Final Determination - Distribution

6 Distribution Tower Lines

Project 6 Distribution Tower Lines

NIE Request	£2,253,500
Project Description	This project covers the replacement of poor condition overhead line steel tower components. The majority of 33kV overhead circuits are wood pole line construction but some lines, approximately 70km, were constructed with steel tower supporting structures which allow for longer span lengths and greater conductor heights. Over half of the these assets were constructed in 1930 by the Antrim Light and Power Company.
Project Justification Satement	Excluding those lines which have been recently refurbished, the distribution tower line network is generally in poor condition. There are a number of conductors and earth wires showing visible signs of corrosion. The insulator condition combined with the level of wear on shackles necessitates a replacement programme. Tower steelwork is of particular concern with heavy levels of surface corrosion identified on a significant number of the towers and with some towers now requiring complete replacement. The drivers for asset replacement on steel tower circuits therefore include network availability, reliability and public safety.
Draft Determination	£788,725
NIE Response to Draft Determination	It is illogical to provide finance for one section of line whilst refusing others when the justification is the same. The Utility Regulator has granted an allowance for the Holestone to Kells section of line but the sections at either end, Ballyclare to Holestone and Kells to Ballymena are in the same condition yet it is proposed to disallow expenditure. The Eden to Carrick line is in a worse condition than the Holestone to Kells, but it also has been disallowed. The Utility Regulator has stated that there is no explanation from NIE as to why 60% shackle wear is a problem. NIE engineers have considerable experience in this area and have evidence to show that following the onset of detectable deterioration these components have a very rapid wear pattern. Climbing inspection data shows that these components can move from 20% wear to 80% wear within three years and that fittings with greater than 80% wear are on the verge of failure. The evidence shows that any of these components with 60% wear or greater are likely to reach the point of failure within the five years of RP5 if not replaced; therefore a program of the complete replacement of shackles with ≥60% wear is essential. The Utility Regulator stated in its response that NIE had given no details of the prioritisation process. The condition methodology applied to distribution tower lines is identical to that applied to transmission tower lines. As detailed in NIE Strategy Paper D1 the condition categories for tower steelwork are as follows: • Priority 5 refers to paint covering all of the surface although the overcoat may not be intact; • Priority 4 refers to steel members having very light surface corrosion with the majority of coating intact; • Priority 3 refers to steel members having light pitting and roughing on the edges, with the loss of the majority of the coatings and zinc layers. Painting would not be sufficient to give increased life; • Priority 2 refers to steel members with significant pitting, where the loss of

section is clearly visible round the edges; and
• Priority 1 refers to perforated elements with severe physical damage.
One section of the earthwire on the Ballyclare/Holestone/Ballymena line failed during the Easter 2010 Ice storm at which time NIE had already plans in place to replace the earthwire during RP5. This line also has some Hardex earthwire which traverses the M2 by-pass at Ballymena. (Hardex is an obsolete earthwire with an integral
communication channel, which can be used for protection.) NIE has experience of several failures of Hardex earthwire including one notable failure at Mallusk in 2003. Hardex earthwire is also installed on the Inver/Cockle Row towerline, which is also scheduled for replacement during RP5. Since the 2003 incident, NIE has had a prioritised programme of Hardex replacement, dealing with the 110kV first. The Utility Regulator's Draft Determination implies an unacceptable level of risk being imposed by the Utility Regulator on NIE.

Additional information provided	Details of how NIE have identified criteria for replacement of fittings. Exctract from a Director's Inquiry into previous failures of similar assets.

SKM Response to NIE T+D	Allowance based on SKM modelling. Total amount reduced to adjust for inefficient indirect costs.
UReg View	This amount is based on SKM modelling. They have raised concerns about NIE's approach to this work, however believe that some investment should be made on these lines during RP5. TSKm conclude: "Paper D2 indicates (footnote 3) that the refurbishment costs do not include conductor replacement, although some of the stated drivers are conductor condition..... Overall therefore, a lot of questions about the depth of consideration that NIE have given to this proposed work stream, and hence even NIAUR's proposal to allow Holestone to Kells (D864) as a monitored investigative project at circa £44,000/km for a SC 33kV line (including conductors?) to confirm issues may be a step too far and detailed consideration of the costs of refurbishment and alternatives (decommision/new build?) solutions should be requested. As a consequence should we allow the SKM computed value (£1.4m) as a non specific allowance but require NIE to demonstrate that they have considered the whole range of viable options rather than simply asking for the funds to refurbish an existion, possibly inappropriate asset."
Deliverables	Replacement of circa 26km of 33kV steel tower overhead line assessed to be in poor condition.

Final Determination	**£1,363,600.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1**		

Project 7 33kV Overhead Lines

NIE Request	£11,552,032
Project Description	This project covers the refurbishment of 33kV overhead lines. The 33kV overhead network is comprised of approximately 3110 km of wood pole overhead line construction. The 33kV network is less reticulated than the 11kV network in that it is generally configured as radial or ring circuits with very few spur lines. The circuits supply relatively large 33/11kV substations but there are significant sections that continue to supply both small villages and individual customers via smaller 33kV/LV pole mounted transformers.
Project Justification Satement	In general, overhead lines should not be subject to wholesale like-for-like replacement at a point in time but should instead undergo cyclic refurbishment driven by condition monitoring of the individual line components. This is best practice adopted by the industry in general in the UK. Refurbishment and targeted asset replacement (TAR) programmes of work, allied with a programme of re-engineering will, over time, prevent deterioration in overall network performance and ensure there are no safety issues. This strategy will also address in a timely and cost effective manner those circuits which exhibit performance that is well below an acceptable level. TAR is aimed at improving storm resilience and is based on a 5 year cycle. The objective of the refurbishment programme is that each overhead line circuit would be refurbished every 15 years, with the replacement of those major components identified as being defective. Re-engineering is required when it is assessed that refurbishment would not deliver either a practical or a cost-effective solution. This will be the case for a small number of circuits in the refurbishment programme. The primary drivers for investment in the distribution overhead line are therefore maintenance of network performance, public safety and resilience to storms.
Draft Determination	£4,967,374
NIE Response to Draft Determination	Although increasing the cycle time for TAR will reduce the length of 33kV network addressed on an annual basis, the km unit rate will substantially increase as the volume of timber to be cut will be greater and the percentage of sites requiring an outage will also increase. Experience gained from benchmarking with GB DNOs and from the DTI ESQCR amendment consultation in 2006, has shown that a shorter duration between TAR visits not only helps to reduce the unit rate but also improves the level of acceptance by landowners. There are no savings to be made by increasing the cycle time. DNOs typically have 3 year tree cutting cycles both at 33kV and 11kV and a 1 year cut is in place for transmission circuits. The Utility Regulator's comment on the amount of redundancy in the 33kV network shows a lack of appreciation for the investment driver. NIE has a statutory obligation under both the existing ESR and the proposed ESQCR to maintain an adequate clearance from trees to our overhead line network. The level of network redundancy does not reduce this statutory burden on NIE in any way. The Utility Regulator has commented that "RP4 figures do not identify the amount of re-engineering undertaken". NIE would refer to the additional data request to the Utility Regulator dated 8/6/2011, where the proposed volumes of re-engineering and the actual/LBE for RP4 are quoted.

7 33kV Overhead Lines

Our strategy paper D3 clearly set out the requirement for reengineering – “It is now clear that the current refurbishment programme with a specification that results in a low volume of conductor replacement will
not adequately prevent network deterioration in the medium and longer term. Reconductoring and associated redesign is now required particularly on those circuits that are showing signs of extensive
conductor deterioration. [Is this not self evident?] For clarity in presenting the additional costs involved and for reporting purposes, this programme element involving reconductoring is referred to as ‘reengineering’.”
The benefits of completing the first cycle of refurbishment were that deterioration was arrested, dangerous decayed poles were removed and the circuits brought to a condition suitable for a further prolonged period of service and that the unit costs used for the RP5 projection are based on those established during the second cycle of refurbishment.
The Utility Regulator's Draft Determination implies an unacceptable level of risk being imposed by the Utility Regulator on NIE with safety related issues on the distribution network not being addressed.

Additional information provided	Information about unit costs.

SKM Response to NIE T+D	Allowance based on SKM review and 'sign on' to NIE 'perpetual asset' approach, i.e. Refurbishment and Re-engineering of the lines on a 15 year cyclical basis (which results in improved network performance and similar/lower costs than simply rebuilding the line at end of life) coupled with assumed reduction in tree cutting costs. Revised to £7.1m plus tree cutting of £1.7m reflecting assumed 67.5% benchmark against ESB and also best performing GB DNOs factored with reduced tree cover. It is agreed that NIE has a statutory obligation under both the existing ESR and the proposed ESQCR to maintain an adequate clearance from trees to its overhead line network. The level of network redundancy does not reduce this statutory burden on NIE in any way.
UReg View	SKM have assessed the amount of work they believe is required based on the asset information provided by NIE. SKM has identified that the cost of tree cutting per km of line in NI is significantly higher than in RoI or GB given the much less dense tree cover here. It is assumed that this will be carried out to the requirements of ESQCR and costs are benchmarked against other companies working to these standards.
Deliverables	1035km of refurb/re-engineered 33kV woodpole lines/year, split 738km of refurb and 297km of re-engineered line work albeit influenced by actual circuit performances. TAR will address 4,150km at 33kV within the RP5 period.

Final Determination	**£8,800,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1**		

Project 8 — 11kV Overhead Lines

NIE Request	£68,260,248
Project Description	The 11kV and 6.6kV overhead networks are comprised of approximately 20,800 km of wood pole overhead line construction. This project covers the refurbishment of the 11kV overhead line network on a cyclic basis in order to maintain an acceptable level of network performance and to prevent network deterioration.
Project Justification Satement	In general, overhead lines should not be subject to wholesale like-for-like replacement at a point in time, but should instead undergo cyclic refurbishment driven by condition monitoring of the individual line components. This is best practice adopted by the industry in general in the UK. Refurbishment and targeted asset replacement programmes allied with a programme of re-engineering will, over time, prevent deterioration in overall network performance and ensure there are no safety issues. This strategy will also address in a timely and cost effective manner those circuits which exhibit performance that is well below an acceptable level. TAR is aimed at improving storm resilience and is based on a 5 year cycle. The objective of the refurbishment programme is that each overhead line circuit would be refurbished every 15 years, with the replacement of those major components identified as being defective. Re-engineering is required when it is assessed that refurbishment would not deliver either a practical or a cost-effective solution. This will be the case for a small number of circuits in the refurbishment programme. The primary drivers for investment in the distribution overhead line are therefore maintenance of network performance, public safety and resilience to storms.
Draft Determination	£24,996,903
NIE Response to Draft Determination	Tree cutting on the 11kV network is mandatory and is estimated to cost £21m in RP5. The residual sum of £4m is inadequate to carry out any worthwhile network refurbishment. Likewise it could not be used to pilot a sample circuit rebuild for 11kV resilience since a large scale pilot in a number of geographic areas, carried out during all seasons is required to establish competitive and complete unit costs. SKM have already concluded that NIE's unit costs, on a direct basis, are efficient compared to GB best practice. Further analysis of the unit costs associated with the overhead line programme is detailed in the PB unit cost benchmarking report.
Additional information provided	Details of unit costs
SKM Response to NIE T+D	Allowance based on SKM review and 'sign on' to NIE 'perpetual asset' approach, i.e. Refurbishment and Re-engineering of the lines on a 15 year cyclical basis (which results in improved network performance and similar/lower costs than simply rebuilding the line at end of life) coupled with assumed reduction in tree cutting costs. Revised to £42m plus £9.2 tree cutting
UReg View	SKM have assessed the amount of work they believe is required based on the asset information provided by NIE. SKM has identified that the cost of tree cutting per km of line in NI is significantly higher than in RoI or GB given the much less dense tree

cover here. It is assumed that this will be carried out to the requirements of ESQCR and costs are benchmarked against other companies working to these standards.

Deliverables	6935km of refurb/re-engineered 11kV woodpole lines/year, split 4949km of refurb and 1986km of re-engineered line work (this re-engineering will allow the rebuild of 25mm2 Overhead line), albeit influenced by actual circuit performances. TAR will address 13,900km at 11kV within the RP5 period.

Final Determination	**£51,200,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1**		

Project 9 LV Lines

NIE Request	£21,411,154
Project Description	This project covers the cyclic refurbishment of LV overhead lines. This will entail a range of activities. This will entail a range of activities including replacement of decayed poles, replacement of fittings and cutting of trees and other vegetation. Refurbishment of 1,600km of line will be carried out to a specification that will seek to allow for no further significant intervention for a further fifteen years. Targeted asset replacement (TAR), applied to the remainder of the network, will seek to address individual defects that cannot be deferred until the next refurbishment cycle. The modest programme (15km) of selective undergrounding will be targeted at sections of network where either access to carry out refurbishment is not achievable or where for example, the degree of pole decay is very significant, and undergrounding is the optimal solution.
Project Justification Satement	Approximately 5,400km of NIE's low voltage (LV) mains network is overhead line construction largely using wood poles. Generally the construction is uninsulated conductors strung between insulators attached to the poles. A substantial proportion of this network was constructed between the late 1950s and the mid 1970s to facilitate rural electrification. Due to the age of this network, its exposure to the weather, encroachment from trees and vegetation etc there is a requirement to invest in a programme of asset replacement and vegetation management to ensure that, in particular, the risks to performance, safety and storm resilience are adequately managed.
Draft Determination	£7,065,681
NIE Response to Draft Determination	The Utility Regulator has provided no rationale for the proposed reductions, nor have they provided any details of modelling or benchmarking completed to support their reductions. The comments relating to the reducing cost of the work following the first cycle of refurbishment have no relevance and do not attempt to justify the proposed disallowance. The first cycle of refurbishment will not be complete for some time. The benefits of refurbishment will also be self-evident; refurbished circuits will have deterioration arrested, dangerous decayed poles will be removed and the circuits brought to a condition suitable for a further prolonged period of service. NIE is obliged to cut trees on the LV network, replace decayed poles and replace any defective components as on overhead lines at other voltages. This expenditure is unavoidable and without it, safety related issues on the network would be unaddressed which is unacceptable. Strategy Paper D4 provides detailed information on the projection.
Additional information provided	Confirmation of scope of project and potential overlap with other LV tree cutting programmes (e.g. ESQCR)
SKM Response to NIE T+D	Allowance based on SKM review and 'sign on' to NIE 'perpetual asset' approach, i.e. Refurbishment of the lines on a 15 year cycle, coupled with assumed reduction in tree cutting costs. Revised to £13.3m + tree cutting at £3.85m = £17.15m
UReg View	SKM have assessed the amount of work they believe is required based on the asset information provided by NIE. SKM has identified that the cost of tree cutting per km of line in NI is significantly higher than in RoI or GB given the much less dense tree

cover here. It is assumed that this will be carried out to the requirements of ESQCR and costs are benchmarked against other companies working to these standards.

Deliverables	This project covers the cyclic refurbishment of of 1,600km LV overhead lines including replacement of decayed poles, replacement of fittings and cutting of trees and other vegetation. Refurbishment of line will be carried out to a specification that will seek to allow for no further significant intervention for a further fifteen years. Targeted asset replacement (TAR), applied to the remainder of the network, will seek to address individual defects that cannot be deferred until the next refurbishment cycle. The project also includes a programme of circa 15km of selective undergrounding will be targeted at sections of network where either access to carry out refurbishment is not achievable or where for example, the degree of pole decay is very significant, and undergrounding is the optimal solution.

Final Determination	**£17,150,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1**		

Project 10 Undereaves

NIE Request	£11,919,778
Project Description	This project covers the replacement of undereaves wiring at the rate of 3200 premises per annum.
Project Justification Satement	This is a high priority issue largely driven by safety issues and it has been the subject of DTI attention in the past. There is an obligation on NIE to remove the hazards associated with undereave wiring in a reasonable time. All of these assets were installed prior to 1970 and it was recognised that a programme of paper braded jute (PBJ) replacement needed to be completed by the end of RP5. In addition this programme will be extended to address single PBJ services fed from the LV overhead line network. Any reduction in the pace of replacement could not be considered. The risk of not continuing with the pace of replacement achieved during RP4 is an increase in the number of safety incidents as undereaves wiring deteriorates further with the risk of serious injury or fatality and prosecution of the company for not taking all reasonable steps to mitigate the threat.
Draft Determination	£11,919,778
NIE Response to Draft Determination	
Additional information provided	None required.
SKM Response to NIE T+D	Allowance based on SKM modelling. Total amount reduced to adjust for inefficient indirect costs.
UReg View	This work is essential for customer safety and the full allocation is allowed.
Deliverables	This project covers the replacement of undereaves wiring at the rate of 3200 premises per annum. Due to the critical nature of this work, annual reporting must be clear on the reasons for any reduction in the volumes delivered.

Final Determination	**£11,490,665.99**	Including consultancy costs of	**£0.00**
Fund	**Fund 1**		

Project 11 LV Cut-outs

NIE Request	£1,832,000
Project Description	The project covers the replacement of house service cut-outs at 8000 properties.
Project Justification Satement	NIE has approximately 760,000 domestic customers and 54,000 small to medium enterprise (SME) customers. The majority of domestic and SME LV service cables supplying these premises are terminated in a house service cut-out with fuse. Cut-outs have an estimated life expectancy of 40 years but levels of failure indicate that certain types are prone to premature failure as a result of deterioration and overloading. Failure of the cut-out can result in fire, and since they are located in customer's premises, and in many cases under wooden stairways, they pose a high risk to customer and property safety.
Draft Determination	£1,392,320
NIE Response to Draft Determination	NIE identified the volume of cut out replacement required and the reason for differential costs, some replacements requiring part of the service cable to be replaced since the cut-outs are mounted too low to the ground. The disallowance is based on an assumption that the average unit rate has increased due to inflation whereas NIE had explained that both simple and complex cut-out replacement was required, the latter costing significantly more due to the requirement to replace a section of service cable. NIE has now completed the survey of cut-outs referred to in our submission (section 2.1 of paper D6). This has confirmed that there are approximately 23,500 obsolete cut-outs at domestic and SME customers' premises. Given that NIE has informed the Utility Regulator of the ongoing survey at the time of our submission, it would be appropriate for the Utility Regulator to take the findings into consideration in setting the allowance
Additional information provided	Survey report.
SKM Response to NIE T+D	Allowance based on SKM modelling. Total amount reduced to adjust for inefficient indirect costs.
UReg View	Based on the details contained in the survey report (completed after NIE made their RP5 capex submission), we are now comfortable with allowing the full costs for this work. The average unit cost is based on 10% being more difficult cut outs, delivering a lower % than this would not be classed as an efficiency saving.
Deliverables	The project covers the replacement of house service cut-outs at 8000 properties.

Final Determination	**£1,766,048.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1**		

Project 12 Distribution Overhead Lines Fixed Costs

NIE Request	£18,063,754
Project Description	This investment provision covers for the costs directly associated with the programming and management of the overhead line refurbishment programme.
Project Justification Satement	The overhead line refurbishment and tree cutting programmes for 33kV, 11kV and LV are planned, programmed and managed by a dedicated team of staff. Their costs are directly attributed to this work stream. These programme costs include for: •Collection of asset condition information which prioritises and drives the investment programme •Pre construction survey and wayleaving to provide detailed work plans for each circuit •Vegetation management – quantification and work plan development on a per circuit basis •Helicopter patrolling to identify defects, hazards and supplement the work plan •Provision of mobile generator on overhead line outages to mitigate customer outages.
Draft Determination	£0
NIE Response to Draft Determination	The Utility Regulator has treated this category of expenditure along with the other overhead cost categories; • T23 Transmission Design & Consultancy • T41 Transmission Capitalised Overheads • D20 Distribution Design & Consultancy • D45 Distribution Capitalised Overheads The Utility Regulator has scaled back these indirect costs on a linear basis to its proposed level of capital expenditure resulting in a determination of 35% of that requested. This investment provision covers for the costs directly associated with the programming and management of the 33kV, 11kV and LV overhead line refurbishment programme with regard to the provision of preconstruction design, survey, wayleaving and patrolling services necessary for preparation of the detailed work programme on the distribution overhead line network. These programme costs include for: • Collection of asset condition information which prioritises and drives the investment programme; • Pre construction survey and wayleaving to provide detailed work plans for each circuit; • Vegetation management – quantification and work plan development on a per circuit basis; • Helicopter patrolling to identify defects, hazards and supplement the work plan; and • Provision of mobile generators on overhead line outages to mitigate customer outages. In the Utility Regulator's calculations, it has made an error and has omitted to include one of the five classes of indirect costs - the costs associated with distribution design and project management. Indirect costs can be classified into the 3 separate categories (as defined in Ofgem's RIGs glossary7): • Closely Associated (Engineering) - these costs can be regarded as broadly linear with the quantum of work on the network i.e. The number and complexity of the projects and programmes of work.

	• Closely Associated (Other) - these costs are generally non- linear with some costs being generally fixed costs and others subject to step change depending on the size and scope of the work programme. • Business Support Costs - these costs are not directly or indirectly proportional to the level of investment or quantum of work on the network but support the networks business Given that indirects can be fixed, variable and step in nature, it is thus not appropriate for the Utility Regulator to apply a general linear scaling back based on the level of capital investment. NIE has calculated that based on the level of capex proposed by the Utility Regulator, the level of indirects in these categories should be more than double what it has proposed. It is not possible for NIE to plan, design and deliver the programme of works within this proposed allowance. Until a final level of capital investment has been agreed, NIE would request that the Utility Regulator revisits the issue of indirects to arrive at a sensible level based on the specific nature of these costs.
Additional information provided	Word document. NIE accept that these overhead line fixed costs are included within Ofgem's closely assocaited indirects: "Overhead line fixed costs – variable (CAI)"
SKM Response to NIE T+D	0
UReg View	SKM have benchmarked the unit costs of overhead line work with GB DNO's. Those rates include the costs associated with surveys and SKM have included these costs within the individual overhead line prgrammes. No seperate allowance is required.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund **Fund 1**			

Project 13 Primary Plant

NIE Request	£31,156,746
Project Description	Replacement of 6.6kV, 11kV and 33kV switchgear, 33kV mesh equipment and ancillary equipment
Project Justification Satement	The primary plant switchgear replacement programme includes the replacement of 6.6kV and 11kV indoor primary switchgear and 33kV indoor and outdoor primary switchgear, support structures and ancillary equipment. Condition assessments have highlighted the poor condition of the equipment prioritised for replacement due to extensive corrosion, increasing partial discharge problems, defects and failures. All of the equipment highlighted for replacement was installed from the 1940s to the early 1970s. In addition, spares availability is a significant issue as some of the equipment manufacturers are no longer in existence. In addition, a portion of this equipment is approaching its maximum assigned fault level rating. Failure to maintain the integrity of this equipment would have major implications for the availability of supplies to the wider network.
Draft Determination	£10,281,726
NIE Response to Draft Determination	In the NIE Strategy Papers, C4, C5, C6 and C14, the investment requirements were outlined for Primary Plant (including ancillaries) at 33kV sites. The papers covered the following equipment: • 11kV circuit breakers at primary substations • 6.6kV circuit breakers at primary substations (Belfast only) • 33kV indoor circuit breakers • 33kV outdoor circuit breakers Papers C4-C6 clearly define the issues and options associated with these categories of assets and explain the risk ranking process. NIE's response to the Utility Regulator in November 2011 fully described how corporate strategy and the investment planning process came together to develop an investment plan. NIE Strategy Paper C14 outlines the ancillary equipment associated with C4-C6; the Utility Regulator response makes no reference to an allowance for ancillaries; these may have been grouped with the main Primary Plant. Acceptance of the Utility Regulator proposals would mean that assets would be required to remain on the network well beyond their normal life expectancies and would have a higher level of risk associated with them than would be prudent, increasing the risk of injury to staff, contractors and potentially members of the public. This raft of asset replacement would be pushed back creating outage difficulties and higher operating costs in the interim. This in turn would have a knock-on effect and, based on the volume of work required during RP6, RP7, etc, would create difficulty in achieving delivery of future replacement. No rationale or justification has been provided as to why the Utility Regulator considers that 33% of NIE's estimate for this work should be adequate and clearly it is not. Nor is the level of risk the expenditure implies acceptable
Additional information provided	No specific questions asked. Discussed at workshops.

13 Primary Plant

SKM Response to NIE T+D	The DPCR5 based asset replacement modelling has been revisited as via the text in Papers C4 and C5 the split of quantities between I/D and O/D 33kV switchgear can be identified and hence the different lives 61/53 years for I/D (DPCR5/4) and 50 years for O/D (DPCR5&4) modelled. The modelled volume/uplifted cost for the 33kV s/gear increases to about £13.5m to which need to be added 11/6.6kV primary switchgear at £10.7m. When the associated additional (new) cable costs of £2.35m are added to the O/D proposals, the total model based costs increase to £26.5m, i.e. circa 90% of NIE request. Given the nature of age based asset replacement modelling and the level of correlation between this 'top down' modelling and NIE's arguably asset specific bottom up approach it is considered appropriate to accept NIE proposals as detailed in the supporting Papers, C4, C5 , C6 and C14 (part) which total £29.3m. Total amount reduced to adjust for inefficient indirect costs.
UReg View	SKM modelling has supported NIE's request for funding.
Deliverables	Replacement of 33kV, 11kV & 6.6kV primary substation switchgear, 33kV mesh equipment and ancillary equipment including dc, ac, fire protection systems, earthing, flood protection and civil works. This corresponds to a total of 184 individual units made up of 160 33kV units and 260 11kV and 6.6kV units

Final Determination	**£30,783,543.30**	Including consultancy costs of	**£1,776,543.30**
Fund	**Fund 1**		

Project 14 Primary Transformers

NIE Request	£10,071,761
Project Description	Replacement of thirty-two age expired poor condition 33/11kV and 33/6.6kV distribution transformers.
Project Justification Satement	There are three hundred and ninety-six 33/11kV and 33/6.6kV distribution transformers located at 215 distribution substations. These assets are connected to the 33kV network and provide supply to the wider 11kV and 6.6kV secondary distribution network. Ongoing condition assessment of these assets has highlighted forty units and their associated auxiliary equipment that are in need of replacement. This programme of replacement will minimise the risk of in-service failure of these assets, which would have serious implications for supply availability across the wider network.
Draft Determination	£6,899,156
NIE Response to Draft Determination	The NIE Strategy Paper 'B3 - 33/11kV & 33/6.6kV Transformers' prioritised the replacement of these assets based on a risk ranking, being the multiple of the probability of failure and the consequence of failure. The Utility Regulator's response in the initial proposals appeared to reject the use of the consequence multiplier when assessing risk which prompted NIE to seek clarification. In the Utility Regulator's response to the question 9.17 regarding NIE's approach to risk, it confirmed its rejection of the consequence multiplier and stated that the Utility Regulator 'are bound by a duty to protect individuals residing in rural areas. Rural populations would score lower on NIE's consequence matrix than individuals connected to similar equipment in an urban area due to population density. We have also already raised our concerns about the priority given to "important" customers under the scoring matrix. We therefore do not believe that we can take your consequence score into account when assessing investment requests.' As a result the Utility Regulator granted an allowance based on an apparently arbitrary probability threshold level of 20, although it states that it 'examined the parameters involved in the calculation of the probability scores and we are of the opinion that the various combinations of factors that would result in a score of 20 are significant enough to justify their inclusion for replacement during RP5.' If the Utility Regulator's probability threshold level of 20 were applied to NIE's population of primary transformers, it would permit more units to be replaced than the number initially requested, although the capex figure granted suggests that the Utility Regulator is not aware of the impact of this decision. Of the population of 396 Primary transformers, NIE requested the replacement of 32 during RP5. However, 52 transformers in the population have a probability of failure score of 20 or above. From this NIE must conclude that, if the Utility Regulator's judgement is to be taken at face value, since the number of transformers meeting the Utility Regulator's criteria is greater than the number requested by NIE, the full requested allowance for 32 transformers should be granted.
Additional information provided	No specific questions asked. Discussed at workshops.
SKM Response to NIE T+D	Allowance based on SKM modelling.

14 Primary Transformers

UReg View	Locations to be identified by NIE as part of the new reporting systems.
Deliverables	Allowance based upon replacement of 9 33kV primary transformers consistent with their assessed asset condition and potential adverse safety/network impact.

Final Determination	**£3,907,376.80**	Including consultancy costs of	**£178,046.80**
Fund	**Fund 1**		

Project 15 Secondary Substations

NIE Request	£37,807,990
Project Description	Secondary plant includes 11kV & 6.6kV switchboards, distribution substations, sectionalisers, LV pillars, LV switchboards, transformers and distribution substation auxiliaries. This project includes a combination of asset replacement and targeted refurbishment proposals for secondary network plant and equipment. Refurbishment will be carried out as a method of asset life extension in preference to replacement where cost effective.
Project Justification Satement	The condition of the secondary network assets gives rise to safety issues since the assets are usually located in streets and other public places. They are frequently exposed to vandalism and anti-social activity. While a failure doesn't present the same level of network risk found with Primary and Transmission plant the issue of public safety is paramount. Those assets considered to pose the greatest risk to public safety will be prioritised for replacement or refurbishment. The work will also include civil upgrades and repairs to buildings to maximise asset life extension.
Draft Determination	£15,350,044
NIE Response to Draft Determination	The Utility Regulator's proposals are to reduce the NIE request in 8 of the 9 categories; in one case (11kV sectionalisers) to 0%. Only LV wall mounted boards have been fully funded. However, no rationale is provided as to why these reductions are proposed. In the NIE Strategy Papers, C7-C15, the investment requirements were outlined for Secondary Plant (including ancillaries) at 11kV, 6.6kV and LV distribution sites. The papers covered the following equipment:- • 11kV and 6.6kV Ring Main Units • 11kV and 6.6kV secondary switchboards • 11kV and 6.6kV overhead fed ground mounted transformers • 11kV and 6.6kV H-poles • 11kV and 6.6kV 4-Poles • 11kV sectionalisers • LV plant (mini-pillars, section pillars and UDBs) • LV wall mounted boards The Utility Regulator had requested detailed costs for each item, based on a total output of 2200 units; this was provided by NIE. The Utility Regulator also suggested that safety had not been considered as a driver for these categories; however it is clear from NIE Strategy Papers C7-C15 that safety has been considered. In these papers, NIE gives specific defect information on various plant types within this group; furthermore, both national and NIE specific fault histories are provided. The Utility Regulator has also stated that 'no condition information was provided'. The comprehensive condition information provided in the Strategy Papers, including in some cases photographic evidence, seems to have been overlooked. The nature of the assets in this category is that they are customer facing, in public areas and often located in the most densely populated areas. Hence, failure of this type of equipment, especially that which is oil filled, has the potential to cause serious injury or death to members of the public or to the staff who operate it. NIE has experience of secondary oil filled equipment failing catastrophically in public places and spreading debris over a wide area. There are in excess of 8000 secondary substation switching devices on the network of which approximately 10% are between 40 and 70 years old. Of the 500 units prioritised for replacement in RP5 (6.25% of the population), approximately

400 of them are subject to operational restrictions that cannot be removed through maintenance or repair.
The Utility Regulator's Draft Determination would imply that two thirds of mini pillars and section pillars that NIE considers essential to be replaced would have to remain on the network for a further period of 5 years. Such equipment is often located in built up areas where children play and they may climb or sit on the equipment or may even interfere with it by pushing an object through an aperture caused by corrosion. If housings are corroded there is an unacceptable risk of contact with live equipment.
In RP4 there were 13 reported incidents where members of the public came into contact with live equipment through interference and unless these older assets are addressed, this is likely to increase in RP5.
The risk imposed by the expenditure level proposed is unacceptable.

Additional information provided	Discussion at workshop and conference call plus a one page document.

SKM Response to NIE T+D	Allowance based on SKM modelling which supports NIE proposed secondary switchgear replacement proposals but which also highlights NIE proposals to replace a significant number of 11/6.6kV GMT ahead of 'end of life'. Total amount reduced to adjust for inefficient indirect costs.
UReg View	SKM have identified that NIE's replacement of some secondary substation plant is resulting in a mean asset life 17 years shorter than the GB mean. They have recommended that we allow costs associated with removing and refurbishing these items rather than complete replacement.
Deliverables	Allowance based upon replacement of secondary switchgear/substation equipment consistent with NIE papers C8, C9, C10 and C11 together with adoption of appropriate and cost effective refurbishment of associated 11/6.6kV GMT. The replacement of almost 900 units of 11kV and 6.6kV switchgear and a limited number of associated transformers allowing for reuse of non-aged units at the majority of affected substations.

Final Determination	**£26,286,085.84**	Including consultancy costs of	**£1,431,512.14**
Fund	**Fund 1**		

Project 16 Distribution Cables

NIE Request	£4,948,000
Project Description	This project includes targeted cable replacement, extensive condition monitoring and refurbishment of fluid filled cables. Refurbishment will include examination and repair of cable accessories including joints, sealing ends, hydraulic systems and outer PVC sheaths.
Project Justification Satement	Certain cable assets, particularly fluid filled cables require intervention to allow them to remain in service. Other cables which are subject to frequent failures are no longer fit for service and require replacement. In other instances, cable terminations are prone to failure and require replacement to ensure satisfactory service into the future. Furthermore it is necessary to introduce enhanced methods of condition monitoring to establish deterioration trends.
Draft Determination	£1,731,800
NIE Response to Draft Determination	In paper E2 we have set out a strategic and modern approach to the management of our cable infrastructure. Our proposals include modest levels of cable replacement along with a number of condition monitoring and refurbishment proposals designed to maximise asset life while ensuring a safe and efficient network for customers. Our proposal to refurbish cable circuits using modern techniques and materials will significantly reduce environmental risk and the risk of committing an environmental offence and will ensure that maximum asset life is achieved. No explanation has been given by the Utility Regulator for disallowance. The replacement of Holywood West - Holywood East has been disallowed with an explanation from the Utility Regulator stating "scope not clearly defined". The primary driver identified in the Strategy Paper was network risk as a consequence of the exceptional depth that the cable is laid (c.4m). There is a heightened risk that failure of this cable will result in a prolonged outage to facilitate repair. The risk in this case is exacerbated particularly bearing in mind the topography of the circuit route and in the context of known problems of dielectric breakdown in mass impregnated cables of this vintage (Strategy paper E2 Section 2.2). There is no explanation given by the Utility Regulator for the disallowance of L42T terminations. A recent assessment of the leaking L42T terminations from recovered units at Carmoney Main has identified the main cause to be cement seal failure. This results in cable fluid oil entering the termination box and causing over pressurisation. Subsequently the gaskets and seals are overstressed leading to failure and subsequent leak. In certain instances (relative to the profile of the cable route and load profile of the circuit) the box can drain of fluid which can result in live 33kV copper connections being exposed to air, which increases the risk of flashover. This type of failure has been documented within the ENA NEDeRS. No explanation has been given by the Utility Regulator for a 50% reduction in Condition Monitoring expenditure. Is the 50% reduction being challenged on cost or need? In the absence of a strategic replacement policy for 33kV cables this allowance is critical to asset life extension and risk mitigation. No explanation has been given by the Utility Regulator for disallowance of the refurbishment/replacement of outdoor cable terminations. A catastrophic failure of a porcelain termination is extremely dangerous to both staff and public. The

directors' enquiry into the porcelain sealing end failure at Castlereagh described shards of razor sharp porcelain being strewn over a wide spread area.
The explanation by the Utility Regulator for a 30% reduction in the allowance for 11&6.6kV cables is stated as "not enough information provided to allow full work".
Total allowance from the Utility Regulator for this category is only £351k (sufficient to replace only 4.6km of cable). Details of specific areas/circuits have been given in the strategy paper including detail of condition issues.
The explanation by the Utility Regulator for a 30% reduction in the allowance for LV Cable replacement is stated as "not enough information provided to allow full work".
The total allowance for this category is £347k (sufficient to replace only 4.25km of cable replacement). This does not even cover the replacement of non-conforming VB cable estimated at £516k (equivalent to 6km of replacement). VB main is now over 100 years old and does not have a metallic sheath making it non-compliant with modern day standards or ESR 1988.
The disallowances proposed are unjustified and unacceptable.

Additional information provided	Details associated with the scope, timing and need for one scheme.
SKM Response to NIE T+D	Allowance based on SKM modelling which supports NIE proposals.
UReg View	SKM asset replacement modelling supports the amount requested by NIE.
Deliverables	Allowance based upon replacement of distribution cables and refurbishment of associated equipment corresponding to approximately 36 circuit km.

Final Determination	**£5,230,132.90**	Including consultancy costs of	**£282,132.90**
Fund **Fund 1**			

Project 17 Distribution Fault & Emergency

NIE Request	£12,939,775
Project Description	This investment provision is for capital work associated with unanticipated fault and emergency work associated with the 33kV, 11kV, 6.6kV and LV networks which results in capitalised works.
Project Justification Satement	The NIE network experiences a steady state volume of faults due to a number of causes; inclement weather (wind, snow, lightning), falling trees, bird strikes, 3rd party accidental damage, deterioration due to ageing or wear, vandalism etc. These failures generally result in interruption to electricity supply to customers. The investment level proposed for RP5 reflects RP4 level outturn experience on a range of reactive investments relating to faults on the overhead network, underground cable system, meter board faults and plant failures on the 33kV, 11kV, 6.6kV and LV networks.
Draft Determination	£12,939,775
NIE Response to Draft Determination	
Additional information provided	
SKM Response to NIE T+D	Total amount reduced to adjust for inefficient indirect costs.
UReg View	Included in the overall "pot" for works with no measurable output. The amount reflects the outturn for RP4, however with increased spend on both planned programmes and ESQCR, there is potential for this to reduce in RP6.
Deliverables	The investment level proposed for RP5 reflects RP4 level outturn experience on a range of reactive investments relating to faults and other unplanned investments on the overhead network, underground cable system, meter board faults and plant failures on the 33kV, 11kV, 6.6kV and LV networks but will be subject to appropriate auditing during the course of RP5.

Final Determination	**£12,810,377.25**	Including consultancy costs of	**£0.00**

Fund **Fund 1: Input driven item**

Project 18 Distribution Reactive

NIE Request	£10,741,578
Project Description	The investment plan includes a category of expenditure which includes for a range of works which are not specifically identified under the planned programmes of work. The work is generally reactive to unplanned events, inspections, defect reports and failure investigations and in response to customer requests. It also includes for other services required to support the programmes of work including provision of mobile generators, workshop services and management costs associated with excavation and reinstatement.
Project Justification Satement	This reactive investment can either; • result in a new programme of work on assets not previously identified for investment during the period; • relate to assets which have failed early; • result in an interim refurbishment programme until full replacement programme address the requirements in full; This expenditure can be categorised as; • Defect rectification – treatment of urgent defects identified through inspection programmes resulting in replacement or refurbishment of assets. • Minor unanticipated refurbishment at Distribution sites as a result of defects, failures or inspections resulting in minor projects or programmes. • Reactive works identified as a result of customer queries and reports • Workshop activities relating to the plant refurbishment for the capital programme • Provision of mobile generation to minimise customer downtime during distribution substation programmed work The investment level proposed for RP5 reflects RP4 level outturn experience.
Draft Determination	£10,741,578
NIE Response to Draft Determination	
Additional information provided	N/A
SKM Response to NIE T+D	Total amount reduced to adjust for inefficient indirect costs.
UReg View	Included in the overall "pot" for works with no measurable output
Deliverables	No specific deliverables, by definition this covers remedial works that are not identified at this time.

Final Determination	**£10,634,162.22**	Including consultancy costs of	**£0.00**
Fund	**Fund 1: Input driven item**		

Project 19 Storms

NIE Request	£2,600,000
Project Description	The investment plan includes a category of expenditure for the capitalised costs associated with storms on the network. This includes the costs of restoration of supplies though replacement of conductors, overhead line components, substation assets and repairs to underground cable faults. This investment category covers for the occasions where due to the severity of the weather, NIE escalates its Incident Centre to manage such an event (smaller events managed under Distribution Fault and Emergency investment category).
Project Justification Satement	The NIE network and the overhead network in particular is subjected to adverse weather which can result in disruption to customers' supplies. Under severe wind, lightning and snow conditions, faults are inevitable due to the significant dispersed overhead line network that comprises 70% of the distribution system. NIE's escalation plan is put into effect when wind gusts are expected to reach 45kts. The extent of damage on the network depends on a number of factors such as wind gusts, wind direction, time of year, duration etc. Experience has shown that it takes a storm with gusts in excess of 50kts before significant numbers of faults are experienced with the majority of the damage being due to the impact of wind borne debris and falling trees. Ice accretion (build up of ice on overhead conductors) has been a significant issue over the past 2 winters when temperatures down to -20 C were recorded. The weight of ice during ice accretion accompanied by high winds can result in overhead conductors falling. In addition the network experiences unplanned outages due to lightning which can cause damage and failure to overhead connected transformers, cable terminations and switchgear. The investment level proposed for RP5 is based on the average cost of escalated storm events since 2003. It excludes the costs of 'Exceptional' weather events such as the Storm of Boxing Day 1998 or the Easter Ice Storm of 2010. NIE has proposed a 'Force Majeure' condition should apply in these situations and that costs of these events would be recovered outside the regulatory settlement for RP5.
Draft Determination	£0
NIE Response to Draft Determination	The Utility Regulator in its assessment appears to recognise the requirement for such costs but has disallowed the proposed expenditure on the basis that it expects them to be managed within the Reactive and F&E allowance. This category of investment includes the cost of restoration of supplies though replacement of conductors, overhead line components, substation assets and repairs to underground cable faults from the effects of severe weather. This investment category covers for the occasions where due to the severity of the weather, NIE escalates its Incident Centre to manage such an event (smaller events are managed under the Distribution Fault and Emergency investment category). The NIE network and the overhead network in particular is subject to adverse weather which can result in disruption to customers' supplies. Under severe wind, lightning, snow and ice conditions, faults are inevitable due to the significant dispersed overhead line network that comprises 70% of the distribution system. NIE's escalation plan is put into effect when wind gusts are expected to reach 45 knots. The extent of damage on the network depends on a number of factors such as wind gusts, wind direction, time of year, duration etc. Experience has shown that it takes a storm with gusts in excess of 50 knots before significant numbers of

faults
are experienced with the majority of the damage being due to the impact of wind borne debris and falling trees. Ice accretion (build up of ice on overhead conductors) has been a significant issue over the past 2 winters. The weight of ice during ice accretion accompanied by high winds can result in overhead conductors falling. In addition the network experiences unplanned outages due to lightning which can cause damage and failure to overhead connected transformers, cable terminations and switchgear.
NIE has evidence that the network is being subjected to more severe weather events and storms are happening more often. During RP3, NIE experienced 18 storm escalations compared to 38 in RP4. NIE experienced three 'exceptional' weather events during RP4:
• the March 2010 ice storm;
• the January 2009 wind storm; and
• the ice accretion in December 2011.
The investment level proposed for RP5 is based on the average cost of escalated storm events from 2003 to 2009 (year of submission). It excludes the costs of 'Exceptional' weather events such as the Easter Ice Storm of 2010. NIE has proposed a 'Force Majeure' condition should apply in these situations and that costs of these events would be recovered outside the regulatory settlement for RP5.
The Utility Regulator's proposal is not acceptable as the Reactive and F&E allowance is again based on historic run-rate expenditure to cover reactive asset replacement and normal day to day fault and emergency activity. The Utility Regulator has made a token allowance within R&M for approx 60% of what was requested based on run rate.
The Utility Regulator has not recognised the significant costs associated with NIE's storm response costs. In addition, the Utility Regulator has appeared not to have recognised the potential impact of 'Exceptional weather events' resulting in a significant burden of risk on NIE to manage within a capped allowance

Additional information provided	Paper on storm costs. Discussion at workshops.
SKM Response to NIE T+D	The proposed expenditure on storm costs is presented in Strategy Paper ' T&D Capital Investment Requirements for RP5 – ref 0004 28 January 2011' Appendix C4. 20% of this figure (£520K) is allowed to cover the uplift between normal unit replacement costs and replacement costs during storms. However, no allowance is given for the asset units to be replaced as the extent of NIE overhead line work over the lifetime of the asset (e.g. TAR, refurb, replacement) is already sufficient to cover all the cost of whole lifet maintenance and replacement activities.
UReg View	We will allocate the additional costs due to asset replacement (20% uplift) to the overall "pot" with no outputs. The assets replaced should be counted under the relevant asset replacement programme. "With regard to storms with total costs over £1m, NIE proposed that a 'Force Majeure' arrangement should apply whereby costs would be presented and recovered on a case by case basis. NIE welcome the comment at the meeting from the Utility Regulator Director that this seemed a sensible approach." do we agree with this? We need to add it to the licence if we do?
Deliverables	Included in "pot" with no tangible outcomes.

19 Storms

Final Determination	**£520,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1: Input driven item**		

Project 20 Distribution Design & Consultancy

NIE Request	£6,676,389
Project Description	This investment category covers for the direct cost associated with Distribution substation design and project management of capital projects and for certain projects, the use of specialised substation design consultancy.
Project Justification Satement	The majority of NIE's design capability is in-house and the cost of this in-house design and project management is collated and apportioned directly to the respective capital projects. In addition to NIE's internal design capability, NIE utilises the services of a number of specialised design consultants for production of high level and detailed substation designs. The investment level proposed is based on current RP4 period outturn costs with allowance made for the increased capital programme on distribution substation projects in RP5.
Draft Determination	£0
NIE Response to Draft Determination	The Utility Regulator has treated this category of expenditure along with the other overhead cost categories; • T23 Transmission Design & Consultancy • T41 Transmission Capitalised Overheads • D12 Distribution Overhead Lines Fixed Costs • D45 Distribution Capitalised Overheads The Utility Regulator has scaled back these indirect costs on a linear basis to its proposed level of capital expenditure resulting in a determination of 35% of that requested. This investment category covers for the direct cost associated with Distribution substation design and project management of capital projects and for certain projects, the use of specialised substation design consultancy. The majority of NIE's design capability is in-house and is apportioned directly to the respective capital projects. In addition to NIE's internal design capability, NIE utilises the services of a number of specialised design consultants for production of high level and detailed substation designs. The investment level proposed is based on the current RP4 period outturn costs with allowance made for the increased capital programme on distribution substation projects in RP5. In the Utility Regulator's calculations, it has made an error and has omitted to include one of the five classes of indirect costs - the costs associated with distribution design and project management - and thus their analysis is flawed. Indirect costs can be classified into the 3 separate categories (as defined in Ofgem's RIGs glossary8): • Closely Associated (Engineering) - these costs can be regarded as broadly linear with the quantum of work on the network i.e. The number and complexity of the projects and programmes of work. • Closely Associated (Other) - these costs are generally non- linear with some costs being generally fixed costs and others subject to step change depending on the size and scope of the work programme. • Business Support Costs - these costs are not directly or indirectly proportional to the level of investment or quantum of work on the network but support the networks business Given that indirects can be fixed, variable and step in nature, it is thus not appropriate for the Utility Regulator to apply a general linear scaling back based

	on the level of capital investment. NIE has calculated that based on the level of proposed capex by the Utility Regulator, the level of indirects in these categories should be more than double what it has proposed. It is not possible for NIE to plan, design and deliver the programme of works within this proposed allowance. Until a final level of capital investment has been agreed, NIE would request that the Utility Regulator revisits the issue of indirects to arrive at a sensible level based on the specific nature of these costs.
Additional information provided	Details of amounts per project
SKM Response to NIE T+D	Design and consultancy costs reallocated to individual projects.
UReg View	Allocated to individual projects and included within each item. No seperate approval required.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1: Input driven item**		

Project 21 Post Storm Repairs

NIE Request	£2,000,000
Project Description	On Tuesday 30 March 2010, Northern Ireland suffered a period of extreme weather causing significant disruption and damage to the electricity network and due to the extent of the damage restoration of supply to customers was a long and very demanding process spread over six days. The weight of the accumulated snow stressed both conductors and poles beyond design specifications in many cases causing failure. In other cases, conductor has been permanently stretched, poles are off plumb and stays have been pulled partly through the ground. These issues require to be addressed to ensure continued compliance with statutory obligations.
Project Justification Satement	The worst affected areas included the greater Cloughmills region of North Antrim where there was damage at multiple locations on every 11kV circuit within an area of 270 square miles which necessitated extensive repair and rebuilding of the overhead line infrastructure. There are more than 8,000 customers in the affected area. In the period following the storm, 1558 km of overhead line and 115km of 33kV overhead line in the greater Cloughmills area were patrolled. These patrols identified 56 further locations of significant and potentially dangerous defects. All of these defects were subsequently addressed. However, a substantial number of other sites were identified where conductors were permanently stretched. Some of these overhead line sites are more than 1km in length. Non-completion of this remedial work would carry the following risks: • It is highly probable that there are spans where the actual sag is not compliant with the designed values. At these locations it is possible that given a certain set of weather parameters, the minimum stipulated ground clearance may not be met; and • It is also highly probable that most of the 25mm2 conductor has been stretched to the extent that its future sag performance and storm resilience cannot be predicted. It is therefore likely that under moderate electrical or mechanical load, the conductor will fail catastrophically. This work would have to be carried out in parallel with the other overhead line asset replacement programmes due to its nature. However, it will be necessary to closely monitor the condition and performance of this area of network over the medium to long term.
Draft Determination	£0
NIE Response to Draft Determination	Expenditure of £2m on Post Storm Repairs is required to ensure compliance with statutory obligations. The work needs to be completed in parallel with the refurbishment programmes since the intensity of this work is substantially different to that carried out under the overhead line asset replacement programmes. The Utility Regulator has not recognised the legitimacy of such costs and the fact that post storm repairs have a significantly higher work content than refurbishment.

21 Post Storm Repairs

Additional information provided	Details of overlaps with other works
SKM Response to NIE T+D	No specific allowance required works should be covered under other projects.
UReg View	SKM have recommended that this work should be included within the overall asset replacement allocation and that a seperate amount is not required. We concur.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1**		

Project 22 Airport Road/ Titanic Quarter

NIE Request	£2,260,000
Project Description	This project is to extend the existing 33/6.6kV substation site at Airport Road and establish a new 110/33kV substation to meet the future demands of the Belfast harbour estate and Belfast City Centre. The new substation will incorporate 2 new 110/33kV transformers and 33kV indoor switchgear. This 33kV distribution project is linked with the associated 110kV transmission project.
Project Justification Satement	Growth in electrical demand associated with the development of the Titanic Quarter at Queens Island, Belfast Harbour Estate, Bombardier and Belfast city centre is forecast to add approximately 20MVA to the 33kV network by 2017. The existing 33kV city centre network is already operating at 90% of its firm capacity during times of peak load. The distribution network supplying the harbour estate and Titanic site is also approaching capacity limits. Customer contributions have allowed the development of the local infrastructure but deep reinforcement, in the form of a new 110kV injection point, is now required if network security and compliance with license standards are to be maintained.
Draft Determination	£1,130,000
NIE Response to Draft Determination	NIE does not accept that the Utility Regulator's proposals will lead to a satisfactory solution to the overloading issues that need to be addressed in the centre and east Belfast networks. Conversely, we believe they will lead to nugatory network expenditure and frustration for connection applicants. Taking the Utility Regulator's approach, NIE would be required to continue adding demand until an application was received that had the potential to "break the camel's back". At that point, irrespective of the size of the demand that applicant would be required to fund all of the deep reinforcement. Clearly, unless the proposed increased demand was associated with a facility that was sufficiently significant to fund the reinforcement this will lead to a major impediment to development within the area. One also needs to be mindful that present connection charging arrangements require NIE to make connection offers that limit charges to one voltage level up. This means that customers that connect new or additional demand to the LV network cannot be charged for 33kV reinforcement. Similarly customers that connect new or additional demand to the 11kV network cannot be charged for transmission reinforcement. Smaller prospective customers may accept the connection charges associated with an LV connection and possibly even for 11kV assets needed to make the connection. However the consequences of this are that: • the network will become loaded above firm relatively quickly; and secondly • the distribution network will develop in a piecemeal fashion that will be less than optimmal when the network is reinforced by a new transmission substation in due course. NIE is strongly of the view that the proposed development is optimum and there is sufficient justification to proceed as soon as possible to address the various loading issues that are present in the network between Rosebank, Mountpottinger and Knock Main substations. However, if the Utility Regulator considers it necessary to allow connection applications to be made and to be addressed or to wait until system loading is unacceptably high with the consequential less than optimum distribution development, then we would suggest that this project be moved from Fund 2 to the NIE Pot 3 /Utility Regulator Fund 3 for specific approval by the Utility Regulator before proceeding.

22 Airport Road/ Titanic Quarter

Additional information provided	Details of the the need for the scheme and the probable solution (provided under T27 the transmisison part of the project). Details of how NIE apply the connection charging policy to new or additional load.
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%. Total amount reduced to adjust for inefficient indirect costs.
UReg View	The timing of this project is uncertain, as is the amount that would be chargable to individual demand customers. We acknowledge that some work is likely to be required here towards the end of RP5 (probably carrying over into RP6). Half of the amount requested has been included for tariff purposes, with the option to log up or down based on the outturn. This is reflected in the transmission decision also.
Deliverables	This 33kV distribution project is linked with an associated 110kV transmission project which involves the construction of a second 110/33kV Bulk Supply Point at the existing Dungannon Main substation site. The existing demand will be shared across the two substations.

Final Determination	**£1,247,564.00**	Including consultancy costs of	**£128,863.80**
Fund	**Fund 2**		

Project 23 Creagh/ Maghera/ Magherafelt 33kV system

NIE Request	£2,770,000
Project Description	This project involves the construction of two new 33kV wood pole overhead line 200mm2 circuits from Creagh Central to Maghera North. Also included is the rebuild of the two 33kV wood pole overhead line circuits from Creagh Central to Magherafelt West from 75mm2 to 200mm2 ACSR.
Project Justification Satement	Peak demand on the 33kV network supplying the substations of Maghera North and Draperstown is already approaching 118% of firm capacity. The remoteness of the two sites from the existing bulk supply point, Ballymena Main, also results in low voltage under resupply conditions. Load growth at Magherafelt West will result in the network operating at 122% of firm capacity by 2017. Permanent transfer of load to Creagh Main will improve voltage performance due to the shorter circuit lengths, maintain resupply capability within license standards and will provide load relief at Ballymena Main mesh.
Draft Determination	£2,770,000
NIE Response to Draft Determination	
Additional information provided	None required
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%. Total amount reduced to adjust for inefficient indirect costs.
UReg View	The need for this project was clearly demonstrated before the draft determination (based on P2/5). This will be subject to review under the updated planning standards, if internal approvals are not complete before the new standards are accepted by Ureg.
Deliverables	Construction of two new 33kV wood pole overhead line 200mm2 circuits from Creagh Central to Maghera North. Also included is the rebuild of the two 33kV wood pole overhead line circuits from Creagh Central to Magherafelt West from 75mm2 to 200mm2 ACSR. Project outlined in paper A2.

Final Determination	**£2,828,225.00**	Including consultancy costs of	**£157,944.60**
Fund	**Fund 2**		

Project 24 Cookstown 33kV system reinforcement

NIE Request	£2,340,000
Project Description	This work consists of 2 elements. The first involves the creation of a cable interconnection between Cookstown Cement Works and Cookstown South. The second involves construction of a new 33kV wood pole overhead line from Creagh Central to Coagh West.
Project Justification Satement	Cookstown is supplied from Dungannon Main via two separate 33kV systems. Existing peak demand is 99% of the firm capacity of one system and 91% of the second. The small amount of load growth forecast for RP5 will result in overload, voltage regulation problems and non-compliance with licence standards. The preferred solution is to lay a cable interconnection between Cookstown Cement Works and Cookstown South to allow the two systems to support each other and to provide additional load relief by transferring Coagh West to Creagh Main.
Draft Determination	£0
NIE Response to Draft Determination	NIE is concerned that there is a misunderstanding of the risk being addressed as the Utility Regulator's Draft Determination makes reference to p16 of NIE's January 2011 submission as justification of their position. This section of NIE's submission refers solely to the utilisation of NIE's 33/11kV transformers. The issue, as clearly set out in NIE's submission (January 2011) and subsequent response to further Utility Regulator questions, was not a concern about transformer overloading but a concern that the 33kV network supplying the town of Cookstown was operating at 99% of its firm capacity9. This is a critical network supplying almost 20,000 customers in the Cookstown area and with growth in the area forecast to take the network over firm early in RP5, NIE made provision for capital investment in the submission. Analysis shows the demand10 at Cookstown having increased by approximately 3.4% since 2010 which is broadly in line with NIE's forecast. Based on this recent peak demand data, the Cookstown 33kV network is now operating at 103% of firm rating. If demand continues to grow at present rates it is predicted that the network will be over firm by 111% for a significant period of the year by the end of RP5.
Additional information provided	Actual demand data and forecasts for this zone. Details of new loads in the area. Network diagrams indentifying the lines overloaded in N-1 scenario.
SKM Response to NIE T+D	Latest demand forecasts demonstrate project need as future point loads materialise. Issues relating to the NIE demand forecasting methodology have been satisfactorily addressed within D4.4 Cookstown 33kV Network.doc . Explanation addresses outstanding issues in relation to:(1) the use of non simultaneous maximum demands to assess aggregate demands. (2) reviewing load duration curves to demonstrate the number of hours of non compliance. Notwithstanding not using weather correcting historic demands prior to using linear regression a need for this project has been demonstrated using the load duration curve derived by using symultaneous maximum demands in 2011/12. Total amount reduced to adjust for inefficient indirect costs.

24 Cookstown 33kV system reinforcement

UReg View	Need accepted - but project can be logged down if the new loads do not materialise and/or the need is not demonstrated when the updated standards are applied (subject to timing of approvals of new standards by UReg and approval of investment by NIE Exec)
Deliverables	This work consists of 2 elements. The first involves the creation of a cable interconnection between Cookstown Cement Works and Cookstown South. The second involves construction of a new 33kV wood pole overhead line from Creagh Central to Coagh West. Project outlined in paper A2.

Final Determination	**£2,431,954.00**	Including consultancy costs of	**£133,425.90**
Fund	**Fund 2**		

Project 25 Rosela 33/11kV substation

NIE Request	£700,000
Project Description	This project is to establish a new single transformer radial fed 33/11kV substation in the rural area between Donagh and Roslea villages and create three 11kV overhead circuit in-feeds into the local distribution network. A 6.5km section of existing 11kV overhead network out of Lisnaskea Central will be reinsulated to 33kV construction and a further 5.5km of new 33kV overhead line will be constructed to the new substation location. The 33kV supply to the new substation will be from Enniskillen Main via Lisnaskea Central.
Project Justification Satement	The 11kV network supplying the areas around the four villages of Roslea, Magheraveely, Donagh and Newtownbutler is presently operating at the limits of its capacity. Network investment is required to provide adequate network resupply capability and to maintain statutory voltage levels under normal operating conditions.
Draft Determination	£0
NIE Response to Draft Determination	Our original submission confirmed that the 11kV network in the border area around Newtownbutler is already operating at statutory limits during normal system configuration and that resupply within NIE's licence standard can only be achieved by dropping 1MW of customer load for the duration of repairs. I.e. the network is already operating overfirm. Our paper A2 – 33kV Distribution Network said – "The rural villages of Donagh, Roslea, Newtownbutler and Magheraveely are situated in the south east of County Fermanagh, close to the border with the Republic of Ireland. The 11kV network supplying customers in this area is experiencing poor voltage levels under normal system operating conditions. Resupply availability is inadequate at peak load times." In aiming to minimise investment requirements in RP5, NIE has already planned to defer part of the necessary investment until year 1 of RP6. However, the investment planned in RP5 includes an element of 11kV line rebuild and reconfiguration of the network at Lisnaskea to provide an interim improvement and will enable 11kV network reinforcement associated with the new substation proposal to be undertaken. This will provide an interim improvement in voltage levels to ensure compliance with statutory regulations. It is proposed to manage the risk in two stages, the first stage (£700k) being necessary in RP5. Without intervention, and with only marginal increases in demand on any of the 11kV circuits in the area, NIE will be in breach of licence standards. The Utility Regulator has proposed to manage this issue by targeting the area for the first phase of any smart meter rollout, demand side management programme or smart grid trial. It is not clear to what extent this suggestion has been considered fully in light of the particular issues presented in this area. In NIE's view this suggestion is impractical both in terms of the load profile and the extent of deficiencies experienced by this network. The load profiles of the 11kV rural circuits in this area are relatively flat and therefore the use of such schemes targeted at peak reduction would have minimal impact on the network issues experienced.
Additional information provided	Actual demand data and forecasts for this zone. Network diagrams indentifying the lines overloaded in N-1 scenario.

25 Rosela 33/11kV substation

SKM Response to NIE T+D	Latest 2011-12 system loads demonstrate project need. Evidence (Q4.5-D25 – Rosella New Sub) demonstrates project need based upon 2011/12 load duration curve with circuit capacity under NSO exceeded for more than 700 hours. Total amount reduced to adjust for inefficient indirect costs.
UReg View	Need has been established under current planning standards. NIE have schedlued this for the end of RP5. Therefore the updated standards should be applied before final approval. Potential to log down spend if not required under new standards or to log up if required to be completed before end of RP5. NIE submission assumed 50% completion during RP5.
Deliverables	A cost of £1.32 million to establish a new single transformer radial fed 33/11kV substation in the rural area between Donagh and Roslea villages and create three 11kV overhead circuit in-feeds into the local distribution network. A 6.5km section of existing 11kV overhead network out of Lisnaskea Central will be reinsulated to 33kV construction and a further 5.5km of new 33kV overhead line will be constructed to the new substation location. The 33kV supply to the new substation will be from Enniskillen Main via Lisnaskea Central.a new 33/11 kV substation in the rural area east of the village of Donagh. £0.7 million of the £1.32 million would be spent within RP5.

Final Determination	**£733,794.00**	Including consultancy costs of	**£39,914.10**
Fund	**Fund 2**		

Project 26 Castlederg 33/11kV substation

NIE Request	£1,160,000
Project Description	This project reinforces the distribution network at Castlederg substation by providing a second 33kV supply to the substation from the existing Omagh Main to Ardstraw 33kV overhead line network. A second 33/11kV transformer will be installed requiring extension to the existing 11kV switchboard and both of the measures will increase security of supply to this area.
Project Justification Satement	The existing Castlederg substation consists of a single 33/11kV transformer and 33kV overhead line feed. In the event of an outage on the transformer or 33kV overhead line, resupply to customers is via the 11kV network. Recent load growth in the area has resulted in the inability of the 11kV network to resupply the demand and maintain voltage within statutory limits at times of peak load. Demand growth is forecast to continue and the establishment of a second 33kV in-feed is required to maintain resupply capability within licence standards.
Draft Determination	£0
NIE Response to Draft Determination	The issue, as clearly set out in NIE's submission (January 2011) and subsequent response to further Utility Regulator questions, was not a concern about transformer overloading but the fact that Castlederg is a single 33/11kV transformer substation with limited resupply capacity through the 11kV network. NIE has previously demonstrated that in the event of an outage on the 33/11kV transformer or 33kV circuit, full resupply to Castlederg is not possible through the 11kV network. Based on recent demand data11, the peak load is now 162% of firm rating (11kV resupply capability) and is over firm for a significant period of the year. At present overload is only avoided by dropping 1MW of load for the duration of an outage as permitted by the Licence standards. Consequently, should the existing transformer fail, a significant section of Castlederg town will be off supply until the transformer is repaired or replaced.
Additional information provided	Actual demand data and forecasts for this zone. Network diagrams indentifying the lines overloaded in N-1 scenario.
SKM Response to NIE T+D	Additional evidence provided within 4.6-D26 demonstrates the demand is above firm. The period when demand is above P2/5 licence standards (i.e. resupply group demand less 1MVA for repair time) is approximately 500hrs per annum. Total amount reduced to adjust for inefficient indirect costs.
UReg View	Need accepted - but project can be logged down if the need is not demonstrated when the updated standards are applied (subject to timing of approvals of new standards by UReg and approval of investment by NIE Exec)
Deliverables	A second 33/11kV transformer installed at Castlederg South. A second 33kV feed will be established by diverting an existing overhead line from Omagh Main. The 33kV mesh will be extended to accommodate the additional equipment and an auto-changeover scheme will be installed as shown in Diagram 7.2 of paper A2.

Final Determination	**£1,208,119.00**	Including consultancy costs of	**£66,142.80**
Fund	**Fund 2**		

26 Castlederg 33/11kV substation

Project 27 Dungannon Main - new 33kV Switchboard

NIE Request	£1,120,000
Project Description	This project involves the construction of a second 110/33kV Bulk Supply Point at the existing Dungannon Main substation site. The existing demand will be shared across the two substations. This 33kV distribution project is linked with associated 110kV transmission project.
Project Justification Satement	This project is primarily the distribution element associated with a transmission driven project. Demand at the Dungannon BSP site has increased causing a potential overload of the existing transformers under an N-1 scenario. Peak site demand is also approaching the rating of the existing 33kV switchboard. A second BSP will be established on the same site to supply the 33kV network feeding north towards Cookstown.
Draft Determination	£1,120,000
NIE Response to Draft Determination	
Additional information provided	None - was originally approved in DD. Details of N-2 scenario at transmission level (T32).
SKM Response to NIE T+D	RP5 DD allowance 100%. However this project is the distribution element of a transmission related project T32 which has been dissallowed. Hence this is dissallowed.
UReg View	SKM do not consider the need for associated transmission project to have been established as the N-2 scenario is not credible, therefore this project is no longer allowed. However, the project can be logged up if the circumstances change and the updated planning standards are applied.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 28 Tullyvannon 33/11kV substation

NIE Request	£560,000
Project Description	A new single transformer radial fed 33/11kV substation will be established in the rural area between the existing Ballygawley and Tullyaran substations. This will be connected to the existing 33kV Dungannon Main to Ballygawley South circuit by 1km of 100mm2 overhead line. This enables the creation of two new overhead line in-feeds to the 11kV network.
Project Justification Satement	The 11kV network supplying the rural area between the existing substations of Ballygawley and Tullyaran is presently operating at the limits of its capacity. Although a predominantly rural location, a number of specialised engineering companies are based in the area. This has led to a continuing growth in electrical demand. Network investment is therefore required to provide adequate network resupply capability and to maintain voltage levels under normal operating conditions in accordance with statutory obligations.
Draft Determination	£560,000
NIE Response to Draft Determination	
Additional information provided	None requested - sufficient provided prior to DD
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%. Total amount reduced to adjust for inefficient indirect costs.
UReg View	Need accepted - but project can be logged down if the need is not demonstrated when the updated standards are applied (subject to timing of approvals of new standards by UReg and approval of investment by NIE Exec).
Deliverables	A new single transformer radial fed 33/11kV substation will be established in the rural area between the existing Ballygawley and Tullyaran substations. This will be connected to the existing 33kV Dungannon Main to Ballygawley South circuit by 1km of 100mm2 overhead line. This enables the creation of two new overhead line in-feeds to the 11kV network.

Final Determination	**£585,091.00**	Including consultancy costs of	**£31,931.10**
Fund	**Fund 2**		

Project 29 Brookhill 33kV reinforcement

NIE Request	£550,000
Project Description	This project involves the rebuilding of both 33kV overhead circuits between Lisburn Main and Brookhill Central substation with 200mm2 ACSR conductor. These circuits are 9.5 km in length.
Project Justification Satement	Under an N-1 scenario at peak load conditions, the overhead line supplying Brookhill Central substation is loaded to its maximum thermal rating. Transfer of demand to other sections of the network is not possible due to the limitations of the existing rural overhead network. Consequently, rebuilding with a larger conductor with suitable capacity is the optimum solution for continued compliance with license standards.
Draft Determination	£550,000
NIE Response to Draft Determination	
Additional information provided	None requested - sufficient provided prior to DD
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%. Total amount reduced to adjust for inefficient indirect costs.
UReg View	Need accepted - but project can be logged down if the need is not demonstrated when the updated standards are applied (subject to timing of approvals of new standards by UReg and approval of investment by NIE Exec)
Deliverables	Rebuilding of both 33kV overhead circuits between Lisburn Main and Brookhill Central substation with 200mm2 ACSR conductor. These circuits are 9.5 km in length.

Final Determination **£561,561.00** Including consultancy costs of **£31,361.40**

Fund **Fund 2**

Project 30 Belfast North Main 110/33kV Substation

NIE Request	£910,000
Project Description	This project covers the completion of works associated with the construction of a new 110/33kV substation at Whitla Street, Belfast which commenced in RP4. On the 33kV side, a new 14 panel switchboard will be installed and connected to the local 33kV distribution network. This 33kV distribution project is linked with an associated 110kV transmission project.
Project Justification Satement	In RP4 capital was approved for the construction of a new 110/33kV BSP at Whitla Street, Belfast. Work progressed during RP4 but certain elements remain to be completed including the installation of a new 33kV switchboard and connection of the outgoing circuits.
Draft Determination	£910,000
NIE Response to Draft Determination	
Additional information provided	None requested - project has commenced
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%
UReg View	Carry over from RP4. Logging up/down required based on timing of spend during RP4, RP4 extension and RP5. Reporter to audit at end of year 1.
Deliverables	The completion of works associated with the construction of a new 110/33kV substation at Whitla Street, Belfast which commenced in RP4. On the 33kV side, a new 14 panel switchboard will be installed and connected to the local 33kV distribution network. This 33kV distribution project is linked with an associated 110kV transmission project (T36).

Final Determination **£961,887.70** Including consultancy costs of **£51,887.70**

Fund **Fund 2**

Project 31 Granville 33kV reinforcement

NIE Request	£310,000
Project Description	This project involves the rebuilding of the 6km 33kV overhead resupply circuit between Dungannon Main and Granville Central substation with 200mm2 conductor.
Project Justification Satement	Granville Central is supplied on a single 33kV circuit from Dungannon Main with resupply from an alternative Dungannon Main circuit through an auto changeover scheme. The peak electrical demand at Granville has now reached the rating of the 75mm2 resupply circuit. Load growth at the site is set to continue and therefore reinforcement of this circuit is required if adequate resupply capability is to be maintained in accordance with licence standards.
Draft Determination	£0
NIE Response to Draft Determination	NIE is concerned that there may be a misunderstanding of the risk being addressed, as clearly set out in NIE's submission (January 2011) and subsequent response to further Utility Regulator questions. Moreover, our latest assessment suggests that this risk is actually greater than was indicated in our earlier submission due to voltage issues. NIE has previously demonstrated that the peak load under N-1 conditions was already at 102% of the thermal rating12 of the resupplying conductor and firm capacity was not adequate. However, our more recent analysis into the limitation imposed by statutory voltage levels13 under N-1 conditions now shows the peak demand to already be 138% of firm capacity and over-firm for a significant period of the year.
Additional information provided	Demand data and circuit diagrams - but no load duration curve.
SKM Response to NIE T+D	Latest Demand Forecast relating to 2011-12 (Q4.7 - D31) demonstrates project need under N-1 conditions with a circuit loading of 398A (23.5MVA) and rating of 284A (16.2MVA). However NIE have not demonstrated how many hours within a year the circuit will be over 100%. i.e. provided a load duration curve. Can be logged up but funding is subject to further justification and evaluation if p2/5 is updated.
UReg View	Need currently not justified. Potenital to log up if assessment under the updated planning standard demonstrates a significant number of hours outside standard for n-1 conditions. Note - concern about NIE using non-symultaneous demands here given that the food processing plants in the area will have higher demands in summer due to refridgeration strongly influencing their load patterns.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 32 Strand Road 33kV reinforcement

NIE Request	£350,000
Project Description	This project involves the replacement of the remaining sections of 185mm2 cable between Springtown Bulk Supply Point (BSP) and Strand Road with 240mm2 cable totalling 1.3km. This enables the transfer of Strand Road from Lisaghmore BSP to Springtown BSP.
Project Justification Satement	The existing demand at Strand Road substation has now reached the firm capacity of the 185mm2 cable supplying the site from Lisaghmore BSP. Alternative circuits from Springtown BSP also have of 185mm2 cable but a significant length has already been replaced with 240mm2 cable. The lower cost solution is to replace the remaining sections of 185mm2 cable in the Springtown circuits and transfer Strand Road substation to the relatively new Springtown BSP. This will ensure on-going network security and compliance with licence standards.
Draft Determination	£350,000
NIE Response to Draft Determination	
Additional information provided	None required - sufficient information provided prior to DD
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%
UReg View	Need demonstrated and unlikely to be affected by review of planning standards.
Deliverables	This project involves the replacement of the remaining sections of 185mm2 cable between Springtown Bulk Supply Point (BSP) and Strand Road with 240mm2 cable totalling 1.3km. This enables the transfer of Strand Road from Lisaghmore BSP to Springtown BSP.

Final Determination	**£369,956.60**	Including consultancy costs of	**£19,956.60**
Fund	**Fund 2**		

Project 33 Gallaghers 33kV reinforcement

NIE Request	£270,000
Project Description	This network reinforcement project involves the replacement of the 1.5km section of 75mm2 overhead line conductor between Ballymena Main and Gallaghers with 240mm2 cable.
Project Justification Satement	Gallaghers and Ahoghill Central are supplied on a 33kV ring out of Ballymena Main. Demand has now increased to a level where a section of 75mm2 overhead conductor has reached the limits of its capacity under resupply conditions. The line traverses urban development and can therefore not be replaced with heavier conductor. Consequently, it is proposed to replace this section of line with 240mm2 cable to ensure on-going network security and compliance with license standards.
Draft Determination	£0
NIE Response to Draft Determination	NIE is concerned that there may be a misunderstanding of the risk being addressed, as clearly set out in NIE's submission (January 2011) and subsequent response to further Utility Regulator questions. Moreover, our latest assessment suggests that this risk is actually greater than was indicated in our earlier submission. The network deficiencies are based on the limited 33kV network firm capacity associated with the 33kV overhead line ring supply Gallaghers and Ahoghill substations going into an overfirm situation with summer loading in 2010. The peak load under N-1 conditions is already at 110% of firm rating and the network is over firm for a considerable percentage of the year (based on 2010/11 system load). The recently recorded 2012 maximum demand at Ahoghill substation indicates load growth is higher that NIE's 2010 forecast. Demand at Ahoghill substation has increased by almost 3.7% above the 2010 peak demand.
Additional information provided	Demand data and circuit diagrams - but no load duration curve.
SKM Response to NIE T+D	Latest Demand Forecast relating to 2011-12 (Q4.8 - D33) demonstrates project need under N-1 conditions with a circuit utilisation of 120% for 2012 summer system demand. However NIE have not demonstrated how many hours within a year the circuit will be over 100%. i.e. provided a load duration curve. Can be logged up but funding is subject to further justification and evaluation if p2/5 is updated.
UReg View	Need currently not justified. Potenital to log up if assessment under the updated planning standard demonstrates a significant number of hours outside standard for n-1 conditions.
Deliverables	N/A

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 34 Whitehouse 33kV reinforcement

NIE Request	£160,000
Project Description	This network reinforcement project involves the replacement of a 500m section of 120mm2 cable in the 33kV double circuit between Skegoniell Street substation and Whitehouse substation with 240mm2 cable.
Project Justification Satement	A section of 120mm2 33kV cable exists in the double circuit supply to Whitehouse 33/6.6kV substation. Under resupply conditions the peak demand at Whitehouse substation has reached the thermal capacity limit of the 120mm2 cable. It is therefore proposed to replace this section of cable with 240mm2 cable to ensure full resupply capacity is maintained in accordance with licence standards.
Draft Determination	£160,000
NIE Response to Draft Determination	
Additional information provided	None required - sufficient information provided prior to DD
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%
UReg View	Need demonstrated and unlikely to be affected by review of planning standards.
Deliverables	This network reinforcement project involves the replacement of a 500m section of 120mm2 cable in the 33kV double circuit between Skegoniell Street substation and Whitehouse substation with 240mm2 cable.

Final Determination	**£169,123.30**	Including consultancy costs of	**£9,123.30**
Fund	**Fund 2**		

Project 35 Limavady Town 33kV reinforcement

NIE Request	£100,000
Project Description	This network reinforcement project involves the replacement of the 2km section of 75mm2 overhead line conductor between Limavady Main and Limavady Town with 200mm2 conductor.
Project Justification Satement	Limavady Town 33/11kV substation is supplied on a single 33kV overhead line from Limavady Main substation with resupply from an alternative circuit via an auto changeover scheme. The primary circuit supplying the town includes a section of 75mm2 conductor which is now operating at the limits of its capacity. It is therefore proposed to replace this section of line with 200mm2 conductor to maintain compliance with license standards.
Draft Determination	£0
NIE Response to Draft Determination	The network deficiency affects the single 33kV overhead line supplying Limavady Town primary substation which is currently overloaded during periods of peak demand under normal operating conditions. Limavady town is normally supplied by a single circuit with a changeover system providing resupply. NIE previously stated that this circuit is 92% loaded under normal operating conditions (not resupply conditions) but more recent data taking into consideration the continuous heavy load on the conductor shows that under normal operating conditions, at peak load the circuit is 102% loaded. During Spring and Autumn conditions the loading is 103% of firm capacity under normal system operation. Permanent transfers of load to neighbouring networks are not possible without causing these networks to operate outside firm capacity.
Additional information provided	Actual demand data and forecasts for this zone. Network diagrams indentifying the lines overloaded in N-1 scenario.
SKM Response to NIE T+D	Evidence provided (Q4.9-D35 & 4.9 Limavady Town) demonstrated circuit is currently overloaded for 18 hours per annum with modest load growth forecast to 2017. Considered that project not required in RP5 .
UReg View	These assets are only overloaded in N-1 conditions for 18 hours per year, based on the current standards. Significant amounts of embedded generation in the area, therefore the updated planning standard is likely to reduce the theoretical overload reducing the need further.
Deliverables	N/A

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 36 33/11kV Transformers

NIE Request	£4,462,000
Project Description	This project involves a range of strategies to relieve highly loaded 33kV/11kV and 33/6.6kV transformers at 15 sites. The strategies include transformer replacement, transformer relocation, transformer capacity enhancement and load transfer through lower voltage network reinforcement.
Project Justification Satement	Out of a total of 224 primary substation sites, the peak demand at 15 sites is forecast to increase over RP5 to a level beyond the emergency rating of the individual transformers. At two of the sites, transformers will be replaced under the transformer 'Asset Replacement Programme' due to their age and condition. At the remaining 13 sites, remedial action, in the form of transformer replacement, transformer enhancement, transformer relocation or load transfer is proposed dependant on individual site circumstances, i.e. the optimum solution is sought in each case.
Draft Determination	£535,440
NIE Response to Draft Determination	The Utility Regulator has reduced provision for this investment from £4,462,000 to £531,000 based on transformer replacement to sites where the firm rating was already exceeded in 2009/10. An up-to-date review of load against transformer firm rating14 now shows that the Drumcairne Central and Omagh West substations listed in our submission are already operating above firm capacity indicating that NIE's initial forecast was conservative. The updated forecast of demand in year 3 of RP5 against transformer rating now shows two further substations listed in our submission as operating above firm capacity, i.e. Poyntzpass and Coleraine West. This forecast also identifies 3 additional sites being overloaded by year 3 of RP5 which were not identified in NIE's original submission. The two substation sites included in NIE's submission where it was intended replacing the transformers and redeploying the recovered units, i.e. Kilrea Central and Brookhill Central are still forecast as being over firm by 2015/16. Furthermore there is a misunderstanding by the Utility Regulator of NIE's programme for efficiently managing transformer assets. The Utility Regulator's Initial Proposal allowance is based on NIE's estimated costs submitted in January 2011 which were calculated assuming redeployment of relatively young transformers from other identified sites in our submission. As these other sites have now been disallowed, the opportunity for transformer redeployment is no longer available. Consequently, the revised estimated cost for undertaking the proposed transformer replacements with new units would be £1,055,000 and not the £531,000 proposed by the Utility Regulator. However, for the avoidance of doubt, all transformers identified by NIE must be changed and not the limited number chosen by the Utility Regulator. It is not acceptable to ignore forecast demand growth. NIE has already excluded transformers which were forecast to be over firm in the final year of RP5. As it can take up to two years to complete a transformer change from the inception of the project, not allowing investment during RP5 for those transformers which become overloaded in the middle of the period will result in the transformer changes being delayed until the middle of RP6. This will result in a prolonged period of risk to a significant number of customers which is

	unacceptable to NIE. Pre-construction expenditure allowances should be made for those transformers that are overfirm loading later in the period. The NIE demand forecast cannot be set aside particularly since it has been shown to be conservative.
Additional information provided	Loading data for individual transformers.

SKM Response to NIE T+D	Additional information provided indicates a further two transformers are already over firm capacity, Drumcairne and Omagh West. In total the latest forecast demonstrates 5 transformers are currently over firm capacity (including Ballyfordin, Moypark and Claudy Central). The replacement costs of these transformers, as detailed in A2, is £1.352m. Regulators draft determination costs would appear to be underestimated given NIEs strategy of transformer redeployment. NIE estimate this underestimate to be £0.524m.
UReg View	The need to replace 5 transformers has been justified.
Deliverables	5 transformer replacements. Additional replacements to be logged up as need is demonstrated and agreed.

Final Determination	**£1,982,968.58**	Including consultancy costs of	**£106,968.58**
Fund	**Fund 2**		

Project 37 11kV Load related

NIE Request	£1,740,000
Project Description	This project covers the reinforcement of the 11kV network on both a planned and reactive basis. Some seventeen 11kV network reinforcement schemes have been prioritised during RP5 to address problematic areas currently identified in the 11kV network risk register and some provision has been included in the programme to address reactive hot spot network reinforcement requirements when required.
Project Justification Satement	The electrical capacity of the 11kV network is assessed on an ongoing basis to take account of increasing demand. A network risk register has been developed and is populated with information provided by staff who plan, operate and control the network on a day-to-day basis. Detailed analysis of known issues on the network has been carried out using network analysis software and a range of solutions has been developed to address network problems and to ensure that the network remains compliant with Licence Standards. The network reinforcement schemes identified have been prioritised and costed to generate a forecast of investment need for RP5 and due to the sporadic nature of growth on the 11kV network, some provision has been made for reactive schemes. This investment is broadly in line with the expenditure levels in RP3 & RP4.
Draft Determination	£870,000
NIE Response to Draft Determination	This investment is broadly in line with the expenditure levels in RP3 & RP4 of £2.2m and £2m respectively. Factors giving rise to the investment need have been previously explained as has the fact that all 17 network reinforcement schemes that have been prioritised are required in RP5 to address problematic areas currently identified in the 11kV network risk register. It is unclear how the Utility Regulator could make the assumption that asset replacement can be considered to be an alternative to 11kV Load related investment. Asset Replacement investment addresses the physical resilience of the 11kV overhead line netwrk; it does not enhance the electrical capacity of the network which is the intent of 11kV load related investment. While re-engineering does involve upgrade in conductor capacity and therefore provides a load related benefit, there is no overlap between the circuitry being addressed by the re-engineering and 11kV load related programmes in RP5. Of the seventeen 11kV load related schemes included by NIE in its submission, only 1 of these requires upgrade of 25mm conductor, 8km in total. This proposal (on circuits 24/39 & 55/21 from Dungiven Central & Claudy Central respectively) was not included within NIE's submission for re-engineering. Therefore, it is clear that none of the 11kV load related proposals detailed in paper 1/LR/A3 can be considered to overlap with Refurbishment or Re-engineering programmes and any double counting of TAR expenditure on this single circuit would be de-minimis. The expenditure level proposed by NIE is based on historical expenditure as previously explained and details of the networks requiring reinforcement have already been provided.
Additional information provided	Risk register and detailed costing of the two largest schemes and details of their justification.

37 11kV Load related

SKM Response to NIE T+D	Information relating to historic spends was presented within A4 which appears to demonstrate historic basis for need. There is no evidence of overlap with other schemes.
UReg View	Additional information justifies inclusion of these items, however they should be reassessed after the planning standard is updated and logged down if necessary. Note - location of investment may change depending on load patterns across NI in RP5.
Deliverables	Paper A3 Table 1. 17 specific schemes and £300k for reactive network reinforcement less 20% efficiency gains. Unit deliverables estimated from lengths in 27km of 11kV OHL, 10km of cable and 2 Voltage Regulators.

Final Determination	**£1,740,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 38 LV Load related

NIE Request	£4,840,000
Project Description	This project provides for reinforcement of the LV network where overloading and voltage problems have arisen. A range of solutions will be used to suit the circumstances in each case. NIE's low voltage (LV) network comprises some 8,500km of underground cabling, 5,500km of overhead line and 550km of undereave or mural cabling. Approximately 780,000 customers are connected to the LV network. The risks to the network can be broadly categorised town centre networks, transformer overloads and voltage complaints
Project Justification Satement	While the majority of individual LV connections can be accommodated without network reinforcement the cumulative effects can cause voltage complaints or network overload. Also systemic growth occurs as customers will often increase demand without reference to NIE. Additional demand causes overloading of LV circuits and transformers and can lead to multiple loss of supplies if fuses rupture due to overload. In addition extra demand increases voltage drop on LV circuits leading to voltage complaints and can leave less capacity for resupply purposes which is required for substation maintenance and in the event of a fault. A load related LV risk register based on information provided by staff that operate the network on a day-to-day basis, combined with network performance data and the limited demand monitoring information that is available establishes where investment is required in the LV network to meet customer demand and allow new connections to be made. This database is used for the prioritisation of investment needs and when applications for new or additional demand are being appraised in order to ensure that the network is capable of meeting customer demands within statutory voltage limitations.
Draft Determination	£2,420,000
NIE Response to Draft Determination	Notwithstanding the Utility Regulator's comments, NIE has provided the Utility Regulator with historical costs and data and clear evidence of need including: • the requirements to address voltage complaints arising due to endemic growth on the network15, based on 5 year average expenditure16; • details of 140 network deficiencies in town centre networks; and • details of 78 transformers that have been categorised as being at risk of overload. The need for each investment is individually outlined and costed. The expenditure level proposed by NIE is based on historical expenditure levels. The number of complaints has not reduced but conversely is increasing. The proposed investment of £1.5m for Voltage Complaints was based on the present average annual expenditure of £0.31m. As this expenditure is based on an average requirement and therefore relatively fixed, a broad-brushed 50% cut in overall funding results in a 72% cut in allowance for Town Centre Networks and Overloaded GM Distribution Transformers. This investment proposal for Town Centre Networks of £2.75m is net of the 40% efficiency gain anticipated by monitoring and reconfiguration and by taking

opportunities to carry out works in conjunction with the connection of new large customers or in conjunction with third party schemes. A 72% cut in the investment stream will result in addressing only 16% of the known network deficiencies. This will result in overloading of LV circuits and transformers leading to multiple losses of supplies if fuses rupture due to overload. In addition extra demand increases voltage drop on LV circuits leading to additional voltage complaints and can leave less capacity for resupply purposes which is required for substation maintenance and in the event of a fault.
Similarly the investment proposal for Overloaded GM Distribution Transformers of £0.54m is net of 55% efficiency gain through careful load management of the remaining transformers. I.e. it is proposed to upgrade 35 transformers of the 78 transformers presently identified as being at risk of overload. A 72% cut in this investment stream will result in addressing less than 10% of the known transformer overload risks. This will result in continual overload of GM distribution transformers leading to reduced asset life, equipment damage & multiple losses of supplies or even catastrophic failure of this equipment with danger to NIE staff and the public.
There is no overlap between the LV Load Related programme and the proposed programme for undergrounding landlocked networks.
Paper D4, LV Distribution Wood Pole Overhead Lines, proposes investment to underground the following:-
• direct access LV overhead lines where there is a concentration of poles that have a high level of decay (£0.57M investment proposed for undergrounding direct access LV overhead lines).
• landlocked networks (overhead lines and underground cables) which are characterised by routes that extend across significant areas of mature private development i.e. private gardens (£1.68M investment proposed for undergrounding landlocked LV overhead lines).
While the programme to underground direct access LV overhead lines may provide upgrade in capacity and therefore provide a perceived load related benefit, given the low investment level proposed under this programme (£0.57M), there is only a very low probability of overlap between the circuitry being addressed by the udergrounding and the LV load related programmes in RP5. Therefore, it is very unlikely that the LV load related proposals detailed in paper 1/LR/A4 can be considered to overlap with overhead line asset replacement programmes (TAR, refurbishment or undergrounding of landlocked networks or direct access overhead lines).

Additional information provided	Data on historic investment in this category.
SKM Response to NIE T+D	Information relating to historic spends was presented within A4 which appreas to demonstrate historic basis for need. There is no evidence of overlap with other schemes. Total amount reduced to adjust for inefficient indirect costs.
UReg View	Allowance based on historic run rate. Suggest sample audit of processes and inputs to decision making process by reporter at some point during RP5.
Deliverables	Paper A4 details LV Load Related expenditure by category and outlines the volumes of anticipated schemes . Categories: Town Centre Networks (£2.75m), Overloaded Ground Mounted Distribution Transformers (£0.54m), Voltage Complaints (£1.55m) Projects as described in A4 are not provided in sufficient detail to derive unit deliverables bu NIE should be able to demonstrate the units for Town Centre Networks and Voltage complaints based on the split of Overhead and underground cable and Transformers installed.

38 LV Load related

Final Determination	**£4,796,440.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 39 Distribution SCADA

NIE Request	£1,299,000
Project Description	The NIE SCADA system provides real time data to the distribution control centre systems which permits real time control of the network. This investment is for the upgrade of the existing SCADA system and the refresh of associated field devices which provide the remote control and data collection facilities
Project Justification Satement	The effective use of the Distribution SCADA system has been critical in delivering improvements in Customer Minutes Lost performance, in reducing the cost of network operations and in supporting an effective storm response. Ongoing investment will be required to maintain and develop the functionality currently provided and the SCADA system will become due for upgrade during RP5 (in line with industry standard refresh cycles) so that support arrangements with the supplier can be maintained. This upgrade expenditure is unavoidable. Remote Terminal Units (RTUs) have been installed in 244 (out of 300) Distribution stepdown substations and more recently, pole mounted devices have been connected to the SCADA system extending remote control and data collection facilities to network devices located on circuits. Radio communications are used for the majority of the substation RTUs and pole mounted devices. To ensure we can continue to communicate effectively with the SCADA field devices there is a requirement in RP5 to upgrade RTU processors and refresh associated microwave radios in line with manufacturers' recommended refresh cycles.
Draft Determination	£1,299,000
NIE Response to Draft Determination	
Additional information provided	None required - sufficient information provided prior to Draft Determination
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%
UReg View	Need established prior to Draft Determination.
Deliverables	This investment is for the upgrade of the existing SCADA system and the refresh of associated field devices which provide the remote control and data collection facilities

Final Determination	**£1,373,068.20**	Including consultancy costs of	**£74,068.20**
Fund	**Fund 2**		

Project 40 Network/Trouble Management Systems

NIE Request	£3,080,000
Project Description	The Network / Trouble Management System supports fault and emergency processes within NIE (including customer call analysis and outage prediction) and is also used by the Distribution Control Centre to plan and control outages on the HV network. This investment is for the upgrade and extension of the current system.
Project Justification Satement	This system supports all of the fault and emergency processes across NIE and is central to minimising restoration times, meeting Customer Minutes Lost targets and ensuring an effective response in storm situations. The system is now due for upgrade, so that 3rd party support arrangements can be maintained. In addition, the changing dynamics of distribution electricity networks due to increased connected distributed generation is having a direct impact on NIE's operations. An integrated, real-time load flow management system is a requirement to assist with outage planning and network configuration. It is vital that this critical application continues to support NIE's network operations effectively in the face of significant changes to the electricity network and investment is required during RP5 to achieve this objective.
Draft Determination	£1,355,200
NIE Response to Draft Determination	
Additional information provided	Full submission including tender costs.
SKM Response to NIE T+D	N/A
UReg View	Included in individual Dt approval under RP4 extension. Reporter to examine cost allocation across the price control periods.
Deliverables	N/A

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 41 Operational Telecoms Network

NIE Request	£2,392,000
Project Description	NIE operates a private telecoms network which is used solely for operational traffic such as SCADA and protection services. This investment is for the refresh and extension of this fibre and microwave radio based telecoms network
Project Justification Satement	Effective operation of the NIE Optel Network is essential if critical SCADA and Protection services are to be maintained. Investment in RP5 is required to upgrade a number of network assets in line with manufacturers' refresh cycles. NIE uses BT circuits as part of the Optel Network and there is also a requirement to extend the NIE-owned fibre based circuits to allow the protection services to be ported from the BT network prior to the final BT21CN switchover in the province. As well as ensuring that vital services are maintained, this fibre implementation will also deliver opex benefits, as NIE will no longer be paying circuit rental charges to BT for the migrated protection circuits.
Draft Determination	£2,392,000
NIE Response to Draft Determination	
Additional information provided	None required. Approved in Draft Determination
SKM Response to NIE T+D	0
UReg View	Need accepted, however it is essential that this network also provides the functionality that SONI require, including operating the tranmission system and dispatching distribution connected generation. Cost to be recovered in year it is incurred, as assets will have a significantly shorter life than average.
Deliverables	NIE have a telecoms network that is fit for both NIE T&D and SONI's purposes.

Final Determination **£2,392,000.00** Including consultancy costs of **£0.00**

Fund **Fund 2**

Project 42 Metering

NIE Request	£8,605,000
Project Description	Metering Business as usual activities: SOSA £3,960k Commercial£4,645k SOSA: Approx 220k supplier driven domestic customer metering activities during RP5 including changing meters, changes of tariff, change of tenancy, new supplies, customer occupation or termination of tenancy involving metering work. Commercial metering: Approx 18k commercial metering activities, similar to the ones detailed above, only for commercial industrial customers.
Project Justification Satement	NIE will provide common services meter provision for all suppliers whilst maintaining a healthy meter population. This includes responding to supplier requests for tariff/meter changes at domestic and commercial level and essential worn asset replacement short of a full meter recertification programme. For information, the split of typical SOSA activities is provided below i.e. Change of Meter, Change of Tariff, Change of Tenancy (Opex i.e. no financial provision in this metering capex), New Supply, Customer move in or out requiring an associated meter change.
Draft Determination	£8,605,000
NIE Response to Draft Determination	
Additional information provided	None requested
SKM Response to NIE T+D	
UReg View	Full amount allowed as a placeholder with logging up/down at aned of RP5. We expect this not to be exceeded and the smart metering strategy should identify savings in this amount. Split of costs between opex and capex and performance to be reviewed by the Reporter.
Deliverables	Replacement of conventional metering equipment up to end of RP5. Note: this is ringfenced and is expected to reduce as the smart metering strategy is defined and implemented. Deliverable is fulfilment of supplier requests in accordance with the relevant network codes.

Final Determination	**£8,605,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 43 ESQCR - Distribution

NIE Request	£23,000,000
Project Description	The Electricity, Safety, Quality and Continuity Regulations 2002 (ESQCR) came into force on 31st January 2003 in Great Britain and were further amended in 2006. They replaced the GB Electricity Supply Regulations. The regulations currently apply to public and private operators in England, Scotland and Wales and are about to be introduced in Northern Ireland. These regulations specify safety standards and are aimed at protecting the general public and consumers from danger. In addition, ESQCR specify power quality and supply continuity requirements to ensure an efficient and economic electricity supply to consumers.
Project Justification Satement	On the introduction of ESQCR in GB, Network operators (NOs) were given a period of five years in which to carry out a formal risk assessment of their overhead line network and a period of up to ten years in which to carry out any remedial works although high risk sites are to be rectified as soon as is practicable. It is anticipated that similar regulations and timescales will apply in Northern Ireland. A new requirement is for network operators to establish a formal risk register of their assets. ESQCR also stipulates a range of specific requirements such as the position and insulation of lines and the provision of danger signs, anti-climbing devices and stay insulators. The primary drivers in this asset category are legislative changes.
Draft Determination	£9,200,000
NIE Response to Draft Determination	NIE has been careful to ensure that only those costs which are directly attributable to ESQCR have been included in this request. As detailed in NIE Strategy Paper F1 – Electricity Safety, Quality and Continuity Regulations, separate programmes for safety signs etc are required to ensure delivery within the timescales. In determining the extent of remedial works, NIE has targeted the top 10% of high risk poles (approximately 1% of the network). Approval of only 50% of network alterations on the basis that surveys have not yet been completed is not an appropriate way to proceed. The figure of 50% cannot be defended. The NIE estimate was based on trial patrols and this is the best information available. Our Strategy paper F1 – ESQCR explained: “Recent trial ESQCR patrols have indicated that: • All LV poles and 65% of the HV poles require safety signs; • Half of the urban LV overhead network, (which is presently open wire un-insulated conductor) could be accessible from housing or associated structures and provision needs to be made for this extent of network to be protected or altered; and • 10% of 11kV and 5% of 33kV poles are high risk with poles and pole mounted transformers in school playgrounds. The urban network will be addressed by replacing LV open wire uninsulated conductor with aerial bundled insulated conductor where possible, otherwise diversions or line raising may be required.” The nature of the remedial action proposed by NIE is identical to that adopted by DNOs.

Additional information provided	Details of mitigation methods proposed by NIE.
SKM Response to NIE T+D	ESQCR funding (for both distribution and transmission) should be determined on the basis of a detailed survey. ESQCR costs depend upon the timing of introduction of legislation, legislation details and the completion and prioritisation of risk assessment resulting from; actual patrols/inspections. Current cost estimates are based upon the outcome of ESQCR trial patrols. However the precise number both in terms of volume of work and ESQCR unit costs should be established from comprehensive patrols. No evidence currently provided to demonstrate the statistical accuracy of the cost estimated derived from trial patrols. Regulators initial allocation of £9.2 funds to enable patrols to be completed, the development of an asset register and evaluation of comprehensive volume and untit cost estimates for ESQCR and completion of essential remedial works seem appropriate. Final ESQCR total costs, volumes and unit costs to be agreed following completion of patrols and submission of detailed and comprehensive assessment of volumes and unit costs.
UReg View	NIE's request for ESQCR funding made up of Development of Asset Register, Patrolling costs, Compliance remedial work , Vegetation management and Public awareness. Under other items above, we are already funding NIE for patrolling, asset information systems and vegetation management to the standards requried for ESQCR (as the costs have been benchmarked against GB where the legislation is already in force). NIE are already undertaking public awareness campaigns, which we do not believe are capital expenditure. Therefore, only remedial work is not funded elsewhere in the price control. We note that SKM have highlighted that the mitigation methods assumed by NIE in this submisison were not all considered to be appropriate in GB, and in some cases lower cost solutions that delivered the same outcome were successfully adopted. The amount allowed covers only the minimum work that has been completely justified based on surveys undertaken to data. Further surveys and risk assessments are funded by this allowance. Should the risk assessments show that a material amount of additional work will be required before the end of RP5 to ensure that NIE remain complaint with legislation, this will be considered in accordance with the licence.
Deliverables	SKM have incldued the full costs of ESQCR complaince within the distribution project. We note that SKM have highlighted that the mitigation methods assumed by NIE in this submission were not all considered to be appropriate in GB, and in some cases lower cost solutions that delivered the same outcome were successfully adopted. Other approved works are expected to be to new ESQCR standards. Further surveys and risk assessments are funded by this allowance to ensure an appropriate level of allowance in RP6.

Final Determination	**£1,000,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1: Input driven item**		

Project 44 Roads and Street Works (RASW)

NIE Request	£4,400,000
Project Description	This investment provision covers for the additional costs of street works (excavation and reinstatement) as a result of changes to legislation with the implementation of the Street Works (Amendment) (Northern Ireland) Order 2007 expected during 2012. In addition, NIE has experienced increased costs due to the increased use of high specification pavement surfaces used in many towns and city centres throughout Northern Ireland.
Project Justification Satement	During RP5, external factors are due to have a significant impact on the cost of street works undertaken by NIE through the implementation of new Street Works legislation and the impact on cost of high specification amenity resurfacing. The key impacts associated with the introduction of Street Works (Amendment) (Northern Ireland) Order 2007 are • Significant increase in number of notices required (more than doubled) • Introduction of Permit Scheme; • Increased restrictions on access to roads after substantial works; • Increased DRD powers to specify timing of works and routes to be taken; • Increased road resurfacing; and • Strengthened enforcement regime with increased fines and Fixed Penalty Notices In addition, new costs are presently being incurred associated with the high specification granite pavements and pedestrian/vehicular shared surfaces being laid in towns and cities throughout Northern Ireland in high amenity pedestrian areas e.g. Belfast City Centre. These additional costs are beyond the control of NIE and reflect the expected costs associated with the relevant capital programmes of work on the network during RP5.
Draft Determination	£4,400,000
NIE Response to Draft Determination	
Additional information provided	None requested
SKM Response to NIE T+D	NIAUR approved. RP5 allowance 100%
UReg View	NIE are requried to comply with this legislation and will require new systems to facilitate compliance. This legislation is designed to reduce the impact that NIE's works will have on the users of the NI road network. By including this in the "pot" without tangible outputs, we expect NIE to manage this in the most efficent manner and to obtain the benefit of this improvement for five years (?)
Deliverables	This has been allocated to the "pot" without tangible outputs, however as a result of allowing 100% of this request, we expect NIE to comply fully with this legislation and that all new systems will be fully operational before the end of RP5. We expect compliance with this legislation to for part of the standard unit costs by the time NIE

make their submission for RP6.

Final Determination	**£4,400,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 1: Input driven item**		

Project 45 Distribution Capitalised Overheads

NIE Request	£23,568,000
Project Description	Allocation of overheads associated with cost areas and involved in the delivery of capital projects. The proportion of overheads capitalised is based on the activity levels within these areas between work which is capital in nature and that which is revenue in nature.
Project Justification Satement	International Accounting Standard 16 'Property , Plant and Equipment' (IAS 16) states that the cost of an asset will include any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. The overheads identified directly relate to capital projects and therefore it is appropriate that these costs are capitalised.
Draft Determination	£0
NIE Response to Draft Determination	The Utility Regulator has treated this category of expenditure along with the other overhead cost categories; • T23 Transmission Design & Consultancy • T41 Transmission Capitalised Overheads • D12 Distribution Overhead Lines Fixed Costs • D20 Distribution Design & Consultancy The Utility Regulator has scaled back these indirect costs on a linear basis to its proposed level of capital expenditure resulting in a determination of 35% of that requested. This category covers the allocation of overheads associated with cost areas and departments involved in the delivery of capital projects. The proportion of overheads capitalised is based on the activity levels within these areas between work which is capital in nature and that which is revenue in nature. International Accounting Standard 16 'Property, Plant and Equipment' (IAS 16) states that the cost of an asset will include any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. The overheads identified directly relate to capital projects and therefore it is appropriate that these costs are capitalised. The following cost areas / departments have been identified as being involved in delivering the capital program and therefore it is appropriate that a proportion of the costs associated with these departments is capitalised. • NIE Powerteam Managed Services / Supply Chain costs. The services provided come under the following main headings – Outage Management, Technical Engineers, Asset Solutions and Safety. Supply chain costs relate to the departments involved in the purchasing of materials & services and the stores and logistics functions. • Connections department – work carried out by this department includes new connection work, which is capital in nature and recoverable alterations to connections which is treated as R&M. • Networks department – work carried out by this department includes programmed planning / control, strategic supply chain, metering revenue, contract and asset management associated with both the capital and maintenance programmes. Technology department – work carried out by this department includes the introduction of new network IT systems which will enhance the efficiency of the business and the maintenance of existing network IT systems. The proportion of overheads which iscapitalised is based on the activity levels within the areas

between capex and R&M. In the Utility Regulator's calculations, it has made an error and has omitted to include one of the five classes of indirect costs - the costs associated with distribution design and project management.
Indirect costs can be classified into the 3 separate categories (as defined in Ofgem's RIGs glossary17):
• Closely Associated (Engineering) - these costs can be regarded as broadly linear with the quantum of work on the network i.e. The number and complexity of the projects and programmes of work.
• Closely Associated (Other) - these costs are generally non- linear with some costs being generally fixed costs and others subject to step change depending on the size and scope of the work programme.
• Business Support Costs - these costs are not directly or indirectly proportional to the level of investment or quantum of work on the network but support the networks business
Given that indirects can be fixed, variable and step in nature, it is thus not appropriate for the Utility Regulator to apply a general linear scaling back based on the level of capital investment. NIE has calculated that based on the level of capex proposed by the Utility Regulator, the level of indirects in these categories should be more than double what has been proposed. It is not possible for NIE to plan, design and deliver the programme of works wthin this proposed allowance. Until a final level of capital investment has been agreed, NIE would request that the Utility Regulator revisits the issue of indirects to arrive at a sensible level based on the specific nature of these costs.

Additional information provided	A paper commenting on SKM's view of these costs

SKM Response to NIE T+D	Capitalised Overheads apportioned based on total allowed Distribution LR & NLR expenditure divided by NIE requested Distribution LR & NLR expenditure (£105,380,497 + £5,533,796 + £1,142,593 = £112,056,886) then multiplied by 90% as a 10% reduction in indirect costs is required. Total amount reduced to adjust for inefficient indirect costs.
UReg View	A certain amount of overhead is required to deliver an efficient capital programme. Some of these costs are captured via what Ofgem refer to as "closely associated indirects" and some would be classed as business support costs. CEPA's benchmarking has highlighted that NIE's indirect costs are 10% higher than GB. SKM have therefore adjusted the amount added to the "pot" to account for the inefficiency and also the reduced programme.
Deliverables	None: allocated to the "pot" without tangible outputs.

Final Determination	**£13,829,018.98**	Including consultancy costs of	**£0.00**
Fund	**Fund 1: Input driven item**		

Project 46 Customer Connections

NIE Request	£57,567,000
Project Description	NIE has an obligation to connect customers and modify existing connections in accordance with the charging policy agreed with NIAUR. Since the charging policy does not allow for 100% recovery in all customer categories, NIE is required to finance the net cost. Expenditure in this area is categorised as connections capex. The main sub categories of connections investment are as follows: • Industrial/Large Customers (including Authorised Generators) • Domestic/Commercial • Customer Driven Alterations • Capitalised Overheads
Project Justification Satement	Investment in connections is driven by customer demand and by the economic conditions that prevail at the time. NIE has an obligation to connect customers in accordance with the charging policy agreed with NIAUR. Since the charging policy does not allow for 100% recovery in all customer categories, NIE is required to finance the net cost. Presently, the primary mechanism whereby customers contribute to connection costs is by means of the 60% contribution that a customer is required to make for a new connection where the electrical demand is less than 1MW The growth rate in new connections for RP5 is expected to be significantly lower than was experienced in the first two years of RP4. There is however a degree of uncertainty over what the demand for new connections will be. A review of the volume of new connections forecasted by DNO's during submissions to Ofgem for DPCR5 suggested an average growth rate of 0.75 %. These DNO forecasts were submitted during the height of the credit crunch and they may have been expecting a prolonged downturn in economic activity. If DNO's were submitting forecasts now, it is likely that they would reflect slightly higher rates of growth. For this reason NIE propose a conservative 1% growth rate for new connections. It has been further assumed that a 1% year on year growth in connections volumes will produce a corresponding increase in net capex. This is considered to be a tenuous assumption since it is very difficult to establish a metric that accurately links volumes in connections activity to net capex. Data collated annually by NIE not only reveals a significant variation in connection volumes by work category but also an equally significant variation in cost per job within each work category.
Draft Determination	£26,250,552
NIE Response to Draft Determination	
Additional information provided	Details of how NIE intend to manage the transition to 100% chargibility over the first years of RP5 along with details of how they will charge for housing developments of 12 houses or more.

SKM Response to NIE T+D	Ureg analsyis
UReg View	Details of Road and Street Works Act (RASW) costs (net connections), non recoverable Alterations and RASW costs (non-recoverable alterations) to be seperated out and detailed as per the phasing above.
Deliverables	NIE has forecasts that, during the run off period of the old connection charging system, the amounts shown will be added to the RAB. This amount will be phased throughout the RP5 period. The amounts forecast may vary depending on the up take of connection offers and the speed by which connections will be completed. A truing up or down of the figure will be required to reflect the actual costs attributable to the RAB.

Final Determination	**£37,255,000.00**	Including consultancy costs of	**£0.00**
Fund **Fund 2**			

Project 47 Roads and Street Works (RASW) - Connections

NIE Request	£1,700,000
Project Description	This investment provision covers for the additional costs of street works (excavation and reinstatement) as a result of changes to legislation with the implementation of the Street Works (Amendment) (Northern Ireland) Order 2007 expected during 2012. In addition, NIE has experienced increased costs due to the increased use of high specification pavement surfaces used in many towns and city centres throughout Northern Ireland.
Project Justification Satement	During RP5, external factors are due to have a significant impact on the cost of street works undertaken by NIE through the implementation of new Street Works legislation and the impact on cost of high specification amenity resurfacing. The key impacts associated with the introduction of Street Works (Amendment) (Northern Ireland) Order 2007 are • Significant increase in number of notices required (More than doubled) • Introduction of Permit Scheme • Increased restrictions on access to roads after substantial works • Increased DRD powers to specify timing of works and routes to be taken • Increased road resurfacing • Strengthened enforcement regime with increased fines and Fixed Penalty Notices In addition, new costs are presently being incurred associated with the high specification granite pavements and pedestrian/vehicular shared surfaces being laid in towns and cities throughout Northern Ireland in high amenity pedestrian areas e.g. Belfast City Centre. The impact on total connections capex has been calculated at an additional £4.2M for the RP5 period. It is estimated that 60% (£2.5M) of this will be recovered through Customer Contributions with the remaining 40% (£1.7M) resulting in an increase in Net Connections Capex. Whilst this is shown as separate figure it will in practice be experienced as increased costs in delivering Customer Connections activity. These additional costs are beyond the control of NIE and reflect the expected costs associated with the programme associated with new connections work during RP5.
Draft Determination	£680,000
NIE Response to Draft Determination	
Additional information provided	included in questions regarding connections
SKM Response to NIE T+D	Ureg analysis (AS)
UReg View	Included in the amount identified under project 47 (customer connections)
Deliverables	Included under project 46 Customer connections

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 48 11kV Network Performance

NIE Request	£9,000,000
Project Description	At a total cost of £9m, remote control facilities will be provided on 500 devices on 200 circuits and earth fault indicators (EFI's) with SCADA facility will be installed at 1000 locations on the network during RP5. RP5 will continue with the present strategy of applying remote control to strategic devices on the rural network. NIE would expect to apply remote control to 40 rural circuits per annum during RP5. The performance improvement technique proposed for the 11kV urban network during RP5 is based on providing Earth Fault Passage Indicators (EFI) with SCADA facilities.
Project Justification Satement	An improvement in network performance is required if NIE customers are to receive a similar quality of supply as other customers in the UK. It will also assist Northern Ireland to remain competitive and attract inward investment. Consideration of the most effective methods that may be adopted for improving network performance is therefore required. The most cost effective means of improving network performance is: □to provide remote switching facilities for the rural overhead lines to allow supply to be restored from control centres following a fault; and □to provide earth fault passage indicators on urban circuits that will facilitate faster fault location and subsequent isolation Based on initial estimates, it is expected that this will deliver a performance improvement of 5 CML by 2016/17, the final year of RP5
Draft Determination	£0
NIE Response to Draft Determination	The NIE submission included a minimum sum that would have permitted network performance improvements for worst served customers by the provision of remote control facilities and fault flow information. The Utility Regulator's Draft Determination considers that no improvement is required yet DNO customers' who already enjoy better network performance than NIE customers will see further improvements under the DNO investment plans and incentivisation arrangements. Unless there is investment to improve network permance, NIE customers will therefore see network performance deteriorate, relative to GB customers. The Utility Regulator supports its determination through referring to research into customers attitudes towards standards of service that utilities in Northern Ireland provide. Rather than basing regulatory policy solely on the general body of customer opinion, we would urge the Utility Regulator to consider separately the specific needs of rural customers and the factors that differentiate them from the general body of customer opinion. In this regard, the Utility Regulator and DETI have statutory obligations under the Energy (Northern Ireland) Order 200318 to have regard to the interests of individuals residing in rural areas. The need for NIE's proposed investment is in fact borne out by the conclusions of consumer research that the Utility Regulator undertook in 2010. The research showed that utility consumers in Northern Ireland (both domestic & business consumers) consider the time taken to restore supply and the notice given for planned interruptions as the most important network issue. The research highlighted that any interruption was viewed as having an impact on consumers and the longer the interruption the greater the impact. This research, weighted

	72% towards urban consumers and 28% towards rural customers, also emphasised the difference in experiences between rural and urban consumers with rural consumers more likely to have experienced power outages, compared to their urban counterparts. NIE's proposals target a reduction in outage durations for rural customers. As a result, NIE considers there to be a continued need to improve quality of supply for rural customers. The proposed investment for RP5 will significantly improve quality of service for the customers targeted, as well as allow overall quality of service to keep pace with continuing improvements in GB.
Additional information provided	Comentary on Ofgem approach (note: based on DPCR 5 in 2009 before duration of current economic downturn was realised).
SKM Response to NIE T+D	NIAUR position is that no Network performance expenditure is required - this is a policy matter
UReg View	In their response to our questions, NIE said "We are however of the view that a properly constructed Capex network performance incentive arrangement would leave it to NIE to manage the investment required to optimise the delivery of a range of outputs including CMLs." We have therefore reviewed our position on the incentivisation of network performance. We believe that the additional asset replacement spend and investment associated with ESQCR should result in reduced unplanned outages over time. We are not convinced that under current economic conditions, customers in NI are willing to have higher than necesary costs imposed upon them when no concerns are being rasied about the current standards of service.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 49 Smart Grid

NIE Request	£9,350,000
Project Description	Application of smart technologies is necessary to address the challenges in meeting Government's targets for sustainability, including the move towards a low carbon network. This project is looking at funding a range of smart technology trials that will enable further connection of renewable generation onto the distribution network, maximise the utilisation of existing network assets and developing active distribution networks. NIE has identified several trials to deploy smart approaches during RP5 to: □The management of system transformers and cables □Network optimisation for the purpose of deferring load-related investment □Active control of voltage and reactive power within interconnected 110kV networks □Dynamic ratings for system transformers and overhead lines □Develop a distributed network control approach where control of the network is relegated to automated controllers within subsets of the network i.e. microgrids
Project Justification Satement	The challenges that are to be faced in the future in terms of accommodating the changes arising from renewable energy resources and the growth of emerging low carbon technologies (e.g. electrification of the heating and transport sectors etc.) will require a significant change in the design and operation of the network and the most cost-efficient manner to facilitate this change will mostly arise through embracing smart technologies. Ofgem has introduced funding incentives in GB to provide a head start in trialling, developing and applying smart technologies comprising of the Innovation Funding Incentive (IFI) and the Low Carbon Networks Fund (LCNF). While there is no desire to duplicate research already taking place in GB into smart technologies, NIE recognises the need to carry out our own trials and development of technologies which are suitable to the NI network with NIE's current systems in place to manage the operation of the network and assets. To achieve this, NIE is seeking support from the Utility Regulator broadly in line with the funding incentives provided by Ofgem for GB DNOs.
Draft Determination	£0
NIE Response to Draft Determination	In deferring expenditure from RP5 into RP6, NIE is dependent on having better monitoring facilities available for high risk age expired equipment. The company is also dependent on the adoption of Smart solutions to reduce investment requirements in the future. It such equipment is not to be financed, it will not be possible to defer replacement from RP5 into RP6 and future investment requirements will be higher than necessary. The NIE Strategy paper F5, Smart Technologies, explained how NIE is leveraging benefit by cooperating in consortiums rather than by solely financing research and development. The paper further identifies areas where Smart technologies will be of benefit to NIE including: • Dynamic ratings of overhead lines; • Dynamic Transformer Ratings; • Demand Side Response; • Customer Heat Storage; • Electric Vehicle Charging;

	• Carbon Reduction Initiatives; • Active Network Management; • Active Voltage Control; and • On-line Condition Monitoring. NIE must keep abreast of such developments and engage in pilots to become familiar with the application of the technology. The approach adopted by NIE is already showing a reduction in capex requirements for RP5 (subject to being allowed the Smart technology finance) and will show further benefits in the future as the technologies mature. Without the funding, NIE will not be able to make progress in the areas listed above. NIE has taken the application of Smart technology into consideration in the preparation of its submission as follows: • Some £8 million of transformer replacement is being deferred until RP6 by the adoption of on-line monitoring techniques at a cost of £3 million to manage the risks associated with these deferred replacements. • The installation of on-line partial discharge monitoring equipment at a cost of £350k will allow deferral of approximately £1 million investment otherwise required to replace 3 circuits. NIE strongly disagrees with the Utility Regulator's provisional decision to deny funding both for the deployment of Smart technology to offset asset replacement in RP5 and also to develop the techniques for future deployment.
Additional information provided	meeting regarding smart gird trials.
SKM Response to NIE T+D	Costs reallocated to transmission transformer projects T13 & T14.
UReg View	We have included some of this investment under the relevant transmission projects (Transmission transformers). The other projects are not sufficently well defined here to allow approval. The need for work in this area, particularly in response to small scale wind and the smart meter strategy, will become clearer over the next couple of years. We will therefore reconsider investment for smart grids under fund 3 as NIE develop the case of need for individual trials and projects.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 3**		

Project 50 Distribution Substation Flooding Enforcement

NIE Request	£2,075,000
Project Description	Programme to provide permanent protection to several Primary Distribution substations that are at risk from flood events.
Project Justification Satement	This programme plans to address the risk posed by flooding to NIE's Primary Distribution sites. All NIE Primary Distribution substations were assessed during 2008 by NI Rivers Agency and Total Flood Solutions. Overall, thirty seven substations were assessed as being at risk from a flood event which could require the substation to be de-energised for safety. The flood risk is such that permanent protection is required for twelve sites. This protection will cover the main substation building, transformers and any external marshalling kiosks or protection/control cubicles. At the remaining sites a combination of temporary and semi-permanent measures will be used.
Draft Determination	£311,250
NIE Response to Draft Determination	In the NIE Strategy Paper, C14 – Primary and Secondary Distribution Substation, Ancillary Systems, the investment requirements were outlined for Flood Mitigation works at Primary Distribution substations. The paper outlined the results of an exercise carried out by an external consultant (Total Flood Solutions) which identified 35 'at risk' sites and proposed mitigations for those sites. Mitigations ranged from permanent flood barriers, to the provision of temporary flood control devices. Total Flood Solutions determined risk and mitigation using available information from the NI Rivers Agency, in line with an electricity industry standard, ETR 13819. From the list of 35 'at risk' sites, 15 have been identified as being 'at high risk'. All 35 sites were also reviewed to determine the consequences if they were to be subject to flooding; this led to consequence ratings. The risk rating was combined with the consequence rating to provide an overall risk rating, identifying the 15 most vulnerable sites; these sites were to be addressed under our proposals. The proposed allowance covers only 3 of the 15 requested sites, i.e. Those sites that have already suffered flooding. Therefore under the Utility Regulator's proposals, finance has not been provided for 12 sites that have been identified as 'at high risk' and with high consequence ratings. This is unacceptable and indefensible. The impact of this decision is significant; 'at high risk' sites have a greater than 1 in 75 chance of a major flood event, based on ETR 138. This event could compromise the substation integrity, potentially causing significant electrical damage. The identified consequence ratings highlight that these sites also supply either large numbers of customers, or individual customers who are heavily reliant on a secure supply (e.g. Hospitals and airports). Given that the overall risk is clearly outlined and the necessary flood mitigation work as recommended in the Total Flood Solutions report, this expenditure is unavoidable.
Additional information provided	NIE statement related to work currently ongoing with the Rivers' Agency. No further infromation about the flood mapping, or copies of maps drawn at a scale that would allow meaningful conclusions to be drawn.

50 Distribution Substation Flooding Enforcement

SKM Response to NIE T+D	n/a UREg assessment
UReg View	NIE have not provided any further information to demonstrate that there is a genuine risk of flodding at the the sites that have not previously suffered flooding. The flood risk maps provided are not at a scale that would allow any meaningful conclusions to be drawn about these risks. Funding limited to the historic flooding sites unless further evidence is provided. Logging up / down possible.
Deliverables	Flood defences upgraded at substations where historic flooding has occurred.

Final Determination	**£311,250.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 51 Public Realms

NIE Request	£850,000
Project Description	It is anticipated that Government funded urban regeneration schemes will continue to take place in RP5. Where there is a requirement or justifiable opportunity NIE intends to carry out replacement of aged and poor condition cabling and overhead lines in conjunction with urban regeneration projects.
Project Justification Satement	Where a government department such as the DSD is carrying out urban regeneration projects there is generally a need, as a minimum, for NIE to carry out alterations to its distribution network. It is however often cost effective to take the opportunity of excavation and reinstatement required by the urban regeneration project to replace a larger extent of cabling and overhead lines, particularly where such equipment is in aged and poor condition or where there is a forecast need for load related development. An important consideration is that carrying out the asset replacement work as part of the project avoids the future excavation and reinstatement of the surface installed as part of the urban regeneration.
Draft Determination	£850,000
NIE Response to Draft Determination	
Additional information provided	none requested
SKM Response to NIE T+D	n/a
UReg View	We accept that there will be a need for spend in response to work being done to town centers etc. However the extent of the work is unclear. We have therefore allocated this to the "pot" without tangible outputs to allow NIE to manage this as they see fit.
Deliverables	n/a included in "pot" with no tangible outputs

Final Determination **£850,000.00** Including consultancy costs of **£0.00**

Fund **Fund 1: Input driven item**

Project 52 Keypads

NIE Request	£10,000,000
Project Description	
Project Justification Satement	
Draft Determination	£10,000,000
NIE Response to Draft Determination	
Additional information provided	none requested
SKM Response to NIE T+D	n/a
UReg View	This is included in the ring fenced amount for metering. The spend must be demonstrated to be efficient. We expect savings in this area to be considered as part of the smart meter strategy. The amount can be logged up/down if justified.
Deliverables	Keypad meters in accordance with supplier/customer requests.

Final Determination	**£10,000,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 53 Smart Metering

NIE Request	£0
Project Description	A notice only, that Smart metering has not been included as a metering cost recoverable item in the RP5 price control submission on the assumption that it will be considered separately.
Project Justification Satement	Not applicable. It is assumed that Smart metering will not be included in the RP5 Capex submission but will be funded under a separate provision. This placeholder has been included for completeness as requested by the Utility Regulator.
Draft Determination	£0
NIE Response to Draft Determination	
Additional information provided	n/a
SKM Response to NIE T+D	n/a
UReg View	Included for completeness only. Smart metering has not been considered under RP5 and the costs assocaited with it will be assessed under fund 3.
Deliverables	n/a

Final Determination — Including consultancy costs of **£0.00**

Fund **Fund 2**

Project 54 Metering – Certification/Re-certification

NIE Request	£18,867,000
Project Description	Certification£2,965k Keypad Recertification £13,387k Other Recertification £2,515k Total Expenditure - £18,867k
Project Justification Satement	NIE was required by statutory obligation to complete a programme of meter certification by February 2009. In October 2004, NIE submitted a paper to the Utility Regulator that concluded that expenditure on meter replacements to comply with the 1998 regulations did not represent good value for money. In May 2005, the Utility Regulator formally accepted a proposal which included determination of certification levels by meter sampling and undertook to make the necessary amendments to the 1998 Regulations. Any meter identified as being unsatisfactory will be changed. The background to this is detailed as follows; The Electricity (Northern Ireland) Order 1992 (the Order) requires that only certified meters shall be used to measure the quantity of electricity supplied. However, the Order's transitional arrangements provided a 10-year derogation for meters installed before 1 February 1999, with these meters being exempt from certification requirements until 1 February 2009. Therefore the deadline for having all meters certified so as to comply with the Order was 1 February 2009. As a result of these obligations, NIE established a certification programme which targeted the replacement of the population of uncertified meters by 1 February 2009. Uncertified meters were also replaced indirectly as a result of the rapid roll-out of keypad meters and where other opportunities were presented by routine meter appointments requested by customers. However as the programme progressed, NIE began to question the value of the certification programme to customers. Firstly, statistical data from randomly sampled meters returned off-circuit suggested that the accuracy of meters was the same irrespective of whether a meter is certified or not. Secondly, it was recognized that the prospect of retail market opening and potential harmonization of all-island arrangements added uncertainty to future metering strategy with the possibility that a subsequent programme of meter changes to meet market requirements would result in the change out of recently installed certified meters. This would result in nugatory expenditure. As a result, in October 2004, NIE wrote to the Utility Regulator proposing to scale back the certification programme and highlighted the need for legislative amendments to align with this change in policy, as the proposed change in policy would have the effect of preventing the replacement of the population of uncertified meters by 1 February 2009. In May 2005, the Utility Regulator approved this approach and undertook to make the necessary legislative amendments. These legislative amendments remain outstanding and the Utility Regulator has provided NIE with assurances in this regard. Following a series of meetings between NIE and the Utility Regulator in early 2009 to discuss the approach to legislative amendments, NIE provided the Utility Regulator with a paper presenting the updated position with regard to the uncertified meter population and proposals for a meter sampling programme, which was subsequently approved by the Utility Regulator. NIE recommended the following approach to meter certification be adopted. □ Rather than adopting a policy of like-for-like asset replacement, a fully certified

meter population will be most efficiently delivered by the future roll-out of smart metering or other metering programme to meet the functional requirements of the retail market.

- The legislative amendments being considered by the Utility Regulator should include an extension to the 10-year transition period allowed for in the 1992 Order to reflect the scaling back of meter certification agreed in 2005. The extent of this extension should be of sufficient duration to allow:

(i) the Utility Regulator, in consultation with the retail market, to reach a final decision on the rollout of smart metering (or alternative) programme; and

(ii) after taking account of the timescale to reach that decision, to provide NIE with sufficient lead-time to subsequently progress the roll-out of the metering programme in a manner that will allow the replacement of uncertified meters with the new metering technology.

NIE understands that the Utility Regulator has discussed these legislative amendments with DETI but they continue to remain outstanding.

Assuming the proposed legislative amendments would have the effect of extending the transition period allowed for in the 1992 Order, it will remain necessary to carry out widespread replacement of uncertified meters either in the form of a smart meter programme or alternatively, a meter certification programme. Therefore, in circumstances where a decision is made by the Utility Regulator not to proceed with the rollout of smart metering, it will be necessary to provide regulatory provision to re-establish a programme of meter certification and recertification (of meters where certification lives have expired) to ensure the meter population complies with legislative requirements.

Draft Determination	£0
NIE Response to Draft Determination	
Additional information provided	n/a
SKM Response to NIE T+D	n/a
UReg View	This forms part of the ringfenced amount for metering. The value is that contained in NIE's response to the Draft Determination.
Deliverables	n/a

Final Determination	**£1,900,000.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 2**		

Project 55 Non Network IT and Telecoms
Non Network Other

NIE Request	£15,275,000
Project Description	The Non-Network IT and Telecoms investment is considered under 4 cost categories: IT Infrastructure: Investment in computer hardware (including servers, desktop and mobile equipment) and associated operating systems which are used to deliver business functionality to end users. Corporate Telecommunications: Investment in the infrastructure required to deliver business voice and data services to the desktop and the field. Business IT Applications: Investment in the in-house and 3rd party IT applications used to operate the business. Renewables Development Group: Minor investment in IT and Telecoms equipment needed during RP5 to support the expansion of the Renewables Development Group that is required to deliver the network investment to enable the connection of renewable generation.
Project Justification Satement	A robust ICT Infrastructure is essential if NIE is to be able to continue to meet its current and future regulatory, statutory and customer obligations. IT and Corporate Telecommunications infrastructure includes hardware and associated software for servers, storage devices, desktops, printers, routers, switches, voice gateways and desktop phones used to provide voice and data services to NIE. Robust IT Business Applications are also essential if NIE is to be able to continue to meet it's regulatory, statutory and customer obligations. NIE IT Business Applications include multiple systems covering the main business functions i.e. Market Registration, Customer Operations, Finance and Engineering. These IT and telecommunications assets underpin critical operational and customer-facing processes therefore system performance and availability levels must be maintained. Investment during RP5 will be driven by the need to upgrade core applications and to replace equipment which is reaching end of life. NIE have relied on new technology to deliver operational efficiencies and this technology must continue to be available if the business is to continue operating effectively. The majority of investment required in RP5 is to replace and upgrade existing applications and infrastructure as they become end of life.
Draft Determination	£7,637,500
NIE Response to Draft Determination	The Utility Regulator is proposing to allow only 50% of the submission for Non Network Capex on the basis that 'the provision of IT services to Powerteam via the RAB is a cross subsidy'. It is proposed that only £7.638m of the £15.275m submission will be allowed. £15.054m of the submission relates specifically to IT capex, and £0.221m is associated with other non-network expenditure, including Renewables. As set out in the NIE opex submission, Powerteam bears its own outsourced IT and Telecoms service charges including desktop, infrastructure, service management and telecoms service charges. However, the non-network capex submission relates to investment required to upgrade or replace NIE T&D IT and Telecoms assets.

These are assets which may be utilised by NIE Powerteam employees but only to the extent that they are required to in undertaking activities relating to NIE's T&D business.
As an example, the RP5 submission includes £0.66m investment in the Maximo Asset Management application. This system is used by Powerteam employees to manage maintenance activities and update transformer records on behalf of T&D. However, it would not be appropriate to suggest that this constitutes the provision of an IT service to NIE Powerteam or that any proportion of the costs of upgrading and enhancing the application should be considered a Powerteam cost.
The non-network capex investment included in the NIE submission does not therefore represent the provision of IT services to NIE Powerteam and the Utility Regulator's position on this is erroneous.
On this basis, the full £15.054m of IT non-network capex should be considered as NIE T&D expenditure and therefore allowed.

Additional information provided

SKM Response to NIE T+D

UReg View	We believe that the costs associated with Powerteam should form part of the unit rates that have been benchmarked for the delivery of the capex programme. The amount included reflects the fact that approx 50% of the request covers Powerteam staff. This is to be expensed in the year in which the costs occurr.
Deliverables	NIE T&D has sufficient IT resources to discharge its duties.

Final Determination	**£7,637,500.00**	Including consultancy costs of	**£0.00**
Fund **Fund 2**			

Project 56 25mm2 Overhead Line

NIE Request	£127,000,000
Project Description	Reference – NIE Paper 'THE RESILIENCE OF THE NIE 11kV OVERHEAD LINE DISTRIBUTION NETWORK TO EXTREME WEATHER EVENTS, 2nd Draft, 2 Dec 2011'. This paper discusses the nature of the problem, the quantification of risks, risk mitigation options, contingency planning and stakeholder consultation. Full details of volumes and costs and the impact on the 11kV overhead line TAR, refurbishment and reengineering programmes are tabled in the report and the associated covering letter. Over the last decade severe weather events in Northern Ireland have caused ice accretion on distribution overhead lines with resultant pole and conductor damage and consequential loss of electricity supply to significant numbers of customers. In particular: • a snow storm in February 2001 affected the networks in the southern part of Co. Down with a loss of supply to customers for up to 3 days; and • a more recent snow storm in March 2010 caused significant damage to the overhead networks in the greater Cloghmills area of Co. Antrim with customers being off supply for 6 days. These events have highlighted the risk of network failure in such adverse weather conditions resulting from the widespread use of small cross section conductor on the 11kV overhead network. This project will bring the design of the entire network up to the current specification which requires a minimum conductor size of 50mm2.
Project Justification Satement	The current asset management strategy prioritises network refurbishment based on asset condition assessments and this strategy has resulted in a significant improvement to network performance since privatisation. However this strategy cannot adequately address the ice accretion risk. This is because overhead line conductors have a long life, usually of the order of 60 to 70 years, and only a small length of condition based conductor replacement and line rebuild has been carried out to date. Although it is recognised that the amount of condition based replacement has to increase, the rate proposed would lead to the replacement of 20% of 11kV main line only (spur lines would not be rebuilt) in the next 10 year period and this is insufficient to address the risk outlined in the 25mm discussion paper. A change of asset management strategy is therefore required and the preferred course of action is the commencement of an overhead line rebuild programme to current standards

Draft Determination	£0
NIE Response to Draft Determination	
Additional information provided	none specifically requested
SKM Response to NIE T+D	n/a

56 25mm2 Overhead Line

UReg View	The substantial costs associated with this work have not been justified. Alternative options have not been considered. The 11kV overhead lines allows for a 534 km of overhhead line (11kV and 33kV) amount of the network to be re-engineered each year. The need for additional work has not been established.
Deliverables	n/a

Final Determination	**£0.00**	Including consultancy costs of	**£0.00**
Fund	**Fund 3**		

Project 57 Real Price Effects

NIE Request	£0
Project Description	A reflection of the difference between RPI and the cost inflation that NIE T&D are exposed to
Project Justification Satement	n/a
Draft Determination	£0
NIE Response to Draft Determination	
Additional information provided	Assessment by the Utility Regulator of the approach Ofgem took to accounting for difference between input prices and RPI for companies in GB.
SKM Response to NIE T+D	n/a
UReg View	We have used the same methodology as Ofgem to calculate the impact that real price effects are expected to have on NIE T&D's capex costs.
Deliverables	none - included in the "input driven" items

Final Determination **£400,000.00** Including consultancy costs of **£0.00**

Fund **Fund 1: Input driven item**