SONI Forward Work Plan 2024-25

Appendix 5
SONI Performance Measures

Northern Ireland
September 2024

Section 1

Key Performance Indicators

Overview of Key Performance Indicators in 2024/25 Plan

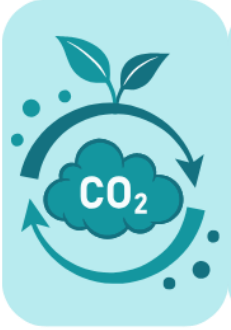
There are four SONI TSO Outcomes in relation to each role across the Forward Work Plan. These four roles are:

- Decarbonisation
- Grid Security
- System Wide Costs and
- Stakeholder Satisfaction.

We have categorised each performance measure against these four outcomes and provided a brief description below.

Decarbonisation

The decarbonisation of the electricity system is of great importance to customers and a vital component of the energy transition. The KPIs which fall within this SONI outcome are as follows:



SNSP (%): To Increase the maxium level of System Non-Synchronous Penetration (SNSP) that SONI will allow on the system at any point in time.

Grid Security

The decarbonisation of the electricity system is of great importance to customers and a vital component of the energy transition. The KPIs which fall within this SONI outcome are as follows:

System Frequency: To ensure that SONI manages the system frequency within Grid Code requirements.

System-Wide Costs

Ensuring customers get value for money and benefit from cost efficiency should be paramount. However, the costs for customers should be viewed holistically. The KPI which falls within this SONI outcome is as follows:

Imperfections (£) SONI intends to use the Plexos Backcast model in order to calculate savings made in relation to key projects and will be developing this performance measure over the period

SONI Service Quality

Whilst delivering on decarbonisation, grid security and cost, SONI will also need to meet the expectations of its stakeholders. Creating a transparent information sharing environment accompanied by the timely completion of our tasks will create positive and efficient working relationships between the parties acting in the market. The KPIs which contribute to this SONI outcome are as follows:

Timely Delivery of Publications: All Publications and materials are published according to the timelines set throughout hte Forward Work Plan, with dependencies detailed as, and when, appropriate.

Quality & Quantity of Feedback: Where appropriate, feedback will be reviewed in both qualitative and quantitative terms and then used to inform SONI on our performance for each relevant area as detailed throughout the Forward Work Plan.

Approach to Performance Measures

The deliverables set out in our Forward Work Plan 2024 – 2025 are ambitious. This requires a culture of innovation and flexibility within SONI and for us to engage in partnerships, in order to be successful. SONI believes that the targets should be flexible to adapt to the increasing pace of change in the energy industry. We have made a number of assumptions in the development of the targets such as demand, renewable connections, and policy changes from the Department for the Economy, etc.

We therefore feel that it is prudent to periodically re-calibrate the targets to ensure that we are appropriately delivering on what's right for customers.

SONI has used a baseline figure where possible, which is taken from our 2019 historical data, and this is our performance comparator as detailed within the Utility Regulator's Guidance document on the Evaluative Performance Framework.

With the implementation of the SONI board in October 2023 and ongoing work on SONI's Price Control SRP26, we are currently developing key performance indicators (KPIs). We will provide further information as it becomes available. As part of our Stakeholder Engagement Strategy published in June 2024, we have introduced an engagement evaluation framework and are in the process of gathering baseline data to accurately assess our performance. Once this data is collected, we will offer a more comprehensive and transparent evaluation of our activities and accountability.

We have excluded one KPI that was included in last years reports. We have explained the rationale for this at the end of this Appendix.

Historical Background and Upcoming Targets

Decarbonisation

SNSP (%)

Purpose of the metric

System Non-Synchronous Penetration (SNSP) is an important enabler for increasing the level of renewable sources of electricity generation on the power system. System Non-Synchronous Penetration is a real-time measure of the percentage of generation that comes from non-synchronous sources, such as wind and HVDC interconnector imports, relative to the system demand. New tools and processes are required by SONI to allow increases in the SNSP metric; therefore, this is determined to be a good measure for progress to enable decarbonisation of the electricity system to achieve net zero carbon emissions by 2050.

Approach to measurement

SNSP is a system security metric that has been established from the results of the DS3 programme. These studies initially identified 50% as the maximum permissible level. Due to works undertaken by SONI under the DS3 programme the SNSP level was reassessed, and the limit was raised over the years as per the table above.

In order to achieve the levels of SNSP that are required to achieve the 2030 targets, we will need to significantly evolve how we operate the power system

In the past we operated a power system based on conventional generation that could be sent an instruction (a dispatch instruction) to generate at a particular output, with no variability and with each generating unit synchronised with each other. Our future system will be at times utilising fully variable and non synchronised renewable sources of power.

The SNSP level is published on our website on a weekly basis in the Operational Constraints update document

Historical Figures

The actual permanent SNSP limit over the last several years is as follows:

Year	SNSP Limit
2013	50%
2014	50%
2015	55% Trial from Oct
2016	55% Perm from Mar 60% Trial from Nov
2017	60% Perm from Mar 65% Trial from Nov
2018	65% Perm from Apr
2019	65%
2020	65%
2021	70% Trial from Jan 70% Perm from Apr 75% Trial from Apr
2022	75% Perm from Apr
2023	75%

SNSP (System Non-Synchronous Penetration) is the sum of non-synchronous generation (such as wind, solar and HDVC imports) as a percentage of total demand and exports.

When the SNSP limit is raised, a trial period takes place before it becomes permanent. During the trial period the system is operated at this increased SNSP limit except in times of extreme system events of during system testing

Target for year

In 2022 we successfully concluded our trial of operation with an increase in the SNSP limit from 70% to 75% and this increased limit became operational policy on 31st March 2022. In 2022, we operated above 70% SNSP for 359 hours, approximately 10 hours of which were at the 75% limit.

Further increases in SNSP are planned in coming years as set out in our Shaping our Electricity Future Version 1.1

Description	Start Date	End Date	Comment
Increase SNSP limit from 75% to 80%. • Complete studies for operation at 80% SNSP • Conduct operational trial with SNSP limit of 80% • Post-trial review and implementation of 80% SNSP operational policy	**Q4 2023**	**Q4 2023**	Further information on the 80% Operational Trial for SNSP is included in Appendix 1
Increase SNSP limit from 80% to 85% • Complete studies for operation at 85% SNSP • Conduct operational trial with SNSP limit of 85% • Post trial review and implementation of 85% SNSP operational policy.	**2025**	**2026**	Beyond 80% there is a high dependency on the number of must-runs that is linked to delivery of infrastructure and systems
Monitor SNSP as an operational metric targeting system operation at SNSP up to 90%	**2028**		
Monitor SNSP as an operational metric targeting system operation at SNSP up to 95%.	**2030**		

Grid Security

System Frequency (%)

Purpose of the metric

The Grid Code requires that the frequency is kept within the normal operating limits of 50 Hz ± 0.1. This is to protect equipment and ensure a quality supply of electricity to end users.

Assessing the percentage of time that SONI operates within this window is considered a good measure of the performance against the Grid Code requirement. Certain events outside of the control of SONI, such as generator tripping, will result in the frequency falling outside of these normal operating limits. Management of frequency will also become more challenging due to increasing levels of non-synchronous generation on the system. It should also be noted that there needs to be a balance in relation to this metric as to not create a perverse incentive i.e. to maintain the frequency within the target range 100% of the time would require SONI to hold additional dynamic operating reserve at an additional cost to consumers.

The target percentage of time that the frequency should be in this window is outlined below. SONI believes that this strikes the best balance to ensure quality of supply, but which minimise costs.

Approach to measurement

The percentage of time that the frequency is within the range of 50 Hz ± 0.1 Hz will be assessed at the start of each year for the previous year. The information will be made available as detailed in the Annual All Island Transmission System Performance Report.

Historical Figures

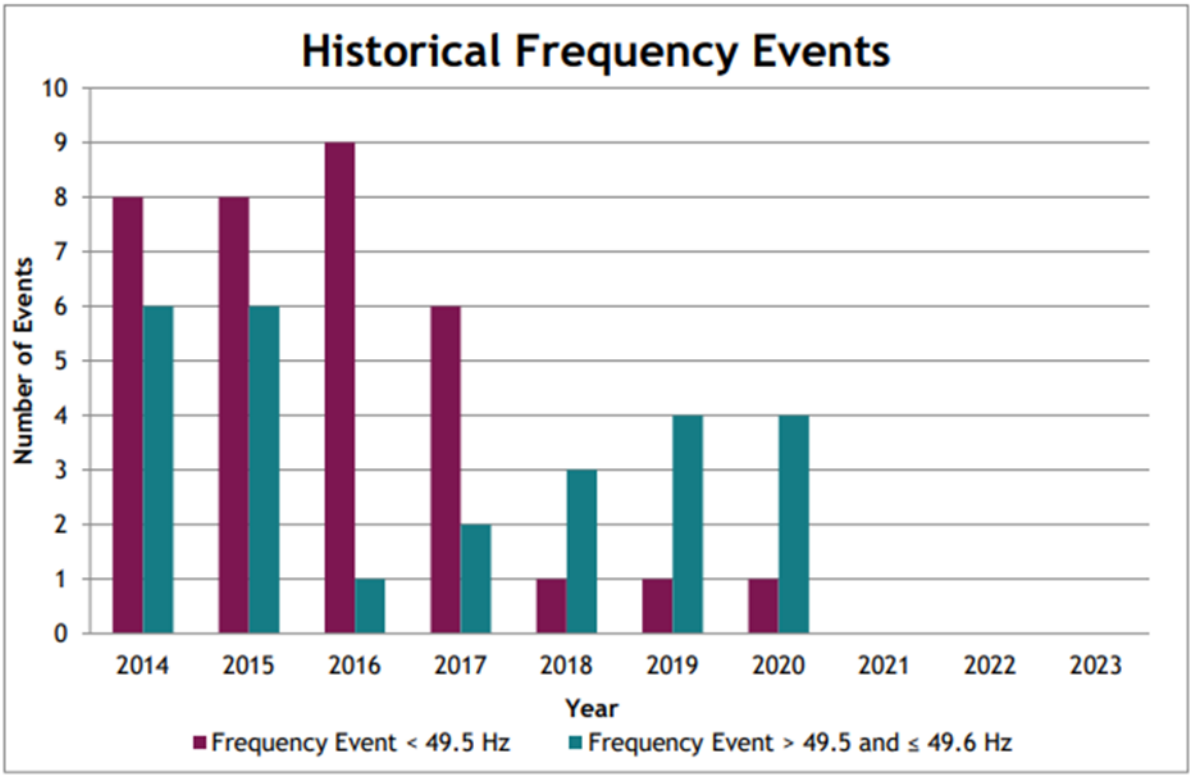
The actual performance over the past 5 years is detailed below:

Year	%
2019	99.66%
2020	99.67%
2021	98.63%
2022	98.52%
2023	98.71%

Frequency control will become increasingly challenging with the rapid decarbonisation of the electricity system, which will result in fewer conventional sources of frequency control and stability.

The nominal frequency of the all-island transmission system is 50 Hz and is normally controlled within the range of 49.95 Hz and 50.05 Hz. A frequency event is defined as when the frequency drops below 49.8Hz. A chargeable frequency event is when the frequency drops below 49.7Hz.

Figure 3 below provides the historic frequency excursions over the period 2013 – 2023.



Target for year

Our current target for 2024/25 will be operating within the detailed parameters indicated above for 98% of the time.

Frequency Excursions

There were no reportable frequency excursions in Northern Ireland in 2023.

System-Wide Costs

Imperfections Cost

Imperfections costs are levied through an all-island tariff; therefore modelling is performed on an all-island basis. This performance measure assesses our work to minimise constraints costs (which arise due to the difference between the ex-ante market schedule and the real-time dispatch). These costs are passed onto the end electricity consumer.

SONI intends to use the Plexos based backcast model, considering it to be the best model to use, when estimating the annual imperfections costs associated with constraints, as the backcast contains actual data, rather than using the forecast model which contains assumptions forecast more than six months before the beginning of the tariff year.

Some of these assumptions, such as fuel, are very volatile and have a significant impact on the imperfections costs associated with constraints. No method of estimating the annual imperfections costs associated with constraints is perfect but it is SONI's opinion that using the Plexos based backcast model to determine these costs is as robust as possible, as we are using actual inputs rather that assumptions.

SONI produces 4 Quarterly Imperfections Cost Reports which are published on the SEM-O website (TSO Responsibilities), which will provide clear evidence of the imperfections reductions actions, progress on the plan and the future improvements that SONI will make to remove or reduce the cost of each constraint in the next period. In addition, for the first time in 2023, the TSOs published a Mid-Year Imperfections report. This mid year report was continued in 2024 at the request of both Regulators.

Across the last year there no identified changes in N. Ireland constraints that reduced imperfection costs.

SONI Service Quality

Timely Delivery of Publications

Purpose of the metric

Feedback received during the assessment period of the 2021 – 2022 Forward Work Plan indicated some stakeholders were not clear on whether dates could change, and this would still be considered as an indication that SONI have performed well and met expectations. This section is to provide clarity around the timeframes detailed throughout the Forward Work Plan whereby the associated performance measure is the timely delivery of material or relevant publication dates at an additional cost to consumers.

Approach

Where SONI has provided a date or range of dates for the publication of documents/reports or availability of materials for use, we may measure our performance, alongside other KPIs, as the "timely delivery" of the described deliverable.

In this instance, SONI would highlight that these dates are not subject to change except where explicitly advised (e.g. due to external dependencies). The expectation is that these dates will be met as they are subject to a specific Licence obligation, or they align with the dates determined during our business planning process for the period.

Should a date deviate from the original planned date, SONI will notify stakeholders through our planned December 2025 publication of our Annual Performance Report 2024 – 2025. We will also detail any rationale as to why this deviation may have taken place, any external dependencies that may have resulted in this change and the mitigating actions SONI may take over the period.

Targets

SONI considers that we meet expectations in terms of delivering the date stated throughout the plan in terms of publications. Should this deviate, as above we will consider this through all perspectives to include whether there is an external dependency that has resulted in any deviation from the planned date.

Quality and Quantity of Feedback

Purpose of the metric

Stakeholder views and the qualitative assessment is an area which was raised by stakeholders, the UR and the independent panel during the assessment period and in the final determination of the 2021 – 2022 Forward Work Plan grade.

Approach

Over the 2023-24 period, SONI has been progressing a deliverable FWP23-12 Stakeholder Needs Assessment. Following the completion of this deliverable, we published SONI's first Stakeholder Engagement Strategy in June 2024.

This strategy is underpinned by the Engagement Evaluation Framework, which has been designed to provide a comprehensive and accurate picture of our performance. The framework utilises a range of metrics, assessment of planned engagement activities, quantitative data from post-engagement surveys and an annual pulse survey, as well as qualitative insights from focus groups and case studies. These evaluation tools will ensure SONI's strategy is both responsive and adaptive to stakeholder needs.

Since the Engagement Evaluation Framework was only introduced in June 2024, we lack historical data for analysis or trend identification. However, we will publish the initial benchmark dashboard in the 2023/24 performance report. This project is crucial for evaluating our engagement with key stakeholders. Our current approach to stakeholder feedback is outlined in Appendix 6, Stakeholder Engagement.

Previous KPI's

Renewable Dispatch Down

In previous Forward Work Plans, SONI included a KPI relating to Renewable Dispatch Down, for this Forward Work Plan. SONI highlighted our concerns on this area during 2023/24 at the Performance Report Stakeholder Event in February 2024.

SONI has made the decision not to include a target for this KPI in 2024/25 due to a material change in Dispatch Down in 2023 due to a number of key drivers. These drivers have continued in 2024 and are expected to continue in future years while the power system transitions. The key driver for change in Dispatch down that is not within SONI's control are the Interconnector imports (On Moyle and EWIC) which have increased since 2022. These imports are based on market prices and SONI does not trade in the Markets. After the Markets close, SONI will trade (priority dispatch) with National Grid Electricity System Operator (NGESO) when agreed. SONI has established a working group internally to look at the reasons for the changes in detail and assess what is within our control. We are liaising closely with industry, government and the Utility Regulator on this topic.