

Northern Ireland Electricity Medium Term Plan Phase 2

Proposed Decision

18 December 2012



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1 INTRODUCTION

- 1.1 In the strategic energy framework (SEF) of 2010, DETI set a target of 40% of electricity consumed in NI coming from renewable sources by 2020. NI peak consumption of electricity is 1777 MW, with a summer minimum of 516 MW.
- 1.2 Currently 451 MW of wind is connected to the electricity system in NI, while a further 550 MW has obtained planning permission and is in the process of connecting. A further 636 MW of renewable generation is in the process of obtaining planning permission. These wind farms are predominantly located in the north and west of NI. These are the areas where the electricity transmission network is lightest.
- 1.3 NIE is obliged under its licence to connect generation in a non-discriminatory manner and obliged by statute law to ensure that the network is “economic, co-ordinated and efficient.”
- 1.4 NIE has divided its network developments for renewable generation into 3 stages:
- The short term plan: upgrading existing network assets and smart solutions to increase their capacity on windy days;
 - The medium term plan: projects to increase the capacity of the 110 kV network and to increase flows up to the 275 kV network;
 - The renewable integration development plan: new assets at 275 kV and above.
- 1.5 NIE has completed the short term work and is part way through the medium term plan. This paper covers the work required to complete the medium term plan. NIE are finalising the plan for developing the 275 kV network to accommodate the volume of renewable generation required to achieve the SEF target. We approved funding from customers for NIE to undertake the studies associated with this in January 2008. The final proposals will be published in due course.
- 1.6 NIE has requested £27.8 million to undertake two projects to increase the network capacity available for renewable generation. These form part of a larger programme of works, which NIE estimate will cost £43.8 million in total. NIE is currently obtaining the statutory consents necessary for the remaining £16 million of investment.
- 1.7 The Utility Regulator is minded to approve the £27.8 million investment that NIE are ready to undertake and to approve in principle the remaining £16 million

investment. This will allow NIE to complete its Medium Term Plan for the integration of renewable generation.

1.8 This document contains a summary of:

- NIE's request;
- our analysis of NIE's requests;
- and our reasons for approving the investment.

1.9 This consultation on our minded to position is open until 22 January 2013. We would encourage all interested parties to share their views with us. In particular we are interested in hearing thoughts on the risk allocation and management proposals. Details of how to respond can be found in Section 7 of this document.

2 NIE REQUEST

2.1 NIE have analysed flows on the network in accordance with the planning and operation standards (as specified in condition 19 of its licence). This has identified three bottlenecks when the 1000 MW of renewable generation with planning permission connects to the network.

1. Kells to Coleraine circuit (project 1)
2. Capacity at the Tamnamore sub-station (project 2)
3. Capacity between Omagh and Tamnamore (project 3)

2.2 NIE propose to resolve these bottlenecks as part of its Medium Term Plan. It has requested approval from us to undertake two capital investments and has provided information to us about how it proposes to resolve the third bottleneck.

2.3 In each case, NIE has identified the least cost method of removing the bottleneck. The three projects are to:

1. Increase the rating of the Kells to Coleraine circuit by installing higher capacity conductor at critical spans (project 1)
2. Install additional capacity at the Tamnamore sub-station (project 2)
3. Install a third circuit between Omagh and Tamnamore (project 3)

2.4 The capital costs of the projects are listed in Table 1.

Project	Amount Requested (£m)	Status
Kells – Coleraine Uprate	£2.6	With UR for approval

Tamnamore Phase 2	£25.2	
Omagh - Tamnamore 3rd Circuit	£16.0 ¹	With UR for pre-construction approval (£1.25m)
Total	£43.8	

Table 1: Capital Cost

- 2.5 NIE has completed its procurement process for the Kells to Coleraine and Tamnamore Phase 2 projects. It will commence work on them once approval is in place.
- 2.6 Planning permission has recently been granted for the third circuit between Omagh and Tamnamore. NIE will now commence detailed design and the wayleaves process. It will request approval for the construction of this circuit when it has completed these tasks and the associated procurement processes.
- 2.7 NIE has indicated to us that it expects to complete the Tamnamore Phase 2 project during the 2016/17 financial year. The other two projects should be completed before the end of 2016. NIE has not made any commitment to deliver the additional capacity provided by these schemes by any specific date. It is our intention to publish information on progress quarterly.

3 SONI ANALYSIS

- 3.1 SONI is the operator of the electricity transmission system in Northern Ireland. We asked SONI to model the operation of the transmission network in 2016, with and without these investments.
- 3.2 The modelling has shown that with these investments, 750 MW of renewable generation would receive firm access to the transmission network (and would therefore be paid in the wholesale market if they were constrained off). This is an additional 299 MW of firm capacity. In addition more than 250 MW could connect on a non-firm basis with limited constraint.
- 3.3 The results of SONI's modelling are presented in Table 2. These figures assume that 1000MW of renewable generation connect to the network. We note however that SONI have attached a disclaimer to these results². We would like to draw your attention to this disclaimer. In this, SONI "strongly

¹ Latest best estimate 22/11/12, includes £1.25 million for pre-construction costs. This value may change as the detailed design has not been prepared.

² See SONI paper published alongside this document.

recommends that any party wishing to make a decision based on the content of this document should contact the TSO in advance”.

Option	Renewable FAQ	MWh Constrained
0 – do nothing	433	113,961
1 – Kells to Coleraine only	493	90,740
2 – Kells to Coleraine plus Tamnamore Phase2	580	59,476
3 – all 3 projects	751	3,839

Table 2: Results of SONI's modelling

3.4 Under the current industry arrangements NIE is responsible for planning and developing the transmission network and SONI is responsible for operating it. NIE provide connection offers to generators connecting to the distribution system. As Transmission operator, SONI propose (subject to further consultation and acceptance) to calculate and provide these generators with details of their firm transmission access quantities (FAQ). The FAQ report will be part of the documents that accompany the NIE connection offer.

3.5 SONI rely on NIE to develop the network to be able to honour the FAQ information provided to the generators. Therefore neither party can be held fully accountable for the provision of FAQ. The relationship between the two licensees is defined in the Transmission Interface Agreement.

4 IMPACT ON STRATEGIC ENERGY FRAMEWORK TARGETS

4.1 The renewable generation that would be facilitated by these schemes will make a significant contribution towards the 40% target for renewable generation of electricity by 2020.

4.2 We have estimated an indicative percentage of NI electricity demand that could be met by indigenous renewable generation based on a number of assumptions:

- Renewable generation load factor = 0.315³
- NI demand for electricity is 10,279 GWh/year⁴
- Either 750 MW or 1000 MW of renewable generation connecting in NI

³ SONI Generation Adequacy Report page 39. Average wind capacity factor over the last 6 years (note this will vary according to weather conditions in any given year)

⁴ SONI 2011 forecast for 2020, this assumes 1.5% growth each year up to 2020

4.3 The results are shown on Table 4. These levels of renewable generation will only be achieved if the generators who have planning permission develop their sites.

Renewable Generation MW	Load Factor	Renewable MWh produced	NI demand MWh	Percentage of demand from indigenous renewables
750	0.315	2,069,550	10,279,174	20%
1000	0.315	2,759,400	10,279,174	27%

Table 4: Impact on SEF targets

5 IMPACT ON CONSUMERS

- 5.1 These investments will be added to NIE's transmission renewables regulated asset base (RAB). Under the RP4 price control, each year NIE are allowed to recover the depreciation associated with the RAB and a return on the money invested in the RAB. This includes an amount to cover the tax associated with their return on the equity invested in the RAB. We proposed to maintain this mechanism for RP5.
- 5.2 Under Condition 22 of its licence, NIE charge SONI for "transmission services". The depreciation, return and tax associated with NIE's investment in these assets will be added to that charge.
- 5.3 SONI recover 75% of the transmission services charge from NI electricity suppliers and 25% from generators operating in the SEM. Figure 1 shows the total amount that would be charged by SONI to generators and suppliers if the entire investment (£44 million) was added to the RAB in one year. In practice this will be spread over a three years, smoothing the impact on tariffs.

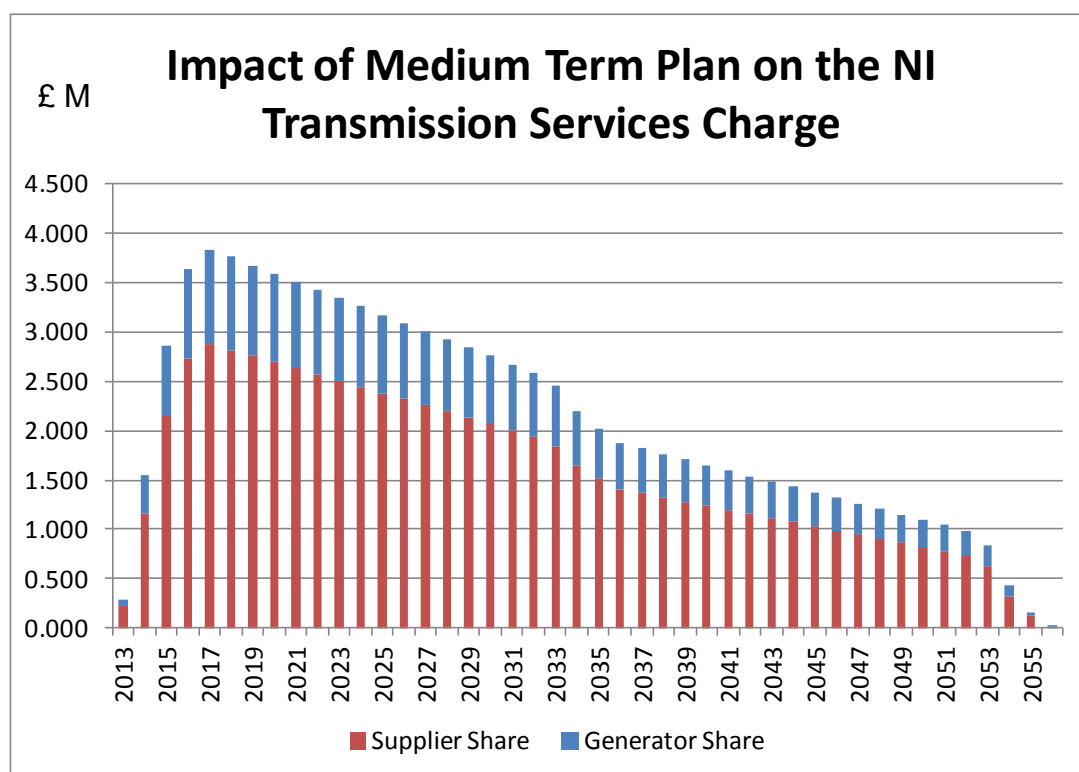


Figure 1: Impact of these investments on charges to consumers and generators

- 5.4 The locational charging of generators in the SEM means that the generators using these assets will pay a greater proportion of their cost than generators who aren't. If these projects are approved, the costs of the assets will be reflected in the locational charges applied by SONI from 1 October 2013.
- 5.5 NI consumers are all currently connected to the distribution system. The charges for using the distribution system vary by connection voltage, with lower voltage customers paying a higher unit rate than high voltage customers. This reflects the amounts of the distribution system that each customer group uses. However, they are all charged the same rates for using the transmission system, as they all make equal use of that part of the network.
- 5.6 The rates for using the transmission system vary according to time of day and time of year. The winter peak tariff is the most expensive and off-peak use in the cheapest.⁵
- 5.7 We have estimated the impact that these projects will have on NI consumers. These calculations are based on the tariff analysis undertaken for RP5, however we have only included the additional costs caused by these three projects. The results are shown in Table 4. The results present the total cost of using both transmission and distribution networks for the year when the

⁵ <http://www.soni.ltd.uk/upload/Final%20TUoS%20Charging%20Statement%202012-13.pdf>

investment will have the biggest impact. Other years will have reduced impact going forward.

Customer Type	Current Average Cost		Cost with Medium Term Plan		Change	
	£/year	p/kWh	£/year	p/kWh	p/kWh	%
Domestic	£132.44	3.171	£134.41	3.219	0.047	1.5%
Small Business (Quarterly Billing)	£497.48	2.695	£504.79	2.735	0.040	1.5%
Half hourly Metered MV	£7,651.71	2.280	£7,749.81	2.309	0.029	1.3%
Halfhourly Metered HV	£39,162.71	0.931	£ 40,222.44	0.956	0.025	2.7%
Halfhourly Metered EHV	£124,926.99	0.453	£131,432.11	0.476	0.024	5.2%

Table 4: Impact of these projects on use of system charges

- 5.8 It can be seen that domestic consumers will experience the largest average increase in unit costs. This is due to the proportion of their consumption that occurs at peak times (domestic lighting and cooking etc.) They also pay the highest average unit rate for using the entire system, as they are connected at the lowest voltage.
- 5.9 Large users experience the highest percentage increase, even though the increase in their average unit charge is half that experienced by domestic consumers. This because they have the lowest aggregate unit rate for network use to start with. Their increase in unit rate is lower than that of domestic consumers because large users are able to manage their consumption patterns at peak times.
- 5.10 The increased amount of low marginal cost generation in the wholesale market should reduce the total cost of producing electricity on the island of Ireland. These lower production costs should feed through into lower energy costs for consumers. The precise impact will depend on the wholesale market arrangements, which are currently being reviewed⁶.

⁶ http://www.allislandproject.org/en/TS_Current_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385

6 OUR STATUTORY DUTIES AND PROPOSED DECISION

Introduction

6.1 Our statutory duties are defined in legislation⁷ and are set out below. We have considered our statutory duties in coming to our proposed decision.

Our statutory duties

6.2 Our principal objective in carrying out our electricity related functions is:

“to protect the interests of consumers of electricity supplied by authorised suppliers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the generation, transmission, distribution or supply of electricity.”

6.3 In addition, we must also have regard to:

- (a) *“the need to secure that all reasonable demands in Northern Ireland or Ireland for electricity are met; and*
- (b) *the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under Part II of the Electricity Order or this Order”*

6.4 We are also required to secure a diverse and environmentally sustainable long term energy supply as well as promote renewable generation

6.5 These projects are relevant to our duties:

- They promote competition between generators and “secure a diverse and environmentally sustainable” generation mix by providing firm access to the market for 750 MW of renewable generation. In addition, at least 250 MW more can connect on a non-firm basis.

6.6 In addition, EU directive 2009/28/EC requires member states to “take the appropriate steps to develop transmission and distribution grid infrastructure, in order to allow the secure operation of the electricity system as it accommodates the further development of electricity production from renewable sources.”

⁷ See RP5 Final determination appendix c for details

http://www.uregni.gov.uk/uploads/publications/Appendix_C_-_Statutory_Duties.pdf

6.7 Based on the statutory obligations upon us, and the analyses we have undertaken, we are minded to approve NIE's request for the Kells to Coleraine and Tamnamore Phase 2 projects.

6.8 These projects will be approved under the RP4 Dt term in Annex 2 of NIE's current transmission licence⁸. The actual efficiently incurred costs of the projects will be added to the transmission renewables RAB. This will be depreciated over 40 years at 3% for the first 20 years and 2% for the second 20 years. NIE will be paid a return on the undepreciated investment at the weighted average cost of capital specified for that RAB in the relevant price control. The treatment of the tax associated with this return will be specified in NIE's licence. This rate of return and treatment of the associated tax may vary over the 40 year period.

6.9 Adding the actual costs of the project to the RAB places any remaining cost risk with consumers. An overview of the risk allocation associated with these projects is included in Table 5.

Risk Type	Placed With	Mitigation
Cost	Consumer	Amount assessed includes 10% contingency. NIE consider this sufficient to cover all foreseeable risks
Time	Consumer / Developers	Visibility of cost and delivery throughout programme. Regular updates provided to the renewable Grid Liaison Group.

Table 5: Risk allocation for the Medium Term Plan

6.10 We intend to reserve the right to audit the costs of the project to ensure that they are efficiently incurred⁹. We note that NIE has followed a full tender process for the Tamnamore Phase 2 project and has tendered for materials for the Kells to Coleraine project. Costs that have been market tested and are aligned with industry benchmarks would be considered efficient.

6.11 We are interested in stakeholders views on all aspects of this proposed decision, including the risk allocation and project delivery.

⁸ http://www.uregni.gov.uk/publications/nie_licence_modification_september_2012

⁹ NIE has a statutory obligation "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission".

7 NEXT STEPS

- 7.1 We welcome comments on this proposed decision paper. We have not posed specific questions in this paper, but instead invite stakeholders to express a view on any aspect of the paper or related matter. Responses should be received by 1700 on 22 January 2012 and should be addressed to:

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- 7.2 Our preference is for responses to be submitted by e-mail, although hard copy responses are also acceptable.
- 7.3 Individual respondents may ask for their responses not to be published (in whole or in part), or for their identity to be withheld from public disclosure. In either case, we will ask respondents to supply us with a redacted version of the response that we can publish.
- 7.4 As a public body and non-ministerial government department, we are bound by the Freedom of Information Act (FOIA) which came into effect in January 2005. According to the remit of FOIA, it is possible that certain recorded information contained in consultation responses can be put into the public domain. Hence it is now possible that all responses made to consultations will be discoverable under FOIA – even if respondents ask us to treat responses as confidential.
- 7.5 It is therefore important that respondents note these developments and when marking responses as confidential or asking responses to be treated as confidential, should specify why they consider the information in question to be confidential.
- 7.6 This paper is available in alternative formats such as audio and Braille. If an alternative format is required, please contact the office and we will be happy to assist.