

RP7 - NIE Networks Price Control 2025-2031

Final Determination Annex N
Innovation
30 October 2024



About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Queens House in the centre of Belfast. The Chief Executive and two Executive Directors lead teams in each of the main functional areas in the organisation: CEO Office; Price Controls; Networks and Energy Futures; and Markets and Consumer Protection. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.



Abstract

This annex forms part of the final determination for the NIE Networks RP7 Price Control. It provides a review of NIE Networks' innovation proposals, draft determination responses and how best the Utility Regulator (UR) can support innovation within its current vires. It also details the past approach, business plan requests, and our assessment of these requests as well as our resulting final decisions for RP7.

Audience

NIE Networks, consumers, consumer representatives, consumer groups, other regulated companies in the energy industry, government, and other bodies with an interest in the energy industry.

Consumer impact

Innovation will be required to reduce carbon emissions, improved performance and improve the service to consumers. This could include savings for customers in the form of reduced network reinforcement allowances and new practices that are a step change towards net zero and increased efficiencies by NIE Networks.

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Executive Summary

The purpose of this report is to summarise the key considerations around innovation and how the Utility Regulator (UR) intends to support innovation by NIE Networks. This annex reviews the background of the past RP6 innovation schemes and its outcomes to date.

We consider NIE Networks proposals and provide our views on the baseline projects and the innovation fund proposed by NIE Networks. We also outline our RP7 innovation framework, consultation responses and provide final decisions.

NIE Networks proposed an updated innovation framework for RP7. This includes provision of funding through two mechanisms, baseline ex-ante funding of £8.8m¹ to deliver innovation projects and a Network Innovation Fund (NIF) of up to £10.3m provided through a re-opener mechanism. We comment on each of the innovation projects requested and have provided a final determination.

We considered the need, costs, potential benefits, innovative nature and risks of each of the projects. We have determined a final ex-ante allowance of £4.75m against the £8.8m requested. It should be noted that any project not approved as part of this final determination can be reconsidered at a later date if further detail and justification is provided.

Regarding the NIF, whilst we do not have concerns with NIE Networks request to access additional funds through a re-opener, we do have some concerns with an Innovation Council, as set out in the draft decision. It is NIE Networks who is accountable under its licence and therefore it should be them that puts forward any recommendations for additional funding. This position has largely been accepted, though some respondents have argued for a Council to be established.

NIE Networks business plan has requested supplementary funding of up to £10.3m provided through a re-opener mechanism. We are inclined to maintain the draft position and will not be setting a cap on this re-opener. If NIE Networks can provide the appropriate justification, we see limited benefit in restricting the quantum of innovation funding.

We also consider it appropriate to have annual reporting on innovation progress and benefits. This should be publicly available. Following feedback, we have settled upon a framework of three re-opener windows for requesting new innovation projects. This strikes a balance between the flexibility requested and the need to properly assess delivery against funding.

¹ All financial figures in this annex are in 2021-22 prices unless otherwise stated.

1. Introduction

- 1.1 Innovation is developing new technologies and ways of working to unlock enduring benefits. It should also help enable NIE Networks to facilitate decarbonisation at least cost for consumers.
- 1.2 NIE Networks proposes an updated innovation framework for RP7. This includes provision of funding through two mechanisms:
 - a) Baseline ex-ante funding of £8.8m to deliver innovation projects that have been identified in the RP7 business plan.
 - b) Supplementary funding of up to £10.3m provided through a re-opener mechanism known as the Network Innovation Fund (NIF).
- 1.3 To help inform these proposals, NIE Networks and their consultants (WSP) submitted an innovation strategy, review of GB developments and an innovation benchmarking paper. They also submitted individual business cases for the baseline funding request.
- 1.4 This annex gives further detail of our analysis and considerations around innovation. It includes the following sections:
 - Review of RP6 framework and outcomes.
 - RP7 draft approach to flexibility for future projects.
 - Feedback on framework / allowances and UR response.
 - Final decisions for RP7 framework and ex-ante allowances.
- 1.5 As part of the analysis, we also consider the future reporting framework and how best to capture benefits for customers.

2. RP6 Innovation

Background

- 2.1 Within the RP6 price control, NIE Networks requested funding in the region of £7.9m for innovation projects. At the final determination our conclusion was that the case had not been properly demonstrated. We stated,
- “the economic case for and the design of the various trials proposed by the company to inform future investment strategies is not yet adequately developed. We have therefore included a re-opener mechanism to allow capital allowances for this work to be determined once sufficient information is available, up to a limit of £6.36m [2015-16 prices].”²*
- 2.2 We had reservations regarding scheduling, choice of technology and the range of the trials. For this reason, the allowance was held in abeyance pending further information from NIE Networks.
- 2.3 In the RP6 final determination we set out a series of questions to address the shortfall of information. NIE Networks submitted its response on 15 January 2018. This prompted an allowance from us in July 2018 via the innovation re-opener mechanism.
- 2.4 The RP6 business plan request and our allowance by project is set out in Table 2.1 below.

Innovation Project	RP6 Request (£m)	UR Re-opener Allowance (£m)
Demand Side Response (DSR) ³	£1.57m	£1.50m
LV Active Network Management (ANM)	£1.93m	£1.85m
Facilitation of Energy Storage Solutions	£0.36m	£0.36m
Smart Asset Monitoring (SAM)	£1.39m	£1.38m
Voltage Management (VM) Integration	£2.67m	£2.55m
Totals	£7.91m	£7.65m

Table 2.1: RP6 innovation allowance in 2021-22 prices

- 2.5 The basis of the re-opener allowance was due to be in line with paragraph 9.43 of the RP6 position which stated;

“we have concluded that the innovation funding should not be subject to gain-share under the 50:50 cost risk sharing mechanism. Any aggregated

² See RP6 final [determination](#), para 9.57, p197

³ Subsequently renamed the FLEX project.

out-performance on this programme of work should be applied by NIE Networks to additional trials. If not, it will be considered as deferral leading to a prefunded allowance in the next price control. This will ensure that the trials and innovation work funded by consumers is not constrained by conservative estimates. Conversely, the company will be required to complete the trials and innovation work agreed for RP6 and any over-run of cost will be subject to the 50% cost risk sharing mechanism.”

- 2.6 The uncertainty mechanism approval recognised that such asymmetric treatment would require a licence modification. To date, this change has not been enacted.
- 2.7 We approved further monies in 2022 to deliver an Electric Vehicle (EV) Managed Charging project under the Green Recovery initiative. However, this is outside the scope of the review, being approved under a different capital project.

Outcomes

- 2.8 Up to the most recent financial year data available (2023-24), NIE Networks were reporting spend of £5.1m against the RP6 innovation allowance. The business plan submission does however expect the full allowance (and more) to be utilised in the period, though this is not certain.

	RP6						
	2018-19 (£m)	2019-20 (£m)	2020-21 (£m)	2021-22 (£m)	2022-23 (£m)	2023-24 (£m)	Total (To-date)
RP6 Allowance	2.86	2.86	1.92	0.00	0.00	0.00	£7.65m
RP6 Actuals	0.00	0.14	0.62	2.08	1.16	1.07	£5.07m

Table 2.2: RP6 innovation spend versus allowance in 2021-22 prices.

- 2.9 Within the RP6 price control period the company advised that it:
- Adopted a ‘fast follower’ approach to innovation, taking onboard innovations that had been trialled and deployed elsewhere, evaluating new technologies and processes within its own network and transitioning them into business-as-usual (BAU).
 - Focused on innovations that would defer or avoid network reinforcement by deploying alternative flexible solutions, due to the benefits they offer.⁴
- 2.10 NIE Networks has suggested that the RP6 programme will deliver c. £10.9m

⁴ Innovation funding design and benchmarking paper, WSP, p3.

in savings in the RP7 period. NIE Networks has advised that they have been able to reduce the ex-ante RP7 capital request because of the investment in innovation.

- 2.11 The expected savings are mainly derived from deferred primary substation reinforcement works (c. £7.5m) through utilising customer flexibility. Further savings are also expected via optimising network voltages and managing/reducing peak network demands so that reinforcement can be delayed.
- 2.12 Whilst the FLEX project has successfully trialled procured services which the projected savings are based on, NIE Networks has recognised that this benefit is subject to risk. This includes both technical and economic risks.
- 2.13 Technically, there is a risk that sufficient capacity (both MW and MWh) will not be available within the required electrical zone (geographic area). There is also the economic risk that the flexibility services are more expensive than assumed.⁵ Given these risks, the stated benefits may be lower than expected if conventional reinforcement cannot be avoided.

UR views

- 2.14 RP6 represented the first significant allowance dedicated to network innovation. NIE Networks has indicated that this has facilitated significant learning in delivering innovation projects and transitioning their outcomes into BAU activity.
- 2.15 A complete analysis of the RP6 innovation programme is not yet possible. Trials are not yet complete, and reporting of specific project activity has been somewhat limited. This needs to be substantially enhanced for the RP7 regulatory period. A sentiment which NIE Networks has largely agreed with.
- 2.16 Inclusion of deferred investment savings is a welcome outcome from the FLEX project. However, by the company's own admission, the scale of these benefits is uncertain. More importantly, the RP6 learnings and benefits from other projects are not obvious from the business plan.
- 2.17 The key conclusion from the current period is that much more needs to be done to demonstrate the learnings from this investment. This is particularly true where the consumer takes the risk by funding projects upfront whilst NIE Networks are unable to provide robust information on the benefits. This position was fully explained in the draft determination.
- 2.18 Going forward, we welcome the fact that NIE Networks is supportive of both annual progress reporting and post-project evaluations. We further

⁵ NIE Networks response to business plan query UR-0376.

appreciate the intention to be as transparent as possible and publish the findings/outcomes of innovation work.

- 2.19 NIE Networks has also signalled an intention to undertake a close out report for each project in RP6. They also expect to complete a general RP6 innovation report and are content that this is published. We welcome this commitment.

3. RP7 Approach to Innovation

NIE Networks proposals

- 3.1 NIE Networks has submitted proposals for the regulatory treatment and quantum of innovation funding. These proposals are supported by a set of Engineering Justification Papers (EJPs) assessing the business case of each innovation project included in the proposed baseline allowance.
- 3.2 The proposals are supported by consultant reports on:
- Proposed regulatory treatment and level of funding, informed by a review of innovation funding approaches in other jurisdictions.
 - Features of the main innovation projects undertaken in GB in RIIO-1, including the regulatory treatment.
- 3.3 NIE Networks estimates that learnings from the funding provided in RP6 has led to savings of £10.9m in the reinforcement cost requested in the RP7 business plan. Their conclusion is that this demonstrates the benefit of an innovation funding allowance in the price control.
- 3.4 NIE Networks is requesting a total of £19.1m to fund network innovation projects during RP7, split between:
- An ex-ante baseline allowance of £8.8m; and
 - A re-opener that can be triggered in-period to release up to £10.3m of additional funding.
- 3.5 The total request (£19.1m) is c.66%⁶ higher than the RP6 innovation allowance. According to NIE Networks, this increase is driven by the need to undertake investments that would facilitate “*net zero through a flexible and integrated energy system*” and “*meet the challenges presented by the energy transition.*” As in RP6, the proposal would account for 2.12% of the investment plan.
- 3.6 NIE Networks reports that most stakeholders it consulted were supportive of the baseline innovation funding being at least £8.8m. Stakeholders were split between the views that (i) £20m or 2% of network investment was an appropriate level of funding and that (ii) more should be invested, up to a maximum of £40m.

⁶ The percentage increase is based on the uplift from the revised RP6 innovation cap of £11.47m following adjustment for the extension year. It should be noted that RP6 is a longer price control, so the actual uplift is of a larger magnitude on a per annum basis.

- 3.7 In terms of the re-opener mechanism, this would give NIE Networks access to an additional £10.3m of funding for new initiatives that are identified during RP7. The need to use innovative solutions to prevent them from becoming a blocker of the energy transition requires them to increase the scale and pace of innovation. This means being able to respond appropriately, taking forward projects with lower Technology Readiness Levels (TRL).
- 3.8 To access these additional funds, NIE Networks suggest a request at the end of each financial year, which would be followed by a ‘light touch review’ from us and a decision on whether to release any additional funds. NIE Networks is proposing an ‘exceptional circumstances’ provision under which it can submit an urgent funding request outside of the annual window.
- 3.9 They are proposing not to have a revenue sharing mechanism for any underspend on projects under the NIF. Any unused funds would be recycled to “*deliver further innovation projects or initiative.*”
- 3.10 Table 3.1 below list the eligibility criteria for additional NIF funding proposed by NIE Networks.

Essential Criteria	Preferred Criteria
<ul style="list-style-type: none"> • Provide customer benefit and reduce customer costs. • Avoid any unnecessary duplication and repetition. • Demonstration of innovative nature. • Clear justification on value-added benefits vs cost and benefits it brings to the existing and future customers. • Enabler for the transition to a net-zero economy. • For more complex projects, they should not create market interference unless this drives a more efficient outcome for customers. • More complex projects should include strong methodologies and realistic achievable timescales. 	<ul style="list-style-type: none"> • Assisting vulnerable and/or fuel poor customers in the energy transition. • Promoting whole system outcomes. • Dealing with the wider challenges within the energy industry i.e. LCT uptake, heat, transport, and socioeconomic side of the energy system.

Table 3.1: Proposed criteria for NIF funding

- 3.11 NIE Networks business plan also proposes establishing an ‘Innovation Council’ as part of the governance arrangements for the NIF. This would act as an advisory body for the development of new proposals which they may bring forward during RP7.
- 3.12 The Innovation Council would consist of representatives from relevant Northern Ireland based organisations and academia. It would, on a voluntary basis, independently monitor and steer the innovation programme. NIE Networks anticipates the Innovation Council will:
- a) Review and provide feedback on NIE Networks overall innovation strategy and its subsequent updates.

- b) Monitor progress of the current innovation programme and specific initiatives.
- c) Recommend and facilitate innovative projects, initiatives, themes and collaborations that the network company should explore.
- d) Offer non-binding recommendations to us regarding the approval of proposals brought forward under the NIF.

3.13 In addition to the Innovation Council, NIE Networks is expecting to submit to us and publish an annual report on its innovation programme. It will also hold an annual open call for ideas from interested stakeholders.

UR draft determination views on innovation

3.14 Within the draft determination we considered the innovation proposals with the aid of expert consultancy input from our advisors. In summary, our draft proposals were as follows:

- a) Provision of both an ex-ante allowance and an innovation re-opener mechanism.
- b) Proposed an initial ex-ante allowance of £4.7m based on a bottom-up assessment of the business cases.
- c) An innovation uncertainty mechanism will be put in place with an expectation this will outturn at c.£4m for the RP7 period, though no formal cap was proposed.
- d) Only one window of opportunity for innovation applications at the mid-point of the price control (August 2028).
- e) Business cases in line with NIE Networks criteria for submissions should be provided to support cost requests.
- f) Annual reporting by project should become a part of the regulatory reporting process. This should also be published by NIE Networks.
- g) Overspend against collective innovation allowances will be subject to 50:50 cost sharing.
- h) Underspend against collective allowances should offset future cost submissions. Spend against allowance will need to be considered against any future re-opener or RP8 cost requests.
- i) An Innovation Council is not mandated by UR. NIE Networks will need to consider how it engages with consumers and other stakeholders to

support any submissions.⁷

- 3.15 It was our initial view that some of the ex-ante proposals were not fully justified. In terms of the framework, we broadly agreed with NIE Networks proposals. However, we did not mandate an Innovation Council or set a cap on the re-opener mechanism. We suggested this be restricted to only one mid-control submission window.

Consultation feedback

- 3.16 Following publication of the draft determination, we received a significant number of responses regarding both the innovation framework and ex-ante allowances. This section details the framework feedback and our responses.
- 3.17 The most material innovation response came from NIE Networks. Their views and our response are set out in the table below.

	Consultation Response	UR Views & Action
1	<p>NIE Networks recognises that the transition to net zero carbon will require a skills pipeline. NIE Networks intends to support local academic institutions in these areas but doing so will require a level of sustained funding that has not been factored into ex-ante proposals. NIE Networks would welcome the opportunity to discuss this further with UR.</p> <p>[NIEN Response, para 1.6, p207]</p>	<p>It is not clear what problem needs addressed here. Funding by project (either ex-ante or via a re-opener) can be done so over a number of years. This should provide adequate certainty for NIE Networks to partner with academia or industry. We do not consider that further changes to the framework are required.</p>
2	<p>NIE Networks strongly disagrees that a single mid-point re-opener is appropriate. A single re-opener window will not allow for adequate flexibility for innovation over the 6-year period between 2025 and 2031, and it will result in lost opportunities for additional innovation projects from the NIF.</p> <p>[NIEN Response, para 2.10, p209]</p>	<p>We do not agree with the NIE Network proposal of annual submissions with an ability to request innovation funds at any time under exceptional circumstances.</p> <p>Should there be exceptional events that require urgent immediate investments (e.g. force majeure), allowing revenue variations outside of the annual process can be beneficial. This is not the case for innovation projects, which are by nature designed to address forward looking needs rather than to respond to emergencies.</p> <p>However, we accept the point that lengthy delays may not be in consumers best interests. Consequently, we have amended the flexibility of the re-opener process to three windows (after year 1, year 3 and year 5).</p>

⁷ See RP7 Draft Determination, [Annex N](#) for a full discussion of the proposals.

3	<p>NIE Networks acknowledges and agrees that underspend from baseline innovation projects should be utilised to (partially or fully) fund further innovation projects. UR's proposed framework appears to prioritise the allocation of potential underspend over providing flexibility therefore overlooking the NIF's intended purpose and effectiveness. [NIEN Response, para 2.12, p209]</p>	<p>This point is accepted to a certain extent. As a result, we have increased the uncertainty mechanism flexibility and decided to retain the 50:50 cost sharing approach.</p> <p>Project underspend will not be used to offset future innovation costs. It may however influence future funding decisions if innovation projects have not been adequately progressed.</p>
4	<p>New RP7 reporting arrangements provide adequate mitigation to manage underspend. NIE Networks proposes that it may be more appropriate to introduce other measures at the end of the price control, such as the reconciliation of underspend, rather than limiting the frequency of the re-opener mechanism. [NIEN Response, para 2.13, p209]</p>	<p>Given the expansion of NIF flexibility and the removal of underspend offsetting, we see no need to introduce further measures. We would however concur with NIE Networks regarding the necessity of annual reporting by project and the need for a post-project evaluation upon completion of the scheme.</p>
5	<p>The NIF submission framework proposed by UR is likely to significantly delay the commencement of new projects. Under this framework, a new project identified early in RP7 may wait three years, until July 2028, for potential funding at the mid-point re-opener. [NIEN Response, para 2.15, p210]</p>	<p>This concern is largely eradicated by moving to a three-window mechanism. We cannot provide certainty on recovery of costs in advance of submissions. However, given retention of the 50:50 mechanism, there would also be no barrier to NIE Networks progressing projects and requesting funding on a retrospective basis. If approved, NIE Networks will be able to recover the permitted amounts.</p>
6	<p>UR's proposed framework is particularly detrimental to NIE Networks' ability to collaborate with partners or leverage other sources of funding. A key objective in establishing a frequent re-opener is to allow for whole system projects with multiple partners e.g. academia and industry, and/or funding streams to emerge in their own time. [NIEN Response, para 2.17, p210]</p>	<p>As per response to point 1, approvals (either ex-ante or via a re-opener) can be provided for allowances over several years. This should provide adequate certainty for NIE Networks to partner with academia or industry. We do not consider that further changes to the framework are required.</p>
7	<p>NIE Networks proposes that the NIF framework should allow it to submit project proposals annually during RP7. This will allow NIE Networks to flexibly and rapidly introduce new innovation projects where needed. [NIEN Response, para 2.18, p210]</p>	<p>We do not agree with this approach as it risks being resource intensive. There is also a "gaming" risk of receiving inflated funding requests where in-period assessments are usually shorter and less involved than the ex-ante reviews.</p>
8	<p>NIE Networks is aligned with UR that there should be greater reporting and transparency around innovation in RP7. [NIEN Response, para 3.5, p212]</p>	<p>We welcome this position. As stated in the draft determination, it is our view reporting and evaluations should all be subject to publication.</p>

9	<p>NIE Networks considers that the requirement for a full audit trail of any underspend on other projects is overly burdensome and unnecessary, especially because this information will be provided in NIE Networks' annual innovation report.</p> <p>NIE Networks proposes that requirement (g) be limited to a description of the options available for funding, including underspend for previously funded innovation projects and other funding sources, as encouraged by UR in paragraph 3.81 of Annex N. [NIEN Response, para 3.12 to 3.13, p213]</p>	<p>This point is accepted. As project underspend will not be used to offset future innovation costs for different projects, the audit trail requirement has been removed.</p> <p>Further information, if required can be requested under Condition 8 (Provision of Information to the Authority).</p> <p>Requirement has been amended as per NIE Networks suggestion. Focus is now only on the options available for funding.</p>
10	<p>NIE Networks considers that the requirement for a full audit trail of outturn benefits from other projects is overly burdensome and unnecessary, especially because this information will be provided in post-project evaluation reports.</p> <p>NIE Networks proposes that requirement (i) be limited to a narrative assessment of similar projects undertaken by NIE Networks and their benefits in order to highlight any areas of overlap with the current submission. [NIEN Response, para 3.16 to 3.18, p213]</p>	<p>We accept that a full audit trail may be overly prescriptive. This obligation has been removed. Further information, if required can be requested under Condition 8 (Provision of Information to the Authority).</p> <p>However, Ofgem's Network Innovation Allowance (NIA) and the Strategic Innovation Fund (SIF) both require that, "<i>Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers.</i>"</p> <p>We agree with this obligation and would expect NIE Networks to provide justification as to how the net benefit could be achieved.</p>
11	<p>Not all innovation projects will have a carbon emission saving attached and it would be an error to judge all NIF submissions against this criterion. [NIEN Response, para 3.21, p213]</p>	<p>This point is accepted. The criterion has been adjusted with an 'if applicable' caveat.</p>

Table 3.2: NIE Networks issues and UR response

3.18 A variety of others made responses to the innovation framework. The main comments are listed in the table below.

	Consultation Response	UR Views & Action
1	<p>Have not allowed funding for a network innovation fund, but this is critical as new technology is developed. [CBI Response, p3]</p>	<p>We agree that innovation funding is important. We have allowed an innovation re-opener (known as the NIF). In fact, our approach is arguably more flexible than the NIE Networks business plan as we are not setting a funding cap on this mechanism.</p>

2	<p>UR could do more to encourage the development of flexibility markets. NIE Networks should be funded and incentivised to develop flexibility markets.</p> <p>[CCNI Response, p5]</p>	<p>We agree with this sentiment. The <i>Flexible Market Development</i> ex-ante innovation request has been supported. We expect to consider further funding under the <i>DSO16 - Flexibility Services Enduring Solution</i> IT project.</p>
3	<p>Given's DAERA focus on innovation, and the requirement for innovative approaches to meet net zero, we are concerned that the determination proposes a 50% reduction in innovation funding.</p> <p>[DEARA Response, p3]</p>	<p>Justification of our ex-ante allowance is set out in the next chapter. As DEARA note, rejection at this stage does not preclude future submissions for innovation projects.</p>
4	<p>Innovation in network development is vital in our view, and therefore we think there is a need to provide greater opportunities for NIE Networks to innovate throughout the PC7 period. We would suggest that two windows at a minimum are allowed for.</p> <p>[DEARA Response, p3]</p>	<p>We agree and have amended the flexibility of the re-opener process to three windows.</p>
5	<p>Innovation needs to be progressed at pace and should be appropriately facilitated.</p> <p>[IoD Response, p5]</p>	<p>We agree and consider that an ex-ante allowance combined with the NIF framework strikes the appropriate balance to encourage innovation throughout RP7.</p>
6	<p>GB networks benefit from access to various funding streams including the Strategic Innovation Fund (SIF), which allocates £450 million over the ED2 period, and the Network Innovation Allowance (NIA), providing around £210 million over the same timeframe.</p> <p>The disparity in access to innovation between Northern Irish consumers and their counterparts in GB raises questions and potential implications for the Northern Irish energy sector.</p> <p>[Kelvatek Response, p13-14]</p>	<p>We disagree that a disparity exists. Unlike the GB companies, NIE Networks has the opportunity to bid for any level of innovation funding that can be justified.</p> <p>NI is also more flexible in that NIE Networks does not have to compete with other companies as per the Ofgem approach in the SIF. Neither is NIE Networks restricted in the same way that the SIF determines the priorities or challenges for particular funding rounds.</p>
7	<p>Monopoly companies often exhibit reluctance to undertake significant innovation due to the shared savings mechanism, potentially leading to lower cost allowances in future price controls. Recognising that innovation inherently involves a level of risk, incentivising innovation is crucial for driving progress and efficiency within the energy sector.</p> <p>[Kelvatek Response, p14]</p>	<p>Whilst this risk aversion may be true, it is our view that the consumer takes more risk by virtue of funding guaranteed costs with uncertain benefits. In this scenario we think it appropriate that future benefits should be shared between customers and the network company.</p> <p>However, we have provided further incentive for NIE Networks to undertake innovation in RP7 by virtue of the reward available under the evaluative performance framework.</p>

8	<p>Northern Ireland must not be disallowed from leading the way in innovation. [Kelvatek Response, p14]</p>	<p>It is our view that the innovation framework being implemented provides the necessary conditions to support new investment.</p>
9	<p>Some of the proposed additional costs in this area are in our view 'business as usual' type investments. We support the Draft Determination outcomes on innovation projects and the mechanism to re-open when affordable and identifiably beneficial projects are presented. [Manufacturing NI Response, p22]</p>	<p>We consider that a limited subset of the innovation cost request is BAU activity. We do however welcome the feedback on the need for a flexible re-opener mechanism when benefits can be established.</p>
10	<p>To accelerate the transition to net-zero electricity at the lowest possible cost to Northern Ireland's consumers, we have a strong interest in working with NIE to address some of the strategic network issues to achieve this objective. This can't be done without research and innovation. [QUB Response, p2]</p>	<p>We agree with this sentiment and would expect NIE Networks funding requests to include the costs of consultancy or academic support to trial innovative solutions.</p>
11	<p>We have a strong interest in partnering with NIE to establish a 'Network Innovation Hub.' An estimated investment of £270k per year over the six-year period (2025-2031) is essential to support a strategic research team, including three local and three international PhD students, as well as four three-year postdoctoral research fellows. [QUB Response, p2]</p>	<p>We recognise the importance of partnership and collaboration when developing innovative solutions. However, it is for NIE Networks to take responsibility for proposals around the development of such hubs.</p> <p>Unless this method of research is specifically proposed by NIE Networks as part of their innovation plans, we have no vires to fund separate academic institutions. To date, such a request has not been formally received. We would however likely be supportive of such partnerships should such a request be made.</p>
12	<p>The proposed Network Innovation Hub is strategically designed to complement NIE Networks' existing baseline ex-ante innovation projects. [QUB Response, p2]</p>	<p>Ex-ante innovation business cases received as part of the RP7 business plan generally include consultancy support costs. Who delivers this activity is a matter for NIE Networks.</p> <p>However, there is no specific reference in any of the submissions for support from a network innovation hub to deliver these projects.</p>
13	<p>The Hub is also dedicated to addressing long-term strategic challenges within the sector. [QUB Response, p2]</p>	<p>We see significant potential in such focus. However, it is for NIE Networks to develop / request such proposals.</p>

14	<p>This Hub will provide NIE networks, Utility Regulator and DfE with evidence-based analysis and reports.... This aligns with the Utility Regulator's Corporate Strategy of 'building a strong data focused research and evidence base that informs our policy outcomes.'</p> <p>[QUB Response, p2-3]</p>	<p>As noted above, we have no vires to fund separate academic institutions. However, we are open to submissions from NIE Networks should it consider this to be an optimal way to support future trials and research.</p>
15	<p>RP7 should take into account that NIE Networks cannot provide certainty for each scenario, particularly with respect to innovation funding.</p> <p>[Renewable NI Response, p2-3]</p>	<p>This lack of certainty is understood. However, the case for innovation funding must at least detail the potential benefits that could be attained. This principle is recognised by NIE Networks and Ofgem. To do otherwise, would mean the consumer being exposed to cost with no discernible benefit.</p>
16	<p>The level of justification which UR will require that NIE Networks provide on specifics of the projects is too extensive and by no means commensurate with how typical innovation business cases are evaluated.</p> <p>[Renewable NI Response, p7-8]</p>	<p>We disagree. The criteria proposed for assessing innovation is similar to that proposed by NIE Networks.</p> <p>It also broadly aligns with Ofgem in their Network Innovation Allowance (NIA) and Strategic Innovation Fund (SIF) governance documents.</p>
17	<p>RNI would also argue that any underspend on innovation now which may be perceived as a saving for the current consumer will ultimately be passed back to future consumers. To that end, RNI proposes that an increase in allowance for the eleven defined projects be provided for by UR.</p> <p>[Renewable NI Response, p8]</p>	<p>The potential to pass-back future underspend does not seem like a good rationale to fund unjustified innovation requests. Each of the eleven ex-ante projects have been considered on their individual merits and determined accordingly.</p>
18	<p>NIE Networks also requested a Network Innovation Fund which would operate as an annual reopener mechanism. RNI supported this type of responsive and agile approach for NIE Networks. However, only one mid-point reopener was provided for, which would not result in prompt timescales to innovation proposals.</p> <p>[Renewable NI Response, p8]</p>	<p>We have accepted this argument and have increased flexibility by introducing three NIF re-opener mechanism windows in RP7.</p>

19	<p>The “fast follower” approach previously adopted in NI is no longer appropriate. NI should be looking to become leaders in the energy transition, leveraging our unique characteristics. [SGI Response, p3]</p>	<p>It is our view that the “fast follower” approach can continue to deliver consumer benefit. Unless there are technical reasons why GB DNO trial results should not apply to Northern Ireland, we see value in NIE Networks leveraging off this learning.</p> <p>That being said, the NIE Networks Innovation Strategy does seem to recognise the need to expand beyond this activity. This includes:</p> <ul style="list-style-type: none"> • Developing active research collaborations with other energy vectors and academia. • Strategic relationships with academia on energy research programmes. • Exploring the needs of new or transforming electricity users. <p>We are supportive of this expansion.</p>
20	<p>The provisions of previous Price Control plans have not been enough. [SGI Response, p3]</p>	<p>As set out in the RP6 section, NIE Networks are currently underspent against existing innovation allowances. This does not include the RP6 extension year which further increased the innovation cap. At this stage, it is not correct to state that previous allowances have not been sufficient.</p>
21	<p>Many of the focus areas of the NIE Networks innovation projects (outlined on page 21 of Annex N - Innovation) are aligned with the focus areas identified in the SONI Innovation and Research strategy document. [SONI Response, p8]</p>	<p>It is encouraging that the system operator and asset owner focus areas are aligned.</p>
22	<p>Due to the continued interactions between NIE Networks and SONI, it would be vital that any flexible funding mechanisms for NIE Networks going forward are aligned to the funding mechanisms for SONI. [SONI Response, p8]</p>	<p>It is our view that both SONI and NIE Networks mechanisms are sufficiently flexible to promote future alignment.</p> <p>One area of difference is the timing flexibility to request funding, which is more adaptable for SONI. However, innovation projects are by nature designed to address forward looking needs rather than to respond to emergencies.</p> <p>As such, there should be no issue with SONI requests aligning with the RP7 re-opener windows if co-ordination is required.</p>

23	<p>SONI notes that the RP6 allowance was £7.65m and that RP7 baseline request is £8.8m. However, the RP7 baseline allowance is only £4m. This would seem to be at odds with the scale of the challenge associated with the energy transition over the coming years. [SONI Response, p9]</p>	<p>The baseline allowance is purely a reflection of the individual assessment of the innovation projects requested. It is not a commentary on the scale of challenge associated with the energy transition.</p> <p>It is however important to note that the RP6 approval set a firm cap on network innovation investment. No such cap is proposed for RP7 as we recognise that allowances may outstrip historic precedent.</p>
24	<p>SONI see significant merit in having the option to submit one off proposals at any point. [SONI Response, p9]</p>	<p>See response to NIE Networks in Table 3.2, point 2 regarding this flexibility.</p>
25	<p>In general, SONI would be supportive of this [Innovation Council]. SONI have had good experience of a similar council for DS3 in the past. SONI would be interested in understanding the terms of reference for this council and to then determine if there is merit in being a member. [SONI Response, p9]</p>	<p>As at the draft determination, we are not proposing to mandate this activity. NIE Networks is free to develop these proposals if they consider that the input is worth the resource. It should however be noted that it is NIE Networks who is accountable under their licence, not the Innovation council.</p>
26	<p>“In addition to the Innovation Council, NIE Networks is expecting to submit to UR and publish an annual report on its innovation programme. It will also hold an annual open call for ideas from interested stakeholders.” SONI welcomes and would be supportive of this. [SONI Response, p9]</p>	<p>We are also supportive of this activity.</p>
27	<p>UR have not adequately recognised the intent and merit in NIE Networks Innovation Council. We would strongly encourage UR to be engaged and more supportive so that an Innovation Council gets off to a strong start and is challenged to prove it’s worth. [Electric Storage Company Response, p4]</p>	<p>We are not proposing to mandate this activity. As set out in the draft determination, we think the proposal lacked key information on the Innovation Council roles, independence, terms of reference etc.</p> <p>NIE Networks is however free to pursue this if it considers it the best way to develop their innovation plans going forward.</p> <p>If the Council is not progressed, we would as a matter of course expect NIE Networks to demonstrate how it is developing its innovation plans, partnerships and strategies.</p>

28	Innovation is predicated on the existence of uncertainty. UR are, perhaps unwittingly, deterring and delaying urgent and vital innovation by being overly cautious over £4m. [Electric Storage Company Response, p3]	This lack of certainty is understood. However, the case for innovation funding being both urgent and vital has not been proven by the relevant submissions.
29	When we see UR strike out NIE Networks efforts to use data analytics we are surprised and disappointed for the future of innovation in electricity networks and in regulation. [Electric Storage Company Response, p3]	We are fully supportive of the work to improve utilisation of data. However, it is our opinion that the data analytics work already forms part of the IT request. We also see limited benefit in conducting trials on a system that is not in place. (See Table 4.2 for a full discussion of this issue).
30	The proposal to reduce the innovation budget appears to be a backward step. As a minimum, we would recommend that the proposed mid-point reopener mechanism is changed to an annual mechanism to minimise delays in initiating new innovation projects. [Translink Response, p3]	The baseline allowance is purely a reflection of the individual assessment of the innovation projects requested. However, we have accepted the argument around flexibility to some extent and have introduced three NIF re-opener mechanism windows in RP7.
31	The level of detail and justification required by UR in certain instances is not commensurate with the business case of typical innovation projects. In such instances, much of the detail only becomes available during once a project is completed. [UFU Response, p4]	We disagree. The criteria proposed for assessing innovation is similar to that proposed by both NIE Networks and Ofgem. We have however reflected on specific NIE Networks comments and reduced some of the obligations around audit trails for costs / benefits etc.
32	UFU are concerned that in a worst-case scenario, a potential project could have to wait for 3 years before a cost recovery option becomes available. [UFU Response, p4]	This is no longer a concern given increased NIF flexibility, retention of 50:50 mechanism and potential to ask for new projects on a retrospective basis.

Table 3.3: Innovation consultation feedback issues and UR response

3.19 The key points from stakeholder feedback can be summarised as follows:

- Acknowledged the importance of the innovation programme.
- Need for greater regulatory flexibility in the re-opener mechanism.
- May still be merit in the Innovation Council proposals.
- Concern about reductions to ex-ante allowances and delays.
- Essential for NIE Networks to partner with academia and industry to drive change.

- 3.20 Following consideration of this feedback, we have made a number of changes to the innovation framework. Our final decisions are detailed below.

UR final views on innovation framework

Ex-ante framework

- 3.21 In terms of the ex-ante request, we are content to consider such projects. Our analysis of the individual schemes is set out in the next chapter of this annex.
- 3.22 Such an approach has strong regulatory precedent in both Northern Ireland and the Republic of Ireland, where there is a single DNO and/or TSO. In RP6, we provided an innovation allowance based on a bottom-up analysis of projects. Likewise, for PR5, we note that CRU gave allowances for specific projects proposed by network companies that were deemed innovative.
- 3.23 The main alternative to this approach would be to set a 'general' allowance that can be used by the network company to fund innovation projects during the price control. This follows the Ofgem approach and avoids the need to commit ex-ante to a firm list of defined projects.
- 3.24 Ofgem's approach reflects the context of GB. When there are multiple network companies, relying on benchmarking methods for innovation allowance is not only feasible but also consistent with Ofgem's general approach to cost assessment. At the same time, it also alleviates resourcing constraints that a bottom-up assessment for 14 DNOs would create.
- 3.25 This differs to the case of NIE Networks and RP7, where there is a single network company and greater reliance on bottom-up cost assessment. NIE Networks proposal to adopt a project-by-project baseline allowance seems reasonable given the RP6 and PR5 precedent.

Re-opener framework

- 3.26 We do not have concerns with NIE Networks request to access additional funds through a re-opener. Flexible mechanisms to release additional innovation funds are a tool that regulators often use to compliment baseline allowances.
- 3.27 Relevant examples include:
- a) In RP6, we relied on the concept of a capped re-opener when deciding on the innovation allowance for NIE Networks.
 - b) For PR5, the CRU introduced an innovation and R&D mechanism under its Agile Investment Framework. This can be triggered each

year by ESB Networks to fund innovative projects.

- c) From RIIO-1 onwards, Ofgem has made available industry-wide funding pots in addition to company specific ex-ante allowances. During the price control, network companies can bid to access these industry-wide funds submitting the case for innovation projects.
- 3.28 The main rationale behind these mechanisms is to provide flexibility as an appropriate way to deal with uncertainty. Innovation needs over a price control period are not always certain at the time of business plan submission. Nor is there always perfect information on cost of the solutions identified.
- 3.29 Allowing access to additional funds during the price control can therefore be an effective way to enable delivery of innovative solutions as they are identified. This avoids limiting options to what was known at the start of the price control, which in turn limits the delivery of innovation throughout the price control period.
- 3.30 Splitting innovation allowances between re-opener and baseline can also enable the setting of efficient allowances. If network companies have the option to release additional funds during the price control, they might have a weaker incentive to inflate their baseline requests.
- 3.31 At the same time, regulators can more easily reduce baseline allowances compared to companies' submissions, if they can release additional funds in-period. This funding can be provided when there may be lower uncertainty or more confidence over companies' proposals.
- 3.32 The introduction of net zero and associated decarbonisation plans have also strengthened the need for a flexible approach. The complexity of the transformation and the need to rely on new technologies increase uncertainty over the type of projects that are most suitable to enable this transformation, and their exact costs.
- 3.33 The introduction of a re-opener allows regulators to deal with this uncertainty. Limiting ex-ante allowances but ensuring access to additional funds for projects that were too uncertain to be funded ex-ante provides essential flexibility.
- 3.34 The introduction of an uncertainty mechanism can have drawbacks in terms of transparency. By allowing additional funding requests in-period, the regulator will have limited visibility of the total allowance that network companies will receive during the price control. This is particularly true where no cap exists and thus there is a limited understanding of the resources required to assess in-period submissions.
- 3.35 There is also a "gaming" risk of receiving inflated funding requests. In-period

assessments are usually shorter and less involved than the ex-ante assessment leading to draft and final determinations. This is especially true when they are integrated into the annual revenue adjustment process leading to network tariff approvals.

- 3.36 Network companies could take advantage of the shorter timings available for assessment to inflate their forecasted costs more so than under an ex-ante review.
- 3.37 Whilst these concerns are relevant, they are not enough to offset the flexibility benefits that a re-opener would create. A carefully designed uncertainty mechanism can also limit these concerns. Consequently, we are content to maintain an innovation uncertainty mechanism.

Structure and frequency of uncertainty mechanisms

- 3.38 NIE Networks is proposing to submit proposals for additional funds under the NIF at the end of every financial year. They also propose the flexibility to have, *“the option to submit proposals at any time if there is sufficient justification.”*
- 3.39 We do not agree with the NIE Network proposal of annual submissions with an ability to request innovation funds at any time. NIE Networks option to submit proposals outside of the annual process could have advantages in specific circumstances, but these are unlikely to be relevant to innovation.
- 3.40 Should there be exceptional events that require urgent immediate investments (e.g. force majeure), allowing revenue variations outside of the annual process can be beneficial. This is not the case for innovation projects. They are by nature designed to address forward looking needs rather than to respond to emergencies.
- 3.41 Allowing submissions *“at any time, if there is sufficient justification”* would beg the question as to what would constitute justification. NIE Networks has not elaborated on this point, either in the business plan or their draft determination response. As such, we would not propose that submissions can be made on an ad hoc basis.
- 3.42 Whilst initially minded on having only one re-opener window for innovation at the mid-point of the price control, considerable stakeholder feedback has been received on this issue. Need for agility is clear.
- 3.43 We accept the point that lengthy delays may not be in consumers best interests. We also note that a significant period of time will have elapsed between the business plan submission and final determination.
- 3.44 Consequently, we have amended the flexibility of the re-opener process to

three windows (after year 1, year 3 and year 5). We think this strikes the right balance between agility and the potential downsides of ‘gaming’ and resource burden.

- 3.45 Furthermore, it should be noted that there is no regulatory barrier preventing NIE Networks from pro-actively undertaking projects and asking for innovation allowances retrospectively. With this approach there is a risk that allowances requested are not justified. However, that will be within NIE Networks gift to ensure they are comfortable with progressing the projects to the benefit of consumers.

Treatment of underspend

- 3.46 NIE Networks business plan does not discuss any sharing mechanisms for underspend against the baseline. This is discussed only for the uncertainty mechanism project spend.
- 3.47 For RP6, we proposed an asymmetrical approach whereby underspend against the ex-ante innovation allowance would be excluded from the 50:50 cost risk sharing mechanism, whilst cost over-runs would not.
- 3.48 NIE Networks was expected to allocate any underspend to additional trials, or it would otherwise have been considered as deferral for RP7 allowances. This was not enacted and the 50:50 risk sharing mechanism still applies. As a consequence, NIE Networks will keep 50% of any monies not spent by the end of RP6.
- 3.49 For the RP7 draft determination, we proposed to rely on an approach similar to RP6 proposals. The intention was to exclude underspend from cost sharing but not overspend. This approach is similar to NIE Networks own proposal that any unused funds be recycled to deliver further innovation.
- 3.50 Upon review and feedback, we have decided to retain the 50:50 mechanism. Project underspend will not be used to offset future innovation costs. This will alleviate concerns that the framework is prioritising apprehensions about underspend over flexibility.
- 3.51 We also recognised NIE Network comments about additional transparency and reporting providing adequate mitigation to manage underspend. Whilst underspend will not directly offset future requests it may however influence future funding decisions if existing innovation projects have not been adequately progressed.

Presence and quantum of a re-opener cap

- 3.52 There is regulatory precedent for having re-openers both with and without a funding cap. For example, in the Republic of Ireland, the innovation and R&D

mechanism for PR5 is uncapped. However, in GB the innovation schemes set a ceiling to the pot of money that network companies can compete for.

- 3.53 A capped re-opener could mitigate the transparency concerns that a regulator might have with the introduction of additional funds on top of the baseline. The presence of a cap would give transparency on the magnitude of the requests that will be submitted through the NIF.
- 3.54 Should a cap be approved, consumers will know that no request will be received above that maximum. We as a regulator will also have a broad understanding of how intensive in-period reviews might be.
- 3.55 The main drawback is that a cap would limit the flexibility of the re-opener mechanism, which is the main reason for introducing such a tool. In principle, a cap could risk blocking decarbonisation projects just because costs exceed the cap and were uncertain at the time of setting the cap.
- 3.56 The presence/absence of a cap ultimately creates a set of trade-offs. It would give better transparency to us and lower the risk of gaming as well as limiting the resourcing commitment. However, this is at the price of less flexibility and potentially creating a delivery risk for key projects.
- 3.57 Our understanding is that NIE Networks proposed cap of £10.3m was estimated on a residual-basis, to ensure that that the overall funding request for RP7 (baseline and re-opener) is not larger, as a percentage of the investment plan, than in RP6.
- 3.58 While this approach is defensible from a consistency perspective, it does not reflect an estimate of the costs that might be needed for additional projects (noting that some projects have already been identified). In this sense, it does not address the trade-offs discussed above.
- 3.59 To make a decision, we have considered various issues including spend in RP6 and the level of uncertainty that arises from the assessment of baseline projects and the wider investment plan.
- 3.60 We discuss the review of baseline projects in the next chapter. However, it is our view that there is reasonable confidence in the level of innovation being undertaken. As such, there is less need for flexibility and hence there is a stronger case for a capped mechanism.
- 3.61 The level of spend undertaken in RP6 to date and the proposed baseline RP7 allowances suggests that a c. £10m uncertainty cap may be excessive. However, we do not want to restrict NIE Network for aiming high in delivering innovation schemes.
- 3.62 Given stakeholder feedback around agility, no formal cap level is proposed

for RP7. We will consider any well justified projects that add significant value for consumers. For revenue purposes we have assumed that £6m will flow through the NIF, but we are providing maximum flexibility for NIE Networks to make innovation decisions by setting no formal cap.

- 3.63 Generally, the purpose of innovation is to reduce costs and/or achieve an improvement of outputs. We would normally expect that any innovation costs would be funded from the overall price control package, and not from specific innovation allowances. However, we are in a time of flux and new ways of working will be required to hit the aims of the Northern Ireland Executive's vision for the road to zero decarbonisation.
- 3.64 We are conscious that RP7 must take into consideration the Northern Ireland Executive's vision for the road to zero decarbonisation by 2050 and facilitate this path to net zero as part of a fair, affordable and inclusive transition while delivering a flexible, resilient and integrated energy system.
- 3.65 Any application should demonstrate how the project aligns with core aims detailed in the Energy Strategy - secure, affordable and clean energy for current and future generations. It should also demonstrate how the project will contribute to the achievement of net zero and a reduction in fossil fuel usage (if applicable). This will be essential to ensure that the investment is justified and delivers clear consumer benefits in line with government policy.

Treatment of NIF underspend

- 3.66 We are of the view that re-opener allowances are treated in the same fashion as baseline projects i.e. subject to 50:50 cost sharing. We agree with NIE Networks that dedicated annual reporting should be undertaken and published to monitor both spend and delivery.
- 3.67 As part of this process, NIE Networks should report the gap between innovation allowances and outturn expenditure. It should further detail why this is the case.

Project eligibility

- 3.68 NIE Networks business plan proposed a set of criteria that would inform what projects could be included in the re-opener. The proposed criteria are broadly in line with those utilised in other jurisdictions for innovation funding mechanisms.
- 3.69 The stated criteria reflect a general direction of travel that is broadly consistent with energy policy and with the criteria used for similar innovation mechanisms in GB and Ireland. Consequently, we are content with the suggestions of NIE Networks.

Innovation Council

- 3.70 By enabling NIE Networks to draw on advice on innovation projects from external stakeholders, an Innovation Council that “monitors and steers” the innovation programme could be beneficial. A number of stakeholders have signalled as much in response to the draft determination.
- 3.71 For example, CRU introduced a TSO Monitoring Committee⁸ for PR5 with a similar role, although its scope is not limited to innovation projects. The role of the TSO Monitoring Committee is to assess, monitor and evaluate projects that were uncertain at the time of PR5 decision, for which the TSO might request additional funds during the price control.
- 3.72 If the TSO has identified a project that needs to be delivered during the period for which it had no allowance, it would put the proposal through the Monitoring Committee for evaluation, advice and assessment.
- 3.73 For the Innovation Council to be effective, there needs to be clarity and alignment between UR, NIE Networks and the members of the Innovation Council on:
- a) Independence from NIE Networks, which raises questions about aspects such as responsibility for selection of members, and whether Council reports are provided directly to us or only to NIE Networks for its consideration.
 - b) Role in the funding approval process – for example, Innovation Council decisions should not in any way bind or substitute UR’s approval process. This is acknowledged by NIE Networks.
- 3.74 These issues around remit and functioning of this body would need to be addressed in the Terms of Reference (ToR) for the Innovation Council. The ToR should cover:
- Type of assessment, activities being undertaken by the Council.
 - Number of members, selection process, and expected representation (e.g. any consumer groups).
 - Frequency of discussions.
 - Process for resolving any differences of opinions within the Council.
 - Recovery of the cost associated with the Council.

⁸ CRU/20/154 (December 20202), PR5 Regulatory Framework, Incentives and Reporting, Section 4.5.

- Reporting requirements: NIE Networks to Council, and Council to UR.
- 3.75 Considering the potential practical complexities in setting up the body, we do not think the establishment of an Innovation Council is necessary at present. Company plans to implement the Innovation Council require much more detail; hence this activity has not been mandated for RP7.
- 3.76 NIE Networks is free to develop these proposals if they consider that the input is worth the resource. If the Innovation Council is not progressed, we would as a matter of course expect NIE Networks to demonstrate how it is developing its innovation plans, partnerships and strategies.
- 3.77 We also have no objection in NIE Networks taking the opportunity to seek match funding from alternative provision, which we consider helpful in bolstering support for requests. Match funding is an excellent way of getting support from multiple organisations / institutions and we welcome NIE Networks ambition to progress this to drive improved outcomes and lower costs for consumers in RP7.

NIF application requirements

- 3.78 Company proposals do not contain substantive information about scope and level of granularity of the documentation they plan to submit for any NIF requests. They mention an “*annual report on our innovation programme*” and a “*light touch regulatory process*” from UR.
- 3.79 NIE Networks does not sufficiently explain how it plans to use the proposed criteria to justify its submissions. Limited evidence is provided as to what type of analysis, reporting tools and narrative will be included to provide us with a sufficient basis to make an informed decision.
- 3.80 We are content with the high-level criteria proposed. However, it is important to be clear that the presence of a re-opener request does not per se imply that new funds will be released. NIE Networks will need to demonstrate the business case for the project. A high-quality submission will then be a necessary (but not sufficient) condition for the release of new funds and the lack of quality could lead to the rejection of proposals.
- 3.81 Any application submitted should consider three core principles as below:
- Primarily, demonstrate how the project aligns with core aims detailed in the Energy Strategy - secure, affordable and clean energy for current and future generations.
 - Demonstrate how the project will contribute to the achievement of net zero carbon or some other consumer benefits.

- Illustrate how the proposal incorporates a reduction in fossil fuel usage (where applicable).
- 3.82 We expect applications will be concise with an emphasis on keeping the core narrative as brief as possible, present evidence and justifications for the proposed expenditure; and specify the expected outputs and outcomes that will be delivered as a consequence of incurring the expenditure.
- 3.83 Given stakeholder feedback, we have made some amendments to information criteria required for NIF applications. We would expect that the following information should be provided at a minimum:
- a) Need case and urgency for the proposed project. This should clearly set out why the project cannot be funded as BAU and why it is needed in-period rather than at the next price control.
 - b) Process utilised to identify the project as the preferred innovation project, given the needs case.
 - c) A cost benefit analysis of the proposed project, using quantitative techniques where possible.
 - d) A demonstration of how the proposed projects meets the criteria approved and the objectives stated in the RP7 framework decision.
 - e) Technical features of project.
 - f) Narrative over efficiency of project costs, their breakdown, split by regulatory year and the estimation methodology used. Where a data table or spreadsheet is used, the data presented should be clearly labelled and any figures quoted in the core narrative should be specifically identified with the price base clearly stated.
 - g) Whether costs apply to the transmission or distribution licence and the split between Opex/Capex.
 - h) A description of the options available for funding.
 - i) Governance structure of the project, including stage gate processes, milestones and in what timeframe.
 - j) Benefits of past projects to compare with the estimates put forward and justification as to how the net benefit might be achieved.
 - k) Carbon emissions savings (if applicable) must be clearly identified.
- 3.84 Given that these requests are limited to three windows, it is our expectation that the submission will be of high quality. We would also expect to

undertake a review and publish our decision before any release of funds.

- 3.85 We would further encourage NIE Networks to add value to their project in terms of match funding or multiple funding entities where possible. The submission should therefore also include clear descriptions of the steps NIE Networks has taken to source any other alternative funding sources and provide evidence that alternative funding is not available or appropriate.

Annual reporting requirements

- 3.86 As well as the uncertainty mechanism requirement, we also agree with NIE Networks that annual reporting on project delivery should be established. We also welcome the plan to publish such reports.
- 3.87 As part of this reporting, we would expect annual updates on the following:
- Individual projects spend.
 - Amendments to delivery timelines / milestones.
 - Risks mitigated and realised.
 - Outputs and lessons learned (on completion of trials).
 - Expected benefits etc.
- 3.88 This reporting is expected to address the current shortcomings in the RP6 innovation programme and aid future decision making. This would enable NIE Networks the opportunity of linking innovative projects alongside planned and programmed works to maximise benefit.
- 3.89 A post project evaluation (PPE) should be carried out once the project has been completed by NIE Networks and submitted to us in the form of a close-out report.
- 3.90 We may engage with NIE Networks to seek clarification on any aspect of its PPE report particularly if there is under or non-delivery of outputs and will have to consider if further action is required. This can be included within the annual reporting.
- 3.91 As consumers are taking the risk to fund projects on an ex-ante basis, we agree with NIE Networks that annual updates should be published. It is our expectation that NIE Networks will lead in terms of this activity. We would also expect PPEs to be published by the company to facilitate shared learning across all DNOs.
- 3.92 Within their consultation response NIE Networks stated that it, *“will consider the most appropriate method for reporting on innovation projects, in*

particular whether this is best achieved through the stakeholder engagement and reporting associated with the Evaluative Performance Framework, or through separate reporting.”

3.93 We welcome this commitment and are happy to engage further on this issue to establish the reporting protocol before the price control begins.

NIF licence requests

3.94 The RP7 licence framework assumes that the network innovation fund (NIF) requests can be made for both Opex and Capex revenue terms. The requests can also apply to both transmission and distribution depending on the nature of the project.

3.95 The relevant licence terms under which NIF requests can be made are as follows:

- Distribution Capex = ACDR_Xt
- Distribution Opex = AOOt
- Transmission Capex = ACTR_Xt
- Transmission Opex = AOOt

3.96 The licence prescribes three application windows within which submissions should be made if NIE Networks is seeking new innovation project funding. These windows include applications after year 1 (August 2026), year 3 (August 2028) and year 5 (August 2030) of the RP7 price control.

3.97 Applications should be made within the calendar month prescribed. Any submissions outside these windows be automatically rejected.

3.98 NIF applications should consider how they relate to the three core areas i.e.

- 1) Primarily, demonstrate how the project aligns with core aims detailed in the Energy Strategy - secure, affordable and clean energy for current and future generations.
- 2) Demonstrate how the project will contribute to the achievement of net zero carbon or some other consumer benefits.
- 3) Illustrate how the proposal incorporates a reduction in fossil fuel usage (where applicable).

3.99 The detail required for the NIF applications follows that set out in this annex and as proposed by NIE Networks. In summary, this should include at a minimum the following detail:

- a) Need case and urgency for the proposed project. This should clearly set out why the project cannot be funded as BAU and why it is needed in-period rather than at the next price control.
 - b) Process utilised to identify the project as the preferred innovation project, given the needs case.
 - c) A cost benefit analysis of the proposed project, using quantitative techniques where possible.
 - d) A demonstration of how the proposed projects meets the criteria approved and the objectives stated in the RP7 framework decision.
 - e) Technical features of project.
 - f) Narrative over efficiency of project costs, their breakdown, split by regulatory year and the estimation methodology used. Where a data table or spreadsheet is used, the data presented should be clearly labelled and any figures quoted in the core narrative should be specifically identified with the price base clearly stated.
 - g) Whether costs apply to the transmission or distribution licence and the split between Opex/Capex.
 - h) A description of the options available for funding.
 - i) Governance structure of the project, including stage gate processes, milestones and in what timeframe.
 - j) Benefits of past projects to compare with the estimates put forward and justification as to how the net benefit might be achieved.
 - k) Carbon emissions savings (if applicable) must be clearly identified.
- 3.100 We would aim to review and take a decision on these innovation projects within a four-month timeframe (as per SONI uncertainty mechanism guidance⁹, para 3.2, p7). This will however be dependent on the quality of the company submissions.
- 3.101 Failure to progress agreed projects may impact on the provision of additional allowance for future schemes.

⁹ https://www.uregni.gov.uk/files/uregni/documents/2021-11/uncertainty-mechanism-guidance_0.pdf

4. RP7 Baseline Analysis

Project analysis

4.1 NIE Networks has requested £8.8m in baseline innovation schemes. The request can be summarised in Table 4.1 as follows:

Innovation Project	NIE Networks Request
Data Analytics	£0.65m
Real-Time Fault Level Monitoring (RTFLM)	£1.03m
HV Active Network Management (HV ANM)	£0.69m
Vehicle to X	£1.26m
DC Readiness	£0.50m
Flexibility Market Development	£0.88m
Virtual STATCOM	£0.47m
Micro-Resilience	£0.74m
Supporting Vulnerable Customers in a Digital Net Zero Era	£0.36m
Customer Load Active System Services (CLASS)	£1.43m
Real-Time Thermal Rating at 110kV	£0.78m
Totals	£8.79m

Table 4.1: RP7 innovation request in 2021-22 prices

4.2 We have considered submissions regarding the innovation programme on a bottom-up basis. When determining an allowance, the principal issues considered were need, costs, potential benefits, innovative nature and risks. At the draft determination each project was categorised as follows:

- Category 1 – Both need and cost are well supported and justified. These projects attract full or majority allowance.
- Category 2 – Need is established but costs are not supported. These projects can be subject to partial allowance if we have a clear view on the reasonable level of spend.
- Category 3 - Need is established but costs are very uncertain. These projects can be considered for a re-opener where no ex-ante allowance is given but costs can be requested during the RP7 period when the scale of spend is better understood.
- Category 4 – Both need and costs are unjustified. These projects are subject to full disallowance.

- 4.3 For context, we have repeated the detail of the draft determination for each project including, synopsis, objectives, cost, issues, project categorisation and draft recommendation. Where full allowance was not provided at the draft stage, we set out the rationale and detail / justification that was considered missing.
- 4.4 As part of their consultation response, NIE Networks provided data to address the information gaps. In this annex, we summarise these company responses and set out our final views regarding the projects.
- 4.5 For each project we have retained the draft position of a reduced internal daily rate for NIE Networks own project management and engineering costs, in-line with previous pre-construction allowances.
- 4.6 It is also worth noting that a rejection or no allowance / provision at this stage does not prohibit future allowance in RP7. Indeed, we would expect further requests for certain projects when more clarity becomes available.
- 4.7 Also, a rejection does not mean that a project cannot progress, just that at this point an allowance has not been provided. NIE Networks could still choose to progress the rejected project at their own cost if it wanted too. In making this determination, in relation to innovation, our role is not to determine what NIE Networks can or cannot do but to provided allowances based on the evidence presented to us within the remit of the licence.
- 4.8 Analysis by project is set out in the tables below.

Project Name	Data Analytics																																																																																																																																																																																																																												
Amount Requested in RP7	£0.65m																																																																																																																																																																																																																												
<p>Project Synopsis</p> <ul style="list-style-type: none"> This project will evaluate NIE Networks' existing data landscape compared with other network operators. It will enable identification of opportunities to derive additional value for NIE Networks and its customers. The key objectives of the Data Analytics project are to: <ul style="list-style-type: none"> a) Study and analyse how data from network equipment and other data sets such as customer and network performance records could be used for the potential benefit of the network. b) Review the latest techniques and innovation projects in the data analytics space in other jurisdictions and prioritise use cases. c) Outline the scope for three data analytics initiatives that could be taken forward to promote greater investment efficiency, reliability and resilience within the network. d) Test and trial techniques to verify the use cases' suitability for NIE Networks. 																																																																																																																																																																																																																													
<p>Objectives and Timings</p> <ul style="list-style-type: none"> A successful project will deliver three advanced data analytics techniques that are expected to provide a combination of benefits. This might include low carbon technology (LCT) detection, identifying vulnerable customers or predicting demand/generation. The TRL¹⁰ for each data analytics project will depend on the use case and techniques selected. The timelines for the project are as follows: 																																																																																																																																																																																																																													
<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Year 1</th> <th colspan="4">Year 2</th> <th colspan="4">Year 3</th> </tr> <tr> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> </tr> </thead> <tbody> <tr> <td>WP1: Review of Previous Projects and Learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>1.1 Review of previous projects and learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP2: Review of NIE Networks' Needs Cases and Data Landscape</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.1 Review of NIE Networks' needs cases and data landscape</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP3: Algorithm Selection</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>3.1 Assessment criteria development</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>3.2 Algorithm selection</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>3.3 Trial design</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP4: Algorithm Adaption, Testing and Validation, Analysis and Reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.1 Algorithm 1 adaption, testing and validation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.2 Algorithm 2 adaption, testing and validation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.3 Algorithm 3 adaption, testing and validation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.4 Analysis and reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP5: BaU Planning and Implementation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>5.1 BaU Planning and Implementation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>			Year 1				Year 2				Year 3				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	WP1: Review of Previous Projects and Learning													1.1 Review of previous projects and learning													WP2: Review of NIE Networks' Needs Cases and Data Landscape													2.1 Review of NIE Networks' needs cases and data landscape													WP3: Algorithm Selection													3.1 Assessment criteria development													3.2 Algorithm selection													3.3 Trial design													WP4: Algorithm Adaption, Testing and Validation, Analysis and Reporting													4.1 Algorithm 1 adaption, testing and validation													4.2 Algorithm 2 adaption, testing and validation													4.3 Algorithm 3 adaption, testing and validation													4.4 Analysis and reporting													WP5: BaU Planning and Implementation													5.1 BaU Planning and Implementation												
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¹⁰ Technology readiness levels (TRLs) are a method for estimating the maturity of technologies. TRLs enable consistent comparisons of maturity across different types of technology. TRLs are based on a scale from 1 to 9 with 9 being the most mature technology.

Draft Determination Issues / Summary	
<ul style="list-style-type: none"> • Maximising the use of data for decision making is a reasonable proposition. • It is however somewhat questionable if this project should be categorised as an innovation scheme. • For instance, it is very similar to the proposal listed under DSO13 which aims to, <i>“procure a system that will collate network data from multiple BAU systems to analyse and provide recommendations to assist in network planning and strategy decisions.”</i> • It was not clear how this project differed from the DSO13 scheme. • As a consequence, it did not seem appropriate to undertake two projects which appear to overlap so significantly. 	
Draft Determination Classification	Category 3
Draft Determination Recommendation	No allowance
<p>NIE Networks Response</p> <p>NIE Networks made the following comments in response to the draft determination:</p> <ul style="list-style-type: none"> • There is no overlap between this innovation project and the Network Data Management & Analytics project (DSO13). • The focus of this project is the application of advanced data analytics techniques. • In short, the project under DSO13 will provide the tools, while this innovation project will inform how those tools are used. • Any new algorithms and/or analytical techniques revealed by this innovation project can be implemented through the platform introduced by the DSO13 project. 	
<p>UR Final Views</p> <p>The explanation provided in the NIE Networks consultation response seems open to some question for the following reasons:</p> <ul style="list-style-type: none"> • NIE Networks has highlighted no overlap but has indicated that the projects are intimately linked. It is strange not to reference this link in the business plan. • Innovation trials require, <i>“integration of the algorithm into the relevant system”</i> yet the DSO13 tool is not due for purchase until year 5 of RP7. • Without the relevant IT tool, it is not clear what value the innovation trials will serve. • The IT business plan maps out a delivery lifecycle of each project from, <i>“procurement and project implementation to hyper care and transition into business-as-usual.”</i>¹¹ • The IT business plan confirms that for DSO13, <i>“Costs are inclusive of a full time Data Analyst and Network Development SME...as well as support from the Data Engineering team.”</i>¹² • Given this, it seems clear that the IT funding includes not only the purchase but the costs of operating the relevant tools. • As such, we can see limited benefit in funding this activity which seems to be fully provided for in the IT business plan request. 	
Final Determination Recommendation	No allowance

Table 4.2: Review of Data Analytics request

¹¹ NIE Networks RP7 Digital & IT Business Plan, p44, para 4.28.

¹² NIE Networks RP7 Digital & IT Business Plan, IT Appendix A7 – Project Briefs, p254.

Project Name	Real-Time Fault Level Monitoring (RTFLM)																																																																																																																																																																																																																																																																																																
Amount Requested in RP7	£1.03m																																																																																																																																																																																																																																																																																																
<p>Project Synopsis</p> <ul style="list-style-type: none"> NIE Networks proposes to trial the use of RTFLM solutions on its network which predict fault currents by monitoring network disturbances. This technology could replace periodic network studies and potentially defer costly reinforcement with accurate active fault management. The key objectives of the project are to: <ul style="list-style-type: none"> a) Procure and deploy fault level monitoring (FLM) equipment at a specified location(s) on the network. b) Investigate the impact, if any, of RTFLM equipment on the network. c) Monitor the fault levels at the measuring point(s) over a trial period and use data to analyse the headroom capacity. d) Develop a transition plan and implement RTFLM into BAU. 																																																																																																																																																																																																																																																																																																	
<p>Objectives and Timings</p> <ul style="list-style-type: none"> A successful project will produce real-time visibility of fault levels. The pre-trial TRL is 5/6 moving to 7/8 post trial. The timelines for the project are as follows: <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Year 1</th> <th colspan="4">Year 2</th> <th colspan="4">Year 3</th> <th colspan="4">Year 4</th> </tr> <tr> <th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th> <th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th> <th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th> <th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th> </tr> </thead> <tbody> <tr> <td>WP1: Review of Previous Projects and Learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>1.1 Review of Previous projects and learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP2: Trial Design, Site Selection and Network Modelling</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.1 High level analysis of networks and site selection</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.2 Detailed power system studies</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.3 System architecture and trial design</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP3: System Specification and Procurement</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>3.1 System specification and procurement</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP4: Installation and Commissioning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.1 Installation and commissioning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP5: Trials, Analysis and Reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>5.1 Trial execution</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>5.2 Analysis and reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP6: BaU Planning and Implementation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>6.1 BaU planning and implementation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>			Year 1				Year 2				Year 3				Year 4				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	WP1: Review of Previous Projects and Learning																	1.1 Review of Previous projects and learning																	WP2: Trial Design, Site Selection and Network Modelling																	2.1 High level analysis of networks and site selection																	2.2 Detailed power system studies																	2.3 System architecture and trial design																	WP3: System Specification and Procurement																	3.1 System specification and procurement																	WP4: Installation and Commissioning																	4.1 Installation and commissioning																	WP5: Trials, Analysis and Reporting																	5.1 Trial execution																	5.2 Analysis and reporting																	WP6: BaU Planning and Implementation																	6.1 BaU planning and implementation																
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<p>Draft Determination Issues / Summary</p> <ul style="list-style-type: none"> The use of this technology is well advanced in other network operators. There seems potential for considerable savings and network operational benefits. Project need was therefore accepted. It was not considered that the stage one work package (review of previous learnings) was required as this seems to have been largely complete. Besides internal FTE unit cost reduction, all other activity was funded. 																																																																																																																																																																																																																																																																																																	
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<p>NIE Networks Response</p> <ul style="list-style-type: none"> NIE Networks made no further comments on this project. 																																																																																																																																																																																																																																																																																																	

UR Final Views

- Retain draft determination allowance.

Final Determination Recommendation	£0.98m
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Table 4.3: Review of RTFLM request

Project Name	High Voltage Active Network Management (HV ANM)
Amount Requested in RP7	£0.69m

Project Synopsis

- Network issues may occur when the distribution of supply and demand results in power flows that exceed circuit ratings or cause voltage issues.
- However, it is possible to address network capacity issues by re-routing load and generation through sections of network with spare capacity.
- This can be achieved via *automated load transfer (ALT)* or *Meshed Networks* solutions.
- Key objectives of this project are to consider the merits of both network options by:
 - a) Conducting power system studies to identify up to 10 trial sites for ALT and Meshed Networks.
 - b) Using the power system studies alongside other forecasts to develop an ALT and Meshed Networks decision-making process.
 - c) Implementing a trial of the ALT method at the locations identified.
 - d) Update the network with additional switching/protection equipment (particularly for Meshed Networks).
 - e) Implement a trial of the dynamic Meshed Networks configuration at the locations identified.

Objectives and Timings

- A successful project will deliver trial learnings, and if successful, an implementation strategy for automated switching to address constraints.
- The pre-trial TRL is 7 moving to 8/9 post trial.
- The timeline for the project is around 3.5 years as follows:

	Year 1				Year 2				Year 3				Year 4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP1: Review of Previous Projects and Learning																
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3.1 Equipment specification and procurement																
WP4: Installation and Commissioning																
4.1 Installation and commissioning																
WP5: Live Trials, Analysis and Reporting																
5.1 Trial execution																
5.2 Analysis and reporting																
WP6: BaU Planning and Implementation																
6.1 BaU planning and implementation																

Draft Determination Issues / Summary	
<ul style="list-style-type: none"> This project has considerable potential benefits and is mirroring other network operators' activity in this area. NIE Networks is also conducting a study in RP6 on low voltage ANM, so this project development seems logical. Our principal concern was the statement that Meshed Networks could expose more customers to supply interruptions. We have however supported the cost request for additional protection equipment to mitigate this risk. Besides the FTE unit cost reduction, full allowance for this project was provided. 	
Draft Determination Classification	Category 1
Draft Determination Recommendation	£0.66m
<i>NIE Networks Response</i>	
<ul style="list-style-type: none"> NIE Networks made no further comments on this project. 	
<i>UR Final Views</i>	
<ul style="list-style-type: none"> Retain draft determination allowance. 	
Final Determination Recommendation	£0.66m

Table 4.4: Review of HV ANM request

Project Name	Vehicle to X (V2X)
Amount Requested in RP7	£1.26m
Project Synopsis	
<ul style="list-style-type: none"> The V2X (vehicle to everything) project aims to develop an understanding of how bi-directional chargers in electric vehicles (EVs) will impact the distribution system. The project aims to carry out trials to demonstrate that EVs can act as a battery energy storage system (BESS) and be a solution to constraints. The key objectives of the project are to: <ul style="list-style-type: none"> b) Ensure connection policies are fit for purpose. c) Gain deeper understanding of customer behaviour. d) Investigate data sharing requirements between NIE Networks and key stakeholders. e) Analyse how bi-directional energy flows, through utilisation of EV battery storage capability, will impact network power flows. f) Refine the technical and commercial requirements for the provision of V2X flexibility services. 	
Objectives and Timings	
<ul style="list-style-type: none"> A successful project will identify barriers and determine typical V2X user profiles that can be used to model network impact. The pre-trial TRL is 5/6 moving to 7/8 post trial. The timeline for the project is 4 years split as follows: 	

	Year 1				Year 2				Year 3				Year 4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP1: Review of Previous Projects and Learning																
1.1 Review of previous projects and learning																
WP2: Assessment of NI V2G Barriers																
2.1 Assessment of regulatory/connections framework																
2.2 Northern Ireland V2G market evaluation																
2.3 Identification of barriers to adoption																
WP3: Trial Design																
3.1 System architecture and trial design																
WP4: System Specification and Procurement																
4.1 Market assessment																
4.1 System specification and procurement																
WP5: Participant Recruitment																
5.1 Public engagement																
5.2 Participant recruitment																
WP6: Installation and Commissioning																
6.1 Installation and commissioning																
6.2 Participant onboarding																
WP7: Live Trials, Analysis and Reporting																
7.1 Trial execution																
7.2 Analysis and reporting																
WP8: BaU Planning and Implementation																
8.1 BaU planning and implementation																
8.2 Regulatory reporting and public consultation																

Draft Determination Issues / Summary

- Some material concerns exist with this project.
- For instance, the supporting business case recognises the difficulties encountered by other GB Network operators i.e.
 - a) Difficulties in signing up participants.
 - b) Inability to access sufficient data.
 - c) Complexity with installing hardware.
 - d) Constant communication with technology partnerships.
- NIE Networks are proposing a trial with a minimum of 10 customers. This does not seem like enough to derive reliable conclusions on typical customer usage.
- Project will require customer training to use the EV and V2X technology.
- The Dingle electrification project¹³ run by ESB Networks encountered a variety of issues including: i) communication outages; ii) Wi-Fi issues; iii) customer disconnections; iv) synchronised discharging causing potential voltage challenges; v) limited response available during the day when vehicles are not connected to the chargers.
- NIE networks has not addressed how these problems might be overcome.
- Given the limited nature of the trial and the risk, the value of the spend is questionable.
- We were therefore minded not to support this project.

Draft Determination Classification	Category 3
Draft Determination Recommendation	No allowance

NIE Networks Response

NIE Networks made the following comments in response to the draft determination:

- NIE Networks intends to derive learnings from historic trials, which will help to identify and mitigate previously identified risks.
- Previous trials were carried out a number of years ago and there have been notable improvements in relevant technologies.
- The focus of the V2X project is to demonstrate the technical capabilities of V2X rather than to conduct a wider study of customer behavioural patterns.
- NIE Networks could offer EV / V2X training or arrange for it to be provided by appropriate project partners.

¹³ See The Dingle Electrification Project: Customer Flexibility Trial [paper](#).

UR Final Views

Detail provided in the NIE Networks consultation response has some remaining issues. For instance:

- NIE Networks has not addressed the principal concern as to how the historic trial issues and problems will be overcome.
- Neither has the company explained how the technology improvements are expected to impact future trials.
- The idea that this trial is not to study customer behaviour is in direct contradiction to various V2X business case statements such as:
 - a) Objective - *“Gain deeper understanding of customer behaviour, perceptions and the incentive mechanisms that can lead to increased domestic V2X technology users’ participation in network support services.”*
 - b) Benefit - *“Enhanced understanding of V2X customer behaviours, influencing factors on adoption and utilisation and associated impacts on network power flows and wider system conditions.”*
 - c) Trial activity - *“Explore the network impact of V2X technology, interactions between customers and the charge management platform and the impact of different end-user tariffs on customer behaviour.”*
- If the project is simply to demonstrate technical capabilities of V2X, the need for a minimum of 10 participants and the level of costs seems open to question.
- We do however welcome the commitment to participant training.
- Given these remaining issues and uncertainty around project scope, we see value in delaying funding until such time as NIE Networks can address these concerns.
- Any future submission must be clear on the scope as there seems to be contradictions in NIE Networks own submissions on this project.

Final Determination Recommendation

No allowance

Table 4.5: Review of V2X request

Project Name	DC Readiness																																																																																																		
Amount Requested in RP7	£0.50m																																																																																																		
<p>Project Synopsis</p> <ul style="list-style-type: none"> • Use of direct current (DC) networks has significant potential to enable the deployment of low carbon technology (LCTs). • There are no examples of BAU implementation of LVDC for utilities and only trials have been developed. • However, DC systems have potential to control real and reactive power independently enabling voltage control and better fault management. • The key objectives of the project are to: <ul style="list-style-type: none"> a) Research and document the technical and regulatory issues related to design and operation of new LVDC networks. b) Document the feasibility of leveraging existing alternating current (AC) assets and the integration of LVDC networks into existing power systems. c) Understand the performance and commercial viability of LVDC assets and networks. 																																																																																																			
<p>Objectives and Timings</p> <ul style="list-style-type: none"> • A successful project will deliver a feasibility study with findings that can be taken forward into live trial phase. • The pre-trial TRL is 1 moving to 4 post trial. • The project is expected to take 2 years to complete. <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Year 1</th> <th colspan="4">Year 2</th> </tr> <tr> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> </tr> </thead> <tbody> <tr> <td>WP1: Review of Previous Projects and Learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>1.1 Review of previous projects and learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP2: Feasibility Studies</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.1 LVDC Studies: use case identification</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.2 Use case 1: Development, technical assessment and CBA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.3 Use case 2: Development, technical assessment and CBA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.4 Use case 3: Development, technical assessment and CBA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP3: Findings, dissemination and reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>3.1 Findings, dissemination and reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>			Year 1				Year 2				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	WP1: Review of Previous Projects and Learning									1.1 Review of previous projects and learning									WP2: Feasibility Studies									2.1 LVDC Studies: use case identification									2.2 Use case 1: Development, technical assessment and CBA									2.3 Use case 2: Development, technical assessment and CBA									2.4 Use case 3: Development, technical assessment and CBA									WP3: Findings, dissemination and reporting									3.1 Findings, dissemination and reporting								
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<p>Draft Determination Issues / Summary</p> <ul style="list-style-type: none"> • This project is in the early stages and involves desktop-based feasibility studies to develop this innovative technology. • The potential benefits are worth investigating. • Labour costs of £0.5m however seemed excessive for three feasibility studies. • We were minded to support the project but with 20% less staff resource. 																																																																																																			
Draft Determination Classification	Category 2																																																																																																		
Draft Determination Recommendation	£0.39m																																																																																																		

NIE Networks Response

In response, NIE Networks made the following comments:

- High labour costs are largely attributable to consultancy fees, as NIE Networks does not have the requisite expertise for this project in-house.
- Due to the specialised nature of LVDC networks, rates for the consultants engaged by NIE Networks may ultimately be higher.
- Funding at the knowledge building stage is crucial and should not be reduced on the basis of a labour costs estimate.

UR Final Views

- We accept the need to outsource specialist support for this project.
- Our concern is not with the consultant rate but with the time resource required to complete the feasibility studies.
- Given that consultant rates may outstrip that which has been forecast due to specialist nature, we have amended the staff resource reduction from 20% to a 10% decrease.

Final Determination Recommendation

£0.44m

Table 4.6: Review of DC Readiness request

Project Name	Flexibility Market Development
Amount Requested in RP7	£0.88m
<p>Project Synopsis</p> <ul style="list-style-type: none"> • During the RP6 FLEX project, NIE Networks procured flexibility services from customers approximately 6-months to 1-year ahead of delivery. • NIE Networks has successfully procured both pre-fault and post-fault congestion management products. • This project aims to build on the initial work but have more real-time procurement (weeks, days or even hours ahead of need) to create more competitive markets. • The key objectives of the project are to: <ul style="list-style-type: none"> a) Develop a detailed end-to-end market design, documenting functional and operational requirements. b) Investigate the functionality of existing commercial third-party platforms and determine if there is an off-the-shelf solution. c) Establish a market platform and successfully complete user acceptance testing. d) Implement the closer to real-time flexibility market, procuring and utilising flexibility while ensuring settlement procedures are in place. e) Trial a variety of procurement and trading strategies in order to understand market behaviour. 	

Objectives and Timings

- A successful project will implement a real-time flexibility market and evaluate the benefits of this activity.
- The pre-trial TRL is 5 moving to 7/8 post trial.
- The project is expected to take 4 years to complete.

	Year 1				Year 2				Year 3				Year 4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP1: Review of Previous Projects and Learning																
1.1 Review of previous projects and learning	■															
WP2: Market and Trial Design																
2.1 Market platform research		■	■	■												
2.2 Review and update current arrangements, barriers to implementation		■	■	■												
2.3 High level network analysis and site selection			■	■												
2.4 System architecture and trial design				■	■											
WP3 System Specification and Procurement																
3.1 System specification and procurement				■	■	■	■	■								
WP4: Participant Recruitment																
4.1 Publication of opportunities					■	■										
4.2 Participant recruitment					■	■	■									
WP5: Implementation and Commissioning																
5.1 Technical integration with flexible market platform								■	■	■						
5.2 Participant onboarding								■	■	■						
WP6: Live Trials, Analysis and Reporting																
6.1 Trial execution: trading on the flexibility market platform										■	■	■	■	■	■	■
6.2 Analysis and reporting										■	■	■	■	■	■	■
WP7: BaU Planning and Implementation																
7.1 BaU Planning and implementation															■	■
7.2 Regulatory reporting and public consultations															■	■

Draft Determination Issues / Summary

- This project has a strong needs case and various potential benefits.
- The project is also supported by RP6 findings and other benchmarked projects.
- We do not consider that work package one is required given the considerable learnings from the FLEX project.
- Otherwise, we are content to support this innovative project.
- The only concern is the potential overlap with *DSO16 - Flexibility Services Enduring Solution*, which aims to implement an enduring system and interface to enable NIE Networks to utilise flexibility services.
- Whilst we are content to provide support to this innovative project, we welcomed clarification on this issue.

Draft Determination Classification

Category 2

Draft Determination Recommendation

£0.82m

NIE Networks Response

With respect to the overlap concern, NIE Networks made the following comments:

- The DSO16 IT project is focused on implementing an enduring and integrated solution for managing flexibility services.
- The innovation project will enable NIE Networks to trial closer to real time procurement before incorporating it as part of the design for its enduring architecture in DSO16.
- It is imperative that NIE Networks trials closer to real time procurement before incorporating it as part of the design for its enduring architecture and solution.

UR Final Views

- We are minded to accept this explanation and retain the original allowance.

Final Determination Recommendation

£0.82m

Table 4.7: Review of Flexible Market Development request

Project Name	Virtual STATCOM																																																																																																																																																																																																																																																																																
Amount Requested in RP7	£0.47m																																																																																																																																																																																																																																																																																
Project Synopsis <ul style="list-style-type: none"> The issue of managing system voltages has typically been addressed through passive network reinforcement and voltage correcting solutions. Physical STATCOMs offer distribution system operators solutions to manage voltage issues but can be costly. The focus of this project is to investigate the concept of dynamic control of reactive power at distributed generation (DG). The key objectives of the project are to: <ol style="list-style-type: none"> Develop and implement algorithms in a suitable (possibly existing) power system analysis software package. Optimise algorithms to dynamically manage the control modes and setpoints of existing generation on the network. Rollout algorithms and techniques network wide as part of a BAU transition. 																																																																																																																																																																																																																																																																																	
Objectives and Timings <ul style="list-style-type: none"> A successful project will demonstrate the mitigation of network constraints, network loss reduction and improved customer power quality. This is the expected benefit of operating DG at different power factors. The pre-trial TRL is 6 moving to 8 post trial. The timeline for the project is expected to be 3 years split as follows: <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Year 1</th> <th colspan="4">Year 2</th> <th colspan="4">Year 3</th> </tr> <tr> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> <th>Q1</th> <th>Q2</th> <th>Q3</th> <th>Q4</th> </tr> </thead> <tbody> <tr> <td>WP1: Review of Previous Projects and Learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>1.1 Review of previous projects and learning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP2: Trial Design, Site Selection and Network Modelling</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.1 High level analysis of networks and site selection</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.2 Detailed power system studies</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>2.3 System architecture and trial design</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP3: System Specification</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>3.1 Technical and functional specification development</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP4: Algorithm Development and Testing</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.1 Development of optimisation and evaluation algorithms</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.2 Testing of evaluation algorithm on selected part of the</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>4.3 Testing of optimisation algorithm on selected part of the</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP5 Implementation and Commissioning</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>5.1 System implementation and testing</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP6: Live Trials, Analysis and Reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>6.1 Trial execution</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>6.2 Analysis and reporting</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>WP7: BaU Planning and Implementation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>7.1 BaU Planning and implementation</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>			Year 1				Year 2				Year 3				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	WP1: Review of Previous Projects and Learning													1.1 Review of previous projects and learning													WP2: Trial Design, Site Selection and Network Modelling													2.1 High level analysis of networks and site selection													2.2 Detailed power system studies													2.3 System architecture and trial design													WP3: System Specification													3.1 Technical and functional specification development													WP4: Algorithm Development and Testing													4.1 Development of optimisation and evaluation algorithms													4.2 Testing of evaluation algorithm on selected part of the													4.3 Testing of optimisation algorithm on selected part of the													WP5 Implementation and Commissioning													5.1 System implementation and testing													WP6: Live Trials, Analysis and Reporting													6.1 Trial execution													6.2 Analysis and reporting													WP7: BaU Planning and Implementation													7.1 BaU Planning and implementation												
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Draft Determination Issues / Summary <ul style="list-style-type: none"> This project is well justified and supported by other network operators' innovation benchmarking. No material concerns exist and there are potential network benefits. Beside internal unit cost reductions, this project has been subject to full allowance. 																																																																																																																																																																																																																																																																																	
Draft Determination Classification	Category 1																																																																																																																																																																																																																																																																																
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NIE Networks Response

- NIE Networks made no further comments on this project.

UR Final Views

- Retain draft determination allowance.

Final Determination Recommendation

£0.45m

Table 4.8: Review of Virtual STATCOM request

Project Name	Micro-Resilience																																																																																																																																																																																																																																																																																																
Amount Requested in RP7	£0.74m																																																																																																																																																																																																																																																																																																
<p>Project Synopsis</p> <ul style="list-style-type: none"> • Battery Energy Storage Systems (BESS) can store energy from the grid or local electricity generation for use when the grid connection is lost. • A BESS system can help to maintain a secure supply in remote areas. It can also provide a cost-effective solution and potentially defer large-scale reinforcement. • Solutions have been integrated in networks in Great Britain (GB) and RoI but has not yet been examined and trialled in Northern Ireland. • The key objectives of the project are to: <ul style="list-style-type: none"> a) Investigate the technical feasibility of safely deploying BESS to support islanded operation. b) Trial the proposed solutions with a view to implementation on a wider scale. c) Measure the ability of a Micro-Resilience solution to defer conventional network reinforcement and minimise customer bills. 																																																																																																																																																																																																																																																																																																	
<p>Objectives and Timings</p> <ul style="list-style-type: none"> • A successful project will demonstrate the feasibility of the safe operation and the costs/benefits of deploying BESS on other parts of the network. • The pre-trial TRL is 5/6 moving to 7/8 post trial. • The project is expected to take 3.75 years to complete as follows: 																																																																																																																																																																																																																																																																																																	
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Draft Determination Issues / Summary	
<ul style="list-style-type: none"> • This project has a well-supported business case and a good rationale. • Potential benefits include security of supply, minimising customer minutes lost (CMLs) and aiding worst served customers. • It is also welcome that the technology has been employed elsewhere and can be deployed on a mobile basis as required. • We were content to support this project as an innovation trial. • However, the key concern is from a legal perspective. Unlike other GB network operators, NIE Networks is also a certified TSO. • As such, the company cannot have any generation or supply interests. In the absence of legislation, batteries are being licensed as generators. • It is noticeable from the submission that as well as a back-up supply, BESS may be able to provide other services when connected to the grid. • As these can be provided by the market, it was not clear if NIE Networks should be undertaking this activity. We therefore welcomed further engagement on this issue. 	
Draft Determination Classification	Category 1
Draft Determination Recommendation	£0.72m
<p><i>NIE Networks Response</i></p> <p>Concerning the legal issues, NIE Networks made the following comments:</p> <ul style="list-style-type: none"> • NIE Networks does not have the framework or experience to procure this service. NIE Networks therefore views this project a stepping stone towards that outcome. • NIE Networks considers that the regulatory risk, which is time-bound and limited in scale, is low and that any prevailing issues can be overcome. • If during the project it becomes clear that NIE Networks cannot progress further, any remaining allowance could be redirected to other innovation projects. 	
<p><i>UR Final Views</i></p> <ul style="list-style-type: none"> • We also consider the regulatory risk to be low. • Given that these batteries can be deployed on a mobile basis, it may be that Condition 13(5) of the licence may not be breached or require derogation. • Consequently, we are minded to support the project as per the draft decision. 	
Final Determination Recommendation	£0.72m

Table 4.9: Review of Micro-Resilience request

Project Name	Supporting Vulnerable Customers
Amount Requested in RP7	£0.36m

Project Synopsis

- Various factors affect vulnerability including finances, medical issues or support services.
- Lack of digital awareness can create new vulnerabilities.
- The key objectives of this project are to:
 - a) Review and evaluate NIE Networks current vulnerable customers definition(s) and support strategies.
 - b) Examine the key changes that have already occurred and those that are expected to emerge during the net zero transition.
 - c) Identify how groups of customers may experience difficulties in accessing services or unlocking benefits through this transition.
 - d) Assess the barriers to groups of customers adapting to these changes or overcoming difficulties.
 - e) Design and evaluate strategies and actions to support customers with overcoming identified barriers.
 - f) Update NIE Networks definition of vulnerable customers.

Objectives and Timings

- A successful project will deliver an updated strategy and action plan for improvements of services to vulnerable customers.
- The TRL is not relevant for this project.
- The timeline for the project is 2.75 years split as follows:

	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP1: Review of Previous Projects and Learning												
1.1 Review of previous projects and learning												
WP2: Evaluation of NIE Networks' current position												
2.1 Assessment of NIE Networks' current approach/strategy												
2.2 Assessment of challenges of net zero and digitalisation												
WP3: Development of inclusive strategy												
3.1 Strategy development												
WP4: Customer Engagement Survey												
4.1 Customer engagement survey design												
4.2 Customer engagement survey												
4.3 Analysis and reporting												
WP5: Strategy Implementation												
5.1 Strategy refinement												
5.2 Strategy implementation												
5.3 Analysis and reporting												

Draft Determination Issues / Summary

- This business case does not support the requirement for an innovation allowance.
- The actions listed are all those that would be expected of a reasonable and prudent network operator and BAU activity.
- We did not consider additional innovation allowance for this project to be justified. Such activity should be undertaken as a matter of course.

Draft Determination Classification	Category 4
Draft Determination Recommendation	No allowance

NIE Networks Response

On the vulnerable customer project NIE Networks made the following comments:

- This innovation project aims to go beyond BAU by offering to support an evolving group of vulnerable customers.
- The project will evaluate, recommend and implement best practice observed throughout the UK and other jurisdictions which may represent a step change for NIE Networks and its vulnerable customers.
- Particular themes that will be explored throughout this project include:
 - a) How vulnerable customers can better participate in the provision of flexibility services and emerging technologies.
 - b) How to decarbonise vulnerable customers' heating requirements.
 - c) How to best support vulnerable customers during planned and unplanned outages.

UR Final Views

Whilst we accept that vulnerability may be evolving with the energy transition, the activities listed do not seem to go beyond BAU activity. For instance, as a matter of course:

- We would expect NIE Networks to be adopting best practice from other DNOs.
- We would expect NIE Networks to ensure inclusivity for all its customers as technology develops.
- We would expect support for vulnerable customers during outages to be a constant focus of NIE Networks activity.

Given this expectation, we are of the view that the proposals represent BAU activity which is already funded via base allowances. We do not see any need for further innovation support.

Final Determination Recommendation

No allowance

Table 4.10: Review of Supporting Vulnerable Customer request

Project Name	Customer Load Active System Services (CLASS)
Amount Requested in RP7	£1.43m
Project Synopsis	
<ul style="list-style-type: none"> • By optimising network voltages during peak demand, demand can be reduced on a temporary basis without materially impacting customers, otherwise known as conservative voltage reduction (CVR). • ENWL¹⁴ leveraged this relationship to provide ancillary services (operational reserves and response products) to the Electricity System Operator (ESO). • NIE Networks wish to investigate the possibility of providing such ancillary services. • The key objectives of the project are to: <ol style="list-style-type: none"> a) Technically implement CLASS in a section of the network and integrate it into NIE Networks systems. b) Demonstrate the successful provision of ancillary services to the TSO and the impact on customers. 	

¹⁴ ENWL = Electricity North West.

- c) Investigate ancillary service opportunities that CLASS offers, as well as customer energy savings and the impact on customer bills.
- d) Integrate CLASS into the TSO's systems and market interfaces.

Objectives and Timings

- A successful project will investigate and complete trials of the CLASS system, including the economic benefits.
- The project is expected to take 4 years to complete as follows:

	Year 1				Year 2				Year 3				Year 4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP1: Review of Previous Projects and Learning																
1.1 Review of previous projects and learning	■															
WP2: Trial Design, Site Selection and Network Modelling																
2.1 Engagement with the RA and TSO		■	■	■												
2.2 System analysis and technology assessment			■	■												
2.3 Network analysis and site selection				■	■											
2.4 Commercial assessment and CBA				■	■											
WP3 System Specification																
3.1 QTP assessment				■	■											
3.2 System specification				■	■											
WP4: Installation and Commissioning																
4.1 System and equipment installation and commissioning					■	■	■	■								
WP5: Live Trials, Analysis and Reporting																
5.1 Trial execution : NIEN compatibility, SONI compatibility, DS3 market engagement								■	■	■	■	■	■			
5.2 Analysis, data sharing and reporting									■	■	■	■	■			
WP6: BaU Planning and Implementation																
6.1 Business case development and market impact assessment													■	■		
6.2 BaU implementation design and planning															■	■
6.3 Regulatory reporting and public consultation															■	■

Draft Determination Issues / Summary

- The benefits of reductions to customer bills by the network operators providing ancillary services is worth investigating.
- However, as the business case recognises, there are significant technical and regulatory challenges to the project.
- The regulatory barriers need to be investigated and determined before this project should commence.
- It is recognised that if derogations are not provided the project cannot proceed. It was therefore our view that these issues need to be addressed before any allowance can be considered.
- Consequently, no allowance was provided for the draft determination.

Draft Determination Classification	Category 3
Draft Determination Recommendation	No allowance

NIE Networks Response

Concerning the legal issues, NIE Networks made the following comments:

- NIE Networks recognises that providing CLASS involves participating in TSO markets, and it is aware that it is prohibited by its licenses from participating in the supply or generation of electricity.
- NIE Networks considers that the regulatory risk, which is time-bound and limited in scale, is low and that any prevailing issues can be overcome.
- If during the project it becomes clear that NIE Networks cannot progress further, any remaining allowance could be redirected to other innovation projects.

UR Final Views

Unlike the micro-resilience project, we do not consider the regulatory risk with this project to be low. This conclusion is based on the following:

- The project risks creating significant market interference if NIE Networks can provide a substantial volume of ancillary services.
- Existing certification rules prevent NIE Networks from having generation or supply interests. We would not wish this project to impact on certification in any way.
- As systems services moves to an auction-based approach, generators may have the perception that NIE Networks could have a competitive advantage by virtue of their ability to allocate cost across different areas of their business.

As stated in the draft determination, the benefits of reductions to customer bills by the network operator providing ancillary services is worth investigating. However, the scale of the customer benefit is the reason why the regulatory risk is not low.

It is our view that this project is an ideal candidate for the NIF re-opener. The regulatory barriers need to be investigated and determined before this project should commence. Without addressing these barriers beforehand, under the 50:50 mechanism there is a material risk of nugatory spend should the project not advance.

As a consequence of these issues, we have decided to retain the provisional position of no allowance. However, we would expect NIE Networks to progress this project in RP7 if the regulatory barriers can be addressed.

Final Determination Recommendation	No allowance
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Table 4.11: Review of CLASS request

Project Name	Real-Time Thermal Rating at 110kV																																																																																																																																																																																																																																																																																																																																
Amount Requested in RP7	£0.78m																																																																																																																																																																																																																																																																																																																																
Project Synopsis																																																																																																																																																																																																																																																																																																																																	
<ul style="list-style-type: none"> This project follows on from the Smart Asset Monitoring (SAM) project in RP6. It is designed to assess the real-time thermal rating (RTTR) of conductors to unlock capacity which would otherwise not be available from static ratings. This requires line monitors, weather stations, communications, data logging capabilities and forecasting algorithms. The key objectives of the project are to: <ol style="list-style-type: none"> Implement enhanced monitoring equipment linked to the active network management (ANM) system. Investigate the validity of forecasting technology and develop algorithms to utilise RTTR more efficiently. Apply weather based real-time ratings from a planning and operational perspective. Develop closed loop functionality and communication as required between NIE Networks, SONI and the ANM system. 																																																																																																																																																																																																																																																																																																																																	
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<ul style="list-style-type: none"> A successful project will provide near-time forecasts of line ratings and validate their accuracy and reliability. The pre-trial TRL is 7/8 moving to 8/9 post trial. The timelines for the project are as follows: 																																																																																																																																																																																																																																																																																																																																	
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<ul style="list-style-type: none"> The project is well justified and a logical follow on from the RP6 work. Findings from this trial and other benchmarking project suggests there is material capacity which can be unlocked by virtue of real-time ratings. Comparison with conventional reinforcement also shows the potential for financial benefit. Given the RP6 work, review of previous learnings does not seem a necessary activity. It is also not clear why the level of engagement with SONI should attract so much resource at an early stage. Otherwise, we were content to support the costs of this project. 																																																																																																																																																																																																																																																																																																																																	
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NIE Networks Response	
<ul style="list-style-type: none"> NIE Networks made no further comments on this project. 	
UR Final Views	
<ul style="list-style-type: none"> Retain draft determination allowance. 	
Final Determination Recommendation	£0.69m

Table 4.12: Review of RTTR request

Ex-ante allowances

- 4.9 The consequence of our deliberations is summarised in below Table 4.13. For the final determination we are proposing allowances of £4.75m which is equivalent to 54.1% of the business plan request. This represents a slight increase on the draft position due to an uplift to the DC Readiness project.
- 4.10 There is however the potential to increase this allowance during RP7 via the NIF on provision of acceptable supporting information.

Innovation Project	NIE Networks Request	UR Allowance
Data Analytics	£0.65m	£0.00m
Real-Time Fault Level Monitoring (RTFLM)	£1.03m	£0.98m
HV Active Network Management (HV ANM)	£0.69m	£0.66m
Vehicle to X	£1.26m	£0.00m
DC Readiness	£0.50m	£0.44m
Flexibility Market Development	£0.88m	£0.82m
Virtual STATCOM	£0.47m	£0.45m
Micro-Resilience	£0.74m	£0.72m
Supporting Vulnerable Customers	£0.36m	£0.00m
Customer Load Active System Services	£1.43m	£0.00m
Real-Time Thermal Rating at 110kV	£0.78m	£0.69m
Totals	£8.79m	£4.75m

Table 4.13: RP7 innovation request and allowances in 2021-22 prices

5. Conclusions

RP7 innovation framework and decisions

- 5.1 The outcome of our deliberations on the innovation framework can be summarised as follows:
- a) Provision of both an ex-ante allowance and an innovation re-opener mechanism has been accepted.
 - b) We have determined an initial ex-ante allowance of £4.75m based on a bottom-up assessment of the business cases.
 - c) The NIF uncertainty mechanism will be put in place and we expect this to outturn at £6m for the RP7 period, though no formal cap is proposed.
 - d) There will be three windows of opportunity for innovation applications after year 1 (August 2026), year 3 (August 2028) and year 5 (August 2030) of RP7.
 - e) Business cases in line with NIE Networks and our criteria for submissions should be provided to support NIF cost requests.
 - f) Our criteria for NIF submissions have been amended to be less onerous in terms of audit trails for costs/benefits.
 - g) Annual reporting by project should become a part of the regulatory reporting process. This should also be published by NIE Networks and include post-project evaluations upon project completion.
 - h) Both over and underspend against collective innovation allowances will be subject to 50:50 cost sharing.
 - i) Underspend against ex-ante allowances will not be mechanically used to offset future NIF cost submissions. However, it may influence NIF or RP8 funding decisions if existing innovation projects have not been adequately progressed.
 - j) An Innovation Council is not mandated by UR. NIE Networks will however need to consider how it engages with consumers and other stakeholders to support any future submissions.
- 5.2 We consider that the final determination addresses many of the stakeholder concerns and provides sufficient flexibility whilst not exposing consumers to unnecessary risk.

- 5.3 We would expect that NIE Networks will be able to progress some of the existing projects via the NIF when issues are resolved. We are also supportive of advancing the potential links with academia throughout RP7.
- 5.4 Whilst not mandating the Innovation Council at this time, it is clear from stakeholder feedback that the idea still has merit. NIE Networks is free to pursue this if it considers this the best way to develop their innovation plans going forward.
- 5.5 If the Innovation Council is not progressed, we would as a matter of course expect NIE Networks to demonstrate how it is developing its innovation plans, partnerships and strategies.
- 5.6 Finally, we welcome the commitment of NIE Networks to annual project reporting and post-project evaluations, including RP6 reporting. It is essential that the company can demonstrate how customers benefit from such investment or at least detail the project learnings should benefits not materialise (as will sometimes be the case).
- 5.7 Given that consumers are funding these projects, we are of the view that the annual reporting and findings should be published and fully transparent.