Project Sheet

Westtirol (AT) - Zell/Ziller (AT)

Project type	transmission
Project id	1054
Created by	Lea Dehaudt
Created on	Feb 11, 2021 5:16:58 PM

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Key Information

Internal Project
AC transmission line
Mostly Upgrade

PCI number 3.1.4 (4th list, 31 Oct. 2019)
Planned But Not Yet Permitting

Description

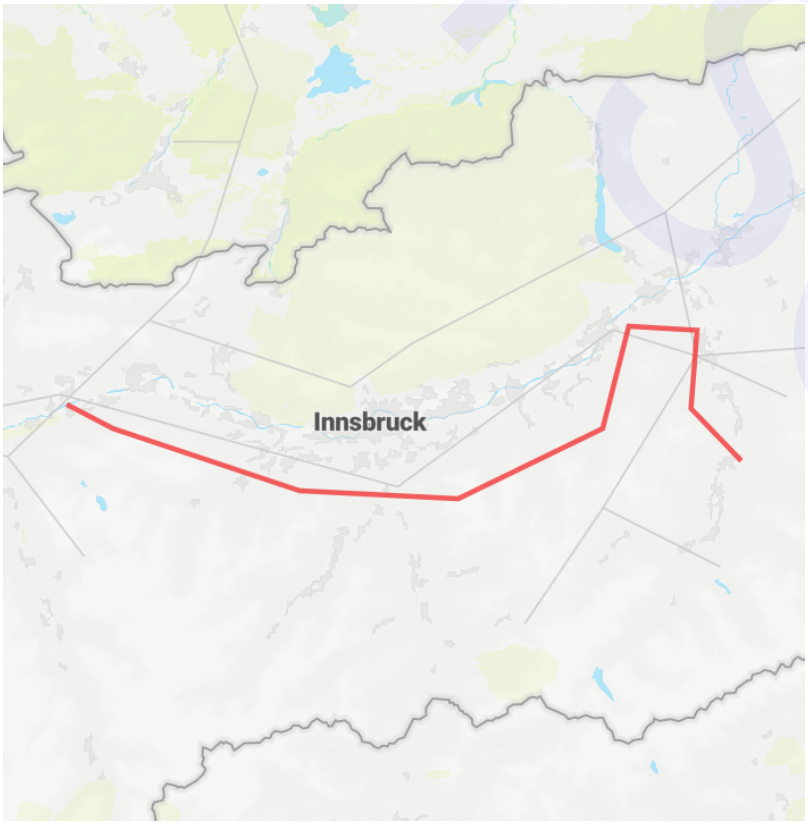
An Upgrade of the existing 220kV-line Westtirol (AT) - Zell-Ziller (AT) and the erection of an additional 220/380kV-transformer.

Project promoters

Austrian Power Grid

Countries

Austria



National development plan(s)

APG Netzentwicklungsplan 2019, AT, 2019, 14-3, 48,
https://www.apg.at/en/Stromnetz/Netzentwicklung

Additional information on the project

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): Upgrade of the existing 220kV-line Westtirol - Zell-Ziller and erection of an additional 220/380kV-Transformer. Line length 105km.

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	105	Westtirol (AT)	Zell-Ziller (AT)	Planned But Not Yet Permitting	2027	Rescheduled	Tests and gaining of experience for novel technical solution in progress.

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.

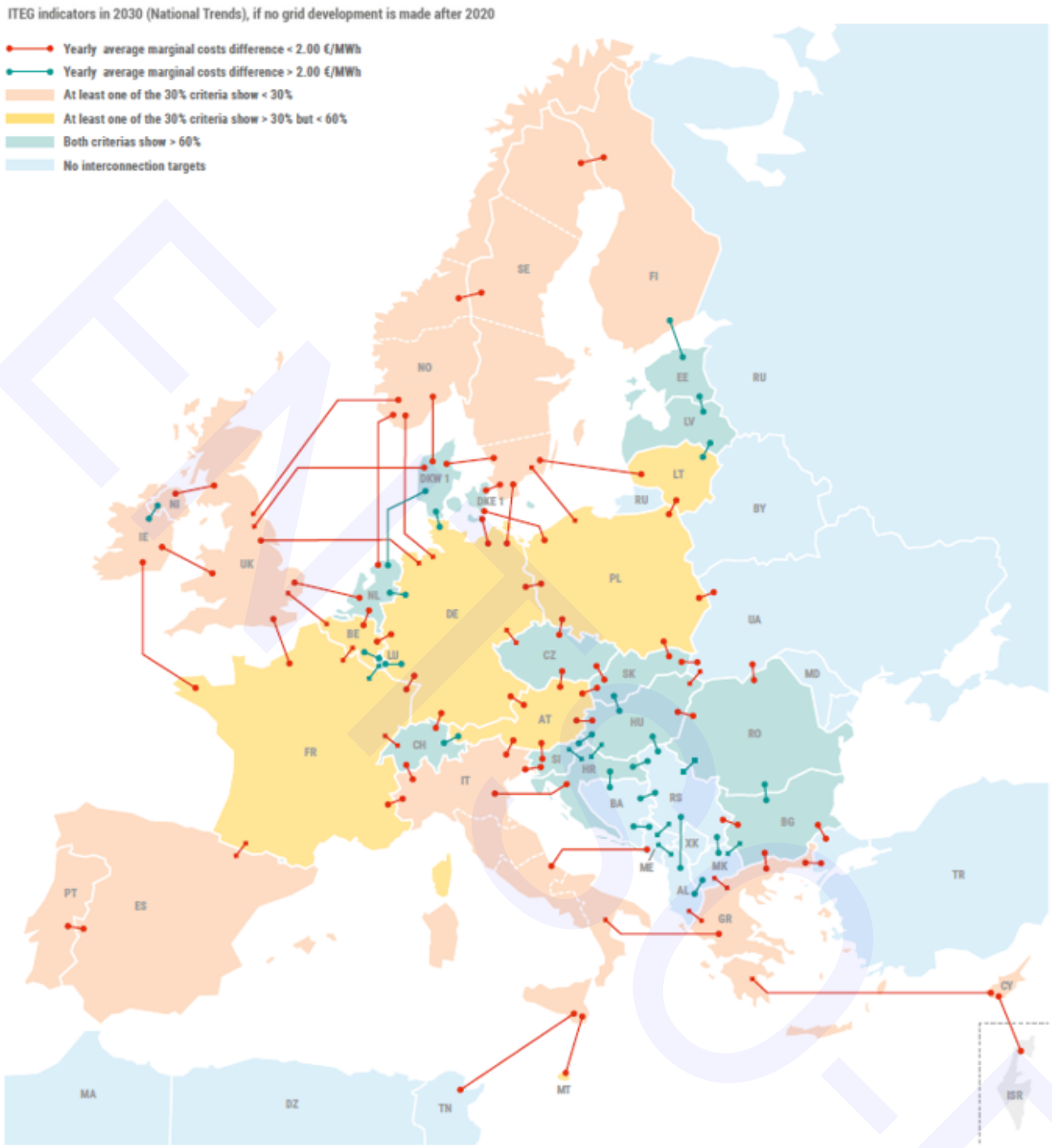
Need		How the project addresses each need (explanation provided by the project promoter(s))
	Infrastructure to improve system flexibility and stability e.g. improve system or local ramp rate, improve transient stability or RoCoF to meet system Needs.	Facilitation of capacities between RES and pump storages in Austria as well as optimisation of cross border flows.
	Infrastructure to facilitate and accommodate future scenarios, cross-border flows or loop flows.	Enabling future developments (load/ generation).
	Contribution to the power system's operational flexibility by controlling power flows and optimizing use of existing infrastructure	Faclilitation and optimisation of pump storage connections in the western part of Austria and therefore increasing flexibility.
	Infrastructure designed to enable cost-efficient grid connection of high volumes of	Connecting RES with pump storages.

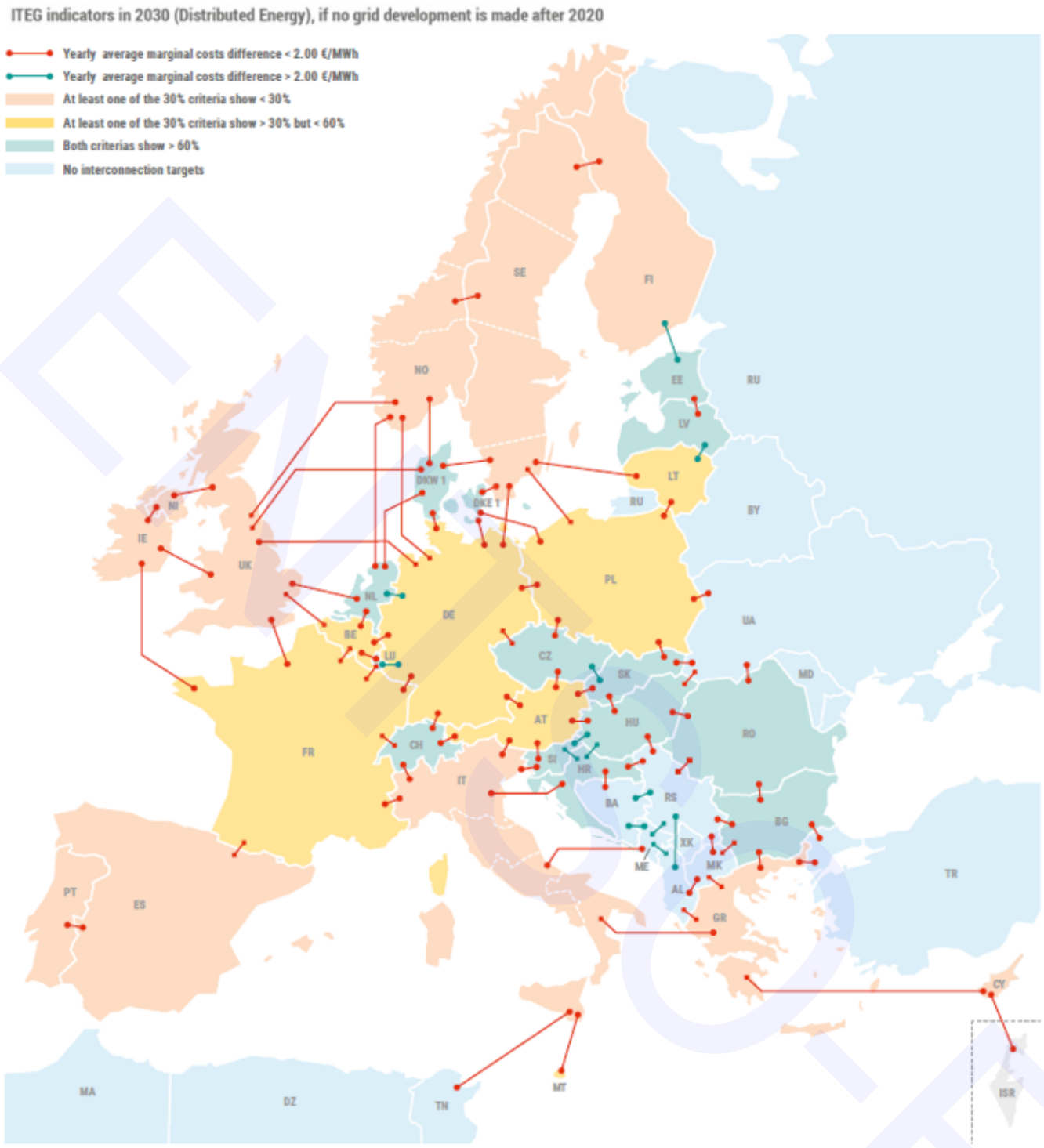
Need		How the project addresses each need (explanation provided by the project promoter(s))
	RES and/or reduce RES curtailment	

Interconnection targets

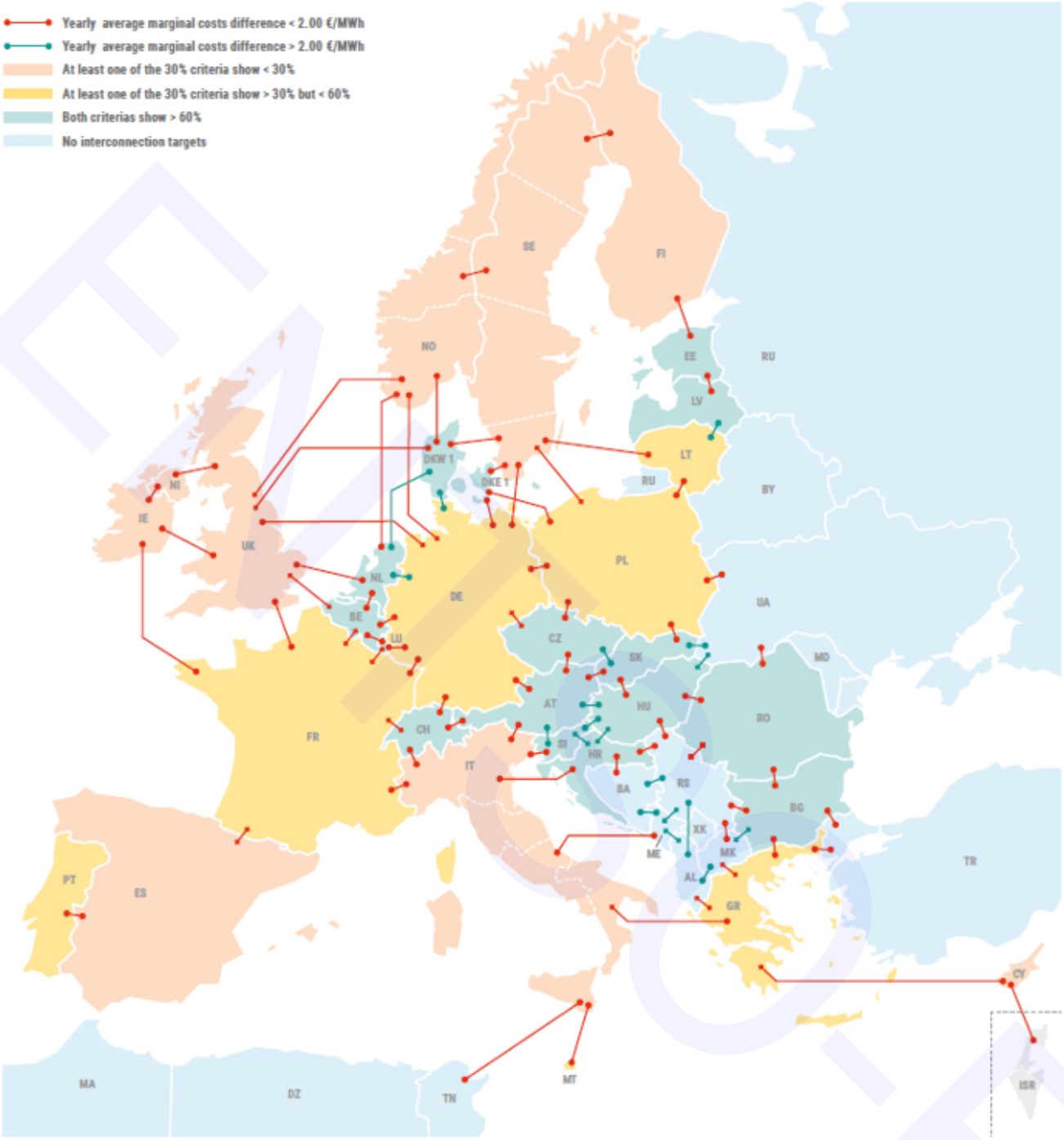
In 2017, the Interconnection Target Expert Group proposed alternative indicators to the 15% interconnection criteria for every country and electrified island with a new methodology developed collaboratively between the European Commission, ENTSO-E, ENTSOG, industry, universities and other experts. The 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 (National Trends), 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
TR
PT
ES
AL
GR
CY
MA
DZ
TN
MT
ISR


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)	Austria - Germany	600	600

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	67 64 61	108 104 98	<	<	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	max average min	7 6 4	14 12 11	>	>	ENTSO-E assessment
B1_RES Annual Socio-Economic	max average	15 14	28 27	<	<	ENTSO-E assessment

Welfare increase resulting from RES integration	min	14	27			

Reduction of CO2 and GHG emissions

B4 Non-CO2 emissions (kg/year)

B4a Nitrogen oxides	average	32967	-213	n/a	n/a	ENTSO-E assessment
B4b Ammonia	average	3809	181	n/a	n/a	ENTSO-E assessment
B4c Sulfur dioxide	average	1213	-3393	n/a	n/a	ENTSO-E assessment
B4d Particular matter 5	average	1738	29532	n/a	n/a	ENTSO-E assessment
B4e Particulate matter 10	average	1671	-8	n/a	n/a	ENTSO-E assessment
B4f Non-methane volatile organic compounds	average	239	29508	n/a	n/a	ENTSO-E assessment

B2a Annual CO2 variation from market simulation (ktonnes / year)	max average min	-184 -244 -308	-385 -448 -521	>	<	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	9 19 41	14 32 72	< < <	< > >	ENTSO-E assessment
B2b Annual CO2 variation due to network losses (ktonnes / year)	average	55	85	n/a	n/a	ENTSO-E assessment
B2b_€ Annual Societal cost variation resulting from	CO2 price 60€/ ton 100€/	-2 -4 -9	-2 -6 -12	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	323 296 277	728 713 703	<	<	ENTSO-E assessment
B3a Connected RES (MW)	-			n/a	n/a	ENTSO-E assessment

Impact on grid losses

B5 Variation of network losses (GWh / year)	average	103	296	n/a	n/a	ENTSO-E assessment
B5_€ Variation of network losses monetised (M€ / year)	average	0	5	n/a	n/a	ENTSO-E assessment

Security of supply

B6 Annual reduction in Energy Not Served (MWh / year)	max average min		316	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	3.16	>	n/a	ENTSO-E assessment

B10 Reduction of Necessary Reserve for Redispatch Power Plants	**NT2025**	**NT2030**	
In Meuro/year	-5.8	-1.9	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 TYNDP 2020 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 P1054)*• *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	32	31	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	average	17	18	ENTSO-E assessment
B1_RES Annual Socio-	average	14	18	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	-313	-521	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	2 15 43	13 34 80	ENTSO-E assessment

Integration of renewable energy sources

B3 Annual avoided curtailment (RES integration) (GWh / year)	average	258	400	ENTSO-E assessment
B3a Connected RES (MW)	-			ENTSO-E assessment

Non scenario-dependent indicator(s)

	2020			
B9 Avoidance of the Renewal/ Replacement Costs of Infrastructure (Meuro)	114			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	14	ENTSO-E assessment
B1_CO2 Annual Socio-Economic Welfare increase resulting from CO2 emissions reduction	average	4	ENTSO-E assessment
B1_RES Annual Socio-Economic Welfare increase resulting from RES integration	average	9	ENTSO-E assessment

Reduction of CO2 and GHG emissions

B2a Annual CO2 variation from market simulation (ktonnes / year)	average	-136	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	4 10 22	ENTSO-E assessment

Integration of renewable energy sources

B3 Annual avoided curtailment (RES integration) (GWh /	average	165	ENTSO-E assessment

year)		
B3a Connected RES (MW) -		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
Westtirol (AT) - Zell/Ziller (AT)	Planned But Not Yet Permitting	11	

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
Westtirol (AT) - Zell/Ziller (AT)	Planned But Not Yet Permitting	74	

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
1715. Westtirol (AT) - Zell/Ziller (AT)	45	10	1
Total	45		1

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

1715