Project Initiation Document (PID)

Regional Development Programme

MW Dispatch Enhancements (NGED)

Contents

1. Purpose and Scope of this Document

The purpose of this document is to outline the overall project scope, key deliverables, milestones, and estimated timelines for delivery of the 'MW Dispatch Enhancements' project between National Grid Electricity System Operator (ESO) and partner Distribution Network Operator (DNO), National Grid Electricity Distribution (NGED). The scope of this document will focus solely on the enhanced version of the MW Dispatch project and service and any aspects relating to its successful delivery.

2. Project Purpose

2.1. Background and Vision Statement

There is increased growth of Distributed Energy Resources (DER) in the south coast of England. Under certain scenarios (e.g. times of low regional demand and high renewable DER output), there may be a need to curtail distribution-connected plants if transmission constraint management options are limited or uneconomic. The Megawatt (MW) Dispatch projects have been developed as an MVP to provide visibility and control to the ESO Electricity National Control Centre (ENCC) to manage transmission thermal constraints under these scenarios.

The MW Dispatch Enhancements project will deliver a whole system operational solution which will enable a scalable and coordinated approach to managing transmission network constraints between ESO and each partner DNO and will build on the solution already implemented under the initial MW Dispatch MVP (Minimum Viable Product) solution. The project specifically aims to provide an enduring and scalable solution to the ESO Control Room teams allowing them effectively and efficiently manage thermal transmission constraints. To ensure continued regional operability of the transmission system, the dispatch of non-BM (Balancing Mechanism) DER in real time will be further developed to facilitate the ongoing connection of more DER capacity and in conjunction with any necessary further commercial arrangements needed to provide an ongoing curtailment service to manage transmission thermal constraints.

The dispatch service will continue to be a reduction in active power when exporting for pre fault transmission system conditions in real time, meeting a predefined turn-to-zero instruction. At the time of initiating the MWD Enhancements project there are no commercial or market driven requirements to further enhance or develop the service to cater for post fault, non-thermal or non 'turn to zero' scenarios. Any such requirements or need to further enhance the service may be developed as part of a future initiative.

In certain Distribution network areas where ESO anticipate potential transmission constraint challenges, a number of DER have an existing contractual requirement to give visibility and technical control to their DNO. That obligation for DER to provide visibility and commercial control was extended to ESO under the MW Dispatch MVP implementation. There are existing technical and commercial ways for DERs to do this is (i.e. through the Balancing Mechanism or Wider Access), however these options require substantial capital investment from smaller DERs in addition to the frequent submission of commercial operating parameters.

To provide a lower cost option for DER to fulfil the Bilateral Connection Agreement (BCA) obligations, a simplistic, thermal Transmission Constraint Management service is required – this has been delivered under the MW Dispatch MVP solution. The design of this service therefore was kept simple to suit the capabilities of these smaller providers, DNO SCADA systems and ongoing administrative responsibilities. The initial implementation of a service to meet these criteria was therefore developed as a turn to 0MW approach, which requires any exporting assets to reduce their output from current operating levels to 0MW within a reasonable timescale (in the case of storage assets this would, as a minimum bring them back to a 'float' position). This project does not see a need to make wholesale changes to the fundamental service parameters delivered under the MVP MW Dispatch solution, however, some of them may be amended to cater for the capture of more data to support more effective registration or service operation.

3. Whole System Approach

Additional whole system benefits that will be realised as a result of this project include:

- The development and further refinement of coordination processes between the ESO and partner DNO to ensure economic and efficient dispatch of Transmission and Distribution services, building on that already delivered under the MVP MW Dispatch project.
- The definition, and sharing of, enhanced data split across the standard settlement time horizons to benefit existing planning, scheduling, dispatch, and settlement processes.

- The potential further development of systems and processes to provide a clear and logical set of rules and controls for DERs wishing to participate in multiple ESO services to ensure non conflicting instructions or actions are undertaken or requested by either ESO or DNO.
- The provision of increased operational visibility and situational awareness across both ESO and DNO for DER providing the MW Dispatch service, facilitating better and more effective, more granular data driven decision making.

More broadly, it is expected that current (such as MWD) and future RDP projects (as yet to be defined) in general will benefit DER by:

- Enabling faster and more volume of connections for DER
- Reducing costs of connection and constraints
- Providing potential financial benefits for new services provided

The following table outlines key benefits for ESO that have been recorded for the project. This will be regularly reviewed and tracked during the project and post implementation.

ID	Benefit	Type	Description
B001	Ensure Network Operability through implementation of DER MW dispatch	Regulatory Compliance	ESO has a licence obligation to provide economic and efficient connection offers to Customers. These connections are offered under the 'Connect and Manage' regime whereby certain criteria must be met. The Cost Benefit Analysis showed that the most economic outcome for GB consumers was to utilise a 'Whole System' approach to operationally manage DER, as opposed to building expensive new transmission infrastructure. By completing this work, we will not only continue to meet our regulatory obligations but we will also be able to support an increase in volume and capacity of customers connecting than would have otherwise been the case with an MVP only MWD service in place.
B002	Ensure Network Operability through implementation of DER MW dispatch	Financial: Reduce expenditure	Further enhancing the system to dispatch DER MW output will provide increased situational awareness and provide more flexibility to the Electricity National Control Centre (ENCC). Improved situational awareness and flexibility service will lead to more informed real-time decisions, which will ultimately drive down the overall cost of operating the network.
B003	Ensure Network Operability through implementation MW dispatch	Financial: Reduce OPEX spend	A more effective and enhanced DER MW dispatch solution will provide for more efficient operational process time. This will also allow us to continue to increase the pool of participants providing transmission constraint management services to the NGESO, leading to better market liquidity (thus reducing control centre constraint costs for the NGESO and, ultimately, the end consumer).
B004	Ensure Network Operability through implementation DER MW dispatch	Supports NGESO 2025 Ambition (Non-Financial)	Application of 'Whole System' approach to enabling quicker and increased volume of low carbon connections in a timely and controllable manner will contribute towards the NGESO meeting the ambition of being able to operate a 'carbon free' network by 2025. This will also provide benefits to DNOs and DERs through the facilitation of higher volumes of embedded providers being able to connect to the Distribution network ahead of 'long lead time' and costly network reinforcement (i.e. quicker than they would have otherwise been able to do so).

B005	Improved "Whole System" Outcomes	NGESO Forward Plan commitment (Financial – Principle 5 incentive)	Delivery of an enhanced MWD service will further improve coordination of planning and operational data/decisions between NGESO and the respective DNO. This will ultimately lead to even more efficient and timely connections for Customers, and improved utilisation of existing network assets than that already facilitated under the MW Dispatch MVP project. These enhancements to the MVP MWD implementation will provide more granular visibility across the Transmission and Distribution networks of potential conflict risks thus allowing both NGED and ESO to make more informed decisions around service provision and DER availability, in turn minimising potentially unnecessary periods of unavailability.

4. Project Scope

The table below highlights the proposed enhanced system deliverables in terms of Features and Descriptions required which impact both ESO and DNO to successfully deliver the overall end-to-end service offering (these features will in the main be delivered within the ESO and by the ESO teams, with the main deliveries for NGED being within the Unavailability reports changes required):

Feature Title	Feature Description
Form B changes	Enhance Digital Form B submission customer experience
MPAN ID Changes	MPAN ID changes to facilitate ABSVD Reporting process
SMP UI Changes	Modify the tool tip messages for few SMP fields for better user experience.
Operational Parameters	Enable Service Providers to submit the Operational Parameters as part of Registration.
SMP Report Changes	Include filters and additional columns on SMP reports for MWD service.
RDP MWD Deregistration	Enable Deregistration for Service providers and participate in other services
Workflow Management	Automate notifications to various stakeholders (Internal, DNOs and DERs) during stages of Registration.
ASDP UI Changes	ASDP Dispatch Tool - UI changes to enhance end User Customer experience
ASDP Permission model	ASDP Dispatch Tool - Permission model changes
National Constraint boundary view	Enable National Constraint boundary view to enable Dispatch at National Boundary level and move away from GSP level dispatch. This will be enabled as part of planning(NAP) , scheduling(S&BB) and Dispatch(ASDP)
Unavailability Report changes	Unavailability Report changes in planning (NAP), scheduling(S&BB) and Dispatch (ASDP)
Potential Merit order view for NGED	Day ahead Potential Merit order view for NGED to align with UKPN Solution
S&BB UI Changes	S&BB tool - UI changes to enhance end User Customer experience
S&BB MW Optimisation	Logic to display forecasted available units to meet a given volume starting from cheapest available units

Data Sharing Enhancements	Enhance Data Sharing between below systems SMP- Connections Connections -NAP ASDP- S&BB NAP Tool - OLTA SMP- DNO
NAP UI Changes	Add GSP column to unavailability data in NAP, Rounding off in study output table and Ability to enter 0% Scaling factor
Reports from Connections tool	Report of units that are MWD mandated but have not registered.
Compliance module addition	Create an enduring compliance tool for use when registering new units onto the MWD service
Offline Dispatch/Cease	Create a solution / process which will enable ENCC to execute offline dispatch/Cease in certain predefined situations.

The table below highlights the proposed enhanced process change deliverables in terms of Features and Descriptions required which impact both ESO and DNO to successfully deliver the overall end-to-end service offering (these process changes will predominantly impact the ESO and NGED Control Room teams and will need to be agreed between both organisations prior to being included in relevant MWD process documentation):

Business Process Changes

Feature Title	**Feature Description**
Telephonic dispatch	Joint Operating Procedure (JOP) to be updated to account for telephonic dispatch in the event where ASDP is experiencing a fault. Control Room teams impacted.
DNO intervention in dispatch instruction	JOP to include actions when the DNO allows a unit to export (in the event of an emergency on the DNO network) or the ESO issue a cease but the DNO prevents the unit from exporting. Control Room teams impacted.
Failure scenarios review	Workshop to be held to review scenarios where the end-to-end system could fail and putting in controls so the service fails-safe. Control Room teams impacted.
Commercial changes	Changes to the service terms in the event of (mainly Commercial teams impacted): • Allowing smaller market participants (<1MW). • Allowing participants without V&C terms. • Stacking this with other ESO and DSO services.
Registration process review	Improve workflow for registration process and automate processes where possible. ESO impacted.
Intra-day data exchange.	Improved process for exchange of data from the ENCC to the DNO intra-day where possible. Control Room teams impacted.

Out of Scope for Day-1 of IT Delivery:

The table below highlights those items initially considered for delivery, however, have been agreed as out of scope for this project either due to being undeliverable within the project timelines and / or budget or not adding the required level of business or operational value:

Process Area	High Level Requirement
Dispatch	Ability to dispatch decremental (non-zero) instructions for Dx DER's.
Dispatch	Ability to dispatch Reactive Power
Dispatch	Capability to allow aggregators to participate in the service
Dispatch	Operational Parameters : Ability to consider Operational parameters for dispatch decision making in ASDP.
Dispatch	Stacking of Services - Implement Stackability logic in the ASDP system
Dispatch	Ability to dispatch Storage/turn up solution to manage Import Constraints.
Dispatch	Applying automated retry of dispatch, cease instructions
Dispatch	Dynamic running arrangement Updates - Provision to handle change of Nearest node (Post code tagging) for a particular Unit in ASDP
Dispatch	To remove T-10 Safety window for UKPN and align with NGED solution.
Registrations	Ability to update Utilisation Price in-line within BM rules
Registrations	Ability to use MWD for post fault scenarios
Registrations	Ability to use MWD to manage pre fault stability constraints
Registrations	Dynamic running arrangement Updates - Provision to handle change of Nearest node (Post code tagging) for a particular Unit in SMP
Registrations	Ability to Auto populate the DER registration data from the DNO database in SMP when DER is trying to register in SMP.

iEMS / ICCP	Ability to show the effective MW value of the DER at the GSP on the IEMS screens
Settlements	Use of automated processes for reporting/ audit requirements We need to identify requirements for reporting
Settlements	Establish performance monitoring policy, processes and tools
Settlements	Review settlement for non-paid scenarios based on solution enhancements i.e. by handling failure scenarios in automated way
Settlements	Ability to use SMP data (existing and with extra fields) so settlement registration doesn't need completing via a word doc and data is not duplicated by DER.
Settlements	Baselining based on agreed approach Currently, baselining is based on the MW output of the unit at the point prior to the instruction, consider other approaches such as rating capacity of the DER
IT Architecture	Moving all ESO Web services to REST and behind same Firewall/LB service
IT Architecture	Implement a strategic change for WSDL mismatch in SOAP APIs i.e. e.g. for ESO to change the process of onboarding a service provider DNO/DSO by compiling the WSDL generated by the service provider, or to implement a REST API instead of the current SOAP API.

Further Enhancements to the Product / Service

It is anticipated that this will be the final RDP led delivery of MWD functionality or business processes prior to the handover to an enduring business owner. However, a number of further potential changes have been captured which may bring further business benefit or add further value to the service – for clarity, these will not be delivered by this project. These are detailed in attachment in Appendix 1.

5. Project Approval and Governance Structure

Key Roles and Responsibilities

Role	Responsibilities
Product Manager	• Overall accountability for delivery of these RDP projects
Product Owner	• Engage with business stakeholders. • Define product features. • Support teams in delivery of features. • Support testing preparation and execution activities.

Business SMEs	• Define product requirements and features. • Support user acceptance testing.
IT Resources	• Project governance activities. • Define user stories. • Create solution architecture documentation. • Testing activities.
DNO Resources	• Support requirements gathering and feature definition. • Deliver changes in DNO systems.

6. Project Approach

The project will follow the same framework followed during RDP 1 & 2.

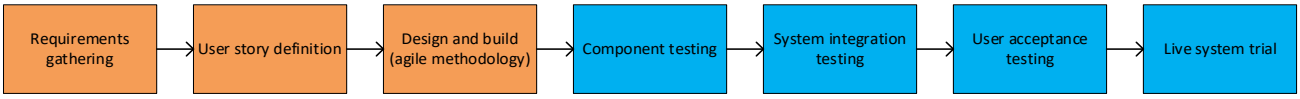


Figure 1: Delivery framework used for RDP 1 & 2.

Features and user stories will be grouped under the following epics:

- Dispatch
- Scheduling and planning
- Registration, connections and compliance
- SCADA/IEMS

Overview of Agile Approach

The project will employ an Agile way of working (where possible) which involves defining, planning, and completing tasks within a short time window called a sprint. An updated end-to-end process for the MW Dispatch enhanced service will be defined that will form a high-level view of the individual elements and constituent parts. These high-level elements are then further refined, developed, and validated with all stakeholders on a continuous basis throughout the project to ensure requirements are being met at each stage.

Project Success

The project will follow a standard Agile methodology and as such will be deemed to be 'Ready' once all elements in scope for delivery by both ESO and DNOs have been designed, documented, agreed by business stakeholders, built and successfully tested (IT / technical deliveries) and the approach to go live and business adoption and ramp up has been agreed.

The project will be deemed as 'Done' once all ESO and DNO scope items have been successfully implemented, released to live environments (IT / technical deliveries) and verified by the business users post release, any agreed trials have been successfully completed, live support has been completed, the solution has been fully adopted by the business teams and the project team has completed all closure documentation.

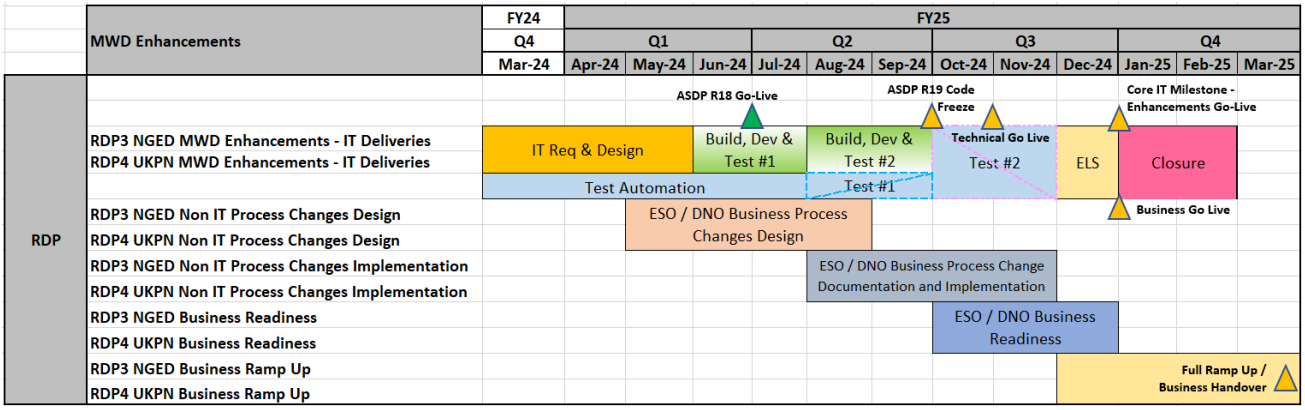
Project success will be assessed on the following criteria:

- Business requirements delivered to stakeholder specification
- All technical deliveries successfully released to live environments to time, cost and quality
- Business operational teams have signed off all testing activity

- Business operational teams have adopted the solution
- All new business processes have been documented, signed off and process documents reside in relative document libraries
- All necessary business teams have been trained in the new processes and functionality
- The solution has been successfully handed over to an enduring business owner along with any previously captured potential future enhancements
- Internal and external communications have been successfully delivered to drive promotion and adoption of the MWD service

6.1. Timeline

The MWD enhancements project aims to deliver in line with the plan shown below. The overall project delivery is anticipated to complete within around 12 months.



7. Governance Structure and use of Existing DNO Meetings and Joint Forum

The DNO and ESO will hold regular bilateral meetings to monitor progress of the project. These meetings will also highlight any policy or stakeholder topics that may have an impact or need to be considered within the various stages of the project. Joint Programme Management Board or Steering Group meetings will be also be initiated / continued (where they are already in place) during the project in order to engage senior DNO/NGESO management for prompt key decision making.

In addition, key outcomes from the bilateral meetings will be considered, as necessary, for sharing with all DNOs that are currently not part of this RDP delivery via existing ENA Open Networks Forums.

8. How does this Project fit with wider RDP Work / Other Projects?

The first cross boundary project linking distribution smart grid schemes and traditional transmission control systems was to develop N-3 operational tripping schemes to manage system safety / security whilst also allowing more DER to connect to the Distribution network. The N-3 intertripping scheme with UKPN, SSEN and

NGED have all now gone live. Under N-3 scenarios, DER will be curtailed to secure double circuit events if the network is already depleted by an outage. The intertripping system is only utilised post fault under N-3 conditions across the South Coast. This allows generation to operate freely pre-fault virtually all the time, because the probability of the fault is exceptionally low. The maximum generation intertrip will be set by the agreed largest system infeed for which primary and secondary response plant is scheduled. From a project delivery perspective, the MW Dispatch enhanced delivery project has no current dependencies on N-3 for deliverables. Operationally, MW Dispatch may have some interaction with N-3 as part of Primacy Rules considerations.

Also, as part of another two separate proposals the RDP team are considering delivery of a Technical Limits solution across multiple GSPs / DNOs and also a MWD type solution in Scotland. Neither of these projects have any dependencies on, or for, the proposed MWD enhanced functionality delivery.

9. Joint Project Plan and Risks

The project plan for MW Dispatch will be developed and agreed jointly between NGESO and partner DNO, NGED. It reflects the design and implementation phases for IT delivery and the associated activities that are required to produce the enhanced service offering. The initial project delivery plan on a page is included in section 6.1.

A list of high-level risks currently identified are shown in Appendix 2.

10. Document Version and Tracking

The table below outlines current and previous document version, including appropriate sign-off from all parties.

Version	Date	Change Overview	NGESO Approved (Name and Role)	DNO Approved (Name and Role)
V0.1	8/5/2024	Initial draft of PID		
V1.0	6/11/2024	Baselined	Keith Parker NESO MWD Product Manager	Matt Watson NGED Head of DSO Operations

11. Document Sign Off

Name	Position / Role	Organisation	Date
Matt Watson	Head of Commercial & Operability	National Grid Electricity Distribution  NGED PID Approval Email 04.11.2024.docx.msg	4/11/2024
Ben Godfrey	Director of Distribution System Operator	National Grid Electricity Distribution  NGED PID Approval Email 04.11.2024.docx.msg	4/11/2024
Steve Wallace	Network Access Planning Manager	 RE Formal NGED RDP3 MWD Enhancer ESO	10/12/2024
Gavin Brown	ENCC Future Design Senior Manager	 Re Formal NGED RDP3 MWD Enhancer ESO	21/11/2024

Appendix 1: MW Dispatch Further Potential Enhancements to Product / Service – not in scope for this delivery

Potential%20MWD%20Future%20Items.xls

Appendix 2: MW Dispatch Enhancements Project Risks

Significant ESO risks identified at time of writing:

Risk	Risk Category	Probability (1-5)	Impact (1-5)	Risk Strategy
Ability to deliver RDP 4 User stories into ASDP	Delivery	2	3	Prevention
Ability to secure SME resources to support RDP 4 Project	Delivery	3	2	Reduction
Project is proceeding at risk in lieu of Change Request approval	Delivery	2	3	Prevention
Ability to baseline RDP 4 scope with DSO	Delivery	3	2	Prevention
Ability of Core team resources to support RDP 4 Project	Delivery	3	2	Reduction

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