
EirGrid Submission on the Applicability and Scope of Data Exchange under Key Organisational Requirements, Roles and Responsibilities (KORRR) in accordance with Article 6(4)(b) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation

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1. Introduction

On the 14th September 2017, the Commission Regulation (EU) 2017/1485¹ establishing a guideline on electricity transmission system operation (hereafter referred to as “SO GL”) entered into force. Article 40(6) of SO GL required all TSOs to agree on Key Organisational Requirements, Roles and Responsibilities (hereafter referred to as “KORRR”) relating to Data Exchange. KORRR was approved by the All Regulatory Authorities on 19th December 2018, and will serve as the basis for what TSOs, DSOs and Significant Grid Users (SGUs) will need to do to comply with Articles 41 to 53 of SO GL. TSOs, DSOs and SGUs need to comply with KORRR from 14th March 2019.

Under Article 40(5) of SO GL, each TSO was required to co-ordinate with DSOs and SGUs within its Observability Area² as defined in SO GL on the applicability and scope of data exchange, based on the following categories:

- (a) structural data in accordance with Article 48;
- (b) scheduling and forecast data in accordance with Article 49;
- (c) real-time data in accordance with Articles 44, 47 and 50; and
- (d) provisions in accordance with Articles 51, 52 and 53.

Article 6(4)(b) of SO GL requires the CRU to conduct an approval process for the applicability and scope co-ordinated by TSO with DSO and SGUs for the Articles listed in Article 40(5). The purpose of this document is to detail the applicability and scope of data exchange for SGUs and DSO in line with Article 40(5) of SO GL.

To enable co-ordination with SGUs, a consultation was held on KORRR which closed on the 25th February 2019. This was a joint consultation, developed and hosted between EirGrid and ESBN. A position paper was prepared by EirGrid and ESBN, following the consultation period, entitled “SGU KORRR Position Paper Ireland”. The co-ordination between TSO and DSO on data exchange contributed to the agreement reached under Article 40(7) of SO GL on the processes and formats of data exchange under KORRR. The SGU KORRR Position Paper Ireland details the applicability and scope for some of the Articles listed under Article 40(5). Following approval of this document by the CRU, as required by Article 6(4)(b) of SO GL, the TSO and DSO will publish an SGU KORRR Decision Paper.



¹ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=urisrv:OJ.L_2017.220.01.0001.01.ENG&toc=OJ:L:2017:220:TOC#d1e234-1-1

² Observability Area means a TSO's own transmission system and the relevant parts of distribution systems and neighbouring TSOs' transmission systems, on which the TSO implements real-time monitoring and modelling to maintain operational security in its control area including interconnectors.

This document details the applicability and scope required under Article 40(5) of SO GL, as co-ordinated between SGUs, DSO and TSO. Current data exchange practices are already largely aligned with KORRR. As a result, the positions detailed in this document align with current practices and the requirements of the Grid Code³ and Distribution Code⁴.

This document was produced by EirGrid in its role as the Transmission System Operator in Ireland (TSO) for submission to its Regulatory Authority, the Commission for Regulation of Utilities (CRU). SONI in its role as the Transmission System Operator in Northern Ireland has produced a similar document for its Regulatory Authority in Northern Ireland.

1.1. Associated documents

The TSO recommends that all readers review the SO GL Network Code and KORRR⁵ to facilitate interpretation of this document. All references to Article hereafter in this document refer to Articles set out in SO GL unless otherwise specified.

1.2. Definitions and Interpretations

For the purposes of this document, the terms used shall have the meaning of the definitions included in Article 3 of SO GL.

In this document, unless the context requires otherwise:

- a) the singular indicates the plural and vice versa;
- b) the table of contents and headings are inserted for convenience only and do not affect the interpretation of this document; and
- c) any reference to legislation, regulations, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force.

1.3. Structure of this document

Following the “Introduction” in section 1 of this document, section 2 “Purpose” outlines the subject matter and requirements that this document is intended to address.

Section 3 “Applicability and Scope” details the applicability and scope of the relevant Articles under Article 40(5), and how the resulting TSO, DSO and SGU data exchange requirements will be met in Ireland.

³ http://www.eirgridgroup.com/site-files/library/EirGrid/GC_VERSION_7_PUBLISHED.pdf

⁴ <https://www.esbnetworks.ie/docs/default-source/publications/distribution-code-v5-0.pdf?sfvrsn=6>

⁵ https://docstore.entsoe.eu/Documents/nc-tasks/SOGL/SOGL_A40.6_181001_KORRR_181015.pdf

2. Purpose

Article 6(4)(b) of SO GL requires the CRU to conduct an approval process for the applicability and scope co-ordinated by TSO with DSO and SGUs for the Articles listed in Article 40(5). The purpose of this document is to detail the applicability and scope of data exchange for SGUs and DSO in line with Article 40(5) of SO GL. An extract from Article 6(4)(b) is provided below.

Article 6

Approval of terms and conditions or methodologies of TSOs

4. Unless determined otherwise by the Member State, the following terms and conditions or methodologies shall be subject to individual approval by the entity designated in accordance with paragraph 1 by the Member State:

(b) scope of data exchange with DSOs and significant grid users in accordance with Article 40(5);

3. Applicability and Scope

Under Article 40(5) of SO GL, each TSO was required to co-ordinate with DSOs and SGUs within its Observability Area as defined in SO GL on the applicability and scope of data exchange, based on the following categories:

- (a) structural data in accordance with Article 48;
- (b) scheduling and forecast data in accordance with Article 49;
- (c) real-time data in accordance with Articles 44, 47 and 50; and
- (d) provisions in accordance with Articles 51, 52 and 53.

The following section details the applicability and scope for each Article referenced in Article 40(5).

3.1. Article 40(5)(a) – Structural Data in Accordance with Article 48

This Article is reflected in KORRR under Articles 3(2) and 3(3), which were consulted on as part of the SGU KORRR Consultation. The position reached by TSO and DSO on both Article 3(2) and 3(3) following the consultation is as follows;

SGUs shall provide data to the TSO or DSO to which they are connected in compliance with the applicable Distribution Code or Grid Code, unless otherwise agreed.

The TSO and the DSO shall exchange between them the data related to an SGU upon request by a System Operator (SO), to comply with the requirements of the SO GL provisions.

It is further reflected in KORRR under Article 15(1) which was consulted on as part of the SGU KORRR Consultation. The position reached by TSO and DSO on Article 15(1) following the consultation is as follows:

SGUs shall provide updated structural information to the TSO or DSO to which they are connected 3 months before:

- a. the planned commissioning of a new SGU;
- b. the planned final removal from service of an SGU; and
- c. the planned significant modifications in an SGU.

Updated structural information will not be required from SGUs every 6 months.

In consideration of Article 1(5) of KORRR, the highest overall efficiency and lowest total cost will be achieved for new and existing SGUs by following data transfer requirements of the applicable Distribution Code or Grid Code, and those requirements documented between an SGU and SO e.g. Connection Agreement, Derogations. The TSO and DSO shall exchange between them data related to an SGU upon request by a System

Operator (SO). This approach will enable data exchange between parties that will enhance operational security.

Therefore, in summary, Article 48 of SO GL is applicable to all distribution-connected power generating modules, with the scope of data exchange including all structural data detailed in Article 48.

3.2. Article 40(5)(b) – Scheduling and Forecast Data in Accordance with Article 49

This Article is reflected in KORRR under Articles 16(1) and 16(2), which were consulted on as part of the SGU KORRR Consultation. The position reached by TSO and DSO on Article 16(1) and 16(2) following the consultation is as follows;

SGUs connected to the transmission system or providing services to the TSO shall provide scheduled data to the TSO directly in compliance with Grid Code, unless otherwise agreed.

SGUs connected to the distribution system shall provide scheduled data to both the TSO and DSO where an outage at or within the SGU itself, results in the loss of 5 MW or greater of generation capacity, unless otherwise agreed. This shall be provided at least 3 weeks in advance of real-time, and as the information is available.

The TSO and DSO shall exchange between them the data related to an SGU upon request by a System Operator (SO), to comply with the requirements of the SO GL provisions.

The Grid Code considers an outage of 5 MW or greater of generation capacity important when planning the operation of the electricity system. To apply KORRR in a fair and transparent manner, the Distribution Code will be updated to capture scheduled data requirements in due course. Notification from the SGU of an outage of 5 MW of generation or greater on the distribution system, to both the TSO and DSO, will form part of this. Notification at least 3 weeks in advance allows the SOs to co-ordinate and plan the secure operation of the electricity system. This also reflects current Grid Code practice.

An Outage Request form is currently being developed to facilitate the Generator in notifying the TSO and DSO of outages at the same time. This reduces the need for a SO to submit the information to the other SO.

In consideration of Article 1(5) of KORRR, the highest overall efficiency and lowest total cost will be achieved for new and existing SGUs by following data transfer requirements of the applicable Distribution Code or Grid Code, and those requirements documented between an SGU and SO e.g. Connection Agreement, Derogations. The TSO and DSO shall exchange between them data related to an SGU upon request by a System Operator (SO). This approach will enable data exchange between parties that will enhance operational security.

Therefore, in summary, Article 49 of SO GL is applicable to all distribution-connected power generating modules, with the scope of data exchange including all Generator outages resulting in the loss of 5 MW or more of generation capacity.

3.3. Article 40(5)(c) – Real-Time Data in Accordance with Articles 44, 47 and 50

Article 44

The methodology to determine the observability area in accordance with Article 75 of SO GL was approved by ACER in June 2019. Studies have shown that the Observability Area currently contains no DSO elements. This is subject to review every three years.

Therefore it is agreed by TSO and DSO, to limit the scope and applicability of Article 44 to the existing extent of visibility of real-time data provided to the TSO by the DSO which allows the TSO to operate the system safely and securely. For example, in most 110kV stations outside of Dublin, measurands at the high and low voltage sides of 110kV transformers at the TSO-DSO interface,

Article 47

This Article concerns transmission connected SGUs, which are by default Type D in the IE/NI synchronous area. As a result, the requirements under Grid Code will apply. Each of the data items listed under Article 47 are present in the TSO's Energy Management System (EMS). Therefore, Article 47 will apply to all required Type D SGUs (Interconnectors, HVDC systems and transmission connected power generating modules), for the full scope of data specified.

Article 50

This Article concerns real-time data exchange for distribution connected power generating modules. It is embodied in KORRR under Article 6(5), which was consulted on as part of the SGU KORRR Consultation. The position reached by TSO and DSO following the consultation is as follows;

All SGUs connected to the Transmission System shall provide real-time data as per Grid Code and current TSO processes.

Power generating modules connected to the Distribution System shall provide real-time data as per Table 1.

Table 1: Real-time data exchange requirements for power generating modules connected to the Distribution System

Power generating module	Requirement
RTU or other means as specified by the Relevant System Operator (RSO) is in place to give effect to provision of real-time data.	Provide real-time data as per the applicable Distribution Code or Grid Code, to the RSO, unless otherwise agreed.
No RTU or other means as specified by the RSO, is in place to give effect to provision of real-time data.	Provide data to the connected SO to enable a real-time approximation model, unless otherwise agreed.

SGUs connected to the transmission system or providing services to the TSO are already required to provide real-time information sufficient to comply with KORRR under Grid Code.

Power generating modules (generators) have different thresholds which require the specification of a Remote Terminal Unit (RTU) to gather real-time data. These specifications are made via the System Operators Connection Agreement (SOCA), some of which also forms part of the DSO's connection offer. This position therefore seeks to apply the same real-time requirements to power generation modules specified to have an RTU. This will also include SGUs who have undergone significant modifications as per the RfG, DCC or HVDC NC. The SOs are aware that clarity is needed around significant modifications and will work to provide clarity on this in due course.

For power generating modules specified without RTUs, which can be considered separate to the group described in the previous paragraph, an approximation model will be used. This is the current process that the TSO uses, and involves the use of structural data. Generation profiles are estimated from this structural data. This process is suitable for those units from 100 kW to 5 MW that may not have an RTU specified.

With respect to power generating modules, an increasing use of renewable energy sources worldwide has seen a shift from a small number of larger conventional fossil-fuel generators to a large number of more widely distributed small-scale renewable generators. The telecommunication protocols to enable two-way communication between these new generators is developing, and as such, practices for gathering realtime information will need to consider this. A mixture of RTU and approximation model information are currently used to view the electricity system in real-time. The data which feeds the approximation models used by TSO is gathered during the connection offer process, which means there will be little if no additional requests for data from power generating modules whose real-time information is approximated.

Applying real-time KORRR data requirements to power generating modules ≥ 100 kW as summarised in Table 1, will enable an efficient means to view the electricity system in real-time without placing additional real-time data requirements on power generating modules. This is in line with current practices, and it is therefore the intention of the SOs to continue this approach to real-time data. As telecommunication technology develops, this can be reviewed, but for now current practices are sufficient. Any changes that are required in the future for real-time data provision may be captured in respective DSO and TSO processes, Grid Code and/or Distribution Code.

In consideration of Article 1(5) of KORRR, the highest overall efficiency and lowest total cost will be achieved for new and existing SGUs by following the proposed real-time data transfer requirements as described. Therefore, in summary, Article 50.1 of SO GL is applicable to all distribution-connected power generating modules specified with an RTU or similar, as described in Table 1, with the scope of data exchange including all real time data detailed in Article 50.1. Article 50.2 of SO GL is applicable to all distribution connected power generating modules specified without an RTU or similar, as described in Table 1, with the scope of data exchange including that required to necessitate the operation of an approximation model.

3.4. Article 40(5)(d) – Provisions in Accordance with Articles 51, 52 and 53

Article 51

The TSO and DSO will exchange relevant data related to an SGU upon request by a System Operator (SO), to comply with the requirements of the SO GL provisions. To further support the data exchange processes required as a result of Article 51, the TSO and DSO have agreed the following in the TSO-DSO Agreement reached under Article 40(7), in relation to the 3 concerned data types.

Structural

Structural data exchange for Article 48 will be facilitated by the connection application/project delivery process and the various sub-processes, documents and other information transfer components therein. For new or modified connections, the structural data requirements will be deemed to be completely discharged when commissioning and/or compliance testing can begin.

Scheduled

The DSO will provide the TSO with access to a relevant Distribution Outage Plan (DOP) owned and managed by the DSO.

SGUs will be required to submit an Outage Request form to both TSO and DSO, as per Articles 16(1) and (2) of KORRR, which formed part of the SGU KORRR Consultation. This concerns outages at or within the SGU itself, which cause losses of generation capacity greater than or equal to 5 MW, at least 3 weeks in advance of real-time.

The TSO will also notify the DSO of potential outages to the distribution system, once they have been assessed by the TSO, that may affect distribution connected SGUs and/or the distribution network to enable system and customer preparations.

The TSO shall inform the DSO if and when it shares information about an SGU's distribution system network elements.

Real-time

As described in section 3.3 of this document under the “*Article 50*” heading.

Article 52

The data exchange requirements for transmission-connected demand facilities are facilitated by the following Grid Code sections:

- Planning Code;
- Planning Code Appendix sub-sections 1, 2 and 3;
- Connection Conditions sub-section 12; and
- Operating Conditions sub-sections Demand Forecasts, Demand Control, Information Exchange and Monitoring, Testing and Investigation.

Therefore, Article 52 will apply to all transmission-connected demand facilities, for the full scope of data specified.

Article 53

This Article concerns parties providing demand response. The data exchange requirements for those providing demand response are facilitated by the following Grid Code sections:

- Planning Code;
- Planning Code Appendix sub-sections 1, 2 and 7;
- Connection Conditions sub-section 12; and
- Operating Conditions sub-sections Operational Planning, Information Exchange and Monitoring, Testing and Investigation.

Therefore, Article 53 will apply to those providing demand response, for the full scope of data specified.