RenewableNI response to SONI draft Transmission Development Plan 2020-2029

RenewableNI is the trade association and voice for the renewable electricity industry in Northern Ireland. We represent over 30 businesses, fostering knowledge exchange, sharing best practice and supporting policy development. Engaged in wind, solar, tidal and battery storage, our members make up a large majority of the renewable industry supply chain.

RenewableNI welcomes the opportunity to respond to the Utility Regulator's consultation on the SONI draft Transmission Development Plan (TDP).

Net Zero

The UK Government has set in legislation a requirement for a 'net zero' economy by 2050. To achieve this the power sector, which has already made significant strides towards decarbonisation, would have to reach net zero by 2040. It is expected that for other sectors such as heat and transport the transition will be longer hence power having to do the early heavy lifting. Without more renewables, net zero cannot be achieved.

Latest figures published by the Department for the Economy (DfE) calculate that 48% of our electricity consumption in Northern Ireland is from renewables. While RenewableNI would question the methodology used for ascertaining this figure as it does not take account for transmission and distribution system losses. It does however point to an ever increasing level of electricity produce by renewables and act as a benchmark against which to assess progress on future targets.

Energy Strategy for Northern Ireland

With an obligation on all public authorities to facilitate the transition to net zero, RenewableNI is anticipating an ambitious Energy Strategy for Northern Ireland being in place by the end of 2021. It has been made clear in DfE's call for evidence and subsequently that the strategy will provide a path to net zero by 2050.

We note that the Minister for the Economy, Diane Dodds, has given a commitment to a target of not less than 70% renewable electricity generation by 2030. While RenewableNI will continue to argue for an 80% target, it is clear that either way a considerable increase in renewable electricity generation will be required to meet both the ambitions of the strategy coupled with the likely increase in electricity demand as a result of greater electrification of heat and transport.

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It is anticipated that DfE will seek to stimulate investment in new generation capacity to ensure that the new ambition of the energy strategy is met. According to estimates in SONI's Tomorrow's Energy Scenarios (TES) an additional 2753MW of renewable electricity generation will be required to meet an 80% target. It is important that grid development keeps pace with increased generation capacity otherwise we will see a significant rise in levels of dispatch down. As well as increasing costs to consumers, dispatch down results in the use of greenhouse gas emitting fossil fuels when clean, renewable electricity would otherwise have been available.

The Wind Dividend

RenewableNI commissioned Baringa to carry out research of the impact of the investment in wind energy between 2000-2020. The Wind Dividend report highlights that consumers have saved £135m net, over that time period, as a result of the downward pressure that electricity generated from wind has on the wholesale price. In addition to the saving to consumers and the creation of local jobs, £10m per year from the industry is contributed in rates with almost £2m per year in community projects, showing that investment in renewable electricity, and wind in particular creates significant economic benefit. Furthermore, 9m tonnes of carbon has already been saved in that time.

Dispatch Down

Dispatch down (DD) in Northern Ireland is concerningly high in 2020. In 2019 DD levels were 11.3% in Northern Ireland but have increased to 16.9% in Q1-Q3 2020. This compares unfavourably with the Republic of Ireland DD levels of approximately c.11% over the same period in 2020, putting generators in Northern Ireland operating in the Single Electricity Market, at a significant disadvantage.

Analysis carried out by Mullan Grid (see Appendix 1) calculates the cost to the industry of DD in NI at €24m for the first three quarters of 2020 after taking account of any compensation received. A projected figure of circa €30m for the whole of 2020 is unacceptable.

Approximately 45% of the 2020 DD is due to constraints. Constraints can be removed with the further development of the Northern Ireland transmission system. This draft development plan is therefore a critical document for the Northern Ireland renewable industry. It is vital that this plan can substantially reduce the constraints currently being experienced by Northern Ireland windfarms. As this loss of renewable energy and increase in CO^2 emission is currently already at a high level, it is

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also critical the plan details clearly how the transmission reinforcements will be delivered in a timely manner.

RenewableNI is also concerned that the demand for new connections as a result of the existing renewable pipeline (detailed further in the next section), plus any further increase in the pipeline which could result from favourable government policies, will lead to further increases in the level of DD and the need for transmission development. The draft TDP does not outline sufficient investment to facilitate the anticipated level of renewable deployment required to decarbonise the Northern Ireland electricity system. RenewableNI welcomes SONI's stated commitment to 95% System Non-Synchronous Penetration (SNSP) by 2030, however we feel that the investment outlined in the TDP is insufficient to meet this objective.

Pipeline Data

The RenewableUK Project Intelligence resource tracks every renewable electricity application in the UK planning system. Using this information and compiling it with RenewableNI's own data from our June 2020 membership survey, has allowed us to produce a data on the pipeline for renewable electricity projects across Northern Ireland, from pre planning to consented projects. See a breakdown by planning authority at Appendices 2 and 3.

Our data shows that there is currently at least 1.27GW of onshore wind and 486MW of storage projects in the development pipeline. This figure may be higher due to projects in development which RenewableNI is not yet aware.

RenewableNI would expect this figure to rise with the production of the DfE energy strategy in 2020 and any resultant policies which would encourage the deployment of renewables to help achieve net zero.

Since the 2019-2028 TDP there has been 1 project cancelled, 1 project's connection offer expired, only 1 new project and many more projects being delayed. The rate of grid development does not match the rate of new generation connections.

RenewableNI is concerned that without significant strategic investment in both the transmission and distribution system that levels of dispatch down could increase further negatively impacting upon efforts to meet new renewable electricity targets and increasing consumer costs.

Connecting Existing and Future Renewable Generation

RenewableNI believes it would be beneficial to highlight in the TDPNI whether projects tagged as 'RES Integration' are aiming to release capacity for new projects in development and/or to be

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developed, or the intention for reinforcements is only to fulfil the current queue of projects waiting to connect, as well as currently operational without firm access.

Developers will welcome an indication of the potential MW of capacity that is supposed to remain available for new connections after project construction (if that is to be the case). This will drive efficiencies for developers and the TSO as it would steer efforts to develop renewable projects as close as possible to network areas with available capacities, improving the network utilisation and therefore getting the best value out of the reinforcement expenditure.

There is a fundamental need to develop a flexible and principle-based approach to connections and network access. Policy must be future proofed to provide clear and comprehensive processes that facilitate all types of connections in a transparent and cost-effective manner.

Connecting Offshore

RenewableNI notes that both SONI's Addressing Climate Change and Accelerated ambition scenarios include a level of offshore generation. It is important that SONI collaborates with industry to ensure that as developers are planning offshore projects that SONI is simultaneously putting in place the infrastructure needed to bring projects onshore.

There is an opportunity to use the Republic of Ireland as an example of the time and methodologies taken to examine various offshore grid delivery models and their overall implementation. It is vital that grid infrastructure and capacity does not act as a barrier to offshore deployment. It will therefore be necessary to commence work on this in the early years of the TDP to ensure that we are ready to incorporate offshore generation by 2030

Integration with Tomorrow's Energy Scenarios

RenewableNI welcomes SONI's inclusion of an 80% RES-E pathway in its final TES document, something which we had asked for in our response to the consultation. This has helped inform the discussions of DfE's power sector working group.

We would welcome an analysis around the suitability of the network reinforcements when considering the TES scenarios to demonstrate that proposals in the TDPNI are in line with facilitating access to the network to low carbon technologies and those can optimally, with acceptable Dispatch Down levels, deliver decarbonisation targets. NGESO undertakes a probability analysis every time they publish their Electricity Ten Year Statement report so something similar would be beneficial.

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Interconnection

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RenewableNI fully supports the development of the second North/South interconnector. RenewableNI also understands the challenges of bringing it forward and note that the completion dates is estimated to be winter 2023. It is noted that a substantial proportion of current constraints of renewable generation in Northern Ireland would be removed when the North/South interconnector is complete.

Given these challenges, we believe that SONI should be continuously planning for alternatives should the N/S interconnector not be developed as this is impacting a very significant quantity of existing generation. We would like to see these contingency plans included in the final version of the Plan.

RenewableNI welcomes the new target date of 2024 for completion of works to allow the full integration of the 500MW export capacity of the Moyle Interconnector. We note however that Northern Ireland has been a net importer of electricity through the Moyle Interconnector during times of constraint. There should also be an opportunity to increase export during curtailment events due to the recent increase in firm export capacity to 250MW We would ask SONI, through its role as SEM Operator, that it explores ways to improve intraday trading to allow the market to adequately respond in real time to constraint and curtailment events. We also request the SONI maximises any counter trading opportunities on the Moyle interconnector to reduce DD of Northern Ireland renewable generation.

SONI / NIE Networks Collaboration

RenewableNI welcomes the increased co-ordination between SONI and NIE Networks as well a good level of engagement with the renewables industry. We would ask only that this continues to develop to ensure the best outcome for the system as a whole.

This includes coordinated planning and operational processes, data management, and transparency, to enable efficient system decisions i.e. whether an investment at a transmission or a distribution level is in the best interests of consumers.

Furthermore, we believe that coordination of network planning must take into account the all-island nature of the electricity market, and in particular the importance of circuits to the West and into Donegal.

Conclusion

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RenewableNI commends SONI's commitment to facilitating increased renewable electricity generation onto the grid however we believe that greater investment is needed in order for Northern Ireland to play its part in meeting the UK's net zero ambitions.

We look forward to working with SONI and other partners, including the Utility Regulator and NIE Networks, to ensure that the development of the grid continues to be world leading.

Yours Sincerely,

Steven Agnew,

Head of RenewableNI

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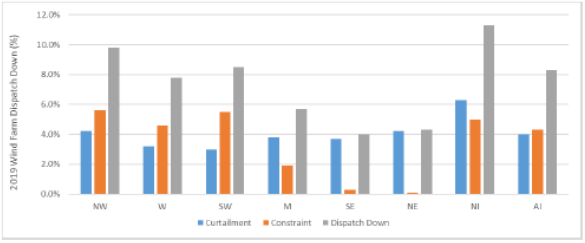
Appendix 1: Mullan Grid Cost Analysis of Dispatch Down for 2019 & 2020

4. Estimation of Cost of 2019 Wind Farm Dispatch Down

Key Input Assumptions	Comment
Wind Capacity Factor*	30% for ROI and 29% for NI
Dispatch Down*	Refer to graph below
REFIT I Lost Revenue	€77.67 per MWh (96% of REFIT I reference and balancing 2019 price)
REFIT II Lost Revenue	€77.04 per MWh (96% of REFIT II 2019 price)
Merchant Lost Revenue	€43.66 per MWh (96% of average wind SMP during dispatch down events in 2019)
ROC Lost Revenue**	€51.00 per MWh (92% of 2019/20 ROC price (£48.78 x 2019 exchange rate of 0.88))

* = Based on information obtained from Q4 2019 All-Island Quarterly Wind Dispatch Down Report

** = https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-ro-buy-out-price-and-mutualisation-ceilings-2019-20



Wind Region	All Wind Farms								IWEA Working Group Wind Farms	
	Wind MEC (MW)	Curtailment (%)	Curtailed Energy (MWh)	Constraints (%)	Constrained Energy (MWh)	Lost Curtailed Revenue (€)	Lost Constrained Revenue (€)	Total Lost Revenue (€)	Wind MEC (MW)	Total Lost Revenue (€)
NW	443	4.2%	37437	5.6%	49917	€ 2,574,304	€ 2,879,744	€ 5,454,048	319	€ 4,490,418
W	1102	3.2%	80831	4.6%	116195	€ 5,857,043	€ 8,157,939	€ 14,014,982	896	€ 12,350,400
SW	1509	3.0%	111296	5.5%	204042	€ 8,361,517	€ 14,891,816	€ 23,253,333	1339	€ 21,892,974
M	542	3.8%	50750	1.9%	25375	€ 3,919,815	€ 1,959,907	€ 5,879,722	454	€ 5,247,610
SE	363	3.7%	28701	0.3%	2327	€ 2,063,348	€ 152,662	€ 2,216,010	275	€ 1,792,911
NE	180	4.2%	16173	0.1%	385	€ 1,251,982	€ 29,809	€ 1,281,791	138	€ 1,038,515
NI*	1108	6.3%	162597	5.0%	129046	€ 15,390,388	€ 9,549,212	€ 24,939,600	963	€ 22,177,745
AI	**5247**	**4.0%**	**487786**	**4.3%**	**527286**	**€ 39,418,396**	**€ 37,621,090**	**€ 77,039,486**	**4384**	**€ 68,990,573**
Estimated Lost Wind Energy as Percentage of 2019 All-Island Electricity Sector CO_2 Emissions**								**2.9%**		
Estimated Lost Wind Energy as Percentage of 2019 All-Island Electricity Demand***								**2.7%**		

Note: Energy figures outlined above are likely to not include lost energy due to outages, and further engagement is required with EirGrid & SONI on the data presented in their reports

* = Accounts for large scale wind in Northern Ireland and therefore excludes 168MW of uncontrollable small scale wind. Also important to note that up to the end of Q3 2019, NI curtailment was incorrectly reported by SONI to include North-South interconnector constraints.

** = Based on 2017 electricity emissions factors of 436.6g CO_2/kWh (ROI) and 406g CO2/kWh (NI), and the total 2016 electricity emission figures of 11.66Mt CO_2 (ROI) and 3.41Mt CO_2 (NI) with ROI figures obtained from SEAI Energy in Ireland 2018 Report and NI figures obtained from https://www.daera-ni.gov.uk/sites/default/files/publications/daera/northern-ireland-carbon-intensity-indicators-2019.pdf

*** = Based on 2019 all-island demand figure of 36,978GWh obtained from EirGrid's "System-and-Renewable-Data-Summary-Report" spreadsheet on their website

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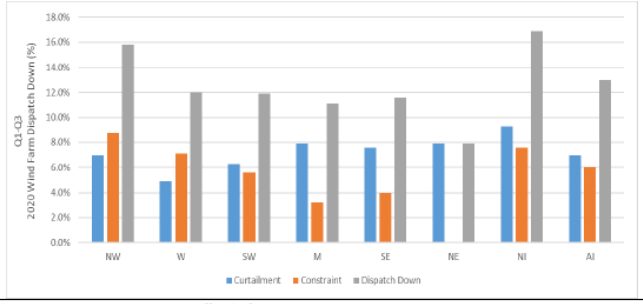
4. Estimation of Cost of Q1-Q3 2020 Wind Farm Dispatch Down

Key Input Assumptions	Comment
Large Scale Wind Availability Capacity Factor*	32% for ROI and 31% for NI
Dispatch Down*	Refer to graph below
REFIT I Lost Revenue	€77.76 per MWh (96% of REFIT I reference and balancing 2020 price)
REFIT II Lost Revenue	€77.04 per MWh (96% of REFIT II 2020 price)
Merchant Lost Revenue	€19.10 per MWh (96% of average wind SMP during dispatch down events in Q1-Q2 2020)
ROC Lost Revenue**	€52.33 per MWh (92% of 2020/21 ROC price (£48.78 x 2019 exchange rate of 0.88))

* = Based on information obtained from Q3 2020 All-Island Quarterly Wind Dispatch Down Report

** = https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-ro-buy-out-price-and-mutualisation-ceilings-2020-21



Wind Region	All Wind Farms								IWEA Working Group Wind Farms	
	Wind MEC (MW)	Curtailment (%)	Curtailed Energy (MWh)	Constraints (%)	Constrained Energy (MWh)	Lost Curtailed Revenue (€)	Lost Constrained Revenue (€)	Total Lost Revenue (€)	Wind MEC (MW)	Total Lost Revenue (€)
NW	443	7.0%	49312	8.8%	61993	€ 3,085,167.30	€ 3,578,141.80	€ 6,663,309.10	319	€ 5,482,535
W	1127	4.9%	100426	7.1%	145515	€ 7,053,741.74	€ 10,191,076.54	€ 17,244,818.29	896	€ 14,774,632
SW	1557	6.3%	190483	5.6%	169318	€ 14,029,621.88	€ 12,316,670.55	€ 26,346,292.43	1368	€ 24,626,168
M	538	7.9%	83384	3.2%	33776	€ 6,442,763.10	€ 2,609,726.82	€ 9,052,489.92	465	€ 8,286,442
SE	363	7.6%	46592	4.0%	24522	€ 3,166,732.81	€ 1,599,210.48	€ 4,765,943.29	276	€ 3,825,100
NE	180	7.9%	24042	0.0%	0	€ 1,862,434.67	€ -	€ 1,862,434.67	138	€ 1,509,203
NI*	1108	9.3%	193213	7.6%	157895	€ 13,801,021.96	€ 9,851,125.23	€ 23,652,147.19	963	€ 20,963,915
AI	**5317**	**7.0%**	**687452**	**6.0%**	**593018**	**€ 49,441,483.47**	**€ 40,145,951.42**	**€ 89,587,434.89**	**4425**	**€ 79,467,996**

Note: Energy figures outlined above are likely to not include lost energy due to outages, and further engagement is required with EirGrid & SONI on the data presented in their reports

* = Accounts for large scale wind in Northern Ireland and therefore excludes 168MW of uncontrollable small scale wind. Also important to note that up to the end of Q3 2019, it is understood that NI curtailment was incorrectly reported by SONI to include North-South interconnector constraints.

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Appendix 2: Wind Pipeline Data by Local Planning Authority (June 2020)

Planning Authority	Capacity (MW)	No. of Projects
Antrim & Newtownabbey	16	15
Ards & North Down	3	15
Armagh City, Banbridge & Craigavon	14	41
Belfast	6	3
Causeway Coast & Glens	314	70
Derry City & Strabane	200	53
Fermanagh & Omagh	229	166
Lisburn & Castlereagh	2	11
Mid & East Antrim	149	42
Mid Ulster	98	94
Newry, Mourne & Down	6	26
Strategic Planning Directorate	234	6
Total	**1272**	**542**

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Appendix 3: Storage Pipeline Data by Local Planning Authority (June 2020)

Planning Authority	Capacity (MW)	No. of Projects
Antrim & Newtownabbey	50.00	1
Ards & North Down		1
Armagh City, Banbridge & Craigavon	50.00	1
Belfast	0.00	0
Causeway Coast & Glens		2
Derry City & Strabane	50.00	1
Fermanagh & Omagh	20.00	1
Lisburn & Castlereagh	50.00	1
Mid & East Antrim	150.00	2
Mid Ulster	100.00	2
Newry, Mourne & Down	16.25	2
Strategic Planning Directorate		1
Total	**486.25**	**15**

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