Project 200 - CZ Northwest-South corridor

A corridor of internal 400 kV overhead lines inside the Czech Republic connecting new 420 kV substations between Vernerov, Vitkov and existing substation Prestice in the northwest-south direction incuding looping of existing 400 kV overheadline (V413: Reporyje-Prosenice) into the existing substation 420 kV Mirovka. The project consists of building of two new 420 kV substations Vernerov and Vitkov, building of two 400 kV overhead lines involving changing a 220 kV double-circuit lines to 400 kV double-circuit lines with a capacity of 2x1730 MVA between Vernerov-Vitkov and Vitkov-Prestice and building a new double-circuit overhead line between Mirovka and V413.

Classification Mid-term Project

Boundary Czech - Germany

PCI label 3.11.1; 3.11.2

Promoted by CEPS

Investments

Investment ID	Description	GTC Contribution	Substation 1	Substation 2	Present Status	Commissioning Date	Evolution since TYNDP 2014	Evolution Driver
306	New 400/110kV substation	100%	Vitkov (CZ)		Design & Permitting	2020	Investment on time	Progress as planned
307	New 400/110kV substation	100%	Vernerov (CZ)		Under Construction	2017	Investment on time	Progress as planned
308	New double 400kV OHL	100%	Vernerov (CZ)	Vitkov (CZ)	Design & Permitting	2023	Delayed	Based onCEPS request the competent authority is still in the process to changethe status of the project to "public-interest project".
309	New double 400kV OHL	100%	Vitkov (CZ)	Prestice (CZ)	Design & Permitting	2020	Ahead of time	Changes due to the delay of other investment connecting substation Vitkov
312	Upgrade of 400/110kV substation	100%	Mirovka (CZ)		Design & Permitting	2020	Investment on time	Progress as planned
314	New double 400kV OHL	40%	Mirovka (CZ)	V413 (CZ)	Design & Permitting	2018	Ahead of time	Project rescheduled due to changes of transmission projects to harmonize construction phases.

Additional Information

Information about PCI can be found on the CEPS website

PCI 3.11.1: http://www.ceps.cz/CZE/Cinnosti/Technicka-infrastruktura/projekty-spolecneho-zajmu/Stranky/Vnitrostátní-vedení-Přeštice-Kočín-PCI-3.11.1.aspx

PCI 3.11.2: http://www.ceps.cz/CZE/Cinnosti/Technicka-infrastruktura/projekty-spolecneho-zajmu/Stranky/Vnitrostátní-vedení-Kočín-Mírovka-PCI-3.11.2.aspx

EC transparency platform also provides information about these PCI:
3.11.1: https://ec.europa.eu/energy/sites/ener/files/documents/pci_3_11_1_en.pdf

3.11.2: https://ec.europa.eu/energy/sites/ener/files/documents/pci_3_11_2_en.pdf

Investment needs

Part of the corridor North-South electricity interconnections in central Eastern and South Eastern Europe aiming at increasing the transmission capacity in the western part of the Czech grid and therefore enabling the accomodation of the prevailing power flows in the north-west and west-east direction for the entire Central Eastern Europe. Moreover, the project will enable the connection of Renewable Energy Sources in the Karlovary region, reduce infrastructure vulnerability and ensure security of supply in the western region of the Czech Republic.

Separate market based capacity increase has not been evaluated, due to the fact that the investigation which is relevant to the market based capacity increase was considered for Polish synchronous profile PL-DE/CZ/SK. This boundary (CZ-DE) that relates to the Project 35, 177 and 200 is mostly stressed by unscheduled flows caused by volatile production of RES. This fact can be explored when investigating the dependency that describes the higher benefit of each GW when considering higher prices of CO2 emissions and higher RES installed capacity.

Project Cost Benefit Analysis

This project has been assessed by ENTSO-E in line with the Cost Benefit Analysis methodology, approved by the EC in February 2015.

This project complements project 35 and is commissioned at a later time. In the 2030 visions both projects are assessed as one corridor.The indicators B6/B7 reflect particular technical system aspects of projects based on a summation of qualitative performance indicators, in line with the CBA methodology; these cannot be used as a proxy for the security of supply indicator.

The assessment of losses variations induced by the projects improved in the TYNDP 2016 compared to the TYNDP 2014 with a comprehensive all year round computations on a wide-area model capturing all relevant flows.

The results must however be considered with caution and not totally reliable due to their very high sensitivity to assumptions regarding the detailed location of generation which are not secured.

General CBA Indicators	
Delta GTC contribution (2020) [MW]	DE-CZ: 500
	CZ-DE: 300
Delta GTC contribution (2030) [MW]	DE-CZ: 500
	CZ-DE: 500
Capex Costs 2015 (M€) Source: Project Promoter	290±58
Cost explanation	As preparation of the investment items continues, route and technology(e.g. type of towers) are detailed specified to reflect differenttechnical, safety, environmental and legal requirements imposed fromdifferent permit grating processes (e.g. EIA, land and constructionpermit) which usually as a result

	affects cost estimation of theinvestment which were previously given. The difference in currencyexchange rate was also taken into consideration. The cost value includes only CAPEX cost.
S1	15-50km
S2	Negligible or less than 15km
B6	+
B7	+

Scenario specific CBA indicators	EP2020	Vision 1	Vision 2	Vision 3	Vision 4
B1 SoS (MWh/yr)	N/A	N/A	N/A	N/A	N/A
B2 SEW (MEuros/yr)	0 ±0	20 ±10	20 ±0	40 ±0	50 ±10
B3 RES integration (GWh/yr)	0 ±0	240 ±10	230 ±10	540 ±40	390 ±80
B4 Losses (GWh/yr)	0 ±25	-625 ±62	-125 ±25	-25 ±25	-50 ±25
B4 Losses (Meuros/yr)	0 ±1	-34 ±4	-6 ±1	-2 ±2	-4 ±2
B5 CO2 Emissions (kT/year)	0 ±0	-100 ±100	-100 ±100	-200 ±0	-500 ±100

Project 200 is 100% dependent on the Project 35, these 2 projects have been evaluated by CBA methodology simultaneously together and it resulted into having same CBA results. Evaluation of benefits in this way stems from the topology, when projects are predominately in series connection and GTC increase and other benefits can only reached by when all these related projects are realized. CBA results according to the common methodology indicates that there are generally decreasing benefits in losses from Vision 1 to Vision 4 with minimum benefit in Vision 3 (high RES), on the other hand increasing benefits from Vision 1 to Vision 4 in CO2.

Project 200 together with project 35 brings additional benefits not covered by common CBA methodology, which are mostly linked to the security of supply and system flexibility. These projects will help to eliminate overloads in N-1 situation in case of high parallel flows across Czech power grid caused by power flow transits from northern part of the Europe to southern or east-south Europe and therefore facilitate RES integration.

Complementary information about the border on which the project is located	Vision 1	Vision 2	Vision 3	Vision 4
Average marginal cost difference in the reference case [€/MWh]	0.55	0.51	3.42	4.78
Standard deviation marginal cost difference in the reference case [€/MWh]	3.06	2.74	12.85	14.47
Reduction of marginal cost difference due to all mid-term and long-term projects [€/MWh]	4.13	4.77	6.65	7.78

The transmission capacity of the 220 kV grid in the western part of the Czech grid has already exhausted which in some operation cases cause violation of the security criteria N - 1. The project which involves the changing of the current 220 kV grid (substations and overhead lines) to 400 kV grid ensure to eliminate the congestion in this part of the grid. Moreover, it is also planned that the operation of the 220 kV will be decommissioned step-by-step between 2019 - 2040, so reinforcement brough by the project not only eliminates the congestion in this part of the grid but also replaces the 220 kV grid to be decommisioned.