request by giving a direction in exercise of its power under Condition 4(2) of the Licence.
- 6.3. The direction:
 - (a) is set out in the Annex to this letter;
 - (b) relieves EPKL of its obligation to comply with clauses CC.S1.1.3.8, of the SONI Grid Code in relation to the KTG7 Unit at Kilroot Power Station to the extent specified in the direction; and
 - (c) shall cease to apply on and from the date which is 36 months from the date that SONI and EPKL enter into a Generation Transmission Use of System (**GTUoS**) Agreement in respect of the KTG7 Unit (or such earlier date as the Utility Regulator may determine).
- 6.4. This derogation will allow SONI increased flexibility for more efficient and economical operation of the Northern Ireland System and provide system security as well as potential to reduce curtailment of renewables. The derogation time period will also provide sufficient time for research and analysis to take place around the minimum generation requirements in Grid Code and to fully understand the capabilities of the proposed generating unit.

⁴<https://www.uregni.gov.uk/sites/uregni/files/media-files/Decision%20Paper%20on%20Derogations%20-%20February%202017.pdf>

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- 6.5. The direction applies to EPKL in respect of the operation of the KTG7 Unit. It is non transferrable. This means that should another entity operate the KTG7 Unit in future that entity would (should it wish to operate the KTG7 Unit otherwise than in full compliance with all of the provisions of the Grid Code) that entity will need to apply for a direction to be given under and in accordance with the electricity generation licence held by it.
- 6.6. The direction shall cease to apply should the KTG7 Unit be de-commissioned or replaced.
- 6.7. The direction shall be entered and maintained in the Electronic Register.



John French CEO

Duly authorised for and on behalf of the Northern Ireland Authority for Utility Regulation

CC: SONI Limited

ANNEX

**DIRECTION UNDER CONDITION 4(2) OF THE ELECTRICITY GENERATION LICENCE
HELD BY EP KILROOT LIMITED**

TO: EP Kilroot Limited

Whereas:

- (A) EP Kilroot Limited (**EPKL**) holds an electricity generation licence granted (or treated as granted) under Article 10(1)(a) of the Electricity (Northern Ireland) Order 1992 (the **Order**) on 9 August 2002 (the **Licence**).
- (B) EPKL (the **Licensee**) is authorised by the Licence to generate electricity for the purpose of giving a supply to any premises or enabling a supply to be so given.
- (C) The Grid Code is required to be prepared by SONI Limited (**SONI**) under Condition 16 of the electricity transmission licence granted to SONI under Article 10(1)(b) of the Order. The Grid Code is required to be approved Northern Ireland Authority for Utility Regulation (the **Authority**) and the currently applicable Grid Code is dated 14 February 2020.
- (D) The Licensee is required, under and in accordance with Condition 4(1) of the Licence, to comply with the provisions of the Grid Code insofar as applicable to it.
- (E) Condition 4(2) of the Licence provides that the Authority may, following consultation with the Transmission System Operator (namely SONI) and the Transmission Owner (namely Northern Ireland Electricity Networks Limited – **NIE Networks**), issue direction(s) relieving the Licensee of its obligations under Condition 4(1) of the Licence in respect of such parts of the Grid Code and to such extent as may be specified in those directions.
- (F) On 2 April 2021, the Licensee submitted a request that the Authority relieve the Licensee of its (licence) obligation to comply with Clause CC.S1.1.3.8 of the SONI Grid Code (**the derogation request**) to the extent specified in the derogation request and relating to its operation of an Open Cycle Gas Turbine (**OCGT**) unit at Kilroot Power Station (the **KTG7 Unit**).
- (H) The Authority has consulted with SONI (the **TSO**) and NIE Networks (as the **Transmission Owner**).

The Authority now gives the following direction:

1. Subject to compliance with the conditions set out in paragraph 2 below, the Licensee shall, for the period –
 - (a) commencing on and from the date of this direction; and
 - (b) ending on and from the date which is 36 months from the date that SONI and EPKL enter into a Generation Transmission Use of System (**GTUoS**) Agreement or such earlier date as the Authority may determine,(the '**relevant period**'), be relieved of its obligation to comply with Clause CC.S1.1.3.8 of the Grid Code (as in effect on the date of this direction) in respect of the KTG7 Unit.
2. The relief granted by paragraph 1 above is subject to the following conditions –
 - (a) The KTG7 Unit must be capable of remaining Synchronised to the NI System at an Output which is at or no greater than 147MW in OCGT mode.
 - (b) During the relevant period, the Licensee procures relevant and appropriate testing and research for the purposes of assessing whether and when it can reduce the minimum generation level such that the KTG7 Unit can be capable of remaining Synchronised to the NI System at an Output which is set out in CC.S1.1.3.8 as in effect at the date of this direction.
 - (c) The Licensee shall appoint (as soon as reasonably practicable) any one or more independent expert and/or consultant for the purposes of –
 - (i) undertaking the testing and research referred to in paragraph (b) above; and
 - (ii) the testing being confirmed by an independent witness.
 - (d) The Licensee shall –
 - (i) notify the Authority and SONI of all testing schedules prior to testing;
 - (ii) submit all test results to the Authority and SONI within one month of the completion of the tests;
 - (iii) in periods of unit testing and of dispatch, monitor and record emission levels throughout the operating range of output volumes;
 - (iv) provide emission monitoring records/reports to the Authority and SONI on a yearly basis in respect of such unit testing and dispatch. For this purpose a year

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is a calendar year from 1 January to 31 December and the records or reports for each calendar year are to be provided no later than 31 January of the immediately following calendar year.

- (e) The Licensee shall, at least 6 months prior to the end of the relevant period, submit to the Authority an analysis of its research, together with details of any new or improved technologies it has implemented, in respect of the KTG7 Unit, such that it can be or is capable of remaining Synchronised to the NI System at an Output which is set out in CC.S1.1.3.8 as in effect at the date of this direction.
- 3. The Authority may revoke, vary or replace this direction by a further Direction before the end of the relevant period.
- 4. This direction shall further cease to apply on and from any date that the KTG7 Unit is de-commissioned or replaced.
- 5. The reasons for this direction are set out in a letter accompanying and published with it.



John French CEO

Date: 25th June 2021

Duly authorised by and on behalf of the Northern Ireland Authority for Utility Regulation