Project Sheet

RIDP I

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Index

Key Information 3
Description 3
Project Description & Context 5
Project Investments 5
System Needs addressed by the project 6
Interconnection targets 6
Project Assessment 10
Transfer capacity increase (National Trends 2025) 10
CBA results 10
Central scenario: National Trends 10
Scenarios: Distributed Energy & Global Ambition 12
Non scenario-dependent indicator(s) 13
Sensitivity Study: Current Trends 14
Residual impact 15
Project Costs 16

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Key Information

Cross Border Project
AC transmission line
New

PCI number 2.13.2 (4th list, 31 Oct. 2019)
Planned But Not Yet Permitting

Description

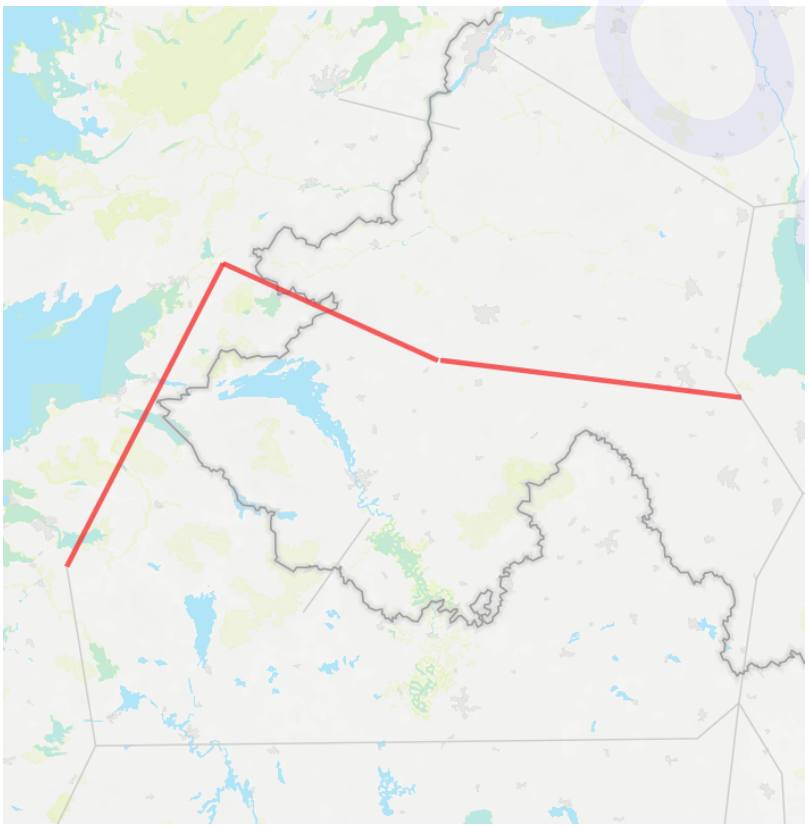
The infrastructure development is required to facilitate connection of renewable generation in the North and West of the Island. It will further integrate the Ireland and Northern Ireland transmission systems and provide capacity for substantial demand growth.

Project promoters

EIRGRID
SONI

Countries

United Kingdom
Ireland



National development plan(s)

- Transmission Development Plan Northern Ireland 2019-2028, page 66:
http://www.soni.ltd.uk/media/documents/SONI-TDPNI-2019-2028.pdf
- Transmission Development Plan Ireland 2019-2028, page 41:
https://www.eirgridgroup.com/site-files/library/EirGrid/TDP-2019-2028-Final-For-Publication.pdf

Additional information on the project

Project website:

http://www.eirgridgroup.com/how-the-grid-works/ridp/

Project sheet backlog

6 Nov. 2020 - Publication as part of the draft TYNDP 2020 package for consultation

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Project Description & Context

Project Investments

Main investment(s): A new 275 kV cross border link between a new substation in South Donegal in Ireland and a new substation established south of Omagh in Northern Ireland

Type of element	Total route length (km)	From substation 1	To substation 2	Present status	Commissioning year	Progress of the investment	Explanation in case of delay or reclustering
AC transmission line	58	South Donegal (IE)	Omagh South (NI)	Planned But Not Yet Permitting	2030	Rescheduled	A capacity review of committed generators and upcoming new connection policy rules will impact on renewable generation totals that drive the date of need for this investment.

Other investments

Description	Type of element	Total route length (km)	From substation 1	To substation 2	Present status	Commissioning year	Progress of the investment	Explanation in case of delay or reclustering
A new EHV overhead line from Srananagh in Co. Sligo to a new substation in south Co. Donegal	AC transmission line	83	Srananagh (IE)	New substation in South Donegal (IE)	Planned But Not Yet Permitting	2030	Rescheduled	A capacity review of committed generators and upcoming new connection policy rules will impact on renewable generation totals that drive the date of need for this investment.
A new 275 kV overhead line from a new substation established	AC transmission line	61	Omagh South	Turleenan	Planned But Not Yet Permitt	2030	Rescheduled	A capacity review of committed generators and upcoming new

Description	Type of element	Total route length (km)	From substation 1	To substation 2	Present status	Commissioning year	Progress of the investment	Explanation in case of delay or reclustering
south of Omagh to a new 400/275 kV substation, established at Turleenan by the North South Interconnection Development					ing			connection policy rules will impact on renewable generation totals that drive the date of need for this investment.

Is the project in the reference grid?

No

System Needs addressed by the project

Project promoter(s) selected up to 4 system needs that are addressed by their project in a predefined list. Available needs ranged from reduction of price differentials between countries, improvement of system flexibility and stability, enabling cost-efficient connection of high volumes of RES, improvement of voltage stability...
As part of the TYNDP 2020, ENTSO-E released a study investigating cross-border system needs in the 2030 and 2040 horizons.

Need		How the project addresses each need (explanation provided by the project promoter(s))
	Infrastructure designed to enable cost-efficient grid connection of high volumes of RES and/or reduce RES curtailment	This development facilitates the connection of renewable generation in the North and West of the island of Ireland. Existing infrastructure in the area is 110 kV; this 220 kV and 275 kV development provides significant additional capacity to allow the secure connection of renewable generation.

Interconnection targets

In 2017, the Interconnection Target Expert Group proposed alternative indicators to the 15% interconnection criteria for every country and electrified island with a new methodology developed collaboratively between the European Commission, ENTSO-E, ENTSOG, industry, universities and other experts. The methodology is based on three indicators:
1. Price differential between EU countries, with an objective to reduce it below 2 EUR/MWh
2. Ratio between nominal transmission capacity and installed RES capacity, with a target of past 30%
3. Ratio between nominal transmission capacity and peak load, with a target of past 30%

The following maps show the ITEG methodology applied to the TYNDP 2030 scenarios, with the 2020 grid.

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Project Assessment

Transfer capacity increase (National Trends 2025)

	Border	A B	B A
Transfer capacity increase (in MW)	Ireland - Northern Ireland	570	570

CBA results

ENTSO-E has assessed the benefits delivered by each project in 2025 (scenario National Trends 2025) and in 2030 (three scenarios: National Trends, Distributed Energy and Global Ambition). Indicators B1 to B6 were computed by ENTSO-E, while promoters had the possibility to compute and submit so-called project-level benefits (B7 to B10). The benefits must be understood as benefits for Europe as a whole, not for the promoters of the project.
Results are presented per scenario.

Central scenario: National Trends

National Trends is the central policy scenario of the TYNDP2020, designed to reflect EU member state's National Energy and Climate Plans (NECP), in line with the requirement to meet current European 2030 energy strategy targets.

			Comparison of the COP21 scenarios with NT2030 average result		
	NT2025	**NT2030**	**DE2030 is < or > than NT2030**	**GA2030 is < or > than NT2030**	

Increase in socio-economic welfare

B1 Annual Socio-Economic Welfare (SEW) increase (M € / year)	max average min	29 26 23	15 14 12	>	>	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	max average min	5 5 5	4 3 3	>	<	ENTSO-E assessment
B1_RES Annual Socio-Economic	max average	27 26	11 11	>	>	ENTSO-E assessment

Welfare increase resulting from RES integration	min	24	10			

Reduction of CO2 and GHG emissions

B4 Non-CO2 emissions (kg/year)

B4a Nitrogen oxides	average	300	424	n/a	n/a	ENTSO-E assessment
B4b Ammonia	average	18	37	n/a	n/a	ENTSO-E assessment
B4c Sulfur dioxide	average	449	447	n/a	n/a	ENTSO-E assessment
B4d Particular matter 5	average	-244	-572	n/a	n/a	ENTSO-E assessment
B4e Particulate matter 10	average	38	49	n/a	n/a	ENTSO-E assessment
B4f Non-methane volatile organic compounds	average	-260	-592	n/a	n/a	ENTSO-E assessment

B2a Annual CO2 variation from market simulation (ktonnes / year)		max average min	-218 -227 -235	-105 -118 -131	 <	 >	ENTSO-E assessment
B2a_€ Annual Societal cost variation resulting from CO2 variation from market simulation monetised (M € / year)	CO2 price	60€/ ton 100€/ ton 189€/ ton	8 18 38	4 8 19	< > >	< > <	ENTSO-E assessment
B2b Annual CO2 variation due to network losses (ktonnes / year)		average	-46	-9	n/a	n/a	ENTSO-E assessment
B2b_€ Annual Societal cost variation resulting from	CO2 price	60€/ ton 100€/	2 4 8	0 1 1	n/a	n/a	ENTSO-E assessment

CO2 variation from network simulation monetised (M € / year)	ton 189€/ ton					

Integration of renewable energy sources

B3 Annual avoided curtailment (RES integration) (GWh / year)	max average min	543 536 527	287 286 285	>	>	ENTSO-E assessment
B3a Connected RES (MW)	-	300	300	n/a	n/a	ENTSO-E assessment

Impact on grid losses

B5 Variation of network losses (GWh / year)	average	-167	-80	n/a	n/a	ENTSO-E assessment
B5_€ Variation of network losses monetised (M€ / year)	average	-4	-1	n/a	n/a	ENTSO-E assessment

Security of supply

B6 Annual reduction in Energy Not Served (MWh / year)	max average min		198.000000000015	n/a	n/a	ENTSO-E assessment
B6_€ Annual Socio-Economic Welfare increase resulting from reduction in Energy Not Served monetised (M€ / year)	average	n/a	1.980000000000015		n/a	ENTSO-E assessment

Scenarios: Distributed Energy & Global Ambition

DE and GA are two scenarios created in line with the COP21 targets to understand the impact on infrastructure needs agains different pathways reducing EU-28 emissions to net-zero by 2050. For these two scenarios, projects were assessed with a subset of CBA parameters.

		DE2030	GA2030	

Increase in socio-economic welfare

B1 Annual Socio-Economic Welfare (SEW) increase (M€ / year)	average	21	20	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	average	10	3	ENTSO-E assessment
B1_RES Annual Socio-Economic Welfare increase resulting from RES integration	average	26	15	ENTSO-E assessment

Reduction of CO2 and GHG emissions

B2a Annual CO2 variation from market simulation (ktonnes / year)	average	-181	-82	ENTSO-E assessment
B2a_€ Annual Societal cost variation resulting from CO2 variation from market simulation monetised (M€ / year)	CO2 price 60€/ ton 100€/ ton 189€/ ton	1 9 25	2 5 13	ENTSO-E assessment

Integration of renewable energy sources

B3 Annual avoided curtailment (RES integration) (GWh / year)	average	489	337	ENTSO-E assessment
B3a Connected RES (MW)	-	300	300	ENTSO-E assessment

Non scenario-dependent indicator(s)

B8.0 Stability (Transient, Voltage and Frequency Stability)	Transient stability	Voltage stability	Frequency stability	
Srananagh - South Donegal (New AC line)	++	++	0	Qualitative assessment by ENTSO-E based on information on the project technology provided by the project promoter(s). This indicator is not dependent on scenarios or time horizons.
Omagh South to South Donegal (New AC line)	++	++	0	
Omagh South to Turleenan (New AC line)	++	++	0	

Sensitivity Study: Current Trends

'Current Trends' describes a future where the energy transition is slower than planned.

	CT2030	

Increase in socio-economic welfare

B1 Annual Socio-Economic Welfare (SEW) increase (M€ / year)	average	25	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	average	5	ENTSO-E assessment
B1_RES Annual Socio-Economic Welfare increase resulting from RES integration	average	26	ENTSO-E assessment

Reduction of CO2 and GHG emissions

B2a Annual CO2 variation from market simulation (ktonnes / year)	average	-163	ENTSO-E assessment
B2a_€ Annual		5	ENTSO-E assessment

Societal cost variation resulting from CO2 variation from market simulation monetised (M€ / year)	CO2 price	60€/ ton 100€/ ton 189€/ ton	12 26	

Integration of renewable energy sources

B3 Annual avoided curtailment (RES integration) (GWh / year)	average	482	ENTSO-E assessment
B3a Connected RES (MW)	-	300	ENTSO-E assessment

Comments on the CBA results by the project promoter(s)

The main project benefit is the facilitation of RES and avoiding having to constrain RES due to insufficient transmission capacity. The project will connect the 220 kV network in the North West of Ireland to the 275 kV network in Northern Ireland via new RES collection points in Ireland and Northern Ireland, ensuring that the existing networks can be used to their full capacity. Note that Project 81, the North South Interconnector is required prior to RIDP 1. The project allows for the integration of between 290 GWh and 490 GWh of renewable generation per year on the island of Ireland by 2030. This RES integration, and associated reduction in thermal generation requirements, results in CO2 savings of between 120 kT and 180 kT per year.

Residual impact

Information on the residual impact of the project was provided by the project promoter(s).

Residual environmental impact

Investment	Investment status	Distance (km)	Type of sensitivity

Note based on CBA Guideline 3.0: Given that the actual route of the project might not be defined due to the low degree of maturity of its investment(s), an environmental assessment is not yet available.

Residual social impact

Investment	Investment status	Distance (km)	Type of sensitivity

Note based on CBA Guideline 3.0: Given that the actual route of the project might not be defined yet because of the low degree of maturity of its investment(s), a residual social impact assessment is not yet available.

Project Costs

The project costs were provided by the project promoter(s).

	CAPEX (Meuro)	Uncertainty range (%)	OPEX
463. Srananagh - South Donegal	171.7		0.34
896. Omagh South to South Donegal	88.6		0.18
897. Omagh South to Turleenan	135.9		0.27
Total	396.2		0.79

Explanation provided by the project promoter on the CAPEX uncertainty range:

463

896

897

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