

Project Initiation Document (PID)

Regional Development Programme

MW Dispatch Enhancements (UKPN South-East
Coast

national**grid**ESO

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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 UK Power Networks (UKPN) South-East Coast 'MW Dispatch Enhancements' project between National Grid Electricity System Operator (ESO) and partner Distribution Network Operator (DNO), UK Power Networks (UKPN). 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. The processes and functionality being delivered by this project build on those included under the initial MW Dispatch UKPN South-East Coast service delivery, details of which can be found on the ESO website: [Megawatt Dispatch | ESO \(nationalgrideso.com\)](https://www.eso.com.uk/megawatt-dispatch).

Any future solutions as well as product enhancements, as defined in the initial PID scope and service assessment over time, will be delivered as part of WS2 and WS3 of MW Dispatch UKPN South-East Coast service.

2. Project Purpose

2.1. Background and Vision Statement

The Regional Development Programme (RDP) comprises a series of projects collaboratively undertaken by ESO and partner DNOs. These projects aim to grant visibility and control to the ESO Electricity National Control Centre (ENCC) for managing transmission constraints to facilitate the continued connection and expansion of Distributed Energy Resources (DER) across the network.

The UKPN Megawatt Dispatch project is part of the RDP programme that has been developed between ESO and UKPN. The project delivery was broken down into two key stages and at the time of initiating the MW Dispatch Enhancements project, the initial solution has been implemented as a Minimum Viable Product (MVP) solution to enable managing pre-fault transmission thermal import constraints under certain scenarios in the South-eastern Networks (SPN).

To ensure continued regional operability of the transmission system, the dispatch of non-Balancing Mechanism (BM) DER in real time needs to 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. Hence, the MW Dispatch Enhancements project aims to deliver a whole system operational solution which will enable a scalable and coordinated approach which builds on the MVP solution. This initiative will primarily focus on ESO system enhancements.

The design of the MVP solution was kept simple to suit the capabilities of the smaller providers, existing UKPN infrastructure and 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 from receiving a dispatch instruction (in the case of storage assets this would, as a minimum bring them back to a 'float' position). The dispatch service of the MW Dispatch Enhancements project will continue to be a reduction in active power when exporting for pre-fault transmission system conditions in real time, meeting a pre-defined turn-to-zero instruction.

At the time of initiating the MW Dispatch 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 'turn to Non-zero' scenarios. Any such requirements or need to further enhance the service may be developed as part of a future initiative. 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 across a number of 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 RDP projects in general will benefit DER by:

- Enabling faster and more volume of connections for DER
- Reducing costs of connection and constraints

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	<p>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.</p> <p>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.</p>
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 ESO, leading to better market liquidity (thus reducing control centre constraint costs for the ESO and, ultimately, the end consumer).
B004	Ensure Network Operability through implementation DER MW Dispatch	Supports ESO 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 ESO meeting the ambition of being able to operate a 'carbon free' network by 2025.
B005	Improved "Whole System" Outcomes	ESO Forward Plan commitment (Financial – Principle 5 incentive)	Delivery of an enhanced MW Dispatch service will further improve coordination of planning and operational data/decisions between ESO 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.

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:

IT System Changes

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	Various UI updates for improved user awareness and 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 MW Dispatch service.
Smaller Market participants	Assess use cases to open market to smaller participants (0.5 MW to 1 MW) and for Providers with non Visibility and Control terms or in other GSPs.
RDP MWD Deregistration	Enable Deregistration for Service providers and participate in other services.
Workflow Management	Automate notifications to various stakeholders (Internal 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. This item has already been delivered internally within ESO in an earlier ASDP release.
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).
DNO special scenarios	Handling of DNO actions taken in specific scenarios at ASDP end.
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
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 MW Dispatch mandated but have not registered.
Compliance module addition	Create an enduring compliance tool for use when registering new units onto the MW Dispatch service

The table below highlights the proposed enhanced process change deliverables in terms of Features and Descriptions required which impact both ESO and UKPN to successfully deliver the overall end-to-end service offering:

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.
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.
Failure scenarios review	Design review workshop to be held to review and document in JOP scenarios where the end-to-end system could fail and putting in controls so the service fails-safe.
Commercial changes	Changes to the service terms in the event of: <ul style="list-style-type: none"> • Allowing smaller market participants (<1MW). • Allowing participants without V&C terms. • Stacking this with other ESO and DSO services.
Registration & Deregistration process review	Improve workflow for registration & deregistration process and automate processes where possible.
Intra-day data exchange	Improved process for exchange of data from the ENCC to the DNO intra-day where possible.

Out of Scope for RDP4:

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	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 MW Dispatch 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, MVar and status details, of the DER at the GSP on the IEMS screens.
Compliance, Performance Monitoring and Reporting	Use of automated processes for reporting/ audit requirements We need to identify requirements for reporting.
Compliance, Performance Monitoring and Reporting	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
ESO Product Manager	<ul style="list-style-type: none"> Overall accountability for delivery of this RDP project.
ESO Product Owner	<ul style="list-style-type: none"> Engage with business stakeholders. Define product features. Support teams in delivery of features. Support testing preparation and execution activities.
ESO Business SMEs	<ul style="list-style-type: none"> Define product requirements and features. Support user acceptance testing.
ESO IT Resources	<ul style="list-style-type: none"> Project governance activities. Define user stories. Create solution architecture documentation. Testing activities.
DNO Resources	<ul style="list-style-type: none"> Support requirements gathering, feature definition and joint testing. Support process update activities. Continue to engage with DERs as required to support IT and business updates.

6. Project Approach

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

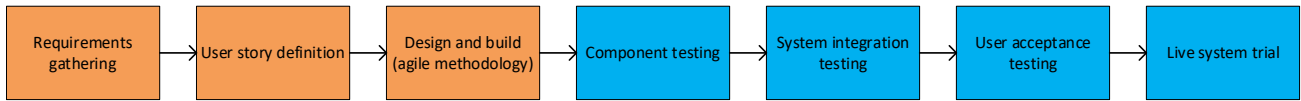


Figure 1: Delivery framework used for RDP 1 & 2.

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 MW Dispatch service.

6.1. Timeline

MWD Enhancements	FY24	FY25											
	Q4	Q1			Q2			Q3			Q4		
	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
					ASDP R18 Go-Live			ASDP R19 Code Freeze					Core IT Milestone - Enhancements Go-Live
RDP3 NGED MWD Enhancements - IT Deliveries	IT Req & Design		Build, Dev & Test #1		Build, Dev & Test #2		Technical Go Live Test #2		ELS				Closure
RDP4 UKPN MWD Enhancements - IT Deliveries		Test Automation			Test #1								
RDP3 NGED Non IT Process Changes Design			ESO / DNO Business Process Changes Design										Business Go Live
RDP4 UKPN Non IT Process Changes Design													
RDP3 NGED Non IT Process Changes Implementation						ESO / DNO Business Process Change Documentation and Implementation							
RDP4 UKPN Non IT Process Changes Implementation													
RDP3 NGED Business Readiness								ESO / DNO Business Readiness					
RDP4 UKPN Business Readiness													
RDP3 NGED Business Ramp Up													Full Ramp Up / Business Handover
RDP4 UKPN Business Ramp Up													

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/ESO 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. 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-East 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 MW Dispatch type solution in Scotland. Neither of these projects have any dependencies on, or for, the proposed MW Dispatch enhanced functionality delivery.

9. Joint Project Plan and Risks

The project plan for MW Dispatch will be developed and agreed jointly between ESO and partner DNO, UKPN. 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	19/7/2024	Baselined Version		

11. Document Sign Off

Name	Position / Role	Organisation	Date
Tim Manandhar	DSO Solutions Manager	UK Power Networks	31/7/24
Sima Davarzani	DSO MWD Project Lead	UK Power Networks	31/7/24
Steve Wallace	Head of Network Access Planning	ESO	1/8/24
Gavin Brown	ENCC Future Design Senior Manager	ESO	5/8/24

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 DNO	Delivery	3	2	Prevention
Ability of Core team resources to support RDP 4 Project	Delivery	3	2	Reduction
Ability of both partner DNOs against RDP3&4 to be able to meet tight timelines for code release.	Delivery	2	2	Prevention



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