

Window Two Report

Accelerated Loss of Mains Change Programme

The Accelerated Loss of Mains Change Programme (ALoMCP) is an industry led project to accelerate compliance with the new loss of mains protection requirements in the Distribution Code. It is delivered by National Grid ESO (NGESO), distribution network operators, independent distribution network operators and the Energy Networks Association (ENA) The purpose of this report is to provide a summary of the programme status following completion of the second window.

Headlines

The programme has now resumed after a brief suspension to allow for the coordination of a response to the COVID 19 pandemic. Deadlines in March, June, and September 2020 have been extended by three months and DNOs/IDNOs are exploring the use of virtual means to witness testing and conduct sample site visits.

Good progress has been made. A total of 1,261 applications were approved for window two, for a capacity of 2,105MW at a cost of approximately £5.3m in payments to distributed generator owners. This brings the cumulative total approved applications to 3,194 applications, for a capacity of 6,457MW at a cost of £11m in payments to distributed generator owners.

The potential savings in operational costs remain at the same level identified in Window 1, £10m per annum subject to the completion of all Window 1 applications. Applications approved in Window 2 will reduce the risk that delays in Window 1 applications are translated into delays in the delivery of the Window 1 value. The value identified so far comes from sites moving away from Vector Shift protection. There is an opportunity to deliver significantly higher savings if more changes can be made at sites with low RoCoF settings.

In window two, we continued to focus on supporting applications that will see changes implemented by spring 2021.

Applications submitted on or after 01 February to physically replace a relay at sites with neither synchronous nor doubly fed induction generation were only supported to the level of funding available for protection function deactivation. Other applications were not affected.

Parties who submitted an application on or before 11 February 2020 should have been contacted directly to confirm the results of their individual application(s). If you have not had a response, please contact your relevant DNO/IDNO.

Coronavirus Pandemic Response

Recognising the importance of the programme to the short and medium term security of supply, and after the consideration of the government advice in response to COVID 19 pandemic, the programme has been resumed with the following measures put in place to minimise the impact of potential delays on customers and to reduce travel for as far as practicable

- Applicants who have accepted the terms and conditions of the program and have a Latest Valid LoM (Loss of Mains) Change Date before or within September 2020, but have yet to complete the required works, will have their deadline extended by 3 months.
- DNO/IDNO requirements to witness certain works and complete Sample Site Visits are unchanged. Where DNO/IDNOs are unable to attend sites in person they have agreed to support trials to complete witness testing and Sample Site Visits virtually, for example by means of Video calling. Contractors should engage with the relevant DNO/IDNO for details of how to accomplish this.
- Payments due to applicants who have already completed their work, and had a Sample Site Visit conducted where applicable, will be processed as soon as is practicable under current working arrangements.

Timeline

The ALoMCP portal went live on 2 October 2019 and applications for window 1 closed 12 November 2019. The portal re-opened for application in window 2 on 13 November and the timeline for the second application window is summarised on Table 1. The portal remained open for applications after the closing day for window two. Applications received after that date will be progressed on or before the closing day for window three.

Table 1 – Window two timeline

Opening Day	13.11.2019	Distributor Results Day	11.03.2020
Closing Day	11.02.2020	Provider Results Day	24.03.2020
Pre-qualification Day	25.02.2020		

Process performance

Table 2 shows the number of applications progressing at each of the process milestones. Each application included a lead time by which the changes could be made, and this has been used to give an indicative projection of when the changes accepted in window two will be completed.

Not all applications received by the DNOs/IDNOs were passed to NGESO as some of them could not be progressed due to inconsistencies in the application.

Table 2: Summary of results

Window		One	Two
Applications submitted to DNOs by the window closing day	No of applications	2,031	1,403 ¹
	Total MW	5,484	3,383
Applications received by NGESO by the pre-qualification day	No of applications	2,039 ²	1,306
	Total MW	5,315	2,846
Applications approved	No of applications	1,933	1,261
	Total MW	4,352	2,105
Applications accepting contractual terms	No of applications	1,774	776
	Total MW	4,195	1,400
Applications indicating completion	No of applications	854	56
	Total MW	2,035	115

¹ Includes some applications not approved in Window 1

² Some DNOs/IDNOs had enough capacity to process applications received between the window closing day and the pre-qualification day

The engagement level during the three months of window two was below that of window 1. However, the number of applications was still satisfactory and applications approved so far account for approximately 25% of the capacity required. There is still a significant number of sites which need to make these changes and the programme will continue to encourage owners of these sites to submit applications via the application portal during window 3.

45 applications have been rejected for the following reasons

- Applications in relation to Medium and Large Power Stations – with a view to understand better the reasons they have RoCoF/VS protection in contravention of the current and all previous issues of G59 and to determine how to address this issue;
- Applications in relation to sites with protection devices that failed to update their protection settings to comply with the requirements of G59/3 issue 1;
- Applications in relation to sites with settings already compliant with G59/s issue 7; and
- Applications with ambiguous protection settings.

14 sites have been provisionally accepted subject to clarifications with the DNOs, the IDNOs, and the site owner. These include:

- Confirmation customer is happy to work for a lead time shorter than what they originally submitted (for completion by 24 March 2021);
- Minor clarification of protection settings; and
- Minor clarification on scope of works required.

We continued to prioritise completion of works by spring 2021. We are currently engaging with the six applicants who requested longer delivery lead time in order to complete the works by March 2021.

Value delivery

The estimates of total generation capacity currently at risk of tripping due to inadvertent operation of LoM protection is summarised in Table 3. These are informed by the standard planning data provided by DNOs on Week 24 under the Grid Code and some significant assumptions to cover for the uncertainty associated with legacy sites. These will be revised in the future to account for sites completed and of knowledge gained through the process.

Table 3: Underlying risk estimates

Risk estimate (high)	Total (GW)	24
	VS component (GW)	22
	RoCoF component (GW)	2
Risk estimate (low)	Total (GW)	20
	VS component (GW)	10
	RoCoF component (GW)	10

Table 4 shows how the volume at risk of disconnection due to rate of change of frequency (RoCoF) and vector shift (VS) protection will reduce as the sites accepted during window one implement the changes required.

Table 4: Projected risk reduction³

Window	Delivery Milestone	Dec 19 to Dec 20					
		Dec 19 to Mar 20	Mar 20 to Jun 20	Jun 20 to Sep 20	Sep 20 to Dec 20	Dec 20 to Mar 20	Dec 20 to Mar 20
One	Projected RoCoF risk reduction (MW)	N/A	207.4	56.8	8.9	14.7	0
	Projected VS risk reduction (MW)	N/A	1761.3	2018.3	179.7	85.2	0
	Projected total risk reduction (MW)	N/A	1968.7	2075.1	188.6	99.9	0
Two	Projected RoCoF risk reduction (MW)	N/A	N/A	100.9	19.8	1.2	26.1
	Projected VS risk reduction (MW)	N/A	N/A	740.5	364.8	41.3	580.4
	Projected total risk reduction (MW)	N/A	N/A	841.42	384.6	42.5	606.5
Overall	Projected RoCoF risk reduction (MW)	N/A	207.4	158.7	28.7	15.9	26.1
	Projected VS risk reduction (MW)	N/A	1761.3	2758.8	544.5	126.5	580.4
	Projected total risk reduction (MW)	N/A	1968.7	2916.5	573.2	142.4	606.5

The value of the changes will be delivered in both the short and long term in the way NGESO manages the risks associated with activation of the LoM protections.

For VS risk, applications approved in Window 2 will contribute towards further risk reduction but, on their own, will not contribute towards additional savings in the cost of managing such risk. However, these applications will potentially accelerate the delivery of the £10m/annum savings identified in Window 1 report or, at the worst case, reduce the risk that any delays in Window 1 applications would be translated into a delay in value delivery.

The projected short-term reduction in RoCoF risk following the completion of works at all sites approved in windows one and two is not yet sufficient to influence the actions NGESO takes to manage the risk.

The targeted long-term reduction in RoCoF risk is expected to eliminate the need to take actions to ensure that RoCoF relays are not inadvertently activated. The cost of such actions in 2018/2019 was £150m. As further risk reduction is expected to be achieved in future windows, NGESO will be able to take alternative actions which will reduce these costs.

The targeted long-term reduction in VS risk is expected to further improve the reliability of supply by removing the risk altogether.

Sites indicating that they have completed the works would result in a 2.15GW of total risk reduction. These sites are at various stages of the delivery assurance process. NGESO is currently assessing how to model those sites in RoCoF/VS risk models up until the completion of the delivery assurance process.

Cost reporting

The projections of site-related costs are shown in

³ Not taking into account any extension granted in response to COVID 19 pandemic

Table 5. These projections cover both the costs associated with the implementation, determined based on the data provided in the applications and estimates of the costs required to cover delivery assurance activities. The numbers assume timely completion of the works, completion of delivery assurance activities, and payment.

Table 5: Projections of site-related costs⁴

Delivery stage	Dec 19	Dec 19 to Mar 20	Mar 20 to Jun 20	Jun 20 to Sep 20	Sep 20 to Dec 20	Dec 20 to Mar 21	Mar 21 to Jun 21
No of sites completed		1066	1298	514	144	172	
No of sites witnessed		150	95	17	12	12	
No of sites sampled		0	183	241	100	27	32
No of sites self-certified		733	962	397	105	128	
Provider payment (£m)		3.72	5.234	1.999	0.598	0.625	0.016
DNO cost (£m)		0.15	0.222	0.206	0.090	0.031	
Total site related cost		3.87	5.456	2.205	0.688	0.656	0.016

901 sites declared completion of works between December 2019 and March 2020 with DNOs witnessing testing at 66 of these sites. Payment to these sites are pending completion of the delivery assurance activities and payment processes related to them.

Non-site related costs incurred by the DNOs during that period were £0.224m

Focus Areas

We continue to engaging with inverter manufacturers to establish whether their product provide LoM protection functionality or not, the type of this protection if it exists, and how their equipment would need to be reprogrammed to meet the new requirements. In response, 14 of 22 manufacturers have provided full or partial guidance on these issues.

The programme was structured to allow an agile response to issues as they are identified and we have been continuously updating our processes as such issues are identified. We are strengthening our query management process to ensure that we continue to receive the valuable feedback from customers and channel it effectively to ensure the programme delivers its objectives.

The application and the delivery of works have been successful so far with 2.1GW of capacity at 910 sites confirming that they have completed the works required. We are currently focusing on gaining confidence in the completion of the works through our delivery assurance processes and on making the payment for those who have successfully completed the works required.

We intend to review our baseline of underlying risk on the basis of the information received so far and taking into account that some sites have been made compliant through previous

⁴ Site-related costs are forecast according to when applicants originally committed to complete the works. It should be noted that actual costs may be delayed both by the difficulties arising from the coronavirus pandemic and the time taken to complete delivery assurance activities and payment process.

programmes/exercises. This will allow the programme to ensure that engagement is focused and that the statistics presented are representative of reality.

NGESO intends to review how to model the risk associated with sites at various stages of the delivery assurance process. This will allow a calculated risk approach that would maximise the value for consumers while not putting their security of supply at significant risk.

Window three

Applications can now be submitted for window three via the online portal (<http://www.ena-eng.org/ALoMCP>). Window three closing day is planned for 12 May 2020, although this is subject to review and confirmation due to the impact of the coronavirus.

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