Project Sheet

East of Austria

Project type	transmission
Project id	186
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Key Information

Internal Project
AC transmission line
New

Under Construction

Description

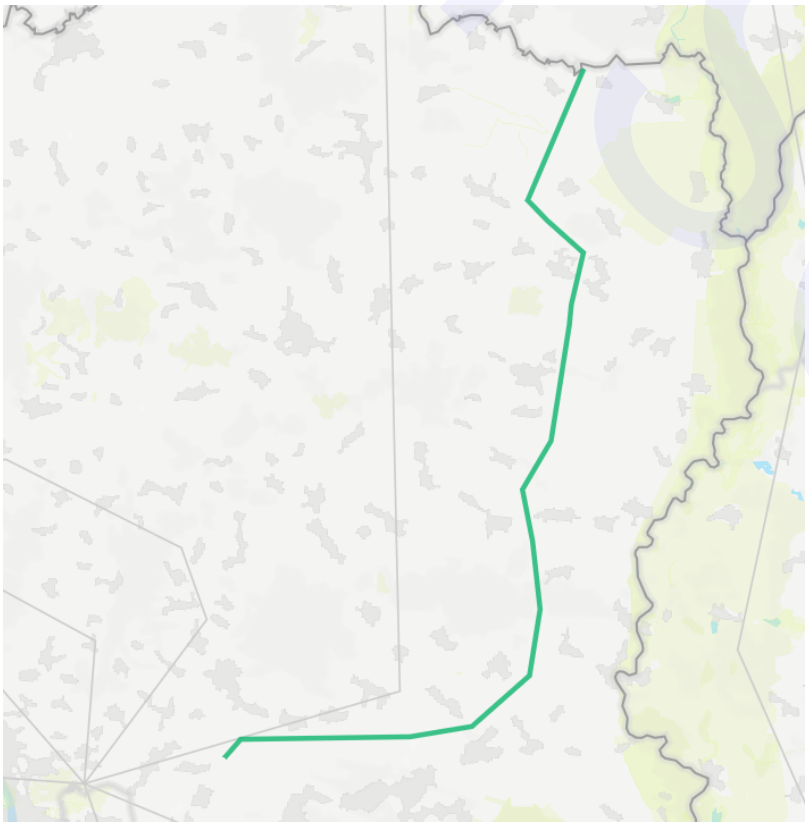
To allow the grid integration of the planned renewable energy generation (mainly wind power) in the north-eastern part of Austria (Weinviertel") the transmission grid infrastructure (currently a rather weak 220kV line) has to be enforced and new substation for the connection needs to be erected.

Project promoters

Austrian Power Grid

Countries

Austria



National development plan(s)

APG Netzentwicklungsplan 2019, AT, 2019, 11-8, 48,
https://www.apg.at/de/Stromnetz/Netzentwicklung

Additional information on the project

Project homepage:

https://www.apg.at/en/projekte/ersatzneubau-apg-weinviertelleitung

National development plan:

https://www.apg.at/en/Stromnetz/Netzentwicklung

Project sheet backlog

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

ENTSO-E

Project Description & Context

Project Investments

Main investment(s): To allow the grid integration of the planned renewable energy generation (mainly wind power) in the north-eastern part of Austria ("Weinviertel") and to cover the foreseen load growth in that region the transmission grid infrastructure has to be enforced and new substations for the connection needs to be erected

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	60	Seyring	Zaya	Under Construction	2022	Investment on time	

Is the project in the reference grid?

Yes

System Needs addressed by the project

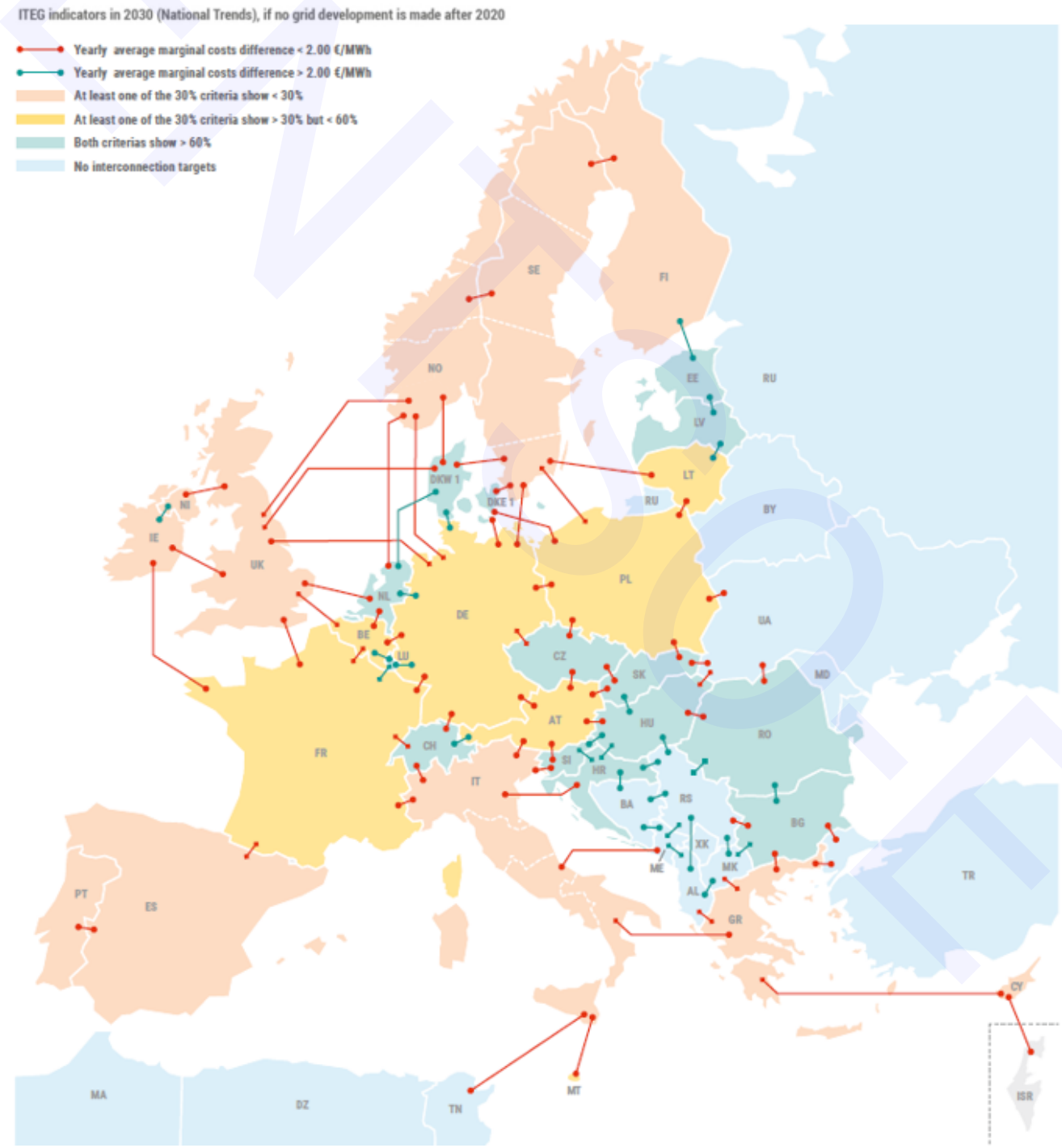
Project promoter(s) selected up to 4 system needs that are addressed by their project in a predefined list. Available needs ranged from reduction of price differentials between countries, improvement of system flexibility and stability, enabling cost-efficient connection of high volumes of RES, improvement 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.

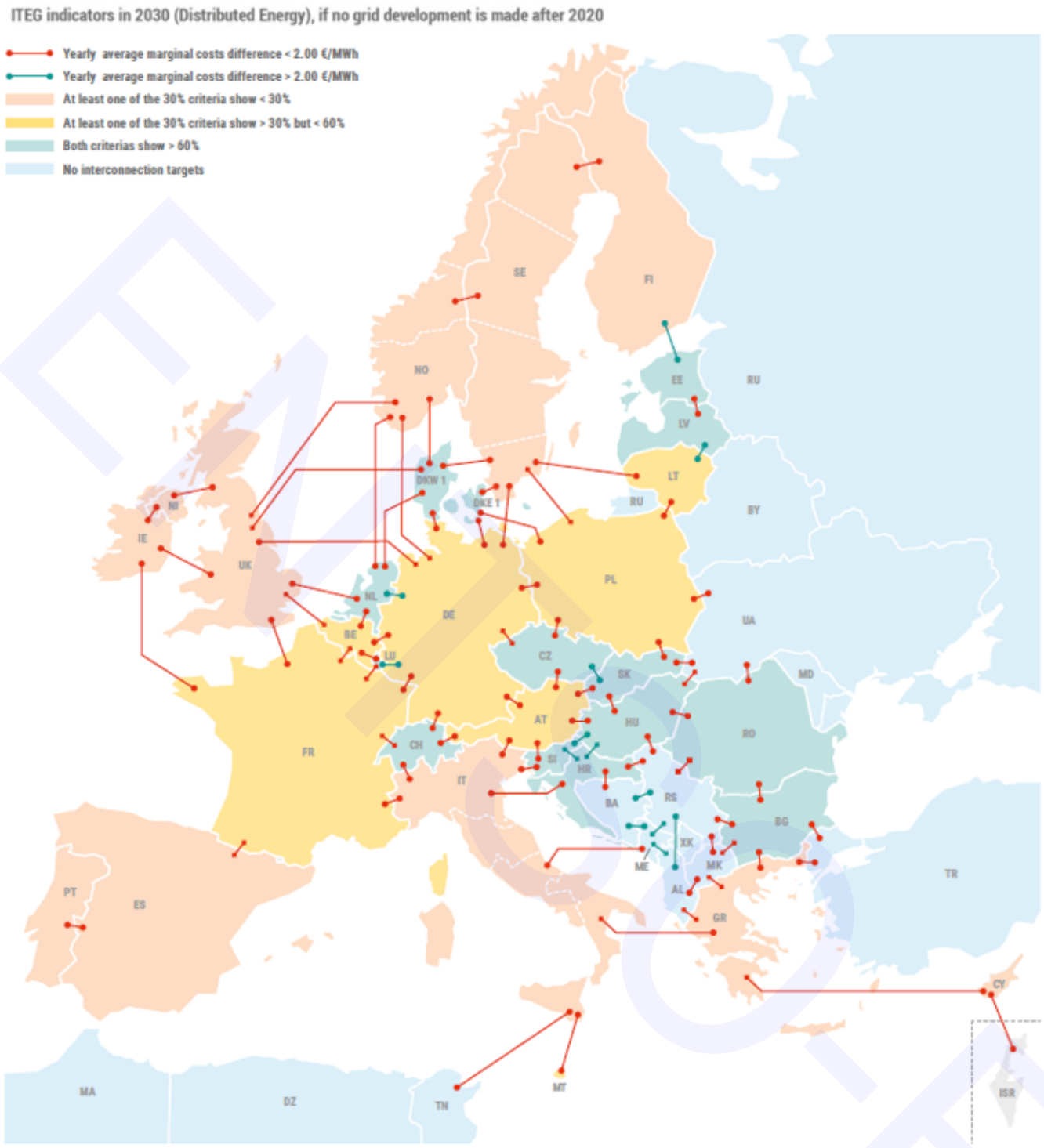
Need		How the project addresses each need (explanation provided by the project promoter(s))
	Infrastructure to facilitate and accommodate future scenarios, cross-border flows or loop flows.	Projects improves connection of wind generation with sufficient capacity to the transmission system and enables future RES development.
	Infrastructure designed to enable cost-efficient grid connection of high volumes of RES and/or reduce RES curtailment	Projects improves connection of wind generation with sufficient capacity to the transmission system and enables future RES development.

Interconnection targets

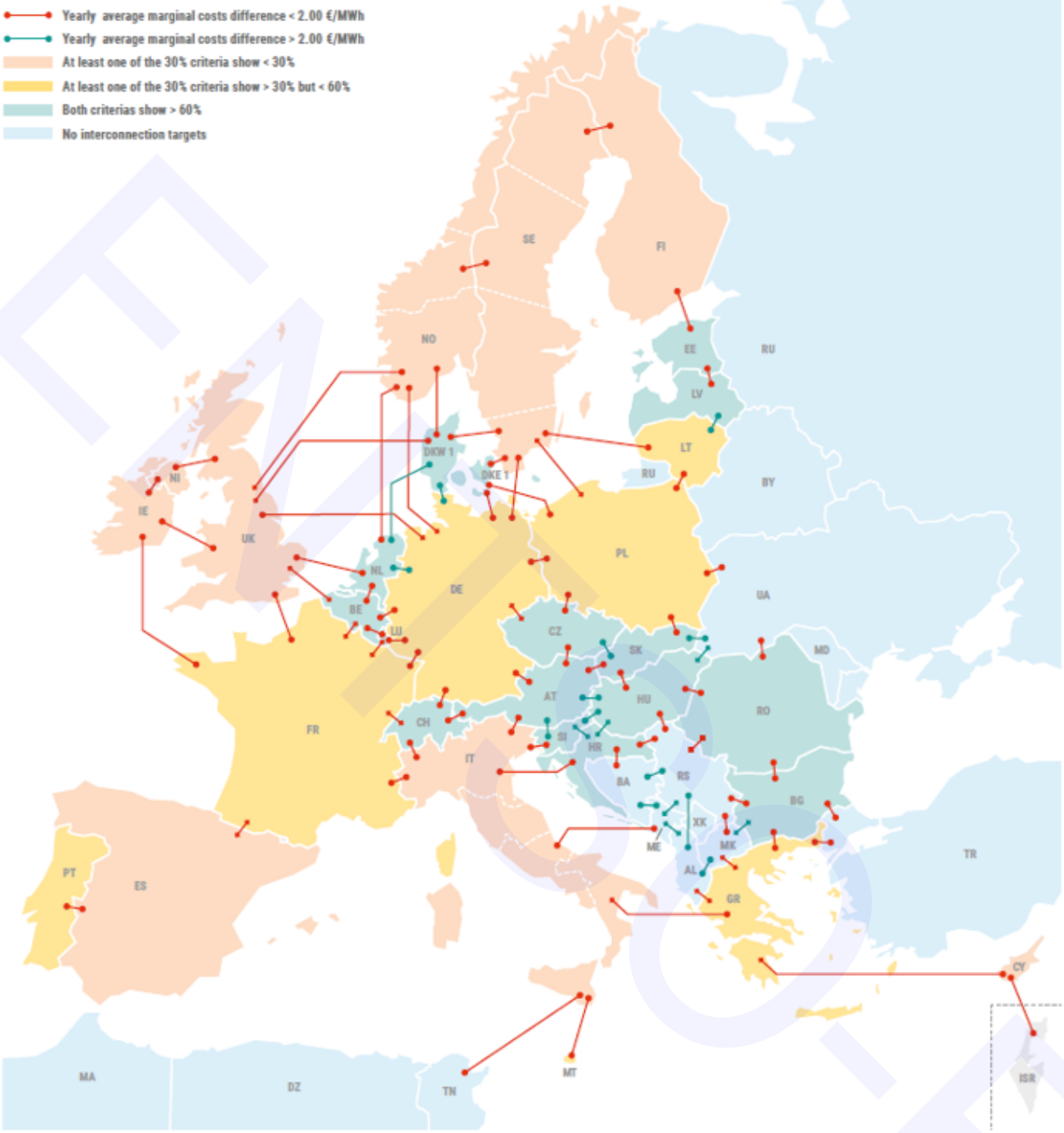
In 2017, the Interconnection Target Expert Group proposed alternative indicators to the 15% interconnection criteria for every country and electrified island with a new methodology developed collaboratively between the European Commission, ENTSO-E, ENTSOG, industry, universities and other experts. The 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.




ITEG indicators in 2030 (Distributed Energy), if no grid development is made after 2020
Yearly average marginal costs difference < 2.00 €/MWh
Yearly average marginal costs difference > 2.00 €/MWh
At least one of the 30% criteria show < 30%
At least one of the 30% criteria show > 30% but < 60%
Both criterias show > 60%
No interconnection targets
SE
FI
NO
EE
RU
LV
LT
DKW 1
DKE 1
RU
BY
NI
IE
UK
PL
NL
DE
UA
BE
LU
CZ
SK
MD
AT
HU
RO
FR
CH
SI
HR
IT
BA
RS
BG
XK
ME
MK
AL
TR
PT
ES
GR
CY
MA
DZ
TN
MT
ISR

ITEG indicators in 2030 (Global Ambition), if no grid development is made after 2020



Project Assessment

Transfer capacity increase (National Trends 2025)

	Border	A B	B A
Transfer capacity increase (in MW)	Internal (Austria)	2000	2000

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	148 144 139	289 275 253	<	<	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	max average min	21 20 19	71 67 62	>	>	ENTSO-E assessment
B1_RES Annual Socio-Economic	max average	102 93	221 202	>	>	ENTSO-E assessment

Welfare increase resulting from RES integration	min	86	177			

Reduction of CO2 and GHG emissions

B4 Non-CO2 emissions (kg/year)

B4a Nitrogen oxides	average	45169	6117	n/a	n/a	ENTSO-E assessment
B4b Ammonia	average	5245	1084	n/a	n/a	ENTSO-E assessment
B4c Sulfur dioxide	average	2159	-1004	n/a	n/a	ENTSO-E assessment
B4d Particular matter 5	average	3543	25215	n/a	n/a	ENTSO-E assessment
B4e Particulate matter 10	average	2344	467	n/a	n/a	ENTSO-E assessment
B4f Non-methane volatile organic compounds	average	1515	25099	n/a	n/a	ENTSO-E assessment

B2a Annual CO2 variation from market simulation (ktonnes / year)	max average min	-825 -869 -934	-2172 -2382 -2516	>	>	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	32 67 144	76 172 384	< < <	< < <	ENTSO-E assessment
B2b Annual CO2 variation due to network losses (ktonnes / year)	average	-77	-167	n/a	n/a	ENTSO-E assessment
B2b_€ Annual Societal cost variation resulting from	CO2 price 60€/ ton 100€/	0 6 13	5 11 25	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	1872 1864 1856	5079 4991 4875	<	<	ENTSO-E assessment
B3a Connected RES (MW)	-	850	2000	n/a	n/a	ENTSO-E assessment

Impact on grid losses

B5 Variation of network losses (GWh / year)	average	-135	-225	n/a	n/a	ENTSO-E assessment
B5_€ Variation of network losses monetised (M€ / year)	average	-6	-9	n/a	n/a	ENTSO-E assessment

Security of supply

B6 Annual reduction in Energy Not Served (MWh / year)	max average min		N/A	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	N/A	>	n/a	ENTSO-E assessment

B10 Reduction of Necessary Reserve for Redispatch Power Plants	**NT2025**	**NT2030**	
In Meuro/year	-10.1	-1.3	This indicator was submitted by the

B10 Reduction of Necessary Reserve for Redispatch Power Plants	NT2025	NT2030	
			promoter(s). Based on the information provided, ENTSO-E has not been able to confirm the consistency of the proposed indicator with the CBA Guideline 3.0. About the computation of this indicator by the project promoter(s)
In MW			

This indicator was computed based on NT2025 and NT2030, in a study performed by APG - Austrian Power Grid in 2020. The promoter(s) stated that the submitted value was computed in accordance with the CBA Guideline and explained it as follows:

• *Market simulation tools: Only one markets simulation per project and scenario (APG-Tool for P186)*• *Scenarios: NT2025 and NT2030; Full compliance with the TYNDP 2020 Scenarios* • *Climate year: 2007*• *Number of points in time: full year (8736 hours)*• *Model perimeter: AT only, cross border flows based on full CE model*• *Load flow calculation type: AC ; No Time Coupling constrains* • *No Multiple TOOT/PINT* • *Consider Branches: only 380-kV and 220-kV Elements*• *No deviation from the guidelines due to special national regulatory conditions*

The promoter(s) certified that the values submitted and assessed in the study relate to countries located within the ENTSO-E perimeter only.

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	273	236	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	average	105	82	ENTSO-E assessment
B1_RES Annual Socio-	average	287	218	ENTSO-E assessment

Economic Welfare increase resulting from RES integration			

Reduction of CO2 and GHG emissions

B2a Annual CO2 variation from market simulation (ktonnes / year)	average	-1980	-2352	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	14 93 269	59 153 362	ENTSO-E assessment

Integration of renewable energy sources

B3 Annual avoided curtailment (RES integration) (GWh / year)	average	4846	4819	ENTSO-E assessment
B3a Connected RES (MW)	-	2000	2000	ENTSO-E assessment

Non scenario-dependent indicator(s)

	2020			
B9 Avoidance of the Renewal/ Replacement Costs of Infrastructure (Meuro)	85			This indicator was submitted by the promoter(s). ENTSO-E confirms the consistency of the proposed indicator with the CBA Guideline 3.0. About the computation of this indicator by the project promoter(s)

This indicator was computed in a study performed by APG - Austrian Power Grid in 2020. The promoter(s) stated that the submitted value was computed in accordance with the CBA Guideline and explained it as follows:

I hereby state that the study performed to provide the project level input for TYNDP 2020 is compliant with the draft 3rd CBA Guideline.

The promoter(s) certified that the values submitted and assessed in the study relate to countries located within the ENTSO-E perimeter only.

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	221	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	average	49	ENTSO-E assessment
B1_RES Annual Socio-Economic Welfare increase resulting from RES integration	average	231	ENTSO-E assessment

Reduction of CO2 and GHG emissions

B2a Annual CO2 variation from market simulation (ktonnes / year)	average	-1764	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	56 127 284	ENTSO-E assessment

Integration of renewable energy sources

B3 Annual avoided curtailment (RES integration) (GWh /	average	4161	ENTSO-E assessment

year)		
B3a Connected RES (MW) -	2000	ENTSO-E assessment

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

Residual social impact

Investment	Investment status	Distance (km)	Type of sensitivity
886 - east of Austria	Under Construction	31	

Project Costs

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

	CAPEX (Meuro)	Uncertainty range (%)	OPEX
886. 886 - east of Austria	215	10	1
Total	215		1

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

886