Primacy Rules
Rules for ESO/DNO Coordination

Increment 2
October 2024 │Version 1.0

DOCUMENT CONTROL

Authorities

Version	Issue Date	Authorisation	Comments
1	23/08/2024	Open Networks Steering group	Final draft for approval

Related documents

Reference 1	*ON Primacy Rules for ESO/DNO Coordination Ver 1.0 (Mar 2023) – Energy Networks Association (ENA)*
Reference 2	

Change history

Version	Description

Distribution

Published on ENA website

Introduction

About ENA

Energy Networks Association (ENA) represents the owners and operators of licences for the transmission and/or distribution of energy in the UK and Ireland. Our members control and maintain the critical national infrastructure that delivers these vital services into customers' homes and businesses.

Together, our industry employs around 45,000 people in the UK and Ireland, including 36,000 in Great Britain. Millions of kilometres of cables and pipes deliver electricity and gas to more than 30 million homes and businesses and we're spending and investing billions of pounds upgrading, maintaining and preparing the networks so they can continue to deliver a safe, sustainable and reliable energy system in the future.

We help our members to:

- Create smart grids, ensuring our networks are prepared for more renewable generation than ever before, decentralised sources of energy, more electric vehicles and heat pumps. Learn more about our Open Networks programme.

- Innovate. We're supporting over £450m of innovation investment to support customers, connections and more.

- Be safe. We bring our industry together to improve safety and reduce workforce and public injury.

- Manage our networks. We support our members manage, create and maintain a vast array of electricity codes, standards and regulations which supports the day-to-day operation of our energy networks.

Together, the energy networks are keeping your energy flowing, supporting our economy through jobs and investment and preparing for a net zero future.

About Open Networks

Britain's energy landscape is changing, and new smart technologies are changing the way we interact with the energy system. Our Open Networks programme is transforming the way our energy networks operate. New smart technologies are challenging the traditional way we generate, consume and manage electricity, and the energy networks are making sure that these changes benefit everyone.

ENA's Open Networks programme is key to enabling the delivery of Net Zero by:

- opening local flexibility markets to demand response, renewable energy and new low-carbon technology and removing barriers to participation

- opening data to allow these flexible resources to identify the best locations to invest

- delivering efficiencies between the network companies to plan and operate secure efficient networks

We're helping transition to a smart, flexible system that connects large-scale energy generation right down to the solar panels and electric vehicles installed in homes, businesses and communities right across the country. This is often referred to as the smart grid.

The Open Networks programme has brought together the nine electricity grid operators in the UK and Ireland to work together to standardise customer experiences and align processes to make connecting to the networks as easy as possible and bring record amounts of renewable distributed energy resources, like wind and solar panels, to the local electricity grid.

The pace of change Open Networks is delivering is unprecedented in the industry, and to make sure the transformation of the networks becomes a reality, we have created three workstreams under Open Networks to progress the delivery of the smart grid.

Our members and associates

Membership of Energy Networks Association is open to all owners and operators of energy networks in the UK.

► Companies which operate smaller networks or are licence holders in the islands around the UK and Ireland can be associates of ENA too. This gives them access to the expertise and knowledge available through ENA.

► Companies and organisations with an interest in the UK transmission and distribution market are now able to directly benefit from the work of ENA through associate status.

ENA members

ENA associates

- Chubu
- EEA
- Guernsey Electricity Ltd
- Heathrow Airport
- Jersey Electricity
- Manx Electricity Authority
- Network Rail
- TEPCO

Executive Summary

The energy industry faces significant change as we transition to Net Zero. To that end the Open Networks Programme has been charged with leading a number of developments needed to ensure that the system continues to work for consumers but moreover that the benefits of a flexible energy system are available to all.

This document details the development approach for the Increment 2 of Primacy Rules. This means the proposed rules for the mitigation of technical conflict between Electricity System Operator (ESO) and Distribution Network Operator (DNO) actions. For example, the DNO may procure services to increase generation in an area, whilst the ESO might procure services for the opposite from a nearby generator. Due to the nature of Primacy, whilst it aims to deliver the best whole system outcome, it is inevitable that in some cases individual industry participants may incur some financial impact, wherever practical these will be minimised but cannot be wholly eliminated.

Regarding the Increment 2 of Primacy Rules, the initial approach to the prioritisation of Use Cases led to the identification of more than two thousand service conflicts, approximately one third of which the primacy technical working group envisaged to take forward within the 1st half of 2024. The working group also decided to use the agreed data exchange approach of MegaWatt Dispatch project as a reference for developing data exchanges and supporting processes for resolving conflicts between ESO and DNO actions.

However, the primacy working group needed to refine and update its prioritisation exercise to respond to market conditions, including new or additional services that were developed, while other services became obsolete or were replaced. This had an associated impact on the development of the required Data Exchanges & Supporting Systems to implement any Primacy Rules.

Hence, the ESO and the DNOs committed to providing a regular update on service development, including the points at which data will become available following migration onto the Single Markets Platform and the DNO Data Portals respectively. The group will also work on identifying the relevant Use Cases of conflict and develop the associated Primacy Rules.

In an attempt to accelerate the development process of the Primacy Rules on one hand, but also the actual implementation of the approved Primacy Rules on the other, the group is commissioning external consultancy support to aid the identification of service conflicts, the development of Primacy Rules, and the relevant CBA to facilitate the decision-making process. The external consultancy support will also facilitate the creation of a governance process for future rule development. This will allow the primacy working group to focus on the implementation pathway, developing the appropriate Data Exchanges and Supporting Systems & Processes to bring the approved Primacy Rules into real-world system operation.

Introduction to Primacy

What is Primacy?

The ESO and DNOs manage the respective transmission and distribution networks in accordance with applicable standards and licence conditions. Each organisation may require one or more services for this purpose. Conflicts between one or more of these services may lead to inefficiencies within the whole electricity system. This will in all likelihood increase given the rising procurement of services and limited coordination to date. Hence, in order to manage this potential service conflict and to enable networks to be optimised efficiently and transparently, there is a need to develop a set of clear principles and "primacy" rules. These will enable procurement, planning, scheduling and dispatch of services to be influenced by whole system value. Ensuring that the division between market/price-driven actions and the electricity system hierarchy of operational needs is clear and transparent.

These rules will look to balance: the local networks' technical requirements; the risks to the overall operability of the whole system; the value for Service Providers through the facilitation of market / price driven actions; the needs of emerging market-based platform developers; and ultimately the overall cost impact on end consumers.

It should be noted that Primacy generally focusses on the conflict between different assets within the same electrical network. How participants can manage participation in multiple services at the same time is generally driven by Stackability rules, although there are interlinks/dependencies between Primacy and Stackability.

Primacy Principles

To develop robust rules that return clear value to consumers, there is a need for Primacy Principles. These will help guide the development of subsequent rules and ensure they deliver the right outcomes.

As viewed within this working group, Principles are the key elements used to assess the adequacy of the rules. They sit above the rule and help guide them. These are prioritised outcomes that, the rules must deliver.

The following principles were selected:

Each Primacy Rule must (in priority order)
Deliver the least Whole Electricity System cost to consumers
Facilitate Fair, Accessible and Efficient Markets
Be clear, transparent, consistent, inclusive and deliverable

Underpinning these principles there is a requirement to ensure the ESO and DNOs can continue to (in priority order):

- efficiently manage national system balance and overall operability
- ensure Transmission Network Security, and
- ensure Distribution Network Security.

This should continue to align with the latest industry standards as they evolve and continue to fairly treat asset and non-asset solutions.

The priority of these Principles will be reviewed throughout the primacy work and the development of the Use Cases. Any updates will be covered as part of the development of the governance documentation/process.

Governance

Approach to Governance

As we develop the primacy rules we need a method for governing them. This needs to allow:

- Clarity on the primacy rules & processes so that industry participants understand their obligations and the associated impacts

- Transparency in the way they get implemented and then updated

- Consistency across GB. Fairness for all DERs and Service Providers

- Agility, as the rules will inevitably need to develop and expand, this governance document will include more use cases and enhanced processes.

In time it may be necessary to move them to other industry documents perhaps in the form of an Engineering recommendation. This will be decided and consulted on with industry stakeholders in due course.

New Primacy Rules and Use Cases

The currently identified Primacy Rules and any new Primacy Rules will be further refined and developed over time in line with the evolution of flexibility markets and the requirements of ESO and DNOs' in respect of maintaining system integrity. They will continue to be socialised with industry and feedback taken on board.

Once the identified Primacy Rules are developed and tested, the technical working group will submit evidence of the above process to the Open Networks Steering group for approval. Any relevant industry approvals will be identified as part of that evidence gathering (for example if any code modifications are needed).

Once approved, rules can proceed to implementation across the DNOs where a risk of conflict is identified. Depending on the nature of the rules and the supporting processes the duration of this implementation phase will vary. Clear success criteria will be laid out as part of the approval process to ensure that there are clear expectations around implementation.

Ongoing Review of Primacy Rules

The product team will refine and adapt the rules as more Use Cases are defined. This will of course also include the review of existing rules as the market for flexibility services matures, which may create opportunities to improve the overall Primacy rule set; moreover, this should include industry feedback as part of Stakeholder Engagement.

Increment 2 of Primacy Rules

Initial Approach to Increment 2 Development

Due to the wide nature of potential service conflicts, the primacy working group decided to take an iterative approach to formation and then the subsequent implementation of Primacy Rules based on the common set of principles.

The initial approach taken to prioritisation of Use Cases can be found in our Use Case Prioritisation Framework. This prioritisation led to the identification of more than two thousand service conflicts, approximately one third of which the primacy technical working group envisaged to take forward assuming that the necessary Data Exchanges and Supporting Processes for these service conflicts would be in place within the 1st half of 2024.

In addition, in order to support this prioritisation exercise, the primacy working group decided to take advantage of the development & learnings of the MegaWatt Dispatch project, which has been progressing in parallel with the working group. MegaWatt Dispatch is a real-world whole system coordination project to resolve transmission constraints by providing a new market solution to DER.

More specifically, the primacy working group will base the development of industry-wide Data Exchanges and Supporting Processes for resolving conflicts on the data exchange approach agreed as part of the ESO/UK Power Networks MegaWatt Dispatch project (ESO/UKPN MegaWatt Dispatch Project Initiation Document). This data exchange approach can support enhanced coordination and accelerate whole system benefits across GB.

It should also be noted that the Data Exchanges and Supporting Processes for the resolution of conflicts will be refined as more Licensees migrate to implementation. This is to ensure that the process remains appropriate, scalable and efficient. We will consider, and add automation wherever practicable to do so, aiming wherever possible to align with existing industry data processes and standards.

Change of Approach to Increment 2 Development

However, since new or additional services were developed, while other services became obsolete or were replaced, the primacy technical working group needed to refine and update accordingly its prioritisation exercise in order to respond to market conditions. This included instances of new ESO services, ESO services that were replaced, and an updated standardisation of DNO services. These new market conditions also had an associated impact on the development of the required Data Exchanges & Supporting Systems to implement any Primacy Rules.

On the basis of the above re-prioritisation exercise and in order to ensure that sufficient foresight of new services is provided for the future development of primacy rules, the ESO and the DNOs committed to providing a regular update on service development, including the points at which data will become available following migration onto the Single Markets Platform and the DNO Data Portals respectively.

For the time being, there is a semi-automated exchange of data between the ESO and DNOs for the following ESO services: Optional Fast Reserve and STOR. As more ESO services become available on the Single Markets Platform (currently Dynamic Containment, Dynamic Moderation, Dynamic Regulation, and Balancing Reserve; with more services coming online by the end of 2024 i.e. Quick Reserve (BM) and in 2025 i.e. Slow Reserve and Quick Reserve (Non-BM)), the primacy working group will work on identifying the relevant Use Cases of conflict and develop the associated Primacy Rules.

The primacy working group also decided to commission external consultancy support in an attempt to aid the identification of the service conflicts, the development of the Primacy Rules and the relevant CBA to facilitate the decision-making process of the working group. This external support will take on the above development tasks,

so that the primacy working group can focus on the implementation pathway developing the appropriate Data Exchanges and Supporting Systems & Processes to bring the approved Primacy Rules into real-world system operation. The latter is of significant importance considering the high impact of introducing Grid Supply Point (GSP) Technical Limits in order to accelerate the connection of generation and storage into the distribution network ahead of the required transmission reinforcement works.

Evolution of Governance

We acknowledge that the governance for Primacy Rules will need to evolve over time. As the rules develop and mature, then our focus on agility will lessen, with greater focus on the other core requirements for clarity, transparency and consistency. This will also include keeping abreast of legislation and other impacting governance including safety standard changes.

As part of the external consultancy support, a governance process for future rule development will be created. This will enable ENA to ensure that new rules are developed when required and when old ones need to be retired based on the system's needs and constraints, while also fostering transparency and accountability throughout the rule development and review process.

Next Steps

The primacy working group will focus on the development of Increment 2 of Primacy Rules until the end of 2024 with the aim to start implementing the approved Primacy Rules for the identified conflicts within the 1st half of 2025.

In parallel, the ESO and the DNOs will continue working on developing the necessary Data Exchanges and Supporting Systems & Processes to bring the approved Primacy Rules into real-world system operation. This will enable enhanced coordination between Transmission & Distribution and whole system benefits for all consumers.

Finally, we will continue to develop the rules to incorporate more use cases and evolve the data exchanges to make the existing rules more efficient. These will be added to this report as they are developed.