

Date of update 1 July 2013

## Annex 1 – Monitoring update TYNDP 2012 Table of Projects

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
1. 1	V.Minho (PT)	Pedralva (PT)	Connection of the new 400kV substation V.Minho to Pedralva substation by means of two new 400kV lines(2x43)km. The realization of this two connections can take advantage of some already existing 150kV single lines, which will be reconstructed as double circuit lines 400+150kV line and partially sharing towers with those 400kV circuits.	Under Construction	2014	2015	Delayed	Although the investment is already under construction some constraints regarding environmental issues led the commissioning date to be postponed.
	V. Minho (PT)		New 400kV station in V. Minho	Under Construction	2014	2014	Investment on time	
1. 2	Pedralva (PT)	Sobrado (PT)	New 47km double circuit Pedralva (PT) - Sobrado (PT) 400kV OHL, (only one circuit installed in a first step).	Planning	2017	2020	Rescheduled	Due to the expected delay of the connection of new RES generation in North of Portugal, the commissioning date of this investment is postponed accordingly
1. 3	Pedralva (PT)	V. Castelo (PT)	New 57,5km double circuit Pedralva - V. Castelo 400kV OHL (one circuit installed).	Design & Permitting	2014/2015	2015	Investment on time	
1. 4	V.Minho (by Ribeira de Pena)	Feira (by Ribeira de Pena)	New 129km double-circuit 400kV OHL V.Minho (PT) -Ribeira de Pena (PT) - Feira (PT) (one circuit operated at 220kV between V.P. Aguiar and Estarreja) with a new 400/60kV substation in Rib. Pena. In a first step, only the 139km section Rib. de Pena (PT) - Feira (PT) will be constructed and operated at 220kV as Vila Pouca Aguiar (PT) - Carrapatelo (PT) - Estarreja (PT). In a second step, one circuit of this line will be operated at 400kV.	Design & Permitting	2015/2016	2018	Rescheduled	Due to the expected delay of the connection of new hydro power plants, the commissioning date of this investment is postponed accordingly.

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	Ribeira de Pena (PT)		New 400/60kV substation in Rib. Pena.	Design & Permitting	2015/2016	2017	Rescheduled	Due to the expected delay of the connection of new hydro power plants, the commissioning date of this investment is postponed accordingly.
1. 5	Macedo de Cavaleiros (By Valpaços)	Vila Pouca de Aguiar (By Valpaços)	New 83km double circuit 400+220kV OHL Macedo de Cavaleiros (PT) -Valpaços (PT) - Vila Pouca de Aguiar (PT).	Under Construction	2011/2012	2014	Delayed	One of the sections of the line Valpaços-Vila Pouca de Aguiar found environmental problems in his original route. The problem was solved with the identification of a new route, prompting a delay in the commissioning date.
1. 6	V. P. Aguiar (by Carrapatelo)	Estarreja (by Carrapatelo)	New 400+220kV double circuit OHL (initially only used at 220kV) Vila Pouca Aguiar - (Rib. Pena) - Carrapatelo - Estarreja . Total length of line: 2x(96+49)km. 220kV circuit.	Design & Permitting	2013	2017	Rescheduled	Due to the expected delay of the connection of new RES generation in Portugal, the commissioning date of this investment is delayed.
1. A1	Ribeira de Pena (PT)	Guarda (PT)	New 192km double/single-circuit 400kV OHL Ribeira de Pena (PT) - Guarda (PT). In a first step, only 75 km will be constructed and operated at 220 kV between Vila Pouca de Aguiar and Macedo de Cavaleiros, in a second step one circuit of this line will be operated at 400 kV. A single line will be constructed between Macedo de Cavaleiros zone and Pocinho zone also between Pocinho zone and Chafariz zone a double circuit 400 kV OHL will be constructed (only one circuit installed in a first step), this last line will use one circuit of the line Seia - Guarda to establish the line Ribeira de Pena (PT) - Guarda (PT).	Planning	2022	2025	Rescheduled	Due to the expected delay of the connection of new RES generation in North and Center of Portugal, the commissioning date of this investment is postponed accordingly.

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2.8	Seia (PT)		New 400/60kV substation at Seia.	Design & Permitting	2015/2016	2021	Rescheduled	Due to the expected delay on the connection of new RES generation in the Center of Portugal, the commissioning date of this investment is postponed accordingly.
	Arganil/Góis (PT)		New 400/60kV substation at Arganil/Góis.	Design & Permitting	2015/2016	2025	Rescheduled	Due to the expected delay on the connection of new RES generation in the Center of Portugal, the commissioning date of this investment is postponed accordingly.
	Penela (PT)		Expansion of the existing Penela substation to include 400kV facilities.	Design & Permitting	2015/2016	2016	Investment on time	
	Seia (By Arganil/Gois)	Penela (By Arganil/Gois)	New single circuit 400kV OHL Seia-Arganil/Gois-Penela (90km).	Design & Permitting	2015/2016	2016	Investment on time	
	Penela (PT)	Paraimo / Batalha (PT)	New double circuit 400kV OHL (15km) to connect Penela substation to Paraimo-Batalha line.	Design & Permitting	2015/2016	2016	Investment on time	
2.9	Guarda (PT) (By Fundão)	Falagueira (PT) (By Fundão)	New double circuit OHL Guarda (PT) -Fundão (PT) -'Castelo Branco zone'-Falagueira (PT) (between Guarda and Fundão only the 400kV circuit will be installed).	Design & Permitting	2015/2016	2022	Rescheduled	The section between Fundão and Falagueira will be in service in 2017, the section between Guarda and Fundao only in 2022. Adjustments resulting from the new date of renewables investments.
	Guarda (PT)		New 400/60kV substations in Guarda.	Design & Permitting	2015/2016	2022	Rescheduled	Due to the expected delay on the connection of new RES generation in the Center of Portugal, the commissioning date of this investment is postponed accordingly.

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	Fundão (PT)		New 400/220kV substations in Fundão.	Design & Permitting	2015/2016	2017	Rescheduled	Due to the expected delay on the connection of new RES generation in the Center of Portugal, the commissioning date of this investment is postponed accordingly.
2. 10	Falagueira (PT)	Pego (PT)	New 40km double circuit 400+150kV OHL Falagueira-Pego 2, substituting an existing 150kV line.	Design & Permitting	2014	2019	Rescheduled	Due to the expected delay on the connection of new RES generation in the Center of Portugal, the commissioning date of this investment is postponed accordingly.
2. A2	Seia (PT)	Guarda (PT)	New double circuit 400kV OHL Seia-Guarda (55km)	Planning	2020	2025	Rescheduled	Due to the expected delay on the connection of new RES generation in the Center of Portugal, the commissioning date of this investment is postponed accordingly.
3. 12	Alm. Bispo (PT)		Creation of a 400/220/60kV substation in Almargem do Bispo.	Planning	2016/2019	2021	Rescheduled	Due to the downward review of the electrical consumption in Portugal, the commissioning date of this investment is postponed accordingly.
	Rio Maior (by A.Bispo)	Fanhões (by A.Bispo)	New 88km double circuit 400kV OHL feeding Lisbon area from north. A section of this reinforcement (between Rio Maior and Carvoeira zone) will be finished earlier included on a 400+220kV double circuit line linking Rio Maior and Carregado substations.	Planning	2016/2019	2021	Rescheduled	Due to the downward review of the electrical consumption in Portugal, the commissioning date of this investment is postponed accordingly.
3. 14	Pegões (PT)		New 400/60kV substations in Pegoes.	Design & Permitting	2012	2018	Rescheduled	Due to the downward review of the electrical consumption in Portugal, the commissioning date of this investment is postponed accordingly.

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	"Marateca"	Fanhões	New 95km double-circuit 400kV OHL . This new line will be connected to the existing line Palmela (PT) - Sines 2 (PT) , making a link Sines-Palmela/Fanhões.	Commissioned	2012	2012	Commissioned	
4. 16	Lagoaça (PT) (By Armamar)	Recarei (PT) (By Armamar)	New line Lagoaça-Armamar-Recarei 400kV in PT.	Design & Permitting	Aldeadavila-Lagoaça 400kV (cros border ), Aldeadavila (ES) - Pocinho (PT) 1 & 2 220 kV, Lagoaça 400/220 kV Substation, Armamar (PT)-Lagoaça (PT) 400 kV commissioned in 2010. Armamar (PT)-Recarei (PT) expected in 2012.	2013	Delayed	Lagoaca-Armamar was already commissioned in 2010. Armamar-Recarei is delayed in authorization process due to environmental problems which required the identification of new routes.
4. 17	Puebla de Guzman (ES)	Tavira (PT)	New southern interconnection. New 400kV OHL single-circuit line between Puebla de Guzman (ES) - Tavira (PT).	Under Construction	2013	2014	Delayed	Portuguese section was concluded in 2011. In the Spanish part there were delays in the authorization process, although they are concluded now. Some construction delays on-going due to a biological stoppage.
	P.Guzman (ES)		New Southern Interconnection. New P.Guzman (ES) 400kV substation.	Under Construction	2013	2014	Delayed	Timing correlated to the two other parts of the investments 4.17.
	Guillena (ES)	Puebla de Guzman (ES)	New Southern Interconnection. New 400kV OHL double-circuit line between Guillena (ES)-Puebla de Guzman (ES)	Under Construction	2013	2014	Delayed	Line in service at 220 kV. Connection to Guillena 400 kV faced difficulties with getting permits, already solved

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4. 18	Fontefria (ES)		New northern interconnection. New 400kV substation Fontefria (ES), previously O Covelo.	Design & Permitting	2014	2016	Delayed	Delays in the authorization process, due to a change of location of the substation. Timing correlated to the new double circuit 400kV OHL between Beariz (ES) - Fontefria (ES).
	Beariz (ES)		New northern interconnection. New 400kV substation Beariz (ES), previously Boboras	Design & Permitting	2014	2016	Delayed	Delays in the authorization process, due to a change of location of the substation. Timing correlated to the new double circuit 400kV OHL between Beariz (ES) - Fontefria (ES).
	Beariz (ES)	Fontefria (ES)	New northern interconnection. New double circuit 400kV OHL between Beariz (ES) - Fontefria (ES).	Design & Permitting	2014	2016	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
	Fontefria (ES)	Vila do Conde (PT) (By Viana do Castelo)	New northern interconnection. New 400kV OHL Fontefria (ES) - Viana do Castelo (PT) - Vila do Conde (PT).	Design & Permitting	2014	2016	Delayed	Delays in authorization process due to a change on the route and on the location of substations were induced by environmental concerns
	Vila do Conde (PT)	Recarei/Vermoim (PT)	New double circuit 400kV OHL between Vila do Conde (PT) - Recarei/Vermoim (PT).	Design & Permitting	2014	2015	Delayed	Partial sections from the line found environmental problems in his original route. The problems are being solved with the identification of new routes, prompting a delay in the commissioning date.
	V. Castelo (PT)		New 400/150kV substation V.Castelo (PT).	Design & Permitting	2014	2016	Delayed	Delays in the authorization process, due to a change of location of the substation. Timing correlated to the new 400kV OHL Fontefria (ES) - Viana do Castelo (PT) - Vila do Conde (PT).

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	Vila do Conde (PT)		New 400kV substation Vila do Conde (PT).	Design & Permitting	2014	2015	Delayed	Delays in the authorization process, due to a change of location of the substation. Timing correlated to the new double circuit 400kV OHL between Vila do Conde (PT) - Recarei/Vermoim (PT).
4. 21	Aldeadavila (ES)	Villarino (ES)	Uprating the existing Aldeadávila-Villarino 400kV OHL in order to increase its capacity from 1350MVA to 1690MVA.	Under Construction	2013	2013	Investment on time	
	JM Oriol (ES)	Caceres (ES)	Uprating the existing line JM Oriol-Caceres 220 kV.	Under Construction	2013	2013	Investment on time	
4. 21a	JM Oriol (ES)	Arenales -Caceres (ES)	New 220kV JM Oriol-Arenales-Caceres	Design & Permitting	2014	2016	Delayed	Timing correlated to the commissioning of the new Arenales substation.
	Arenales (ES)		New Arenales substation.	Design & Permitting	2014	2016	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
5. 19	Vic (ES)	Pierola (ES)	Uprating the single circuit Vic-Pierola 400kV line in order to increase its capacity from 1360 MVA to 1710 MVA.	Commissioned	2012	2012	Commissioned	
5. 20	Arkale (ES)	Hernani (ES)	Uprating the existing single circuit Arkale-Hernani n°2 220kV OHL in order to increase its capacity up to 640 MVA.	Design & Permitting	2014	2014	Investment on time	
5. 36	Sta.Llogaia (ES)	Baixas (FR)	New HVDC (VSC) bipolar interconnection in the Eastern part of the border, via 320kV DC underground cable using existing infrastructures corridors and converters in both ending points.	Design & Permitting	2014	2014	Investment on time	
	Sta.Llogaia (ES)		Converter station of the new HVDC (VSC) bipolar interconnection in the Eastern part of the border, via 320kV DC underground cable using existing infrastructures corridors.	Under Construction	2014	2014	Investment on time	

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	Baixas (FR)		Converter station of the new HVDC (VSC) bipolar interconnection in the Eastern part of the border, via 320kV DC underground cable using existing infrastructures corridors.	Under Construction	2014	2014	Investment on time	
5. 37	Bescano (ES)		New 400kV substation in Bescano with 400/220kV transformer.	Commissioned	2011-2013	2012	Commissioned	
	Santa Llogaia (ES)	Bescanó (ES)	New double circuit Sta.Llogaia-Ramis-Bescano-Vic/ Senmenat 400kV OHL (single circuit in some sections)	Under Construction	2011-2013	2014	Delayed	The authorization process took longer than expected, although it is now already concluded.
	Ramis (ES)		New 400kV substation in Ramis with two 400/220kV transformers.	Design & Permitting	2011-2013	2014	Delayed	Delays in the authorization process due to local opposition
	Santa Llogaia (ES)		New 400kV substation Sta.Llogaia.	Design & Permitting	2011-2013	2014	Delayed	Delays in the authorization process due to local opposition
5. 46	Baixas (FR)	Gaudière (FR)	Reconductoring of existing 70km double circuit 400kV OHL to increase its capacity.	Under Construction	end 2013	2013	Investment on time	
	Grado (ES)		North axis Project between Galicia and the Basque Country. Part of the project is considered as the Asturias Ring. It includes new 400kV substation Grado.	Design & Permitting	2012-2014	2013	Investment on time	
	Salas (ES)		North axis Project between Galicia and the Basque Country. It includes new 400kV substation Salas.	Commissioned	2012-2014	2012	Commissioned	
	Soto (ES)	Tabiella (ES)	North axis Project between Galicia and the Basque Country. Part of the project is considered as the Asturias Ring. Change of voltage level of the existing Soto-Tabiella single circuit from 220kV to 400kV, and connection as input/output in Grado.	Design & Permitting	2015	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
	Gueñes (ES)	Ichaso (ES)	North axis Project between Galicia and the Basque Country. New double circuit Gueñes/Abanto-Ichaso OHL.	Design & Permitting	2016	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP

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6. 22	Gozón (ES)		North axis Project between Galicia and the Basque Country. Part of the project is considered as the Asturias Ring. It includes new 400kV substation Gozón, previously Tabiella.	Design & Permitting	2012-2014	2016	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
	Reboria (ES)		North axis Project between Galicia and the Basque Country. Part of the project is considered as the Asturias Ring. It includes new 400kV substation Reboria.	Design & Permitting	2012-2014	2020	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
	Penagos (ES)		North axis Project between Galicia and the Basque Country. New 400kV substation Penagos.	Commissioned	2012-2014	2012	Commissioned	
	Solorzano (ES)		North axis Project between Galicia and the Basque Country. New 400kV substation Solorzano.	Design & Permitting	2012-2014	2014	Investment on time	
	Udalla (ES)		North axis Project between Galicia and the Basque Country. New 400kV substation Udalla.	Commissioned	2012-2014	2012	Commissioned	
	Penagos/Aguayo (ES)	Abanto (ES)	North axis Project between Galicia and the Basque Country. New double circuit Aguayo/Penagos-Abanto 400kV OHL. New input-output of Solorzano and Udalla 400kV in Cantabria	Design & Permitting	2012	2013	Delayed	From Penagos/Aguayo to Udalla commissioned. The connection from Udalla to Abanto has delays in authorization process, due to environmental issues that led to change part of the route.
	Pesoz (ES)	Grado (ES)	North axis Project between Galicia and the Basque Country. New double circuit Pesoz-Salas-Grado 400kV OHL. New input/output in El Palo for RES integration	Design & Permitting	2012-2014	2013	Investment on time	Section Pesoz-Salas. El Palo connection commissioned.
	Pesoz (ES)		North axis Project between Galicia and the Basque Country. New 400kV substation Pesoz.	Commissioned	2012-2014	2012	Commissioned	
	El Palo (ES)		North axis Project between Galicia and the Basque Country. New 400kV substation El Palo.	Commissioned	2012-2014	2012	Commissioned	

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	Sama (ES)		North axis Project between Galicia and the Basque Country. Part of the project is considered as the Asturias Ring. It includes new 400kV substation Sama.	Design & Permitting	2012-2014	2020	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Abanto(ES)		North axis Project between Galicia and the Basque Country. New 400kV substation Abanto.	Commissioned	2012-2014	2012	Commissioned	
	PESOSZ (ES)	BOIMENTE (ES)	North axis Project between Galicia and the Basque Country. New double circuit Boimente-Pesoz 400 kV OHL	Design & Permitting		2016	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
	GOZON (ES)	SAMA (ES)	North axis project between Galicia and the Basque Country. New double circuit Gozon-Reboria-Costa Verde-Sama 400 kV	Design & Permitting		2020	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
	Sama (ES)	Velilla (ES)	North axis Project between Galicia and the Basque Country and connection to the center of the country. This last case is the reason for the new double circuit Sama-Velilla 400kV OHL.	Planning	2015	2020	Rescheduled	Investment rescheduled as a result of changes in planning data inputs (investments of new thermal units are in stand by)
	Costa Verde (ES)		North axis Project between Galicia and the Basque Country. Part of the project is considered as the Asturias Ring. It includes new 400kV substation Costa Verde.	Planning	2012-2014	2020	Rescheduled	Investment rescheduled due to a lower demand forecast.
7. 23	Ichaso (ES)	Castejón (ES)	Northern part of the new Cantabric-Mediterranean axis. New double circuit Castejón-Muruarte-Dicastillo-Ichaso 400kV OHL. Section Castejón-Muruarte 400kV already in service.	Design & Permitting	2017	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
	Dicastillo (ES)		Northern part of the new Cantabric-Mediterranean axis. New 400kV substation in Dicastillo with 400/220kV transformer.	Design & Permitting	2017	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP

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	Muruarte (ES)		Northern part of the new Cantabric-Mediterranean axis. New 400kV substation in Muruarte with 400/220kV transformer.	Commissioned		2012	Commissioned	Commissioning date in the TYNDP2012 referred to the full completion of the investment. As set in the description: "Section Castejón-Muruarte 400 kV is already in service"
7. 23a	La Serna (ES)	Magallón (ES)	New double circuit La Serna-Magallón 400kV OHL.	Planning	2014	2025	Rescheduled	Other investments in investment portfolio, such as investment 7.A4 and the uprating the existing Tudela-Magallón 220kV part of 7.23, evaluated as more critical.
7. 23b	Aragón (ES)	Peñaflor (ES)	Uprating the existing Aragón-Peñaflor 400kV OHL.	Design & Permitting	2013-2014	2013	Investment on time	The authorization process takes longer than expected.
	Tudela (ES)	Magallón (ES)	Uprating the existing Tudela-Magallón 220kV.	Planning	2013-2014	2015	Delayed	Reschedule of works due to the commissioning of the FACTs in Magallon-Entrerrios 220 kV
	La Serna (ES)	Ichaso (ES)	Uprating the existing axis La Serna-Olite-Tafalla-Orcoyen-Ichaso 220kV.	Design & Permitting	2013-2014	2014	Investment on time	The authorization process takes longer than expected.
7. 24	Fuendetodos (ES)	Morella(ES)	Southern part of the new Cantabric-Mediterranean axis. New double circuit Fuendetodos-Muniesa-Mezquita-Morella 400kV OHL.	Design & Permitting	2012-2015	2017	Delayed	Changes in the definition of the investment due to environmental issues. Delays in the authorization process attached to RDL 13/2012
	Platea (ES)		Southern part of the new Cantabric-Mediterranean axis. New 400kV substation Platea.	Planning	2012-2015	2025	Rescheduled	Investment rescheduled as a result of changes in planning data inputs
	Muniesa (ES)		Southern part of the new Cantabric-Mediterranean axis. New 400kV substation Muniesa.	Design & Permitting	2012-2015	2017	Rescheduled	Rescheduled due to delays of wind power investments attached to this substation
	La Plana/Morella	Godolleta	Southern part of the new Cantabric Mediterranean axis. New double circuit La Plana/Morella-Godolleta	Planning	2012-2015	2025	Rescheduled	Investment rescheduled as a result of changes in planning data inputs.
	Mudejar (ES)		Southern part of the new Cantabric-Mediterranean axis. New 400kV substation Mudejar.	Design & Permitting	2012-2015	2016	Delayed	Delays in the authorization process attached to RDL 13/2012

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	Teruel (ES)	La Plana(ES)	Southern part of the new Cantabric-Mediterranean axis. New double circuit Teruel-Mudejar-Morella-La Plana 400kV-OHL.	Design & Permitting	2012-2015	2016	Delayed	Delays in the authorization process attached to RDL 13/2012
	Godolleta (ES)		Southern part of the new Cantabric-Mediterranean axis. The new Godolleta substation will be equipped with a 400/220kV transformer and connected to the existing 400kV lines Cofrentes-La Eliana, and Catadau-Requena 400kV lines.	Design & Permitting	2012-2015	2015	Investment on time	Turis substation is substituted by Godolleta due to environmental reasons. Uprate Eliana-Plana is rejected (environmental reasons). As alternative double circuit Morella-Godolleta/ La Plana is proposed.
	Mezquita (ES)		Southern part of the new Cantabric-Mediterranean axis. New 400kV substation Mezquita.	Under Construction	2012-2015	2013	Investment on time	
<b>7. A4</b>	Magallón (ES)		New CCRS (Combination of Reactors step by step) in Magallón 220 kV, for the Magallón-Entrerios 220kV line.	Design & Permitting	2013	2013	Investment on time	
<b>7. A5</b>	Dicastillo (ES)	Moncayo (ES)	New double circuit Dicastillo-El Sequero-Santa Engracia-Magaña-Moncayo 220kV OHL.	Design & Permitting	2013-2017	2020	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
<b>8. 25</b>	Arnero (ES)		New 400kV substation Arnero with a 400/220kV transformer.	Design & Permitting	2014	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Aragón (ES)	Isona (ES)	New double circuit Aragón/Peñalba-Arnero-Isona 400kV OHL.	Design & Permitting	2014	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Isona (ES)		New 400kV substation Isona with a 400/220 kV transformer	Design & Permitting	2014	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
<b>8. 25a</b>	Escatron (ES)	La Secuita (ES)	New single circuit Escatrón-Els Aubals-La Secuita 400kV OHL.	Design & Permitting	2015	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Els Aubals (ES)		New 400kV substation in Els Aubals.	Design & Permitting	2015	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.

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	La Secuita (ES)		New 400kV substation in La Secuita with 400/220kV transformer.	Design & Permitting	2015	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
8. A10	Isona (ES)	Calders (ES)	Uprate Isona-Calders single circuit 400kV OHL	Design & Permitting	2015	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
8. A6	Torres del Segre(ES)		New SSSC (Static Synchronous Series Compensator) in Torres del Segre-Mequinenza 220kV.	Design & Permitting	2013	2013	Investment on time	
8. A7	Mangraners (ES)	Begues (ES)	New Double circuit Mangraners-Espluga-Montblanc-Penedes-Begues and Mangraners-Juneda-Perafort-Puigpelat-Gove-Viladecans 220 kV	Design & Permitting	2013	2016	Delayed	Authorization process longer than expected due to the high number of municipalities affected.
8. A8	Puigpelat (ES)	Penedes (ES)	Uprate axis Puigpelat-Penedes single circuit 220kV OHL	Design & Permitting	2011-2013	2013	Investment on time	
8. A9	Garraf (ES)	Vandellos (ES)	Uprate axis Garraf-La Secuita-Vandellos 400kV	Design & Permitting	2015	2017	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
9. 26	Jijona (ES)		A new 400kV substation will be created at Jijona with transformer 400/220kV installed.	Planning	2017	2025	Rescheduled	Investment rescheduled as a result of changes planning data inputs (need delayed)
	Catadau (ES)		A transformer 400/220kV will be installed in Catadau.	Design & Permitting	2017	2014	Expected earlier than previously planned	Real time needs forced to bring the investment forward.
	Catadau (ES)	Benajama (ES)	New double-circuit Catadau-Jijona-Benejama 400kV OHL.	Planning	2017	2025	Rescheduled	Investment rescheduled as a result of changes in planning data inputs (need delayed)
9. 26a	Catadau (ES)	Jijona (ES)	220 kV lines from Catadau to Jijona in the coast of Costablanca using partially the 132KV lines	Design & Permitting	2016-2019	2019	Investment on time	
10. 28	Cofrentes (ES)	Ayora (ES)	New single circuit Cofrentes-Ayora 400kV OHL.	Design & Permitting	2015	2016	Delayed	Delays in the authorization process due to rearrangement of the investment (sharing of towers with an existing line, to avoid new ROW in protected areas).

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10. 28a	Ayora (ES)	Pinilla (ES)	New single circuit Ayora-Campanario-Pinilla 400kV OHL.	Design & Permitting	2012-2013	2015	Delayed	Delays in the authorization process due to rearrangement of the investment (sharing of towers with an existing line, to avoid new ROW in protected areas).
	Campanario (ES)		New 400kV substation in Campanario.	Design & Permitting	2012-2013	2015	Delayed	Timing correlated to the new single circuit Ayora-Campanario-Pinilla 400kV OHL.
10. 33	Manzanares (ES)		Transmanchega project;phase1. New substation Manzanares with a 400/220kV transformer unit.	Commissioned		2012	Commissioned	In TYNDP2012, the specific commissioning dates of every piece of investment 10.33 were not detailed
	Romica (ES)	Manzanares (ES)	Transmanchega project;phase 2. New double circuit line Romica-Manzanares 400kV OHL.	Planning	2016	2025	Rescheduled	Investment rescheduled as a result of changes in planning data inputs(need delayed attached to new RES delays)
10. 33a	Manzanares (ES)	Brazatortas (ES)	Transmanchega project; phase 1. New double circuit line Manzanares-Brazatortas 400kV OHL.	Commissioned		2012	Commissioned	In TYNDP2012, the specific commissioning dates of every piece of investment 10.33 were not detailed
	Brazatortas (ES)		Transmanchega project;phase1.The new 400kV substation Brazatortas will be connected to the existing line Guadame-Valdecaballeros.	Commissioned		2012	Commissioned	In TYNDP2012, the specific commissioning dates of every piece of investment 10.33 were not detailed
11. 29	Arcos (ES)	Guadame (ES)	New double circuit Arcos de la Frontera-La Roda-Cabra-Cordoba-Guadame 400kV OHL (partly already commissioned).	Design & Permitting	2011/2014	2014	Investment on time	
	Cordoba (ES)		New 400kV substation Cordoba with a 400/220kV transformer.	Design & Permitting		2014	Investment on time	Cordoba connection postponed in the national Master Plan as need for demand is not imminent. No detailed commissioning dates for this connection was provided in TYNDP 2012.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
	Cartuja	Arcos	New double circuit Cartuja-Arcos 400 kV	Design & Permitting	2011/2014	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Cartuja (ES)		New 400kV substation Cartuja with a 400/220kV transformer.	Design & Permitting	2011/2014	2018	Delayed	Timing correlated to the commissioning of the new double circuit Cartuja-Arcos 400 kV
<b>11. A11</b>	Cartuja-Pto Sta Maria (ES)	Facinas (ES)	New 52km axis 220 kV OHL Cartuja/Puerto Sta Maria-Pto.Real-Parralejo-Facinas	Design & Permitting	2012/2013	2020	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP
<b>12. 30</b>	Guadaira (ES)		New 400kV substations in Guadaira with 400/220kV transformer.	Design & Permitting	2017	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Don Rodrigo (ES)	Guadaira (ES)	New double circuit 400kV OHL: Guadaira-Don Rodrigo.	Design & Permitting	2017	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Aznalcollar (ES)		New 400kV substation in Aznalcollar with 400/220kV transformer.	Design & Permitting	2017	2020	Delayed	Investment rescheduled as a result of changes in planning data inputs (need delayed)
<b>12. 30a</b>	Guillena (ES)	Almaraz (ES)	New double circuit 400kV OHL Guillena-Brovaes-Arroyo S.Servan-Carmonita- Almaraz.	Under Construction	2012	2014	Delayed	Although permitting is already concluded, the authorization process took a longer time than expected due to high number of municipalities affected.
	Arroyo S.Servan (ES)		New 400kV substation in Arroyo S.Servan with 400/220kV transformer.	Under Construction	2012	2014	Delayed	Although permitting is already concluded, the authorization process took a longer time than expected due to high number of municipalities affected.
	Carmonita (ES)		New 400kV substation in Carmonita with 400/220kV transformer.	Design & Permitting	2012	2014	Rescheduled	Timing correlated to the High Speed Train needs
<b>13. 31</b>	Caparacena (ES)	La Ribina (ES)	New double circuit Caparacena-Baza-La Ribina 400kV OHL.	Design & Permitting	2016	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
	Baza (ES)		New 400kV substation in Baza	Design & Permitting	2016	2018	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.

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	La Ribina (ES)		New 400kV substation in La Ribina (will be connected as an input/output in Carril-Litoral 400kV line ).	Design & Permitting	2016	2016	Investment on time	
13. 31a	Caparacena (ES)	Litoral (ES)	The existing single circuit Litoral-Tabernas-Hueneja-Caparacena 400kV line will be uprated in order to increase its capacity .	Under Construction	2012	2013	Delayed	Final phase of permitting. Progress as planned although there are difficulties to find a suitable period for a planned outages to carry out the work
14. 34	Trives (ES)	Tordesillas (ES)	New line Trives-Aparecida-Arbillera-Tordesillas 400kV OHL, sharing towers with Trives-Tordesillas 220kV.	Commissioned	2011-2012	2012	Commissioned	
	Trives (ES)	Tordesillas (ES)	New line Trives-P.Bibey-Conso-Valparaiso-Tordesillas 220kV OHL, sharing towers with Trives-Tordesillas 400kV.	Commissioned	2011-2012	2012	Commissioned	
	Aparecida (ES)		New 400kV substation in Aparecida.	Commissioned	2011-2012	2012	Commissioned	
14. 34a	Tordesillas (ES)	Galapagar (ES)	New double circuit Tordesillas-La Cereal and Tordesillas-Segovia- Galapagar 400kV OHL.	Under Construction	2012-2013	2013	Investment on time	
14. 34b	Moraleja	Galapagar-Segovia	New input/output of Moraleja in Segovia-Galapagar 400kV OHL	Planning	2013-2015	2025	Rescheduled	Investments rescheduled as a result of changes in planning data inputs (need delayed)
	GALAPAGAR (ES)		New PST in Galapagar-Moraleja 400 kV	Design & Permitting	2013-2015	2015	Investment on time	
14. 34c	Loeches (ES)	SSReyes (ES)	Upgrade of the existing 21km single circuit Loeches-SS Reyes 220kV OHL to 400kV in order to increase its capacity.	Design & Permitting	2015	2016	Delayed	National law RDL 13/2012 has frozen the permitting process until publication of the next NDP.
14. 34d	Fuencarral (ES)	Galapagar (ES)	Uprate Galapagar-Fuencarral 400kV.	Design & Permitting	2014	2015	Delayed	Investment adapted to the new schedule of some 220 kV works in the area of Madrid
14. 34e	Mudarra (ES)	Tordesillas (ES)	New double circuit 400kV Mudarra-Tordesillas OHL.	Planning	2018	2025	Rescheduled	Investment rescheduled as a result of changes in planning data inputs. (need delayed)
	Mudarra (ES)	Tordesillas (ES)	Uprate the existing single-circuit Mudarra-Tordesillas 400kV line in order to increase its capacity.	Design & Permitting	2018	2013	Expected earlier than previously planned	Real time needs forced to bring the investment forward.

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15. 32	Aldeadavila (ES)	Almaraz (ES)	Uprate double circuit Aldeadavila- Hinojosa- Almaraz 400kV.	Design & Permitting	2011/2018	2016	Investment on time	
	Aldeadavila (ES)	Arañuelo (ES)	Uprate double circuit Aldeadavila-Arañuelo 400kV.	Design & Permitting	2011/2018	2016	Investment on time	
	Villaviciosa (ES)	Almaraz (ES)	Uprate double circuit Villaviciosa- Almaraz 400 kV.	Design & Permitting	2011/2018	2015	Investment on time	
	Picon (ES)	T.Velasco (ES)	Uprate Picon-Aceca-Los Pradillos-Torrejon de Velasco 220 kV.	Design & Permitting	2011/2018	2014	Investment on time	
	Valdecaballeros (ES)	Arañuelo (ES)	Uprate double circuit Valdecaballeros-Arañuelo 400 kV.	Design & Permitting	2011/2018	2015	Investment on time	
	Trillo (ES)	Belinchon (ES)	Uprate double circuit Trillo-Villanueva Escuderos-Olmedilla-Belinchon 400kV.	Design & Permitting	2011/2018	2015	Investment on time	
	Cofrentes (ES)	Morata (ES)	Uprate Cofrentes-Minglanilla-Belinchon-Morata 400kV.	Design & Permitting	2011/2018	2015	Investment on time	
	Añover (ES)	Villaverde (ES)	Uprate Añover-T.Velasco-Pinto Ayuden-El Hornillo-Villaverde 220 kV.	Design & Permitting	2011/2018	2015	Investment on time	
	Morata (ES)	Almaraz (ES)	Uprate double circuit Morata-Villamiel-Almaraz 400 kV.	Design & Permitting	2011/2018	2020	Rescheduled	Investment rescheduled as a result of changes in planning date inputs (Delays in new CCGTs)
15. A12	Olmedilla (ES)	Valdemingomez (ES)	New double circuit Olmedilla-Villares-Morata-Valdemingomez 400kV OHL.	Planning	2016/2017	2025	Rescheduled	Investment rescheduled as result of changes in planning data inputs (Delays in new power plants)
	Villares (ES)		New substation Villares 400kV.	Planning	2016/2017	2025	Rescheduled	Investment rescheduled as result of changes in planning data inputs (delays in new power plants). Timing correlated to the commissioning of the new double circuit Olmedilla-Villares-Morata-Valdemingomez 400kV OHL.
	Valdemingomez (ES)		New substation Valdemingomez 400kV.	Planning	2016/2017	2025	Rescheduled	Investment rescheduled as result of changes in planning data inputs (delays in new power plants). Timing correlated to the commissioning of the new double circuit Olmedilla-Villares-Morata-Valdemingomez 400kV OHL.

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	T.Velasco (ES)		Upgrade of substation with 400/220 kV transformers in T.Velasco.	Design & Permitting	2016/2017	2017	Investment on time	
16. 38	Gatica (ES)	Aquitaine (FR)	New HVDC interconnection in the western part of the border via DC subsea cable in the Biscay Gulf.	Planning	ca. 2020	2020	Investment on time	The investment is expected to be commissioned around the year 2020.
16. A14	Amorebieta (ES)	Gueñes (ES)	Uprates required in basque country and Catalonia in order to use fully the benefit of the longterm ES-FR interconnection.	Planning	2016	2016	Investment on time	
	Adrall (ES)	La Pobla (ES)	Uprates required in basque country and Catalonia in order to use fully the benefit of the longterm ES-FR interconnection.	Design & Permitting	2016	2016	Investment on time	
16. A17	Arkale (ES)		New PST in Arkale-Argia 220 kV interconnection line	Planning	2016	2016	Investment on time	Draft NDP expected to be published during the preparation of TYNDP 2012 was not finally approved and published, so the investment is yet in a planning stage. If the new NDP is published by 2014, as expected, commissioning date would not be affected.
17. 42	Lonny (FR)	Vesle (FR)	Reconstruction of the existing 70km single circuit 400kV OHL as double circuit OHL.	Design & Permitting	2016	2016	Investment on time	
17. 44	Havre (FR)	Rougemontier (FR)	Reconductoring of existing 54km double circuit 400kV OHL to increase its capacity.	Under Construction	2018	2018	Investment on time	The investment progresses according to the pace of new generation installation in the area.
17. 45	Taute (FR)	Oudon (FR)	"Cotentin-Maine "Project : new 163km double circuit 400kV OHL connected to existing network via two new substations in Cotentin and Maine regions.	Commissioned	2013	2013	Commissioned	
17. A144	Cergy (FR)	Terrier (FR)	New single circuit 400-kV line between existing 400-kV substations	Planning	2018	2018	Investment on time	

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17. A18	tbd (FR)	tbd (FR)	New network reinforcement between Haute Normandy and the south of Paris area. Length about 160 km.	Under Consideration	long term	2030	Investment on time	Studies currently in progress in order to specify the more suitable solution in the context of uncertain generation scenario and socio-environmentally sensitive areas.
18. 20. A20	La Gaudière (FR)	Bouches du Rhone area (FR)	Midi-Provence - New subsea HVDC link between Marseille area and Languedoc	Design & Permitting	2018	2018	Investment on time	
18. 48	Gaudière (FR)	Rueyres (FR)	Reconductoring with ACCS limiting section (10km) of existing single circuit 400kV OHL.	Commissioned	end 2012	2012	Commissioned	
18. A19	Tbd (FR)	Tbd (FR)	Restructuration of whole EHV grid in Massif Central area	Under Consideration	long term	2030	Investment on time	Studies currently in progress in order to specify the most suitable solution; high complexity due to the uncertainty on generation and load scenario and to the size of the area concerned.
19. 51	Biancon (FR)	La Bocca (FR)	Part of the PACA "Safety net" project: construction of a new AC 220kV underground cable Biançon - La Bocca.	Under Construction	2015	2015	Investment on time	
	Trans (FR)	Boutre (FR)	Part of the PACA "safety net" project: new 220 kV AC underground cable Boutre-Trans	Under Construction	2015	2015	Investment on time	
	Biancon (FR)	Fréjus (FR)	Part of the PACA "safety net" project: new 220 kV AC underground cable Biancon - Fréjus	Under Construction	2015	2015	Investment on time	
20. 53	Coulange (FR)	Le Chaffard (FR)	Reconductoring (with ACCS / ACCR) of two existing double circuit 400kV OHL (Coulange - Pivoz-Cordier - Le Chaffard and Coulange - Beaumont-Montoux - Le Chaffard). Total length of both lines: 275km	Under Construction	2016	2016	Investment on time	

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21. 54	Cornier (FR)	Piossasco (IT)	Replacement of conductors (by ACCS) on Albertville (FR) - Montagny (FR) - Cornier (FR) and Albertville (FR) - La Coche (FR) - La Praz (FR) - Villarodin (FR) - Venaus (IT) - Piossasco (IT) single circuit 400kV OHLs. In addition, change of conductors and operation at 400kV of an existing single circuit OHL between Grande Ile and Albertville (FR) currently operated at lower voltage, and associated works in Albertville (FR) 400kV substation. (Total length of lines : 257 km)	Under Construction	2012/2013	2013	Investment on time	Already completed on the French side. Italian part to be commissioned in 2013.
21. 55	Grande Ile (FR)	Piossasco (IT)	"Savoie - Piémont" Project : New 190km HVDC (VSC) interconnection FR-IT via underground cable and converter stations at both ends (two poles, each of them with 600MW capacity). The cables will be laid in the security gallery of the Frejus motorway tunnel and also along the existing motorways' right-of-way.	Design & Permitting	2017/2018	2019	Delayed	Some delay in the works of the Frejus service gallery of the motorway, in which the cables will be installed. The investment timeline has also been updated taking into account the permitting and technical issues for this very specific investment.
21. 81	Trino (IT)	Lacchiarella (IT)	A new 380kV double circuit OHL between the existing 380kV substations of Trino and Lacchiarella in North West Italy area. Total line length: 95km	Under Construction	2013	2014	Delayed	Rescheduling of work due to further secondary permitting during land rights acquisition and construction phase
21. 84	Casanova (IT)	Vignole (IT)	Voltage upgrade of the existing 100km Casanova-Vignole 220kV OHL to 400kV.	Design & Permitting	long term	2025	Investment on time	
	Asti area (IT)		New 400/220/150kV substation in Asti area.	Design & Permitting	long term	2025	Investment on time	
21. 101	Turin (IT)		Restructuring of the 220kV network in the urban area of Turin. Some new 220kV cables, some new 220/132kV substations and some reinforcements of existing assets are planned. Total length: 63km.	Under Construction	long term	2019	Investment on time	

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22. 57	Tbt (FR)	Tbt (CH)	Reinforcement of the interconnection in the area of Geneva's lake.	Under Consideration	long term	2030	Investment on time	
23. 60	Avelin/Mastaing (FR)	Horta (new 400-kV substation) (BE)	France -Belgium	Under Consideration	2018-2020	2019	Investment on time	The final commissioning date is not yet finalized, it is expected to be commissioned between 2018-2020 : investment progresses as planned
23. A21	Avelin (FR)	Mastaing (FR)	Operation at 400 kV of existing line currently operated at 220 kV	Design & Permitting	2017	2017	Investment on time	
23. A22	Avelin (FR)	Gavrelle (FR)	Substitution of a new double-circuit 400kV OHL to an existing 400-kV single circuit OHL	Design & Permitting	2017	2017	Investment on time	
24. 60a	Lillo (BE)	Mercator (BE)	Brabo Project : Doubling of the axis Zandvliet-Mercator via Lillo. First part : erecting a new 22km double circuit 380kV OHL with 1900 MVA capacitybetween Lillo and Mercator.	Design & Permitting	2017	2017	Investment on time	
24. 445	Zandvliet (BE)	Lillo (BE)	Brabo Project : Doubling of the axis Zandvliet-Mercator via Lillo. Second part : erecting a new 22km double circuit 380kV OHL with 1900 MVA capacity between Lillo and Zandvliet.	Design & Permitting	2017	2017	Investment on time	New permitting procedure is ongoing. Permitting procedure asked evaluation of several alternative solutions.
	Lillo (BE)		Brabo Project : Doubling of the axis Zandvliet-Mercator via Lillo. Second part : new 400 kV substation in Lillo.	Design & Permitting	2017	2017	Investment on time	
24. 445a	Van Eyck (BE)		New 380 kV substation (Van Eyck)	Design & Permitting	2014	2014	Investment on time	
	Gramme (BE)	Van Eyck (BE)	Doubling of 86 km 380kV axis Gramme-Van Eyck + high performance conductors	Design & Permitting	2014	2014	Investment on time	
24. A26	Horta (BE)	Doel/Mercator (BE)	Upgrade with high performance conductors.	Design & Permitting	2016-2020	2016	Investment on time	
24. A27	Zandvliet (BE)		New PST in Zandvliet substation --> 4 th PST on the Belgian north border	Planning	2016-2020	2016	Investment on time	

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25. 62	Tourbe (FR)	Chilling (GB)	IFA2:New subsea HVDC link between the UK and France. Capacity around 1000 MW.	Under Consideration	2020	2020	Investment on time	Extensive feasibility studies (e.g. seabed surveys) have been conducted to determine the most suitable route; the investment develops according to the planned schedule.
26. 47. 216	St. Peter (AT)	Tauern (AT)	New internal double circuit 380kV-line connecting the substations Salzburg and Tauern (replacement of existing 220kV-lines on optimized routes).	Design & Permitting	2017/2019	2019	Investment on time	In Sept. 2012 the application for granting the permission (EIA) was submitted to the relevant authorities. According to the experience of similar investments the commissioning is expected for 2019.
	Wagenham (AT)		Erection of the new substation Wagenham.	Design & Permitting	2017/2019	2019	Investment on time	In Sept. 2012 the application for granting the permission (EIA) was submitted to the relevant authorities. According to the experience of similar investments the commissioning is expected for 2019.
	Pongau (AT)		Erection of the new substation Pongau.	Design & Permitting	2017/2019	2019	Investment on time	In Sept. 2012 the application for granting the permission (EIA) was submitted to the relevant authorities. According to the experience of similar investments the commissioning is expected for 2019.
	St. Peter (AT)	Salzburg (AT)	Upgrade of the existing 380kV-line St. Peter - Salzburg from 220kV-operation to 380kV-operation.	Design & Permitting	2017/2019	2019	Investment on time	In Sept. 2012 the application for granting the permission (EIA) was submitted to the relevant authorities. According to the experience of similar investments the commissioning is expected for 2019.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
26. 47. 218	Obersielach (AT)	Lienz (AT)	New 380kV OHL connecting the substations Lienz (AT) and Obersielach (AT) to close the Austrian 380kV-Ring in the southern grid area. Line length: 190km.	Under Consideration	long term	2023	Investment on time	
26. 47. 220	Lienz (AT)		Erection of a new 220/220kV- PST in the substation Lienz (AT).	Commissioned	2012	2012	Commissioned	PST commissioned on 23.05.2012
26. 63	Lienz (AT)	Veneto region (IT)	The project foresees the reconstruction of the existing 220kV-interconnection line as 380kV-line on an optimized route to minimize the environmental impact. Total length should be in the range of approx. 100km.	Planning	long term	2022	Investment on time	Planning in progress coordinated between TERN and APG
26. 64	Bressanone (IT)	New substation near Innsbruck (AT)	New double circuit 400kV interconnection through the pilot tunnel of the planned Brenner Base Tunnel. Total line length: 65km.	Under Consideration	>2022	2030	Investment on time	
26. 66	Prati di Vizze (IT)	Steinach (AT)	Upgrade of the existing 44km Prati di Vizze (IT) – Steinach (AT) single circuit 110/132kV OHL, currently operated at medium voltage.	Design & Permitting	mid term	2016	Investment on time	
	Prati di Vizze (IT)		Installing a 110kV/132kV PST.	Design & Permitting	mid term	2015	Investment on time	
26. 83	Volpago (IT)	North Venezia (IT)	Realization of a new 380kV line between the existing substation of North Venezia and the future 380kV substation of Volpago, connected in and out to the 380kV "Sandrigo - Cordignano" . Total line length: 31km.	Design & Permitting	2015	2022	Delayed	Local opposition to the started permitting process of Volpago substation and problems in the localization of the line carried out the rescheduling of the investment
26. 93	Dolo (IT)	Camin (IT)	New 15km double circuit 400kV OHL between existing Dolo and Camin 400kV substations, to be built in parallel with the existing line.	Under Construction	2014	2015	Delayed	Rescheduling of work due to further secondary permitting during land rights acquisition and construction phase

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26. 97	Polpet (IT)		Voltage upgrade of the existing Polpet 150kV/medium voltage substation up to 220kV, complying with 400kV standards. The substation will be connected by two short links to the existing Soverzene-Lienz 220kV line.	Design & Permitting	2015	2017	Delayed	Delay in the permitting process due to the request of several integrations, during EIA, by the Authorities involved
26. A102	Tbd (IT)	Tbd (AT)	New possible interconnection line between Italy and Austria	Under Consideration	long term	2022	Investment on time	
27. 68	Okroglo (SI)		Installation of a new 400kV PST in Okroglo which is a part of a double 400 kV OHL Okroglo(SI)-Udine(IT).	Planning	long term	2022	Investment on time	
	Okroglo (SI)	Udine (IT)	New 120km double circuit 400kV OHL with PST in Okroglo. The thermal rating will be 1870 MVA per circuit.	Planning	long term	2022	Investment on time	There are some issues with social acceptance and territorial constraints.
27. 92	West Udine (IT)	Redipuglia (IT)	New 40km double circuit 400kV OHL between the existing substations of West Udine and Redipuglia, providing in and out connection to the future 400kV substation of South Udine.	Under Construction	2015	2016	Delayed	Permitting only recently completed (March 2013) and construction work had to be rescheduled accordingly
27. 223	Cirkovce (SI)	Heviz (HU) Žerjavinec (HR)	The existing substation of Cirkovce(SI) will be connected to one circuit of the existing Heviz(HU)-Žerjavinec(HR) double circuit 400kV OHL by erecting a new 80km double circuit 400kV OHL in Slovenia. The project will result in two new cross-border circuits: Heviz(HU)-Cirkovce(SI) and Cirkovce (SI)-Žerjavinec (HR).	Design & Permitting	2016	2016	Investment on time	
27. 224	Krsko (SI)	Bericevo (SI)	New 400kV double circuit OHL. This project will strengthen connection between East and Central part of Slovenia and connect an internal loop.	Under Construction	2015	2014	Expected earlier than previously planned	The investment will be commissioned within a period of six months. A margin was taken in the previous commissioning date in case of complications during the work would appear.
27. 225	Divaca (SI)	Cirkovce (SI)	Upgrading 220kV lines to 400kV in corridor Divaca-Klece-Bericevo-Podlog-Cirkovce.	Design & Permitting	long term	2020	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
27. 227	Banja Luka (BA)	Lika (HR)	New 400kV interconnection line between BA and HR	Under Consideration	2020	2020	Investment on time	Feasibility study is expected to be launched.
27. 229	Plomin (HR)	Melina(HR)	New 90 km double circuit OHL, with two connecting substations and transformer 400/220 kV, 400 MVA	Design & Permitting	>2016	2017	Investment on time	Investment commissioning date depends on the constructing and commissioning of the new generating unit in thermal power plant Plomin.
27. A105	Lika(HR)	Brinje(HR)	New 55 km single circuit 400 kV OHL replacing aging 220 kV overhead line	Planning	2020	2020	Investment on time	Feasibility study is expected to be launched.
27. A106	Lika(HR)	Velebit(HR)	New 60 km single circuit 400 kV OHL replacing aging 220 kV overhead line	Planning	2020	2020	Investment on time	Feasibility study is expected to be launched.
27. A107	Lika (HR)		New 400/110 kV substation, 2x300 MVA	Planning	2017	2017	Investment on time	Feasibility study is expected to be launched.
27. A108	Brinje (HR)		New 400/220 kV substation, 1x400 MVA	Planning	2020	2020	Investment on time	Feasibility study is expected to be launched.
27. A96	Slovenia (SI)	Salgareda (IT)	The project includes a new HVDC link between Italy and Slovenia. The new HVDC line between Slovenia and Italy will strengthen the connection between Slovenia and Italy and will increase existing power exchange capacity.	Under Consideration	long term	2022	Investment on time	
28. 70	Villanova (IT)		Converter station of the new 1000MW HVDC interconnection line between Italy and Montenegro via 375km 500kV DC subsea cable.	Under Construction	2015	2017	Delayed	Rescheduling of work due to further secondary permitting during land rights acquisition and construction phase
	Villanova (IT)	Lastva (ME)	New 1000MW HVDC interconnection line between Italy and Montenegro via 375km 500kV DC subsea cable and converter stations at both ending points.	Under Construction	2015	2017	Delayed	Rescheduling of work due to further secondary permitting during land rights acquisition and construction phase
	Lastva (ME)		Converter station of the new 1000MW HVDC interconnection line between Italy and Montenegro via 375km 500kV DC subsea cable.	Under Construction	2015	2017	Delayed	Rescheduling of work due to further secondary permitting during land rights acquisition and construction phase

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
28. 86	Foggia (IT)	Villanova (IT)	New 178km double circuit 400kV OHL between existing Foggia and Villanova 400kV substations, also connected in and out to the Larino and Gissi substations.	Design & Permitting	2015	2019	Delayed	Longer permitting process (EIA) concerning the part Foggia-Gissi still under authorization; the part Villanova Gissi is already authorized
	Villanova (IT)		A PST will be installed on the new 400kV line Foggia-Villanova	Commissioned		2012	Commissioned	No detailed commissioning date was provided in the TYNDP 2012 for the PST.
28. 89	Fano (IT)	Teramo (IT)	New 200km single circuit 400kV OHL between the existing 400kV substations of Fano and Teramo, providing the connection in and out to the future substation to be built in Macerata area.	Design & Permitting	long term	2022	Investment on time	
28. 228	Trebinje(BA)	Plat(HR)	Re-establishment of two previously existing 220kV single circuit interconnection Trebinje(BA)-Plat(HR); Total length 10km.	Under Construction	2014	2014	Investment on time	
28. 231	Konjsko(HR)		Installation of a 150 MVar reactive power device in substation Konjsko	Design & Permitting	2014	2015	Delayed	Because of the longer time needed to design the investment the expected commissioning is delayed for one year.
28. 232	Buk Bijela (BA)	Brezna (ME)	New single circuit 400kV OHL between B&H and Montenegro	Planning	2015	2020	Delayed	Regional feasibility study for 400kV OHL between RS, ME and BA under Infrastructure investments Facility for Western Balkans is in progress in which the details for this investment will be defined by mid-2014.
28. 233a	Lastva (ME)		A new substation will be connected to the existing line 400kV Podgorica 2(ME)-Trebinje(BA), with two transformers 2X300MVA 400/110kV, and convertor station for the DC cable Lastva(Tivat)-Villanova (see 70).	Design & Permitting	2015	2015	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
28. 233b	Lastva (ME)	Pljevlja (ME)	New 160 km double circuit 400kV OHL existing substation Pljevlja and new substation Lastva.	Design & Permitting	2016	2016	Investment on time	
28. A109	Bajina Basta (RS)	Visegrad (BA)	Description of broader context - New double circuit 400kV OHL connecting existing substation Pljevlja (ME) and substation Bajina Basta (RS) and new double circuit 400kV OHL connecting existing substation Visegrad (BA) and substation Bajina Basta (RS). In the first phase one 400 kV circuit would be equipped. In the second phase New SS Bistrica (RS) would be connected to the existing double circuit 400 kV OHL between SS Bajina Basta (RS), SS Visegrad (BA) and SS Pljevlja (ME). Part of regional transmission corridor northeast-southwest.	Planning	>2016	2020	Investment on time	Ongoing Regional trilateral feasibility study (financed by WBIF and supported by EC) between three TSOs (EMS, NOS BiH and CGES), including ESIA and preliminary design. Expected finalization time mid 2014.
28. A110	SS Bajina Basta (RS)	SS Obrenovac (RS)	Double circuit 400 kV OHL between upgraded substation Bajina Basta and substation Obrenovac. Part of larger regional transmission corridor northeast-southwest.	Design & Permitting	>2016	2018	Investment on time	Feasibility study, ESIA and preliminary design finalized (financed by WBIF and supported by EC). Ongoing process of adoption to local legislation needs.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
28. A111	Bajina Basta (RS)	Pljevlja (ME)	Description of broader context - New double circuit 400kV OHL (105km RS + 16km ME) connecting existing substation Pljevlja (ME) and substation Bajina Basta (RS) and new double circuit 400kV OHL connecting existing substation Visegrad (BA) and substation Bajina Basta (RS). In the first phase one 400 kV circuit would be equipped. In the second phase New SS Bistrica (RS) would be connected to the existing double circuit 400 kV OHL between SS Bajina Basta (RS), SS Visegrad (BA) and SS Pljevlja (ME). Part of regional transmission corridor northeast-southwest.	Planning	>2016	2020	Investment on time	Ongoing Regional trilateral feasibility study (financed by WBIF and supported by EC) between three TSOs (EMS, NOS BiH and CGES), including ESIA and preliminary design. Expected finalization time mid 2014.
28. A112	Bajina Basta (RS)		Upgrade of existing 220/110 kV substation in Bajina Basta to 400/220/110 kV substation as part of overall western Serbia system upgrade to 400 kV voltage level. Part of larger regional transmission corridor northeast-southwest.	Design & Permitting	>2016	2018	Investment on time	Feasibility study, ESIA and preliminary design finalized (financed by WBIF and supported by EC). Ongoing process of adoption to local legislation needs.
28. A113	Bistrica (RS)		New 220/110 kV substation Bistrica	Design & Permitting	2015	2015	Investment on time	Location permit and environmental study are adopted
28. A114	Konjsko(HR)	Velebit(HR)	New 100km single circuit 400 kV OHL replacing ageing 220 kV overhead line	Planning	2020	2020	Investment on time	It is expected to start creating a feasibility study.
28. A115	Plat (HR)		Substation 220/110 kV Plat	Commissioned	2013	2013	Commissioned	
29. 73	El Aouaria (TU)	Partanna (IT)	New 350km 1000 MW HVDC line between Tunisia and Italy via Sicily with 400kV DC subsea cable and converters stations at both ends.	Design & Permitting	long term	2025	Investment on time	
29. 76	Partanna (IT)	Ciminna (IT)	New 65km single circuit 400kV OHL in Sicily between existing Partanna and Ciminna substations.	Planning	long term	2025	Investment on time	
29. A97	Villasor (IT)	Cheffia (DZ)	New interconnection between Italy and Algeria - new DC submarine cable	Planning	long term	2022	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
30. 74	Ciminna area (IT)		For the realization of 380kV grid reinforcement, it will be realized the voltage upgrade of the existing Ciminna substation up to 380kV.	Design & Permitting	2016/long term	2019	Investment on time	
	Assoro (IT)		For the realization of 380kV grid reinforcement, it will be realized a new 380/150kV substation Assoro.	Planning	2016/long term	2019	Investment on time	
	Assoro (IT)	Villafranca (IT)	Realization of new 380 kV line "Assoro-Sorgente2-Villafranca"	Planning		2019	Investment on time	In TYNDP2012, the specific commissioning dates of every piece of investment 30. 74 were not detailed
	Paternò (IT)	Priolo (IT)	Realization of new 380 kV line: "Paternò-Pantano-Priolo"	Design & Permitting		2017	Investment on time	In TYNDP2012, the specific commissioning dates of every piece of investment 30. 74 were not detailed
	Chiaramonte Gulfi (IT)	Ciminna (IT)	Realization of new 380 kV line: "Chiaramonte Gulfi -new station of Assoro- Ciminna"	Design & Permitting	2016/long term	2019	Investment on time	
	Sorgente 2 (IT)		New 380/150 kV substation in Sorgente area will be temporally connected in and out to the existing 400 line kV "Paterno - Sorgente" and to the local 220 kV and 150 kV network.	Planning	2016/long term	2019	Investment on time	
30. 75	Sorgente (IT)	Rizziconi (IT)	New 90km double circuit 400kV line, partly via subsea cable and partly via OHL. This line is part of a larger project that foresees the creation of the future 400kV ring grid of Sicily.	Under Construction	2014	2015	Delayed	Rescheduling of 6 months work due to technical issues during construction phase
30. 77	Partinico (IT)	Fulgatore (IT)	New 45km single circuit 400kV OHL between Partinico and Fulgatore in Western Sicily.	Planning	2016	2020	Delayed	Rescheduling of permitting process: discussion of preliminary localization with local Authorities
30. 87	Feroletto (IT)	Maida (IT)	New 400kV OHL across Calabria between the substation of Ferroletto and the substation of Maida.	Under Construction	mid term	2013	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
30. A98	Vizzini (IT)		New 380/150 kV substation in Vizzini area (ex Mineo) connected in and out to the existing 400 line kV "Chiaromonte Gulfi - Paterno" and to the local HV network.	Design & Permitting	long term	2020	Investment on time	
31. 85	Pavia area (IT)	Piacenza area (IT)	New 45km double circuit 400kV OHL between 2 substations in the Pavia area and Piacenza.	Design & Permitting	long term	2022	Investment on time	
31. 95	Mese (IT)		Voltage upgrade of the existing 220/132kV Mese substation up to 400kV.	Design & Permitting	2014	2022	Delayed	Rescheduling of permitting process: discussion of preliminary localization with local Authorities
31. 99	Avise (IT)	Chatillon (IT)	Voltage upgrade of the existing 40km Avise-Villeneuve-Chatillon single circuit 220kV OHL up to 400kV and restructuring of existing grid	Design & Permitting	2014	2022	Delayed	Rescheduling of permitting process: discussion of preliminary localization with local Authorities
31. 100	Milan (IT)	-	Restructuring of the 220kV network in the urban area of Milan. New 220kV cables (33km).	Design & Permitting	mid term	2019	Delayed	Rescheduling of work to guarantee, during construction phase, the continuity of service in metropolitan area of Milan
	Musocco (IT)		Restructuring of the 220kV network in the urban area of Milan. New 220kV substation (Musocco).	Design & Permitting	mid term	2015	Investment on time	
	Milan (IT)	-	Restructuring of the 220kV network in the urban area of Milan. Reinforcements of existing assets (35km) are planned.	Design & Permitting	mid term	2019	Delayed	Rescheduling of work to guarantee, during construction phase, the continuity of service in metropolitan area of Milan
31. 103	Brescia (IT)		New 400/132kV substation in South East area of Brescia, connected in and out to the existing Flero-Nave 400kVOHL, while restructuring the 132kV network.	Design & Permitting	mid term	2022	Delayed	Longer permitting process than expected (request for building and operation)
31. 112	Tirano (IT)	Verderio(IT)	New 140km single circuit 400kV OHL between Tirano and Verderio substations connecting also the new 400kV substation Grosio/Piateda.	Planning	long term	2022	Investment on time	

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31. 124	Mettlen (CH)	Airolo (CH)	Upgrade of existing 225kV OHL into 400kV. Line length: 90km.	Under Consideration	2020	2020	Investment on time	
31. A101	Airolo (CH)	Pallanzeno(IT)-Baggio(IT)	New interconnection project between Italy and Switzerland;	Design & Permitting	long term	2022	Investment on time	Permitting process started on the Italian side since September 2012
31. 932	Magenta (IT)		New 400 kV section in Magenta substation	Design & Permitting		2020	Investment on time	HVDC link between Pallanzeno and Baggio will be realized using existing 220 kV line connecting the Magenta 220/132 kV substation. Consequently, a new 400 kV section will be needed to reconnect the Magenta substation to the 400 kV line Turbigio – Baggio. This investment was not explicitly mentioned in TYNDP 2012.
32. 88	Montecorvino (IT)	Benevento (IT)	New 70km double circuit 400kV OHL between the existing 400kV substations of Montecorvino and Benevento II, providing in and out connection to the future substation to be build in Avellino North area, which will be also connected to the existing "Matera-S. Sofia" 400kV line.	Design & Permitting	mid term	2021	Delayed	Delay in the permitting process (EIA) related to part Montecorvino Avellino Nord; discussion of preliminary localization with local Authorities for Avellino Nord Benevento
32. 91	Foggia (IT)	Benevento II (IT)	Upgrade of the existing 85km Foggia-Benevento II 400kV OHL.	Under Construction	2013-2014	2014	Investment on time	
32. 96	Deliceto (IT)	Bisaccia (IT)	New 30km single circuit 400kV OHL between the future substations of Deliceto and Bisaccia, in the Candela area.	Design & Permitting	mid term	2017	Delayed	Longer permitting process than expected (EIA)
32. 96a	New 380 kV substations for RES		It will be realized few new 380/150kV substations in Central/South of Italy. The new substations will be connected to the wind power plants in order to avoid the congestions on the 150kV network and to dispatch the renewable energy produced.	Design & Permitting	mid term	2017	Delayed	EHV work already authorized and partially completed , still in authorization HV work

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32. 102	Naples (IT)	-	Restructuring of the 220kV network in the urban area of Naples. Some new 220kV cables and some reinforcements of existing assets are planned. Total length: 36km.	Design & Permitting	long term	2018	Investment on time	
32. 110a	Aliano (IT)	Montecorvino (IT)	New connection OHL 400 kV between north Basilicata and Campania region.	Planning	long term	2025	Investment on time	
32. A99	Laino (IT)	Altomonte (IT)	New 400kV OHL between the existing substations of Laino and Altomonte in Calabria. Related to this project will be acted a great restructuring of the local HV network, downgrading the existing 220 kV lines to 150 kV level and the demolition of great part of existing 150 kV lines inside the Pollino Park.	Design & Permitting	2012/mid term	2017	Delayed	Longer permitting process than expected (EIA)
	Aliano (IT)		New 380/150 kV substation in Aliano connected in and out to the existing 400 line kV "Matera - Laino" and to the local HV network. Related to this project will be acted a great restructuring of the local HV network, downgrading the existing 220 kV lines to 150 kV level and the demolition of great part of existing 150 kV lines inside the Pollino Park.	Commissioned	2012/mid term	2012	Commissioned	
33. 90	Calenzano (IT)	Colunga (IT)	Voltage upgrade of the existing 80km Calenzano-Colunga 220kV OHL to 400kV, providing in and out connection to the existing 220/150kV substation of S. Benedetto del Querceto (which already complies with 400kV standards).	Design & Permitting	mid term	2018	Delayed	Delay in the permitting process (EIA)
33. 94	Mantova area (IT)	Modena area (IT)	New 35km 400kV OHL between the 2 substations in Modena and Mantova area.	Planning	long term	2030	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
33. 104	Flaminia (IT)		Voltage upgrade of the existing Flaminia substation up to 380kV to be connected in and out to the foreseen 380kV line "Rome West - Rome North" and a restructuring of the 150kV network.	Design & Permitting	2013/long term	2020	Investment on time	
	Rome (IT)		Restructuring of the network in the Rome area. The work consists of : a new 380/150kV substation in south-West area of Rome, connected in and out to the existing 380kV line "Rome West-Rome South".	Design & Permitting	2013/long term	2020	Investment on time	
33. 109	North Bologna (IT)		New 400/132kV substation in North Bologna area connected in and out to the existing Sermide–Martignone 400kV line.	Design & Permitting	mid term	2025	Delayed	Delay in permitting process (other network owner involved)
33. 111	Lucca (IT)		New 380/132kV substation in Lucca area connected in and out to the existing 380kV line "La Spezia-Acciaiolo".	Planning	long term	2025	Investment on time	
33. 113	Monte S. Savino (IT)		New 400/220/132kV substation in Monte S. Savino area connected to the existing S. Barbara 400kV substation by upgrading an existing 220kV line.	Design & Permitting	2015/long term	2022	Investment on time	
34. A100	Codrongianos (IT)	Suvereto (IT)	Repowering of existing HVDC interconnection between Sardinia, Corse and mainland Italy via 220kV DC subsea cable (358km). The first connection is in operation since 1970. Total capacity of the bipolar link: 500MW.	Planning	long term	2022	Investment on time	
35. 137	Vitkov (CZ)	Mechlenreuth (DE)	New 400kV single circuit tie-line between new (CZ) substation and existing (DE) substation. Length: 70km.	Under Consideration	long term	2032	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
35. 138	tbd (CZ)	tbd (DE) - South-Eastern 50 Hertz	Possible increase of interconnection capacity between CEPS and 50Hertz Transmission is under consideration: either a new 400kV tie-line (OHL on new route) or a reinforcement of the existing 400kV tie-line Hradec (CEPS) – Röhrsdorf (50Hertz Transmission).	Under Consideration	long term	2032	Investment on time	
35. 306	Vitkov (CZ)		New 400/110kV substation equipped with transformers 2x350MVA.	Design & Permitting	2017/2018	2019	Delayed	Complication of permitting procedure
35. 307	Vernerov (CZ)		New 400/110kV substation equipped with transformers 2x350MVA.	Design & Permitting	2013/2016	2017	Delayed	Complication with permitting procedure.
35. 308	Vernerov (CZ)	Vitkov (CZ)	New 400kV double circuit OHL, 1385 MVA.	Design & Permitting	long term	2019	Investment on time	
35. 309	Vitkov (CZ)	Prestice (CZ)	New 400kV double circuit OHL, 2x1730 MVA.	Design & Permitting	long term	2021	Investment on time	
35. 311	Kocin (CZ)		Upgrade of the existing substation 400/110kV; upgrade transformers 2x350MVA.	Design & Permitting	long term	2022	Investment on time	
35. 312	Mirovka (CZ)		Upgrade of the existing substation 400/110kV with two transformers 2x350MVA.	Design & Permitting	long term	2018	Investment on time	
35. 313	Kocin (CZ)	Mirovka (CZ)	Connection of 2 existing 400kV substations with double circuit OHL having 120.5km length: and a capacity of 2X1385 MVA.	Design & Permitting	long term	2020	Investment on time	
35. 314	Mirovka (CZ)	V413 (CZ)	New double circuit OHL with a capacity of 2x1385 MVA and 26.5km length.	Design & Permitting	long term	2017	Investment on time	
35. 315	Kocin (CZ)	Prestice (CZ)	Adding second circuit to existing single circuit line OHL upgrade in length of 115.8km. Target capacity 2x1385 MVA.	Design & Permitting	long term	2024	Investment on time	
35. 316	Mirovka (CZ)	Cebin (CZ)	Adding second circuit to existing single circuit line (88.5km, 2x1385 MVA).	Design & Permitting	long term	2024	Investment on time	

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36. 141	Ishøj / Bjæverskov (DK)	Bentwisch/Güstro w (DE)	The Kriegers Flak Combined Grid Solution is the new offshore connection between Denmark and Germany used for combined grid connection of offshore wind farms Kriegers Flak, Baltic 1 and 2 and interconnection. Technical features still have to be determined.	Design & Permitting	long term	2018	Investment on time	Commissioning date must be achieved in order to ensure grid connection for further renewable energy.
37. 142	Tonstad (NO)	Wilster (DE)	Nord.Link/NorGer: a new HVDC connection between Southern Norway and Northern Germany. Estimated subsea cable length: 520 - 600km. Capacity: 1400 MW.	Design & Permitting	2018/2021	2018	Investment on time	Agreement with Tennet-DE on commissioning date
37. 406	(Southern part of Norway) (NO)	(Southern part of Norway)(NO)	Voltage uprating of existing 300 kV line Sauda/Saurdal - Lyse - Ertsmyra - Feda - 1&2, Feda - Kristiansand; Sauda-Samnanger in long term. Voltage upgrading of existing single circuit 400kV OHL Tonstad-Solhom-Arendal. Reactive power devices in 400kV substations.	Design & Permitting	2016 (2013-2018)	2020	Delayed	Revised progress due to more demanding system operations and time needed to obtain necessary government permits. Commissioning date expected 2019-2021
37. 408	Kristiansand, Feda (NO)		Reactive compensation due to HVDC links NorNed and Skagerak 4. Reactive power devices in 400kV substations.	Under Construction	2012/2014	2014	Investment on time	
38. 425	Feda (NO)	Eemshaven (NL)	NorNed 2: a second HVDC connection between Norway and The Netherlands via 570km 450kV DC subsea cable with 700 - 1400MW capacity.	Under Consideration	Long term	No progress	No progress	No evolution since TYNDP 2012, a principle decision on the need for a new interconnection has not been taken. NorNed2 is not included in the current Norwegian national grid development plan
39. 144	Audorf (DE)	Kassö (DK)	Step 3 in the Danish-German agreement to upgrade the Jutland-DE transfer capacity. It consists of a new 400kV route in Denmark and In Germany new 400kV line mainly in the trace of a existing 220kV line.	Planning	2017	2018	Delayed	Planning ongoing - minor delay due to coordination with project 43.A90

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
39. 428	Kassø (DK)	Tjele (DK)	Rebuilding of a 400kV OHL of 173km from a single-circuit to a double-circuit . This increases the transfer capacity with approx. 1000 MW.	Under Construction	2012/2014	2014	Investment on time	
40. 446	Schiffflange (LU)		As a first interim step a PST is installed 2014 in Schiffflange and connected to an existing OH-line to control the transit flows from Germany to Belgium. In a second step two additional cables are built between the substation Bascharage (LU) and Aubange (BE)	Planning	2016/2020	2016	Investment on time	Studies for interim step are finalized, Investment decision expected by mid 2013
	Schiffflange (LU)		As a first interim step a PST is installed 2014 in Schiffflange and connected to an existing OH-line to control the transit flows from Germany to Belgium. In a second step two additional cables are built between the substation Bascharage (LU) and Aubange (BE)	Planning	2016/2020	2016	Investment on time	Studies for interim step are finalized, Investment decision expected by mid 2013
40. 447	Heisdorf (LU)	Berchem (LU)	New 20km double-circuit mixed (underground cable+OHL) 225kV project with 1000 MVA capacity including substations for in feed in lower voltage levels.	Design & Permitting	2012/2017	2017	Investment on time	Substation Blooren is authorized and under construction, Authorization for line section is still pending
	Heisdorf (LU)	Berchem (LU)	New 20km double-circuit mixed (underground cable+OHL) 225kV project with 1000 MVA capacity including substations for in feed in lower voltage levels.	Design & Permitting	2012/2017	2017	Investment on time	Substation Blooren is authorized and under construction, Authorization for line section is still pending
40. A29	Bascharage (LU)	Aubange (BE)	In a second step: new 220 kV interconnection with neighbour(s) between Creos grid in LU and ELIA grid in BE via a 16km double circuit 225kV underground cable with a capacity of 1000 MVA (first step = 220 kV PST in Schiffflange (LU) in 2016)	Under Consideration	2020	2020	Investment on time	An ongoing network study investigates the robustness of the planned 220kV connection between LU and BE.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
40. A30	Bascharage (LU)	Niederstedem (DE) or tbd (DE)	Upgrading and new construction of an interconnector to DE, in conjunction with the interconnector in the south of LU; Partial upgrading of existing 220kV lines and partial new construction of lines; With power transformer station in LU	Under Consideration	2020	2032	Rescheduled	Further market studies after 2018 needed to confirm the needs of this investment.
41. 149	Dollern (DE)	Stade (DE)	New 400kV double circuit OHL Dollern - Stade including new 400kV switchgear in Stade. Length:14km.	Design & Permitting	mid term	2017	Delayed	The investment is delayed because of changes in the investment driver
41. 150	Conneforde (DE)	Fedderwarden (DE)	New 400kV double circuit (OHL, partly underground) Conneforde - Wilhelmshaven (Fedderwarden, former Maade) including new 400kV switchgear Fedderwarden. Length: 35 km.	Design & Permitting	long term	2016	Investment on time	
41. A74	northern region of 50Hertz		Construction of new substations/lines for integration of newly build power plants and RES in northern part of 50HzT control area.	Planning	long term	2023	Investment on time	Completion date for different substations varies from 2016 to 2023 depending on local increase of RES.
42. 152	Dörpen/West (DE)		New substation for connection of offshore wind farms.	Commissioned	mid term	2013	Commissioned	
42. 159	Cluster BorWin1 (DE)	Diele (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 205km. Line capacity: 400MW.	Commissioned	mid term	2013	Commissioned	
42. 160	Offshore- Wind park Nordergründe (DE)	Inhausen (DE)	New AC-cable connection with a total length of 35km.	Under Construction	mid term	2016	Delayed	The investment is delayed accordingly to the delays of windfarms projects.
42. 161	Offshore- Wind park GEOFreE (DE)	Göhl (DE)	New AC-cable connection with a total length of 32km.	Cancelled	mid term		Cancelled	The offshore connection between GEOFreE and substation Göhl is not part of German Offshore Grid Development Plan.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
42. 163	Cluster HelWin1 (DE)	Büttel (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 145km. Line capacity: aprox. 690MW.	Under Construction	mid term	2014	Investment on time	
		Büttel (DE)	New substation Büttel and connection of this new substation with the existing OHL Brünsbüttel - Wilster.	Commissioned	mid term	2013	Commissioned	
42. 164	Cluster SylWin1 (DE)	Büttel (DE)	New line consisting of underground +subsea cable with a total length of 210km. Line capacity: aprox.864MW.	Under Construction	mid term	2014	Delayed	
42. 165	Cluster DolWin1 (DE)	Dörpen/West (DE)	New line consisting of underground +subsea cable with a total length of 155km. Line capacity: 800MW.	Under Construction	mid term	2014	Delayed	
42. 166	Offshore Wind park Riffgat (DE)	Emden /Borßum(DE)	New AC-cable connection with a total length of 80km.	Under Construction	mid term	2013	Delayed	
42. 167	Cluster BorWin2 (DE)	Diele (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 205km. Line capacity: 800MW.	Under Construction	mid term	2015	Delayed	
42. 211	Further connections of more offshore win	tbd	Further connections in the clusters BorWin, DolWin, SylWin and HelWin.	Under Consideration	long term	2023	Investment on time	Different Offshore-windfarm connections. Commissioning between 2020 and 2023
42. A82	Cluster DolWin2 (DE)	Dörpen/West (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 160 km. Line capacity: 900 MW	Under Construction	mid term	2015	Investment on time	
42. A83	Cluster DolWin3 (DE)	Dörpen/West (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 160 km. Line capacity: 900 MW	Under Construction	mid term	2017	Investment on time	
42. A84	Cluster BorWin3	Dörpen/West (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 180 km. Line capacity: 900 MW	Design & Permitting	mid term	2018	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
42. A85	Cluster HelWin2	Büttel (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 145km. Line capacity: 690 MW	Under Construction	mid term	2015	Investment on time	
42. A86	Cluster BorWin4 (DE)	Emden/Ost (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 185 km. Line capacity: 900 MW	Design & Permitting	long term	2019	Investment on time	
42. A87	Cluster SylWin2 (DE)	Büttel (DE)	New HVDC transmission system consisting of offshore platform, cable and converters with a total length of 210km. Line capacity: 800 MW	Under Consideration	long term	2023	Investment on time	
43. A75	Lauchstädt (DE)	Meitingen (DE)	New DC- lines to integrate new wind generation from Baltic Sea towards Central/south Europe for consumption and storage.	Planning	long term	2022	Investment on time	The project was confirmed within the German network development plan 2012.
43. A81	Osterath (DE)	Philippsburg (DE)	New HVDC-lines from Osterath to Philippsburg to integrate new wind generation especially from North/ Baltic Sea towards Central-South Germany for consumption and storage.	Planning	long term	2018	Rescheduled	The project has started and the planning has been refined after confirmation by the German network development Plan 2012.
43. A88	Brunsbüttel, Wilster, Kreis Segeberg	Großgartach, Goldshöfe, Grafenrheinfeld	New DC-lines to integrate new wind generation from Northern Germany towards Southern Germany and Southern Europe for consumption and storage.	Planning	long term	2017	Investment on time	The expected commissioning date is 2017 - 2022.
43. A89	Area of Northern Lower Saxony (DE)	Area of Northern Lower Saxony (DE)	New lines for integration of on- and offshore Wind generation incl. 380-kV-lines Halbmond - Emden, Emden-Conneforde and Conneforde - Cloppenburg. Total length: 160 km	Planning	long term	2017	Investment on time	Emden-Halbmond still under consideration (therefore delays are expected)

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
43. A90	Area of Schleswig-Holstein (DE)	Area of Schleswig-Holstein (DE)	About 300 km new 380-kV-lines and around 24 new transformers for integration of onshore Wind in Schleswig-Holstein, incl. lines Brunsbüttel-Barlt-Heide-Husum-Niebüll-border of Denmark, Audorf-Kiel-Göhl-Siems-Lübeck-Kaltenkirchen and Kaltenkirchen-Itzehoe-Brunsbüttel	Under Consideration	long term	2021	Rescheduled	The investment includes several parts with different dates for commissioning. Status line Brunsbüttel-Niebüll-Border of Denmark planning
43. A152	Emden (DE)	Osterath (DE)	New HVDC-lines from Endem to Osterath to integrate new wind generation especially from North/ Baltic Sea towards Central Germany for consumption and storage.	Planning	long term	2020	Investment on time	
43. A153	Wehrendorf (DE)	Urberach (DE)	New lines in HVDC technology from the region of Lower Saxony to North Baden-Württemberg to integrate new wind generation especially from North Sea towards Central-South Europe for consumption and storage. The investment is part of the transmission corridor Cloppenburg - North Baden-Württemberg.	Under Consideration	long term	2020	Investment on time	The need for this long-term investment was not confirmed by the German Network development Plan 2012. Therefore further studies on this investment are ongoing.
43. A154	Cloppenburg (DE)	Westerkappeln (DE)	New 380-kV double circuit OHL Cloppenburg-Area of Westerkappeln with a total length of ca. 65km	Planning	long term	2018	Investment on time	
44. 147	Dollern (DE)	Hamburg/Nord (DE)	New 400kV double circuit OHL Dollern - Hamburg/Nord including one new 400/230kV transformer in substation Hamburg/Nord and new 400kV switchgear Kummerfeld. Length:43km.	Design & Permitting	mid term	2015	Delayed	Delay due to long permitting process
44. 148	Audorf (DE)	Hamburg/Nord (DE)	New 400kV double circuit OHL Audorf - Hamburg/Nord including two new 400/230kV transformers in substation Audorf. Length: 65km.	Design & Permitting	mid term	2017	Delayed	Delay due to long permitting process
44. 151	Wehrendorf (DE)	Ganderkesee (DE)	New line (length: ca. 95km), extension of existing and erection of substations, erection of 380/110kV-transformers.	Design & Permitting	mid term	2017	Delayed	Delay due to long permitting process

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
44. 156	Niederrhein (DE)	Dörpen/West (DE)	New 400kV double circuit OHL Dörpen - Niederrhein including extension of existing substations.	Design & Permitting	mid term	2017	Delayed	The investment is delayed due to delays in public-law and private-law licensing procedures.
44. 157	Wahle (DE)	Mecklar (DE)	New 400kV double circuit OHL Wahle - Mecklar including two new substations. Length: 210km.	Design & Permitting	mid term	2018	Delayed	Delay due to long permitting process
44. 171	Hüffenhardt (DE)	Neurott (DE)	Upgrade of the line from 220kV to 380kV. Length: 11km. Included with the investment : 1 new 380kV substation.	Cancelled	2020		Cancelled	The need for this long-term investment was not confirmed by the German Network development Plan 2012 and therefore it has been cancelled. The Plan 2012 has set up more global solutions for long-term
44. 174	Bruchsal Kändelweg (DE)	Ubstadt (DE)	A new 380kV OHL Bruchsal Kändelweg - Ubstadt. Length:6km.	Under Construction	2014	2014	Investment on time	The permitting procedure has allowed the beginning of the construction
44. 175	Birkenfeld (DE)	Ötisheim (DE)	A new 380kV OHL Birkenfeld-Ötisheim (Mast 115A). Length:11km.	Planning	2020	2020	Investment on time	
44. 178	Goldshöffe and Engstlatt		Installation of 2x250 MVar 380kV capacitance banks (1x250 MVar Goldshöffe and 1x250MVar Engstlatt).	Under Construction	2014	2014	Investment on time	
44. 179	Rommerskirchen (DE)	Weißenthurm (DE)	New line, extension of existing and erection of substations, erection of 380/110kV-transformers.	Under Construction	mid term	2015	Investment on time	
44. 181	Dauersberg (DE)	Limburg (DE)	New 380kV double circuit OHL, extension of existing of substations	Commissioned	mid term	2012	Commissioned	
44. 182	Kriftel (DE)	Obererlebenbach (DE)	New 400 kV double circuit OHL Kriftel - Obererlebenbach in existing OHL corridor.	Design & Permitting	mid term	2018	Delayed	The investment is delayed due to delays in public-law and private-law licensing procedures.
44. 183	Wehrendorf (DE)		Installation of 300 MVar 380kV capacitance banks, extension of existing substations.	Design & Permitting	mid term	2013	Investment on time	
44. 184	Bürstadt (DE)		Installation of 2 x 300 MVar 380kV capacitance banks, extension of existing substations.	Commissioned	mid term	2013	Commissioned	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
44. 185	Area of Muensterland (DE)	Area of Westfalia (DE)	New lines and installation of additional circuits, extension of existing and erection of several 380/110kV-substations.	Design & Permitting	long term	2017	Investment on time	
44. 186	Gütersloh (DE)	Bechterdissen (DE)	New lines and installation of additional circuits, extension of existing and erection of 380/110kV-substation.	Under Construction	mid term	2014	Investment on time	
44. 187	Area of West-Rhineland (DE)	Area of West-Rhineland (DE)	New lines and installation of additional circuits, extension of existing and erection of several 380/110kV-substations.	Under Construction	2013	2017	Delayed	The investment is delayed due to delays in public-law and private-law licensing procedures.
44. 188	Kruckel (DE)	Dauersberg (DE)	New lines, extension of existing and erection of several 380/110kV-substations.	Design & Permitting	long term	2020	Investment on time	
44. 189	Niederrhein (DE)	Utfort (DE)	New 400 kV double-circuit OHL Niederrhein-Utfort	Design & Permitting	long term	2017	Investment on time	
44. 190	Saar-Pfalz-Region (DE)		New lines, extension of existing and erection of several 380/110kV-substations. Upgrade of an existing line from 220 to 380 kV	Design & Permitting	long term	2014	Expected earlier than previously planned	
44. 90. 170	Großgartach (DE)	Hüffenhardt (DE)	New 380kV OHL Großgartach Hüffenhardt. Length: 23km. Included in the project : 1 new 380kV substation, 2 transformers.	Under Construction	2012	2013	Delayed	Delay in the authorization process due to protest from local landowners
44. 90. 172	Mühlhausen (DE)	Großgartach (DE)	Upgrade of the line Mühlhausen-Großgartach from 220kV to 380kV. Length: 45km.	Under Construction	2014	2014	Investment on time	
44. 90. 173	Hoheneck (DE)	Endersbach (DE)	Upgrade of the line Hoheneck-Endersbach from 220kV to 380kV. Length:20km.	Under Construction	2014	2014	Investment on time	
44. A155	Conneforde (DE)	Unterweser (DE)	Upgrade of 230-kV-circuit Unterweser-Conneforde to 400kV , Line length: 32 km.	Under Consideration	long term	2019	Delayed	Delay due to missing confirmation by the regulator
44. A156	Dollern (DE)	Elsfleht/West (DE)	New 400 kV line in existing OHL corridor Dollern - Elsfleht/West Length:100 km	Under Consideration	long term	2018	Delayed	Delay due to missing confirmation by the regulator

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
44. A157	Dollern (DE)	Landesbergen (DE)	New 400 kV line in existing OHL corridor Dollern-Sottrum-Wechold-Landesbergen (130 km)	Planning	long term	2017	Investment on time	
44. A158	Hamm/Uentrop (DE)	Kruckel (DE)	Extension of existing line to a 400 kV single circuit OHL Hamm/Uentrop - Kruckel and extension of existing substations.	Planning	long term	2018	Investment on time	
44. A159	Pkt. Blatzheim (DE)	Oberzier (DE)	New 400 kV double circuit OHL Pkt. Blatzheim - Oberzier including extension of existing substations.	Under Consideration	long term	2018	Investment on time	The need for this long-term investment was not confirmed by the German Network development Plan 2012. Therefore further studies on this investment are ongoing.
44. A160	Urberach (DE)	Daxlanden (DE)	New line and extension of existing line to 400 kV double circuit OHL Urberach - Weinheim - Daxlanden including extension of existing substations.	Planning	long term	2018	Investment on time	
44. A161	Bürstadt (DE)	Daxlanden (DE)	New line and extension of existing line to 400 kV double circuit OHL Bürstadt - Lamshein - Daxlanden including extension of existing substations.	Planning	long term	2018	Investment on time	
44. A162	Großgartach (DE)	Endersbach (DE)	Extension of existing 380 kV line Großgartach - Endersbach. (Length: 32 km)	Planning	long term	2020	Investment on time	
44. A77	Area of South-Wuerttemberg (DE)	Area of South-Wuerttemberg (DE)	Construction of new 380kV double-circuit OHLs, decommissioning of existing double-circuit OHLs, extension of existing 380-kV-substations.	Planning	long term	2020	Investment on time	
44. A78	Pkt. Metternich (DE)	Niederstedem	Construction of new 380kV double-circuit OHLs, decommissioning of existing old 220kV double-circuit OHLs, extension of existing and erection of several 380/110kV-substations. Length: 108km.	Planning	long term	2021	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
44. A80	Area of West Germany (DE)		Installation of 300 MVar 380kV capacitance banks in Kusenhurst, Büscherhof, Weißenthurm and Kriftel; extension of existing substations.	Under Consideration	long term	2019	Investment on time	
44.90. 176	Daxlanden (DE)	Eichstetten (DE)	Upgrade of transmission capacity of existing 380 kV line Daxlanden Eichstetten (120 km)	Under Consideration	2020	2020	Investment on time	
45. 153	Redwitz (DE)	Grafenrheinfeld (DE)	Upgrade of 230kV connection Redwitz - Grafenrheinfeld to 400kV, including new 400kV switchgear Eltmann. Line length: 97km.	Design & Permitting	mid term	2014	Delayed	Delayed due to delaye of related investment 45.193 and unexspected long permitting process of the investment itself
45. 154	Redwitz (DE)		New 500 MVar SVC in substation Redwitz.	Cancelled	mid term		Cancelled	A new concept will be proposed to replace this investment.
45. 155	Raitersaich (DE)		New 500 MVar SVC in substation Raitersaich.	Cancelled	mid term		Cancelled	A new concept will be proposed to replace this investment.
45. 191	Neuenhagen (DE)	Vierraden (DE)	Project of new 380kV double-circuit OHL Neuenhagen-Vierraden-Bertikow with 125km length as prerequisite for the planned upgrading of the existing 220kV double-circuit interconnection Krajnik (PL) – Vierraden (DE Hertz Transmission).	Design & Permitting	2013/2015	2016	Delayed	Longer than expected permitting procedure

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
45. 193	Vieselbach (DE)	Redwitz (DE)	<p>New 380kV double-circuit OHL between the substations Vieselbach-Altenfeld-Redwitz with 215km length combined with upgrade between Redwitz and Grafenrheinfeld (see investment 153). The Section Lauchstedt-Vieselbach has already been commissioned.</p> <p>Support of RES integration in Germany, annual redispatching cost reduction, maintaining of security of supply and support of the market development. The line crosses the former border between Eastern and Western Germany and is right downstream in the main load flow direction. The project will help to avoid loop flows through neighboring grids.</p>	Design & Permitting	mid term	2015	Delayed	Previously "mid term" is now updated to specific date. Partly under construction (section Vieselbach – Altenfeld). 3rd section (Altenfeld – Redwitz) in permitting process, long permitting process with strong public resistance.
45. 197	Neuenhagen (DE)	Wustermark (DE)	<p>Construction of new 380kV double-circuit OHL between the substations Wustermark-Neuenhagen with 75km length. Support of RES and conventional generation integration, maintaining of security of supply and support of market development.</p>	Under Construction	mid term	2018	Investment on time	Previously "mid-term" updated to specific date.
45. 199	Lubmin (DE)	Bertikow (DE)	<p>Construction of new 380kV double-circuit OHLs in North-Eastern part of 50HzT control area and decommissioning of existing old 220kV double-circuit OHLs, incl. 380-kV-line Bertikow-Pasewalk (30 km). Length: 135km.Support of RES and conventional generation integration in North Germany, maintaining of security of supply and support of market development.</p>	Design & Permitting	2015	2018	Delayed	The investment is split into two investments with different commissioning dates. From Lubmin to Pasewalk long term. From Pasewalk to Bertikow in 2018.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
45. 200	Lubmin (DE)	Wolmirstedt (DE)	380-kV-grid enhancement and structural change area Lubmin-Stralsund and area Magdeburg/Wolmirstedt, incl. 380-kV-line Güstrow-Wolmirstedt (195 km).	Planning	long term	2020	Investment on time	The investment is split into three investments with different commissioning dates. From Güstrow to Wolmirstedt in 2020. From Lubmin to Güstrow in long term.
45. 202	Bärwalde (DE)	Schmölln (DE)	Upgrading existing double-circuit 380kV OHL in the South-Eastern part of the control area of 50Hertz Transmission. Bärwalde-Schmölln length approx. 50km. Support of RES and conventional generation integration in North-Eastern Germany, maintaining of security of supply and support of market development.	Under Construction	2017	2015	Expected earlier than previously planned	Investment is needed earlier, commissioning is being prepared.
45. 204	Calbe (DE)		Construction of new 380kV double-circuit OHL in substation Calbe for double connection/loop into an existing line.	Planning	mid term / long term	2017	Investment on time	Previously "mid-term / long-term" updated to specific date. Final date depending on commissioning of power plant.
45. 205	Förderstedt (DE)	Area Magdeburg (DE)	Construction of new 380kV double-circuit OHL from the substation Förderstedt with 20 km length for double connection/loop in for Förderstedt; Reinforcement of existing switchgear, Support of RES and conventional generation integration, maintaining of security of supply and support of market development.	Design & Permitting	2015/2020	2015	Investment on time	Faster development of RES in this area than expected.
45. 206	Röhrsdorf (DE)	Remptendorf (DE)	Construction of new double-circuit 380-kV-overhead line in existing corridor Röhrsdorf-Remptendorf (103 km)	Planning	2020	2020	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
45. 207	Substations in area Magdeburg		Construction of new 380kV substation in Magdeburg area (Wolmirstedt) and restructuring of existing 220kV equipment. Total length: approx. 50 km.	Design & Permitting	long term	2016	Investment on time	Update of commissioning date "long term" to specific date following further process, desired commissioning in 2015/2016.
45. 208	Pulgar (DE)	Vieselbach (DE)	Construction of new 380kV double-circuit OHL in existing corridor Pulgar-Vieselbach (103 km) Support of RES and conventional generation integration, maintaining of security of supply and support of market development.	Planning	2015/2020	2020	Investment on time	No change.
45. 209	southern region of 50Hertz		Extension of existing and erection of new 380 kV-substations and several 380/110kV-substations, incl. reactive power compensation devices.	Design & Permitting	mid term	2023	Investment on time	Completion date for different substations varies from 2016 to 2023 depending on local increase of RES.
45. 47. 158	Irsching (DE)	Ottenhofen (DE)	Upgrade of 230kV connection Irsching - Ottenhofen to 400kV, including new 400kV switchgear Zolling. Length 76km.	Planning	mid term	2017	Delayed	
45. 90. 177	Goldshöfe (DE)	Bünzwangen (DE)	A new 380kV OHL. Length: 45km.	Design & Permitting	2020	2020	Investment on time	Anticipation of design and permitting phase due to foreseen difficulties (protected area in the Swabian Alps)
45. A163	Wolmirstedt (DE)	Wahle (DE)	New double circuit OHL 380 kV; Line length 111 km	Planning	long term	2022	Investment on time	
45. A164	Vieselbach (DE)	Mecklar (DE)	New double circuit OHL 400 kV line in existing OHL corridor . (129 km)	Planning	long term	2022	Investment on time	
45. A165	Mecklar (DE)	Grafenrheinfeld (DE)	New double circuit OHL 400-kV-line (130 km)	Planning	long term	2017	Investment on time	
45. A166	Schalkau / area of Altenfeld (DE)	area of Grafenrheinfeld (DE)	New double circuit OHL 400-kV-line (130 km)	Under Consideration	long term	2019	Delayed	Delay due to missing confirmation by the regulator
45. A167	Redwitz (DE)	Schwandorf (DE)	New double circuit OHL 400 kV line in existing OHL corridor Redwitz-Mechlenreuth-Etzenricht-Schwandorf (185 km)	Planning	long term	2017	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
45. A168	Raitersaich (DE)	Isar (DE)	New 400 kV line in existing OHL corridor Raitersaich - Ludersheim - Sittling - Isar or Altheim (160 km)	Under Consideration	long term	2017	Delayed	Delay due to missing confirmation by the regulator
46. 194	wind farm cluster Baltic Sea East (DE)	Lüdershagen/Lubmin (DE)	Offshore wind farm connection project (by AC-cables on transmission voltage level or by clustering with DC connections) has to be constructed and afterwards also to be operated by the TSO (in this project: 50Hertz Transmission) according to German law.	Design & Permitting	2012-2020	2031	Investment on time	The investment is split into three investments with different commissioning dates (2017-2031). For further information see the then approved national "Offshore Grid Development Plan".
46. 195	wind farm cluster Baltic Sea West (DE)	Bentwisch (DE)	Offshore wind farm connection project (by AC-cables on transmission voltage level or by clustering with DC connections) has to be constructed and afterwards also to be operated by the TSO (in this project: 50Hertz Transmission) according to German law.	Design & Permitting	2013-2020	2032	Investment on time	The investment is split into three investments with different commissioning dates (2014-2032). One grid connection is already under construction (commissioning 2014). For further information see the then approved national "Offshore Grid Development Plan"
47. 212	Isar (DE)	St. Peter (AT)	New 400kV double circuit OHL Isar - St. Peter including new 400kV switchgears Altheim, Pirach, Simbach and St. Peter. Also including 4. circuit on line Ottenhofen - Isar.	Design & Permitting	2017	2017	Investment on time	
47. 219	Westtirol (AT)	Zell-Ziller (AT)	Upgrade of the existing 220kV-line Westtirol - Zell-Ziller and erection of additional 220/380kV-Transformers. Line length: 105km.	Planning	2013-2020	2020	Investment on time	The upgrade of the line and substation Westtirol is currently in the planning process, the transformer in Zell/Ziller is already under construction.
47. 221	St. Peter (AT)	Ernsthofen (AT)	Upgrade from 220kV-operation to 380kV.	Under Construction	2013	2013	Investment on time	
	St. Peter (AT)		Erection of a 380kV-Substation in St. Peter.	Under Construction	2013	2013	Investment on time	
	Ernsthofen (AT)		Erection of a 380kV-Substation in Ernsthofen.	Under Construction	2013	2013	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
47. A76	Vöhringen / Leupolz (DE)	Westtirol (AT)	Upgrade of an existing OHL to 380 kV, extension of existing and erection of new 380-kV-substations including 380/110-kV-transformers. Transmission routs Vöhringen - Area of Memmingen - Westtirol. This project will increase the current power exchange capacity between the DE, AT and CH.	Planning	long term	2020	Investment on time	
48. 214	Gabcikovo (SK)	Gönyü area (HU)	New interconnection (new 2x400 kV tie-line) between SK and HU starting from Gabčíkovo substation (SK) to the Gönyü substation on Hungarian side ( preliminary decision). Project also includes the erection of new switching station Gabčíkovo next to the existing one.	Under Consideration	2016	2016	Investment on time	No change. Negotiations between SEPS and MAVIR are still ongoing.
48. 298	Veľký Ďur (SK)	Gabcikovo (SK)	Erection of new 2x400kV line between two important substations within Slovakia (Gabčíkovo and Veľký Ďur), including extension of the substation Veľký Ďur (SK). Line length: approx. 93km.	Design & Permitting	2016	2015	Expected earlier than previously planned	The process of this Investment preparation has been speed up - the process of building permission obtaining was faster than expected.
48. A125	Veľký Ďur (SK)	Levice (SK)	The erection of new 1x400 kV line between two important Veľký Ďur and Levice substations, including extension of the V.Ďur and Levice substation. The driver for this project is expected connection of to new generation units in Veľký Ďur area.	Under Consideration	2018	2018	Cancelled	The decision to omit this investment has been confirmed by the internal network analysis. The added value of this line has been shown as low as the desired network reinforcement in this area will be sufficiently obtained by the investment Nr. 48.298.
48. A126	Rimavská Sobota (SK)	Sajoóivánka (HU)	Connection of the two existing substations (R.Sobota (SK) - Sajoóivánka (HU)) by the new 2x400 kV line (preliminary armed only with one circuit).	Under Consideration	2016	2016	Investment on time	No change. Negotiations between SEPS and MAVIR are still ongoing.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
48. A127	Sajóivánka (HU)		2x70 Mvar shunt reactors in station Sajóivánka	Under Consideration	2016	2016	Investment on time	No change. Negotiations between SEPS and MAVIR are still ongoing.
	Sajóivánka (HU)		Second 400/120 kV transformer in station Sajóivánka	Under Consideration	2016	2016	Investment on time	No change. Negotiations between SEPS and MAVIR are still ongoing.
48. A128	Gyor (HU)		70 Mvar shunt reactor in station Győr	Under Consideration	2016	2018	Rescheduled	Investment rescheduled as a result of changes in planning input data (need delayed)
	Gyor (HU)		Third 400/120 kV transformer in station Győr	Under Consideration	2016	2018	Rescheduled	Investment rescheduled as a result of changes in planning input data (need delayed)
49. 235	Tirana(AL)	Pristina (RS)	New 238km 400kV OHL; on 78km the circuit will be installed on the same towers as the Tirana-Podgorica OHL currently in construction ; the rest will be built as single circuit line.	Design & Permitting	2013	2015	Delayed	Slight delay, due to procedural reasons. In particular the previous tender has been cancelled and a new one is on going.
49. 236	Leskovac(RS)		New 400/110 substation will be built in Serbia between connection nodes.	Under Construction	Serbian part commissioned, Macedonian part : 2013	2013	Investment on time	
	Leskovac(RS)	Shtip (MK)	New 170km 400kV single circuit overhead interconnection between Serbia and FYR of Macedonia.	Under Construction	Serbian part commissioned, Macedonian part : 2013	2014	Delayed	More complex and longer than expected land acquisition
49. 237	TPP Kosovo (RS)	Skopje (MK)	A new 400kV OHL relevant to planning investment of 2000MW of TPP in the area of Kosovo and Metohija. Line length: 85km.	Under Consideration	2020	2025	Rescheduled	Investment rescheduled due to uncertainties in new investments TPP in Kosovo area
49. 252	Melliti (GR)	Kardia (GR)	New 400kV double circuit OHL. Length:40km.	Cancelled	long term		Cancelled	Due to the significant increase of distributed RES energy production and the spatial relocation of new thermal power plants the need for this line does not exist any more.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
49. 253	Kardia (GR)	Trikala (GR)	New 400kV double circuit OHL. Length:80km.	Cancelled	long term		Cancelled	Due to the significant increase of distributed RES energy production and the spatial relocation of new thermal power plants the need for this line does not exist any more.
49. 254	Larissa(GR)	Trikala (GR)	New 400kV double circuit OHL. Length:57km.	Cancelled	long term		Cancelled	Due to the significant increase of distributed RES energy production and the spatial relocation of new thermal power plants the need for this line does not exist any more.
50. 238	Pancevo (RS)	Resita (RO)	New 131 km double circuit 400kV OHL between existing substation in Romania and Serbia (63 km on Romanian side and 68 km on Serbian side)2x1380 MVA.	Design & Permitting	2015 (2019?)	2015	Investment on time	Activities are mostly synchronized on both sides. The main problem is right of land along the line path.
50. 269	Portile de Fier (RO)	Resita (RO)	New 116 km 400kV OHL between existing substation 400 kV Portile de Fier and new 400 kV substation Resita; 1380 MVA.	Design & Permitting	2016	2016	Investment on time	The main problems are right of land along the line path and long permitting.
	Resita (RO)		New 400 kV substation Resita (T400/220 kV 400 MVA + T 400/110 kV 250 MVA), as development of the existing 220/110 kV substation.	Design & Permitting		2017	Investment on time	Investment has been split. It is expected that the substation will be commissioned in two stages. In TYNDP 2012, timing referred only to the stage associated with completion of the line Portile de Fier - Resita.
50. 270	Resita (RO)	Timisoara-Sacalaz-Arad (RO)	Upgrade of existing 220kV double circuit line Resita-Timisoara-Sacalaz-Arad to 400kV double circuit. Line length: aprox. 100 km d.c. + 74,6 km s.c.;2x1380 MVA; 1204 MVA the circuit between Sacalaz and C. Aradului	Design & Permitting	2022	2022	Investment on time	
	Timisoara (RO)		Replacement of 220 kV substation Timisoara with 400 kV substation (2x250 MVA 400/110 kV)	Design & Permitting	2022	2022	Investment on time	

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	Sacalaz (RO)		Replacement of 220 kV substation Sacalaz with 400 kV substation (1x 250 MVA, 400/110 kV).	Design & Permitting	2022	2022	Investment on time	
50. A116	Beograd 20 (RS)		New 400/110 kV substation on the Belgrade territory.	Under Construction	2012	2014	Delayed	Long permitting procedure
50. A117	Kraljevo 3 (RS)		Upgrade of the existing 220/110kV substation Kraljevo 3 by constructing the 400 kV level.	Design & Permitting	2015	2016	Delayed	Delays in the spatial and urban planning of the investment
50. A118	Kraljevo 3 (RS)	Bajina Basta (RS)	New 400kV OHL between substation Kraljevo 3 and substation Bajina Basta. Part of regional transmission corridor east-west.	Planning	>2015	2020	Investment on time	Applied for Feasibility study, ESIA and preliminary design development by WBIF (supported by EC).
	Kraljevo 3 (RS)	Bajina Basta (RS)	New 400kV OHL between substation Kraljevo 3 and substation Bajina Basta. Part of regional transmission corridor east-west.	Planning	>2015	2020	Investment on time	Applied for Feasibility study, ESIA and preliminary design development by WBIF (supported by EC).
	Kraljevo 3 (RS)	Bajina Basta (RS)	New 400kV OHL between substation Kraljevo 3 and substation Bajina Basta. Part of regional transmission corridor east-west.	Planning	>2015	2020	Investment on time	Applied for Feasibility study, ESIA and preliminary design development by WBIF (supported by EC).
	Kraljevo 3 (RS)	Bajina Basta (RS)	New 400kV OHL between substation Kraljevo 3 and substation Bajina Basta. Part of regional transmission corridor east-west.	Planning	>2015	2020	Investment on time	Applied for Feasibility study, ESIA and preliminary design development by WBIF (supported by EC).
51. 239	Bitola (MK)	Elbasan (AL)	New 150km cross-border single circuit 400kV OHL between existing substation Bitola and Elbasan	Design & Permitting	2015	2017	Delayed	Additional investigation of feasibility is being performed
	Ohrid area (MK)		New 400/110 kV substation in Ohrid area connected in/out to the new 400 kV line Bitola-Elbasan.	Design & Permitting	2015	2017	Delayed	Additional investigation of feasibility is being performed
51. 244	Filippi(GR)	Lagadas (GR)	Connection of the new 400kV substation in Lagadas in Thessaloniki area to the existing substation of Filippi via a new 110km double circuit 400kV OHL.	Design & Permitting	2013	2016	Delayed	Delays due to difficulties in financing the investment. Investment status adapted considering the new breakdown of the investment description.
	Lagadas (GR)		New 400kV substation in Lagadas in Thessaloniki area.	Under Construction	2013	2013	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
51. 256	Maritsa East 1 (BG)	N.Santa (GR)	New interconnection line BG-GR by a 130km single circuit 400kV OHL.	Design & Permitting	long term	2021	Delayed	Delayed due to lack of funding.
51. 257	Maritsa East 1 (BG)	Plovdiv (BG)	New 100km single circuit 400kV OHL in parallel to the existing one.	Design & Permitting	2014	2016	Delayed	Delayed due to difficulties with the acquisition of the land
51. 258	Maritsa East 1 (BG)	Maritsa East 3 (BG)	New 13km single circuit 400kV OHL in parallel to the existing one.	Design & Permitting	2014	2016	Delayed	Delayed due to difficulties with the acquisition of the land
51. 262	Maritsa East 1 (BG)	Burgas (BG)	New 400kV OHL. Line length: 150km.	Design & Permitting	2014	2016	Delayed	Delayed due to difficulties with the acquisition of the land
52. 240	Patras (GR)		New 400kV substation in Patras (GIS Technology).	Design & Permitting	2013	2020	Delayed	Delays due to public opposition and licensing procedures. The foreseen development of local consumption allows the displacement of the investment implementation.
	Patras (GR)	4 kV Continental System (GR)	In&out connection of the New 400kV substation in Patras to the existing Axeloos - Distomo 400kV OHL via a new 15km double circuit line, part of which will consist of subsea cable. The project shall constitute the first 400kV corridor to Peloponnese.	Design & Permitting	2013	2015	Delayed	Local opposition and delay in permitting procedures
52. 241	Patras (GR)	Megalopolis (GR)	Connection of the new 400kV substation in Megalopolis to Patras 400kV substation via a 110km double circuit OHL. 2nd corridor to Peloponnese.	Design & Permitting	2013	2016	Delayed	Delays due to public opposition and permitting procedures
	Megalopolis (GR)		New 400kV substation in Megalopolis.	Under Construction	2013	2013	Investment on time	
52. 242	Korinthos (GR)		Construction of a new 400kV substation in Korinthos (GIS Technology).	Design & Permitting	2014	2018	Delayed	Delays due to strong public opposition
	Megalopolis (GR)	Korinthos (GR)	Connection of the new 400kV substation in Korinthos (GIS Technology) to the Megalopolis substation via a 110km double circuit 400kV OHL.	Design & Permitting	2014	2018	Delayed	Delays due to public opposition and permitting procedures
52. 243	Korinthos (GR)	Koymoyndoyros (GR)	Replacement of the existing 150kV double circuit line by a 87km double circuit 400kV OHL.	Design & Permitting	2014	2018	Delayed	Delays due to public opposition and licensing procedures.

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53. 271	Medgidia S (RO)		Substation Medgidia S 400 kV extended with new connections (400 kV OHL Rahmanu(RO)-Dobrudja(BG), 400 kV OHL Stupina(RO)-Varna(BG) and 300 MW windpark) and refurbished with GIS technology to provide the necessary space	Design & Permitting	2015	2016	Delayed	Timing was correlated with investments the second part of the investment 53.271 and with the investment 53.272
	400 kV Medgidia S (RO)	Rahman(RO)-Dobrudja(BG) split	Connection in Medgidia (RO) of existing 400kV OHL Rahman (RO)-Dobrudja (BG), passing nearby. The line shall be connected in/out, through a double circuit OHL (1x1800 MVA in + 1x1800 MVA out).	Design & Permitting	2015	2016	Delayed	Longer than expected delay regarding clarification of legal framework for right of land acquirement and regarding environmental permitting procedure.
53. 272	Medgidia S	400 kV OHL Stupina (RO)-Varna(BG) split	Connection in/out in 400 kV Medgidia S substation (RO) of existing 400kV OHL Stupina/ former Isaccea (RO)-Varna (BG), passing nearby. The line shall be connected in/out, through a double circuit OHL (1x2300 MVA in + 1x2300 MVA out).	Design & Permitting	2015	2016	Delayed	Longer than expected delay regarding clarification of legal framework for right of land acquirement and regarding environmental permitting procedure.
53. 273	Cernavoda (RO)	Stalpu (RO) and Gura Ialomitei (RO)	Reinforcement of the cross-section between the Western coast of the Black Sea (Eastern Romania and Bulgaria) and the rest of the system. New 400kV double circuit OHL between existing substations Cernavoda and Stalpu, with 1 circuit derivation in/out in 400 kV substation Gura Ialomitei,situated in the vicinity of the new line. Line length:159km.2x1380 MVA	Design & Permitting	2017	2019	Delayed	Longer than expected delay regarding clarification of legal framework for right of land acquirement and regarding environmental permitting procedure.
53. 274	Constanta (RO)	Medgidia(RO)	New 400kV double circuit (one circuit wired) OHL 1380 MVA between existing substations. Line length:75km.	Planning	2020	2023	Rescheduled	Difficulties in financing, due to unprecedented level of investment needs. Longer than expected delay regarding clarification of legal framework for right of land acquirement.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
53. 275	Smardan(RO)	Gutinas(RO)	Reinforcement of the cross-section between the Western coast of the Black Sea (Dobrogea area) and the rest of the system. New 400kV double circuit OHL (one circuit wired)between existing substations. Line length:140km; 1380 MVA	Design & Permitting	2020	2020	Investment on time	Rapid increase of wind generation connected in the area. Efforts to be made to speed construction.
53. 276	Suceava(RO)	Gadalin(RO)	Reinforcement of the cross-section between developing wind generation hub in Eastern Romania and the rest of the system. New 400kV simple circuit OHL between existing substations. Line length: 260km. 1204 MVA	Design & Permitting	2021	2023	Delayed	Difficulties in simultaneous financing of unprecedented level of investment needs. Longer than expected delay regarding clarification of legal framework for right of land acquirement.
53. A131	Stejaru(RO)	Gheorghieni(RO)	Upgrade of the northern 220 kV corridor which is part of the cross-section between the wind generation hub in Eastern Romania and Bulgaria and the rest of the system. The axis Stejaru-Gheorghieni-Fantanele is upgraded, by replacing the existing conductors with high thermal capacity, low sag conductors; >460 MVA.	Planning	2015	2021	Rescheduled	The rescheduling takes into account slower than expected increase of the generation park in the area, which was the main driver for the investment and the difficulty to finance the unprecedented volume of simultaneous investment needs.
	Stalpu (RO)		To reinforce the cross-section between the Black Sea coast wind generation in Romania and Bulgaria and the consumption and storage centers to the West, the 220 kV OHL Stalpu-Teleajen-Brazi is upgraded to 400 kV, as a continuation of the 400 kV d.c. OHL Cernavoda-Stalpu. The 220/110 kV substation Stalpu is upgraded to 400/110kV (1x250MVA).	Planning	2018	2019	Delayed	The investment was rescheduled in correlation with investment 53. 273.

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53. A132	Teleajen (RO)		The 220/110 kV ss Teleajen is upgraded to 400/110kV(1x400MVA). The new 400kVOHL Cernavoda-Stalpu is continued by the OHL Stalpu-Teleajen-Brazi V, upgraded to 400kV from 220kV, reinforcing the E-W cross-section. The 220 kV substations on the path are upgraded to 400kV. SoS in supplied area increases.	Planning	2018	2019	Delayed	The investment was rescheduled in correlation with investment 53. 273.
	Stalpu (RO)	Teleajen (RO) - Brazi (RO)	Reinforcement of the cross-section between wind generation hub in Eastern Romania and Bulgaria and the rest of the system. A new 400kV OHL is built from Cernavoda(RO) to Stalpu(RO) and is continued by existing OHL Stalpu-Teleajen-Brazi V(RO), upgraded to operate at 400kV, from 220kV.	Planning	2018	2018	Investment on time	
53. A133	Fantanele (RO)	Ungheni (RO)	Upgrade of the northern 220kV corridor which is part of the cross-section between the wind generation hub in Eastern Romania and Bulgaria and the rest of the system. The axis Stejaru-Ungheni is upgraded, by replacing the existing conductors with high thermal capacity, low sag conductors ; >460MVA.	Under Consideration	long term	2030	Investment on time	The final decision depends on the future level of East – West flows through the corridor.
53. A134	Gheorghieni(RO)	Fantanele (RO)	Upgrade of the northern 220kV corridor which is part of the cross-section between the wind generation hub in Eastern Romania and Bulgaria and the rest of the system. The axis Stejaru-Ungheni is upgraded, by replacing the existing conductors with high thermal capacity, low sag conductors ; >460MVA.	Planning	2015	2021	Rescheduled	The rescheduling takes into account slower than expected increase of the generation park in the area, which was the main driver for the investment and the difficulty to finance the unprecedented volume of simultaneous investment needs.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
54. 294	Lemešany (SK)	Velké Kapušany (SK)	Reinforcement of the existing single 400 kV line between Lemešany and Velké Kapušany substations. The project includes the extension both substations Lemešany and V.Kapušany. Line length: approximately 100 (including the loop erected under the Investment "Connection of substation Voľa").	Planning	2018	2021	Rescheduled	The commissioning date has been adapted according to the expected commissioning of the investment 54.A127 because these two investments are deeply connected. 54.A127 is the main driver of Project Nr. 54.
54. A127	Velké Kapušany (SK)	tbd (HU)	Erection of new 2x400 line between SK and Hungary (substation on Hungarian side still to be defined). The Investment is under consideration.	Under Consideration	2021	2021	Investment on time	
55. 302	Vyskov (CZ)	Cechy stred (CZ)	New second circuit 400kV OHL; Target capacity 2x1730 MVA.	Design & Permitting	2015	2016	Delayed	Delayed due to permitting procedure difficulty
55. 303	Babylon (CZ)	Bezdecin (CZ)	New second circuit 400kV OHL; 1385 MVA.	Design & Permitting	2016	2018	Delayed	Delay caused by permitting process difficulty
55. 304	Babylon (CZ)	Vyskov (CZ)	New second circuit 400kV OHL; 1385 MVA.	Design & Permitting	2018	2018	Investment on time	
55. 310	Vyskov (CZ)	Reporyje (CZ)	New connection between 2 existing substations line single circuit OHL 1385 MVA.	Cancelled	long term		Cancelled	This line was cancelled due to the unfeasibility to built it caused by environmental reasons.
55. A91	Praha Sever (CZ)		New 400/110kV substation equipped with transformers 2x350MVA .	Planning	long term	2023	Investment on time	
56. A92	Chodov (CZ)	Cechy stred (CZ)	Adding second circuit to existing single circuit line OHL upgrade in length of 35.1km. Target capacity 2x1385 MVA.	Design & Permitting	2021	2024	Delayed	Delayed due to permitting procedure difficulty
56. A93	Tynec (CZ)	Krasikov (CZ)	Adding second circuit to existing single circuit line OHL upgrade in length of 103.8km. Target capacity 2x1385 MVA.	Design & Permitting	2025	2024	Expected earlier than previously planned	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
57. 320	Dargoleza (PL)		A new AC 400/110kV substation between existing substations Słupsk and Żarnowiec in Northern Poland. New substation Dargoleza is connected by splitting and extending of existing 400kV line Słupsk - Żarnowiec.	Planning	2020	2017	Investment on time	The currently provided commissioning dates were set in the detailed investment plan introduced in 2013. Previous dates in TYNDP 2012 were synchronized with a general national development plan which provided only time horizons for the investments (2015, 2020).
57. 328	Piła Krzewina (PL)	Bydgoszcz Zachód (PL)	New 84km 400 kV double circuit 2x1870 MVA OHL line Piła Krzewina - Bydgoszcz Zachód temporarily on 220kV.	Design & Permitting	2016	2018	Rescheduled	The commissioning date of the investment has been adopted to meet the schedule of generation connection in the region of northern Poland.
57. 329	Zydowo (PL)	Słupsk (PL)	New 70km 400kV 2x1870 MVA OHL double circuit lines Żydowo - Słupsk and Żydowo - Gdańsk Przyjaźń. Construction of new substation Żydowo, upgrade of substation Słupsk.	Planning	2020	2018	Investment on time	The currently provided commissioning dates were set in the detailed investment plan introduced in 2013. Previous dates in TYNDP 2012 were synchronized with a general national development plan which provided only time horizons for the investments (2015, 2020).
57. 330	Zydowo (PL)	Gdańsk Przyjaźń (PL)	New 150 km 400 kV 2x1870 MVA double circuit OHL line Żydowo - Gdańsk Przyjaźń. A new AC 400 kV substation Gdańsk Przyjaźń in Gdańsk Agglomeration Area connected by splitting and extending of one circuit of existing line Żarnowiec - Gdańsk Blonia.	Planning	2020	2019	Investment on time	The currently provided commissioning dates were set in the detailed investment plan introduced in 2013. Previous dates in TYNDP 2012 were synchronized with a general national development plan which provided only time horizons for the investments (2015, 2020).

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
57. 352	Dunowo (PL)	Plewiska (PL)	Construction of a new double circuit 400kV OHL Dunowo - Żydowo (2x1870 MVA) partly using existing 220 kV line + Construction of a new 400kV OHL Plewiska - Piła Krzewina - Żydowo (2x1870 MVA); single circuit temporarily working as a 220kV + A new AC 400kV switchgear in existing substation Piła Krzewina + upgrade of substation Dunowo	Planning	2020	2020	Investment on time	
58. 140	Plewiska (PL)		Construction of new substation Plewiska Bis (PL)	Planning	2020	2020	Investment on time	
	Eisenhüttenstadt (DE)	Plewiska (PL)	New 400kV double circuit OHL Plewiska (PL)-Eisenhüttenstadt (DE)	Planning	2020	2020	Investment on time	
58. 353	Krajnik (PL)	Baczyna (PL)	Construction of a new double circuit 400 kV OHL Krajnik - Baczyna (2x1870 MVA, 91km); single circuit temporarily working at 220kV on Krajnik - Gorzów part	Planning	2020	2019	Expected earlier than previously planned	The currently provided commissioning dates were set in the detailed investment plan introduced in 2013. Previous dates in TYNDP 2012 were synchronized with a general national development plan which provided only time horizons for the investments (2015, 2020).
58. 355	Mikulowa (PL)	Swiebodzice (PL)	Double circuit line 220kV Mikulowa-Świebodzice will be upgraded to 400kV - single circuit temporarily working at 220kV.	Planning	2020	2021	Rescheduled	The change in the commissioning date due to detailed rescheduling introduced in the latest investment plan. Adjustments were introduced after analysis of land acquisition problems and local opposition issues.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
58. A67	Gubin (PL)		New 400 kV substation planned near the PL-DE border. The substation will be connected to planned line Eisenhüttenstadt (DE) - Plewiska (PL) creating new lines Eisenhüttenstadt (DE) - Gubin (PL) and Gubin (PL) - Plewiska (PL).	Planning	2020	2020	Investment on time	
59. 368	Alytus (LT)	State border (PL-LT)	Construction of a new 400kV OHL Alytus to PL-LT border. (2x1870 MVA, 51km) and 500MW B2B converter station at Alytus SS.	Design & Permitting	2015	2015	Investment on time	Investment on time. B2B tender over. 400 kV line tender going on.
59. 369	Siedlce Ujrzanów (PL)	Milosna (PL)	Construction of a new 400kV OHL Siedlce Ujrzanów - Miłosna (1870 MVA, 84km) + A new AC 400kV switchgear in existing substation Siedlce Ujrzanow with transformation 400/110kV 400 MVA.	Under Construction	2015	2015	Investment on time	
59. 370	Elk (PL)	Lomza (PL)	Construction of a new 400kV double circuit OHL Elk - Łomża (2x1870 MVA, 95km) + A new AC 400kV switchgear in existing substation Elk	Design & Permitting	2015	2015	Investment on time	
	Lomza (PL)		New 400 kV AC substation Łomża.	Design & Permitting	2015	2015	Investment on time	
59. 371	Ostroleka (PL)		A new AC 400kV switchgear in existing substation Ostroleka (in two stages) with transformation 400/220kV 500 MVA and with transformation 400/110kV 400 MVA.	Design & Permitting	2015	2015	Investment on time	
	Ostroleka (PL)	Narew (PL)	Construction of a new 400kV OHL Ostrołęka-Łomża-Narew (1870 MVA, 120km).	Design & Permitting	2015	2015	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
59. 372	Oltarzew (PL)		A new AC substation Oltarzew with two transformers 400/220kV 2x500 MVA and one 400/110kV 330 MVA will be connected by splitting 400kV line Rogowiec-Miłosna and Miłosna-Płock and 220kV line Mory-Sochaczew and Mory-Janów.	Under Construction	2015	2014	Investment on time	The currently provided commissioning dates were set in the detailed investment plan introduced in 2013. Previous dates in TYNDP 2012 were synchronized with a general national development plan which provided only time horizons for the investments (2015, 2020).
59. 373	Ostroleka (PL)	Stanisławów (PL)	Single circuit line 220kV Ostrołęka-Stanisławów will be upgraded to double circuit line 400kV (2x1870 MVA, 106km) with development of Ostrołęka 400kV substation.	Design & Permitting	2020	2020	Investment on time	
	Stanisławów (PL)		New substation 400kV Stanisławów will be connected by splitting and extending existing line Miłosna-Narew and Miłosna-Siedlce.	Design & Permitting		2015	Investment on time	In TYNDP2012, the specific commissioning dates this part of the investment was not specified.
59. 374	Kozienice (PL)	Siedlce Ujrzanów (PL)	Existing single circuit line 220kV will be upgraded to 400kV line in the same direction (1870 MVA, 90km)	Design & Permitting	2020	2018	Investment on time	The currently provided commissioning dates were set in the detailed investment plan introduced in 2013. Previous dates in TYNDP 2012 were synchronized with a general national development plan which provided only time horizons for the investments (2015, 2020).
	Kozienice (PL)		Upgrade of Kozienice substation to connect the new line.	Design & Permitting	2020	2018	Investment on time	The currently provided commissioning dates were set in the detailed investment plan introduced in 2013. Previous dates in TYNDP 2012 were synchronized with a general national development plan which provided only time horizons for the investments (2015, 2020).

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
59. 375	Plock (PL)	Olsztyn Matki (PL)	New single circuit line 400kV (1870 MVA, 180km).	Design & Permitting	2020	2020	Investment on time	
	Olsztyn Matki (PL)		Development of Olsztyn Matki 400kV substation.	Design & Permitting		2019	Investment on time	In TYNDP2012, the specific commissioning dates this part of the investment was not specified.
59. 376	Alytus (LT)		Construction of Back-to-Back convertor station near Alytus 330kV substation.	Design & Permitting	2015	2015	Investment on time	
59. 379	Kruonis (LT)	Alytus (LT)	New double circuit 330kV OHL Alytus–Kruonis(2x1080 MVA, 53km).	Design & Permitting	2015	2015	Investment on time	
60. 377	Klaipeda (LT)	Telsiai (LT)	New single circuit 330kV OHL (943 MVA, 85km).	Under Construction	2014	2014	Investment on time	
60. 378	Panevezys (LT)	Musa (LT)	New single circuit 330kV OHL (1080 MVA, 80km).	Planning	2018	2022	Rescheduled	Construction of new NPPP, which has impact to the necessity of this investment is unclear, so priority was taken to the other internal investments needed. Investment 60. 378 is postponed accordingly in the new national transmission grid development plan.
60. 383	Klaipeda (LT)	Nybro (SE)	(NordBalt) A new 300kV HVDC VSC partly subsea and partly underground cable between Lithuania and Sweden	Under Construction	2015	2015	Investment on time	
60. 62. 385	Grobina (LV)	Imanta (LV)	The reinforcement for Latvian grid project with the new 330kV OHL construction and connection to the Riga node. New 330kV OHL construction mainly instead of the existing 110kV double circuit line route, 110kV line will be renovated at the same time and both will be assembled on the same towers. Length 380km, Capacity 800MW	Under Construction	2018	2018	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
60. 62. 384	RigaCHP1 (LV)	Imanta (LV)	A new 12.5km AC 330kV cable will be built from RigaCHP1 substation to Imanta substation. Both substations will be reconstructed according to new line connection. New cable will be underground and one part will be underwater (under Daugava river). Expected capacity: 880MW.	Under Construction	2012	2013	Delayed	Delays due to contractors selection and unpredictable restrictions of cable construction in underwater
60. A52	Ekhyddan (SE)	Nybro/Hemsjö (SE)	New single circuit 400 kV OHL	Planning	2019	2023	Rescheduled	Rescheduled, thanks to postponement, other internal investments will be commissioned on time. Congestions due to the delay will be handled by investing in a system protection scheme.
61. 380	Visaginas (LT)	Kruonis (LT)	New single circuit 330kV OHL (1080 MVA, 200km).	Under Consideration	2020	2022	Rescheduled	Investment depending on Visaginas NPP construction time.
61. 382	Vilnius (LT)	Neris (LT)	New single circuit 330kV OHL (943 MVA, 50km).	Planning	2020	2022	Rescheduled	Construction of new NPPP is unclear, so priority was taken to the other internal investments needed. Investment 61. 382 is postponed accordingly in the new national transmission grid development plan.
62. 386	Kilingi-Nomme (EE)	R-TEC2 (LV)	Estonia-Latvia third interconnection will consist of 330 kV AC OHL Harku-Lihula-Sindi in Estonian part and OHL between Kilingi-Nõmme substation in Estonia and R-TEC2 substation in Latvia. The third interconnection allows to increase the NTC between Estonia and Latvia additionally in the range up to 600 MW .	Planning	2020	2020	Investment on time	
62. 387	Tartu (EE)	Sindi (EE)	A new 162km internal connection will be established on existing route resulting in double circuit line with 2 different voltages (330kV / 110kV). 330kV circuit.	Under Construction	2014	2014	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
	Tartu (EE)	Sindi (EE)	A new 162km internal connection will be established on existing route resulting in double circuit line with 2 different voltages (330kV / 110kV). 110kV circuit.	Under Construction	2014	2014	Investment on time	
62. 388	Harku (EE)	Sindi (EE)	New double circuit OHL with 2 different voltages 330 kV and 110 kV and with capacity 1200 MVA/240 MVA and a length 140 km. Major part of new internal connection will be established on existing right of way on the Western part of Estonian mainland. 110kV circuit.	Design & Permitting	2018	2018	Investment on time	
	Harku (EE)	Sindi (EE)	New double circuit OHL with 2 different voltages 330 kV and 110 kV and with capacity 1200 MVA/240 MVA and a length 140 km. Major part of new internal connection will be established on existing right of way on the Western part of Estonian mainland. 330kV circuit.	Design & Permitting	2018	2018	Investment on time	
	Anttila (FI)		A new HVDC (450kV) connection will be built between Estonia and Finland. On the Finnish side, a 14km DC overhead line will be built to a new substation Anttila where the converter station will be placed. On the Estonian side, a 11km DC cable line will be built to a existing substation Püssi where the converter station will be placed. length of marine cable is 140km. Expected capacity: 650MW. New substation Anttila part.	Under Construction	2014	2014	Investment on time	

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
63. 391	Püssi (EE)	Anttila (FI)	A new HVDC (450kV) connection will be built between Estonia and Finland. On the Finnish side, a 14km DC overhead line will be built to a new substation Anttila where the converter station will be placed. On the Estonian side, a 11km DC cable line will be built to a existing substation Püssi where the converter station will be placed. length of marine cable is 140km. Expected capacity: 650MW. Marine cable	Under Construction	2014	2014	Investment on time	
	Püssi (EE)	(EE)	A new HVDC (450kV) connection will be built between Estonia and Finland. On the Finnish side, a 14km DC overhead line will be built to a new substation Anttila where the converter station will be placed. On the Estonian side, a 11km DC cable line will be built to a existing substation Püssi where the converter station will be placed. length of marine cable is 140km. Expected capacity: 650MW. DC cable line.	Under Construction	2014	2014	Investment on time	
	(FI)	Anttila (FI)	A new HVDC (450kV) connection will be built between Estonia and Finland. On the Finnish side, a 14km DC overhead line will be built to a new substation Anttila where the converter station will be placed. On the Estonian side, a 11km DC cable line will be built to a existing substation Püssi where the converter station will be placed. length of marine cable is 140km. Expected capacity: 650MW. DC overhead line part.	Under Construction	2014	2014	Investment on time	
64. 392	Yliskälä (FI)	Huutokoski (FI)	New 155km single circuit 400kV OHL and renovation of 400kV substations in Yliskälä and Huutokoski. Expected capacity: 1850 MVA.	Commissioned	2013	2013	Commissioned	Investment progressed as planned, has been commissioned May/2013

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
64. 393	Hirvisuo (FI)	Pyhänselkä (FI)	Third line part of the four new single circuit 400kV OHL are part of project in upgrading Ostrobothnian 220kV system into 400kV, and strengthening the 400 kV grid in Northern Finland. total length of lines: 520 km. Total Expected capacity: 1850 MVA.	Design & Permitting	2018	2016	Expected earlier than previously planned	Station name updated from Ventusneva to Hirvisuo. Investment decision has been made and schedule has been updated.
	Ulvila (FI)	Kristinestad (FI)	Second line part of the four new single circuit 400kV OHL are part of project in upgrading Ostrobothnian 220kV system into 400kV, and strengthening the 400 kV grid in Northern Finland. total length of lines: 520 km. Total Expected capacity: 1850 MVA.	Under Construction	2014	2014	Investment on time	
64. A62	Pyhänselkä (FI)	Petäjävesi or Vihtavuori (FI)	New single circuit 400 kV OHLs will be built from middle Finland to Oulujoki Area to increase the capacity between North and South Finland.	Design & Permitting	2020	2020	Investment on time	
65. 394	Forssa (FI)		Building of 400 kV substation in Forssa.	Design & Permitting	2015	2015	Investment on time	
	Hikiä (FI)	Forssa (FI)	New 80km single circuit 400kV OHL.	Design & Permitting	2015	2015	Investment on time	
65. A63	Forssa (FI)	Lieto (FI)	New 67km single circuit 400 kV OHL.	Design & Permitting	2017	2017	Investment on time	
66. 400	Ekhyddan (SE)	Barkeryd (SE)	New single circuit 400kV OHL	Design & Permitting	2017	2019	Delayed	Delayed due to process for environmental policy act longer than expected.
66. 401	Misterhult (SE)	Gotland (SE)	New DC subsea cable connection $\pm 300$ kV (2*500 MW)	Design & Permitting	2017 -2021	2018	Investment on time	The investment is expected to be commissioned between 2017-2021
	Hallsberg (SE)	Barkeryd (SE)	"South West link" consisting of three main parts: 1) New 400kV line between Hallsberg and Barkeryd (SE) - The investments related also include new substations and converter stations in the connection points line.	Under Construction	2014-2019	2014	Investment on time	

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67. 402	Barkeryd (SE)	Hurva (SE)	"South West link" consisting of three main parts: 2) New double HVDC VSC underground cable and OHL between Barkeryd and Hurva (SE) - The investments related also include new substations and converter stations in the connection points line.	Under Construction	2014-2019	2015	Investment on time	
	Barkeryd (SE)	Tveiten (NO)	"South West link" consisting of three main parts: 3) New double HVDC VSC line between Barkeryd (SE) and Tveiten (NO). - The investmens related also include new substations and converter stations in the connection points line.	Cancelled	2014-2019		Cancelled	New interconnections from and reinforcements internally in Norway, has led to reduced need and benefit from an electricity market perspective for a new interconnection between Norway and Sweden.
67. 411	Rød (NO)	Sylling (NO)	Voltage upgrading of existing single circuit 300kV OHL Rød-Tveiten-Flesaker-Sylling in connection with the new HVDC line to Sweden, the Syd Vest link.	Planning	2018/2020	2030	Rescheduled	Due to changes with regards to external drivers, the investment is put on hold. The need for the investment and its benefits will be further explored.
67. 412	Rød (NO) - Sylling (NO) - Flesaker (NO)	Hasle (NO)Tegneby (NO)Tegneby (NO)	Reinvestment and capacity increase Oslofjord 400kV subsea cables. Three cables: Filtvedt - Brenntangen, Solberg - Brenntangen, and Teigen - Evje.	Design & Permitting	2015	2016	Delayed	Two cables "on time"; Filtvedt – Brenntangen 2016 and Solberg- Brenntangen 2015. One cable delayed due to technical difficulties cable delivery; Teigen – Evje originally planned commissioning 2013 delayed to 2014.
68. 421	Ofoten (NO)	Balsfjord (NO)	New 160km single circuit 400kV OHL.	Design & Permitting	2016	2016	Investment on time	
68. 422	Balsfjord (NO)	Hammerfest (NO)	New 360 km single circuit 400kV OHL.	Design & Permitting	2018	2022	Rescheduled	Demand driver Melkøya gas terminal postponed. Commissioning expected 2019-2022.
68. 423	Skaidi (NO)	Varangerbotn (NO)	New 230 km single circuit 400kV OHL.	Planning	2022	2027	Rescheduled	Postponed due to uncertainty regarding demand timeframe

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69. 424j	Bramford (GB)	Twinstead (GB)	Construction of a new transmission route from Bramford to the Twinstead Tee Point creating Bramford - Pelham and Bramford - Braintree - Rayleigh Main double circuits; the rebuild of Bramford substation and the installation of an MSC at Barking.	Design & Permitting	2018/2019	2019	Investment on time	
69. A39	Bramford (GB)	Sizewell C (GB)	Reconductor the existing circuit which runs from Bramford - Sizewell with a higher rated conductor.	Planning	2015/16	2027	Rescheduled	Rescheduled due to a foreseen slower uptake in offshore wind than was originally anticipated in the TYNDP 2010.
69. A40	Norwich Main (GB)	Bramford (GB)	Norfolk Offshore Wind: Norwich Main - Bramford: Tee-in to Lowestoft.	Planning	2015/16	2016	Investment on time	
69. A41	Walpole (GB)	Bramford (GB)	Reconductor the existing circuit which runs from Walpole - Norwich Main - Bramford with a higher rated conductor.	Under Construction	2015/2016	2016	Investment on time	
70. 405	Kristiansand (NO)	Rød (NO)	Voltage upgrading of an existing single circuit 300kV OHL.	Under Construction	2014	2014	Investment on time	
70. 426	Kristiansand (NO)	Tjele (DK)	4th HVDC connection between Southern Norway and Western Denmark, built in parallel with the existing 3 HVDC cables; new 700MW including 230km 500kV DC subsea cable.	Under Construction	2014	2014	Investment on time	
71. 427	Endrup (DK)	Eemshaven (NL)	COBRA: New single circuit HVDC connection between Jutland and the Netherlands via 350km subsea cable; the DC voltage will be 320kV and the capacity 700MW.	Design & Permitting	2016	2018	Delayed	Rescheduled to account for the time of development of a solid regional business case and acceptance by the authorities of a preferred route.
72. 430	Revsing (DK)	Landerupgård (DK)	New 27km single circuit 400kV line via cable with capacity of approx. 1200 MW.	Planning	2017	2021	Rescheduled	Commissioning date adapted accounting for later grid connection plans for wind power and new interconnectors
72. 435	Endrup (DK)	Revsing(DK)	Upgrade of 30km double-circuit 400kV OHL to reach a capacity of approx. 2000MW.	Design & Permitting	2015	2017	Delayed	commissioning date depending on grid connection plans for wind power and new interconnectors

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
72. 436	Idomlund (DK)	Endrup (DK)	New 74km single circuit 400kV line via cable with capacity of approx. 1200MW.	Cancelled	2018/2020		Cancelled	Replaced by upgrade of existing route to Idomlund to be proposed for TYNDP 2014.
73. 432	Bjaeverskov (DK)	Hovegaard (DK)	New 39km single circuit 400kV line via cable with capacity of approx. 1200 MW.	Design & Permitting	2014	2017	Delayed	Re-prioritization, taking several other investments in the area into account (see national grid development plan.) size changes to ~800 MW.
73. 433	Amagerværket (DK)	Glentegård & H.C. Ørstedværket (DK)	New 22km single circuit 400kV line via cable with capacity of approx. 1200MW.	Under Consideration	2016	2018	Delayed	Change of general grid structure due to expected alternative investment to Sweden. => drivers for Amagerværk-Glentegård vanished, while Amagerværk-Ørstedværket will be delayed.
74. 443	Richborough (GB)	Zeebrugge (BE)	Nemo Project: New DC sea link including 135km of 250kV DC subsea cable with 1000MW capacity	Design & Permitting	2018	2018	Investment on time	
74. 449	Richborough (GB)	Canterbury (GB)	New 400kV double circuit OHL and new 400kV substation in Richborough.	Planning	2019/2020	2020	Investment on time	
74. 450	Sellindge (GB)	Dungeness (GB)	Reconductor the existing circuit which runs from Sellindge - Dungeness with a higher rated conductor.	Design & Permitting	2014/2015	2015	Investment on time	
75. 444	Zomergem (BE)	Zeebrugge (BE)	New approx. 50km double-circuit 380kV ( 3000MVA for each circuit) between Zomergem and Zeebrugge to evacuate the locally (offshore) produced power line and allow connection of NEMO to 380 kV grid.	Design & Permitting	2014	2016	Delayed	The Environmental Impact assessment(EIA)and the land use act (GRUP) have been delayed.The delay is caused by the request of a number 3rd parties to examine more alternatives.
75. A28	Zeebrugge (BE)		2 offshore platforms connected to AC grid with underground cables including compensation	Planning	2016	2016	Investment on time	
76. A42	Pelham (GB)	Waltham Cross (GB)	Reconductor the existing circuit which runs from Pelham - Rye House - Waltham Cross with a higher rated conductor.	Design & Permitting	2015/2016	2016	Investment on time	

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76. A43	Hackney (GB)	Waltham Cross (GB)	Uprating and reconductoring of the Hackney - Tottenham - Brimsdown - Waltham Cross double circuits. Construction of a new 400kV substation at Waltham Cross and modifications to the Tottenham substation and the installation of two new transformers at Brimsdown substation.	Design & Permitting	2015/2016	2016	Investment on time	
76. A44	Hackney (GB)	St. John's Wood (GB)	New Hackney - St. John's Wood 400kV double circuit.	Design & Permitting	2017/2018	2018	Investment on time	
76. A45	Tilbury (GB)	Elstree (GB)	Uprate Elstree - Warley - Tilbury from 275kV to 400kV.	Planning	2021/22	2024	Rescheduled	Rescheduled due to anticipated changes in the local generation background.
76. A46	St. John's Wood (GB)	Wimbledon (GB)	New St. John's Wood - Wimbledon 400kV double circuit.	Design & Permitting	2017/2018	2018	Investment on time	
76. A47	West Weybridge (GB)	Beddington (GB)	Uprate the 275kV overhead line route between West Weybridge - Chessington - Beddington to 400kV.	Planning	2017/2018	2028	Rescheduled	Rescheduled due to anticipated changes in the local generation background.
77. 449a	Gravir (GB)	Beaulieu (GB)	Western Isles link (subsea section). New 450MW HVDC link, +/- 150kV. Total length 156km - subsea section 80km.	Design & Permitting	2015	2018	Delayed	Project is subject to a study by the Scottish and UK Governments of transmission tariffs for island connections.
	Gravir (GB)	Beaulieu (GB)	Western Isles link - onshore section. New 450MW HVDC link, +/- 150kV. Total length 156km - onshore underground cable 76km.	Design & Permitting	2015	2018	Delayed	Project is subject to a study by Scottish and UK Governments of transmission tariffs for island connections.
77. 450a	Spittal and Kergord (both GB)	Blackhillock (GB)	Caithness to Moray 1200MW HVDC link joined in Caithness by a 600MW HVDC leg from Shetland when required by windfarm development on Shetland. Total route length ~395km.	Design & Permitting	2016	2018	Delayed	Planned scheme re-configured to omit offshore HVDC bussing point. Scope change triggered re-tender and additional route surveys.
77. 451a	Dounreay (GB)	Beaulieu (GB)	String a second 275kV OHL circuit on existing towers.	Commissioned	2012	2013	Commissioned	Commissioned January 2013

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
77. 452	Hunterston (GB)	Deeside (GB)	A new 2.4GW (short term rating) submarine HVDC cable route from Hunterston to Deeside with associated AC network reinforcement works at both ends.	Design & Permitting	2015/2016	2016	Investment on time	
	Deeside (GB)		New 400kV substation in Deeside. Part of the works required for the Western HVDC Link.	Design & Permitting	2015/2016	2016	Investment on time	
77. 452a	Beaully (GB)	Kintore (GB)	Reconductor existing 275kV overhead line route.	Under Construction	2014	2015	Delayed	Requirement to co-ordinate outages with Beaully-Denny works (Investment id 455)
77. 453	Peterhead (GB)	Hawthorn Pit (GB)	A new ~2GW submarine HVDC cable route from Peterhead to Hawthorn Pit with associated AC network reinforcement works at both ends with possible offshore HVDC integration in the Firth of Forth area.	Planning	2018/2019	2019	Investment on time	
	Hawthorn Pit (GB)		New 400kV substation in Hawthorn Pit. Part of the works required for the Eastern HVDC Link.	Planning	2018/2019	2019	Investment on time	
77. 453a	Blackhillock (GB)	Kincardine (GB)	Reinsulate existing 275kV route for 400kV operation and establish three new 400kV substations en-route.	Design & Permitting	2016	2018	Delayed	2018 reflects the current view of when the additional capacity is required.
77. 454	Hawthorn Pit (GB)	Norton (GB)	Uprate Hawthorn Pit - Norton to 400kV.	Planning	2018/2019	2019	Investment on time	
77. 455	Beaully (GB)	Denny (GB)	New double circuit 400kV OHL (220km) with new terminal substations and substation extensions en route.	Under Consideration	2014	2015	Delayed	Delay to substation works at southern end, Denny.
77. 456	Harker (GB)	Quernmore (GB)	Reconductor the existing circuit which runs from Harker - Hutton - Quernmore with a higher rated conductor.	Design & Permitting	2014/2015	2014	Investment on time	

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77. 457	Anglo-Scottish (GB)		Installation of series compensation in the Harker - Hutton, Eccles - Stella West and Strathaven - Harker circuits (x2 225MVar MSCs are to be installed at Harker, x1 at Hutton, x2 at Stella West and x1 at Cockenzie). In addition, the Strathaven - Smeaton circuits are to be uprated to 400kV and the cables at Torness are to be uprated also.	Design & Permitting	2014/2015	2015	Investment on time	
78. 458	Hinkley Point (GB)	Seabank (GB)	New 400kV substation at Hinkley Point. New 400kV transmission route from Hinkley Point to Seabank. Reconstruction of Bridgewater substation for 400kV operation. Uprate Bridgewater - Melksham to 400kV.	Design & Permitting	2019/20	2021	Rescheduled	Rescheduled due to anticipated changes in the local generation background.
79. 459	New Substation (GB)	Legacy-Shrewsbury Tee (GB)	New 400kV double circuit OHL and new 400kV substation in Mid-Wales to connection onshore wind.	Design & Permitting	2016/2017	2017	Investment on time	
	New Substation (GB)		New 400kV substation in Mid-Wales.	Design & Permitting	2016/2017	2017	Investment on time	
79. 459b	Wylfa (GB)	Pembroke (GB)	A new ~2GW submarine HVDC cable route from Wylfa/Irish Sea to Pembroke with associated AC network reinforcement works at both ends.	Planning	2020/21	2022	Rescheduled	Rescheduled due to anticipated changes in the local generation background.
79. 460	Pentir (GB)	Trawsfynydd (GB)	Reconductor the existing 132kV circuit for operation at 400kV. Reconfiguration and extension of Pentir 400kV substation. Increase the capacity of the cable link crossing the Glaslyn Estuary to be equivalent to the overhead line.	Planning	2016/2017	2018	Rescheduled	Rescheduled due to anticipated changes in the local generation background.
79. 460b	Wylfa (GB)	Pentir (GB)	Construction of a new Wylfa - Pentir 400kV transmission route, which includes the extension of the Pentir 400kV substation and modifications to the Wylfa 400kV substation.	Planning	2017/2018	2022	Rescheduled	Rescheduled due to anticipated changes in the local generation background.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
79. A48	Trawsfynydd (GB)	Treuddyn (GB)	Reconductor the existing circuit which runs from Trawsfynydd - Treuddyn with a higher rated conductor.	Planning	2017/2018	2018	Investment on time	
80. 461	Woodland (IE)	Deeside (GB)	A new 260 km HVDC (200 kV DC) underground and subsea connection between Ireland and Britain with 500MW capacity. On the Irish side, a 45km direct current underground cable will be built to the Woodland substation where the VSC converter station will be placed.	Commissioned	2012	2012	Commissioned	The investment was commissioned in late 2012.
81. 462	Woodland (IE)	Turleenan (NI)	A new 140 km single circuit 400 kV 1500 MVA OHL from Turleenan 400/275 kV in Northern Ireland to Woodland 400/220 kV in Ireland. This is a new interconnector project between Ireland and Northern Ireland.	Design & Permitting	2016	2017	Delayed	Further studies required before re-submission for planning consents
82. 463	Srananagh (IE)	New substation in South Donegal (IE)	A new EHV overhead line from Srananagh in Co. Sligo to a new substation in south Co. Donegal	Planning	2020	2020	Investment on time	The preferred scheme has been selected since the last TYNDP; this is one of the elements of the preferred scheme.
82. 470	Bellacorick (IE)	Cashla or Flagford (IE)	New 130km single circuit 400 kV OHL from north West Mayo to the EHV system.	Design & Permitting	2019	2019	Investment on time	Consultants have been appointed; corridor options have been developed and evaluated; a report has been issued and consulted on with the public.
83. 469	Knockraha (IE)	Dunstown (IE)	A new 250km single circuit 400kV OHL from Cork to the east, with one intermediary station in the South-East.	Design & Permitting	2020	2020	Investment on time	Consultation and studies on routing options have been undertaken
83. 467	Moneypoint (IE)	Kilpaddoge (IE)	A new 10km single circuit 220kV 500MVA (underground+subsea) cable constructed across the River Shannon Estuary from Moneypoint in Co. Clare to Tarbert or a new Kilpaddoge station in Co. Kerry.	Design & Permitting	2014	2015	Delayed	investment delayed by delay in establishing the Kilpaddoge substation to which this cable will connect.

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
83. 468	Moneypoint (IE)	North Kerry (IE)	A new 27km single 400 kV circuit, consisting of a submarine cable from Moneypoint across the Shannon Estuary and an overhead line to a new 400 kV station in north Kerry	Design & Permitting	2019	2020	Delayed	Investigating technology options still in design stage
84. 471	Dunstown (IE)	Woodland (IE)	A new 400kV OHL between Woodland 400 kV station to the north-west of Dublin to Dunstown 400 kV station to the south-west of Dublin, thereby bypassing Dublin city 220 kV network.	Under Consideration	>2020	2022	Investment on time	Further grid studies have been carried out to take account of changing assumptions, to identify optimum solution and required delivery date
85. A3	Ourique (PT)		Extension of existing Ourique substation to include 400 kV facilities.	Planning	2018/2019	2025	Rescheduled	Due to the expected delay on the connection of new RES in Portugal, the commissioning date of this investment is postponed accordingly.
	F. Alentejo (by Ourique)	Tavira (by Ourique)	New 122km double-circuit 400+150 kV OHL F. Alentejo-Ourique-Tavira. The realization of this connection can take advantage of some already existing 150kV single lines, which can be reconstructed as double circuit line 400+150kV, investments needs the investment which consist of the extension of existing Ourique substation to include 400 kV facilities.	Planning	2018/2019	2025	Rescheduled	Due to the expected delay on the connection of new RES in Portugal, the commissioning date of this investment is postponed accordingly.
86. A49	Under Consideration (GB)	Under Consideration (GB)	A very high level indication of the works required for GB East Coast. In detail the projects will consist of multiple offshore HVDC and AC circuits and connecting platforms joining to multiple onshore connection points with their own reinforcement requirements.	Under Consideration	long term	2022	Investment on time	
86. A50	Under Consideration (GB)	Under Consideration (GB)	Connection of Triton Knoll, Doggerbank & Hornsea GB Wind Farms and all associated works.	Under Consideration	long term	2022	Investment on time	
87. 399	Dingtuna (SE)	Karlslund (SE)	Upgrade of existing single circuit 220kV lines to 400kV	Planning	2021	2021	Investment on time	

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87. A53	Forsmark (SE)	Råsten (SE)	New 50km single circuit 400kV OHL	Design & Permitting	2019	2019	Investment on time	
87. A54	Råsten (SE)	Östfora (SE)	New 75km single circuit 400kV OHL	Design & Permitting	2019	2019	Investment on time	
87. A55	Forsmark (SE)	Stackbo (SE)	New 75 km single circuit 400kV OHL	Design & Permitting	2018	2019	Delayed	Delayed due to a longer than expected process for the environmental policy act
87. A56	Grönviken (SE)	Horndal (SE)	New 85 km single circuit 400kV OHL	Planning	2020	2021	Rescheduled	Rescheduled following a review of priorities and dependencies for all grid reinforcements. Thanks to postponement of this investment, other internal investments will be commissioned on time
87. A57	Horndal (SE)	Dingtuna (SE)	New 90 km single circuit 400kV OHL	Planning	2020	2021	Rescheduled	Rescheduled following a review of priorities and dependencies for all grid reinforcements. Thanks to postponement of this investment, other internal investments will be commissioned on time
87. A58	Hamra (SE)	Dingtuna (SE)	New 50km single circuit 400kV OHL	Under Consideration	2021	2023	Rescheduled	Rescheduled following a review of priorities and dependencies for all grid reinforcements. Thanks to postponement of this investment, other internal investments will be commissioned on time
88. A23	offshore wind farms (FR)	several French substations (FR)	Subsea cables and substations works for connecting to shore French offshore windfarms	Planning	2015-2020	2020	Investment on time	Investment will be developed according to the pace of offshore wind generation installation; only the first steps are already planned.
	Brittany (FR)		Installation of 1150 MVARs of capacitors and SVC in Brittany.	Under Construction		2013	Investment on time	In TYNDP2012, the specific commissioning dates of every piece of investment 89.A24 were not detailed

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89. A24	Plaine-Haute (FR)		New transformer 400/220kV in existing substation.	Design & Permitting		2015	Investment on time	In TYNDP2012, the specific commissioning dates of every piece of investment 89.A24 were not detailed
	Calan (FR)	Plaine-Haute (FR)	New 80km single circuit 220kV underground cable between existing stations Calan and Plaine Haute, with T-connection in Mur de Bretagne (existing HV substation where 220-kV voltage will be implemented)	Design & Permitting	2017	2017	Investment on time	
	Brennilis (FR)		New phase shifter.	Design & Permitting		2014	Investment on time	In TYNDP2012, the specific commissioning dates of every piece of investment 89.A24 were not detailed
	Mur (FR)		New phase shifter.	Design & Permitting		2017	Investment on time	In TYNDP2012, the specific commissioning dates of every piece of investment 89.A24 were not detailed
90. 129	Beznau (CH)	Mettlen (CH)	Upgrade of the existing 65km double circuit 220kV OHL to 400kV.	Design & Permitting	2015	2020	Delayed	Long permitting procedure (comprising several phases). In this case, Federal Court decision for partial cabling.
90. 130	La Punt (CH)	Pradella / Ova Spin (CH)	Installation of the second circuit on existing towers of a double-circuit 400kV OHL (50km).	Planning	2017	2017	Investment on time	
90. 131	Bickigen (CH)		Addition of a second 400/220kV transformer in an existing substation.	Commissioned	2012	2013	Commissioned	Technical problem with the regulating phase shifter device
90. 132	Mühleberg (CH)		Construction of a new 400/220kV substation.	Under Construction	2015	2015	Investment on time	
90. 133	Bonaduz (CH)	Mettlen (CH)	Upgrade of the existing 180km double circuit 220kV OHL into 400kV.	Under Consideration	2020	2020	Investment on time	
90. 134	Bassecourt (CH)	Romanel (CH)	Construction of different new 400kV line sections and voltage upgrade of existing 225kV lines into 400kV lines. Total length: 140km.	Design & Permitting	2015	2020	Delayed	Long permitting procedure (comprising several phases)

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90. 136	Area Bodensee (DE,AT,CH)	Area Bodensee (DE,AT,CH)	Construction of new lines, extension of existing ones in direction of 400/220/110kV-substation. This project will increase the current power exchange capacity between the DE, AT and CH. The project is expected to increase NTC and Improved the security of supply.	Planning	long term	2022	Investment on time	
91. 121	Bickigen (CH)	Romanel (CH)	Construction of different new 400kV OHL sections and voltage upgrade of existing 225kV lines into 400kV lines. Total length: 250km.	Design & Permitting	2015	2020	Delayed	Long permitting procedure (comprising several phases)
91. 122	Chippis (CH)	Lavorgo (CH)	Construction of different new 400kV line sections and voltage upgrade of existing 225kV lines into 400kV. Total length: 120km.	Design & Permitting	2017	2020	Delayed	Long permitting procedure (comprising several phases)
91. 123	Mettlen (CH)	Ulrichen (CH)	Construction of different new 400kV line sections and voltage upgrade of existing 225kV lines into 400kV lines. Total length: 90km.	Planning	2019	2019	Investment on time	
91. 125	Schwanden (CH)	Limmern (CH)	New 400kV double circuit (OHL and underground cable) between Schwanden and Limmern. OHL part	Under Construction	2015	2015	Investment on time	
	Schwanden (CH)	Limmern (CH)	New 400kV double circuit (OHL and underground cable) between Schwanden and Limmern. Underground cable part	Under Construction	2015	2015	Investment on time	
91. 126	Golbia (CH)	Robbia (CH)	New 2x 400kV cable connection between Golbia and the Bernina line double circuit.	Under Consideration	2019	2019	Investment on time	
91. 127	Magadino (CH)	Verzasca (CH)	Upgrade of existing 150kV line into 220kV line.	Under Consideration	2020	2020	Investment on time	
91. 128	Bâtiaz (CH)	Nant de Drance (CH)	New 400kV double circuit OHL between Bâtiaz and Châtelard. New 2x 400kV cable connection between Châtelard and Nant de Drance. Total length: 22km.	Design & Permitting	2016	2020	Delayed	Long permitting procedure (comprising several phases)

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92. 146	Aachen/Düren region (DE)	Lixhe (BE)	Connection between Germany and Belgium including new 100km HVDC underground cable and extension of existing 380kV-substations. On Belgian side, new 380 kV circuit between Lixhe and Herderen and second 380 kV overheadline in/out from Herderen to Lixhe. In Belgium, addition of 2 transformers 380/150 kV in Lixhe and in Limburg part;	Design & Permitting	2017	2018	Delayed	Several months delay due to authorisation procedure in Belgium longer than expected (modification of "Plan de secteur" in Wallonia).
93. 398A	Sweden bidding area SE2+SE3		Shunt compensation in several existing stations for increased capacity in cut 2 in Sweden	Planning	2015	2019	Delayed	Delay due to changed implementation, the installation will be done during several years. Commissioning date for the first station will be on time 2015, the other stations thereafter 2015-2019
93. 403	Sweden bidding area SE1	Sweden bidding area SE2	A joint Statnett & Svenska Kraftnät study north - south reinforcement (AC or VSC), this investment: AC/DC line between bidding area SE1-SE2	Under Consideration	2025	2025	Investment on time	
93. 413	Ørskog (NO)	Sogndal (NO)	New 297 km single circuit 400kV OHL.	Under Construction	2015	2016	Delayed	Delayed due to delayed permits in certain areas
93. 414	Sogndal (NO)	Aurland (NO)	Voltage upgrading of existing single circuit 300kV OHL Sogndal-Aurland Extension of 413 - Ørskog - Fardal.	Planning	2020	2018	Expected earlier than previously planned	Rescheduled in order to facilitate new renewable power before 2020
93. 416	Klæbu (NO)	Aura/ Viklandet (NO)	Voltage upgrading of existing single circuit 300kV OHL Klæbu-Aura.	Design & Permitting	2018 (2016-2020)	2020	Investment on time	
93. 417	Aura/Viklandet (NO)	Fåberg (NO)	Voltage upgrading of existing single circuit 300kV OHL Aura/Viklandet-Fåberg.	Under Consideration	long term	2023	Investment on time	
94. 139	Vierraden (DE)	Krajnik (PL)	Upgrade of existing 220 kV line Vierraden-Krajnik to double circuit 400 kV OHL.	Design & Permitting	long term	2016	Investment on time	After bilateral agreements the commissioning date is agreed to 2016.
94. A68	Krajnik (PL)		Upgrade of 400 kV switchgear in substation Krajnik for the purpose of PST installation.	Design & Permitting	2014	2014	Investment on time	

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94. A69	Mikulowa (PL)		Upgrade of 400 kV switchgear in substation Mikulowa for the purpose of PST installation.	Design & Permitting	2014	2014	Investment on time	
94. A70	Krajnik (PL)		Installation of new PST in substation Krajnik.	Design & Permitting	2014	2015	Delayed	Investment postponed because of prolongation of the tendering process. Due to complexity of the technical solutions more time is needed for the tendering procedure.
94. A71	Mikulowa (PL)		Installation of new PST in substation Mikulowa.	Design & Permitting	2014	2015	Delayed	Investment postponed because of prolongation of the tendering process. Due to complexity of the technical solutions more time is needed for the tendering procedure.
95. 263	SS 4 /11 kV Svoboda(Krusari)		New 400/110kV substation to accommodate the expected RES generation(2000MW) in N-E Bulgaria (Dobruja region)	Planning	2015	2019	Delayed	Delayed due to lack of funding.
95. 264	SS 4 /11 kV Vidno		New 400/110kV substation to accommodate the expected RES generation(2000MW) in N-E Bulgaria (Dobruja region)	Planning	2015	2019	Delayed	Delayed due to lack of funding.
95. 265	Vidno (BG)	Svoboda (BG)	New 400kV double circuit OHL to accommodate 2000 MW RES generation in N-E Bulgaria (Dobruja region). Line length: 2x70km.	Planning	2015	2019	Delayed	Delayed due to lack of funding.
95. 266	IN-OUT in Svoboda on actual 4 kV OHL Is	Dobrudja	New 400kV double circuit OHL to accommodate the expected RES generation(2000MW) in N-E Bulgaria (Dobruja region). Line length: 2x10km.	Planning	2015	2019	Delayed	Delayed due to lack of funding.
95. A119	Dobrudja(BG)	Burgas (BG)	New 140km single circuit 400kV OHL in parallel to the existing one.	Planning	2016	2018	Delayed	Delayed due to lack of funding.

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96. A64	Keminmaa (FI)	Pyhänselkä (FI)	Integration of new generation + increased transmission capacity demand.	Under Consideration	2019	2020	Rescheduled	Investment progresses as planned, rescheduled slightly since last TYNDP due to expected development on the drivers behind the investment.
97. A65	Valkeus (FI)	Lumimetsä (FI)	New double circuit 400 kV OHLs required to connect Fennovoimas new 1 250-1 700 MW nuclear power plant that will be built in Pyhäjoki	Under Consideration	2020	2020	Investment on time	Investment progresses as planned, Ending station names have been updated.
98. A66	Rauma (FI)	Forssa (FI)Lieto (FI)Uivila (FI)	New single circuit 400 kV OHLs required to connect TVO's new 1 000-1 800 MW nuclear power plant that will be built in Olkiluoto	Under Consideration	2020	2020	Investment on time	
99. 324	Dobrzeń (PL)	Wrocław/Pasikuro wice (PL)	New 76 km 400 kV 2x1870 MVA double circuit line from Dobrzeń to splitted Pasikuro wice - Wrocław + upgrade and extension of 400 kV switchgear in substation Dobrzeń for purpose of generation connection.	Design & Permitting	2017	2017	Investment on time	
100. 335	Ostroleka (PL)	Olsztyn Matki (PL)	New 138 km 400 kV 2x1870 MVA double circuit OHL line Ostrołęka - Olsztyn Matki after dismantling of 220kV line Ostrołęka - Olsztyn with one circuit from Ostrołęka to Olsztyn temporarily on 220 kV.	Design & Permitting	2017	2019	Rescheduled	The commissioning date of the investment has been adopted to meet the schedule of generation connection in the region of north-east Poland.
101. 327	Kozienice (PL)	Ołtarzew (PL)	New 130 km 400 kV 2x1870 MVA OHL double circuit line Kozienice - Ołtarzew + upgrade and extension of 400 kV switchgear in substation Kozienice for the connection of new line.	Design & Permitting	2017	2019	Delayed	The investment has been postponed due to prolonged tendering process (land acquisition). The line is planned on very densely populated area.

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101. 338	Kozienice (PL)	Mory/ Piaseczno (PL)	Replacement of conductors (high temperature conductors) on existing 2x220 kV OHL.	Commissioned	2014	2013	Commissioned ahead of time	The investment has been carried out since 2008. It was originally scheduled to be commissioned by 2014. All works progress as planned and currently the finalization of the works is foreseen in the second half of 2013.
102. 326	Pelplin (PL)		A new AC 400/110kV substation Pelplin between existing substation Grudziądz and planned substation Gdańsk Przyjaźń.	Planning	2020	2017	Expected earlier than previously planned	The change in commissioning date stems from the recent update of National Development Plan and the schedule of planned generation connection.
	Grudziadz (PL)	Gdansk Przyjazn (PL)	New 400 kV line Grudziądz Węgrowo - Gdańsk Przyjaźń for planned generation connection.	Planning	2020	2019	Expected earlier than previously planned	The change in commissioning date stems from the recent update of National Development Plan and the schedule of planned generation connection.
102. 334	Patnów (PL)	Grudziadz (PL)	New 174 km 400 kV 2x1870 MVA double circuit OHL line Pątnów - Grudziądz after dismantling of 220kV line Pątnów - Jasiniec (two parallel lines) and Jasiniec - Grudziądz with extension of existing substations Patnów and Jasiniec. One circuit from Pątnów to Grudziądz via Jasiniec temporarily on 220kV.	Planning	2020	2019	Expected earlier than previously planned	
102. A72	Gdansk Blonia (PL)		Extension and upgrade of an existing 400/110 kV substation Gdańsk Blonia for connection of planned 900 MW power plant.	Planning	2020	2020	Investment on time	
103. 145	Niederrhein (DE)	Doetinchem (NL)	New 400kV line double circuit DE-NL interconnection line. Length:60km.	Design & Permitting	>=2013	2016	Delayed	Permitting procedures take longer than expected
103. 438	Eemshaven (NL)	Diemen (NL)	New 175-200km AC overhead line with capacity of 2x2650 MVA of 380kV.	Design & Permitting	2018	2018	Investment on time	
103. 439	Borssele (NL)	Geertruidenberg (NL)	New 100-130km double-circuit 380kV OHL with 2x2650 MVA capacity.	Design & Permitting	2016	2016	Investment on time	

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103. 440	Maasvlakte (NL)	Beverwijk (NL)	New 380 kV double-circuit mixed project (OHL+ underground cable) including approximately 20km of underground cable for 2650 MVA. The cable sections are a pilot project. The total length of cable at 380kV is frozen until more experience is gained.	Under Construction	2016	2017	Delayed	Permitting procedures take longer than expected
103. 441	Zwolle (NL)	Hengelo (NL)	Upgrade of the capacity of the existing 60km double circuit 380kV OHL to reach a capacity of 2x2650 MVA.	Under Consideration	long term	2019	Investment on time	
103. 442	Krimpen aan de IJssel (NL)	Maasbracht (NL)	Upgrade of the capacity of the existing 150km double circuit 380kV OHL to reach a capacity of 2x2650 MVA.	Under Consideration	long term	2018	Investment on time	
104. 398B	Under consideration (SE)		New series compensation of OHL in Cut 1	Under Consideration	2015	2017	Delayed	Rescheduled following a review of priorities and dependencies for all grid reinforcements. Thanks to postponement of this investment, other internal investments will be commissioned on time
104. 415	Namsos (NO)	Klæbu (NO)	New line and voltage upgrade of 286km single circuit 400kV OHL	Design & Permitting	2015	2016	Delayed	Design phase has taken longer time than expected.
104. 418	Nedre Røssåga (NO)	Namsos (NO)	Upgrade of 70km single circuit 400kV OHL	Design & Permitting	2019	2019	Investment on time	
104. 420	Snillfjord (NO)	Trollheim (NO)	New 60 km single circuit 400kV OHL	Design & Permitting	2017-2020	2019	Investment on time	Investment dependent on confirmed investment decisions wind power.
	Storheia (NO)	Snillfjord (NO)	New 70 km single circuit OHL and 8 km subsea AC cable	Design & Permitting	2017-2020	2026	Rescheduled	Investment is reclustered from the initial 104.420 investment Storheia – Trollheim. Updated assessment shows that the northern part of the investment is not necessary in order to facilitate new wind power.
104. A51	Svartisen (NO)	Nedre Røssåga (NO)	New 116km 400kV OHL	Cancelled	2020		Cancelled	Awaiting results of on-going Arctic Grid study

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104. A59	Råbäcken (SE)	Letsi - Betåsen (SE)	New 55 km single circuit 400kV OHL	Under Consideration	2017	2023	Rescheduled	Slower RES increase than planned in the area leads to rescheduling this investment
105. A60	Skogssäter (SE)	Stenkullen (SE)	New 80km single circuit 400kV OHL	Planning	2019	2021	Rescheduled	Rescheduled following a review of priorities and dependencies for all grid reinforcements. Thanks to postponement of this investment, other internal investments will be commissioned on time
106. A34	Dunstown (IE)	Pentir (GB)	A new HVDC subsea connection between Ireland and Great Britain; this may be achieved by a direct link or by integrating an interconnector with a third party connection from Ireland to GB.	Under Consideration	long term	2025	Investment on time	Joint studies between National Grid and EirGrid indicate a strong benefit for a second interconnector between Ireland and GB.
107. A25	Great Island or Knockraha (IE)	La Martyre (FR)	A new HVDC subsea connection between Ireland and France	Under Consideration	long term	2025	Investment on time	Feasibility studies are progressing.
108. A134	Tarnita (RO)	Mintia (RO)	New double circuit 400kV OHL Tarnita(RO)-Mintia(RO) 2x1380 MVA.	Planning	2018	2018	Investment on time	The investment shall be built only if the Hydro Pumped Storage plant shall be built. Final investment decision is pending.
108. A135	Tarnita (RO)	Cluj E - Gadalin (RO)	New double circuit 400kV OHL Tarnita(RO)-Cluj E-Gadalin (RO) 2x1380 MVA.	Planning	2018	2018	Investment on time	The investment shall be built only if the Hydro Pumped Storage plant shall be built. Final investment decision is pending.
108. A136	Tarnita (RO)		New 400kV substation connecting 1000 MW Hydro Pumped Storage Tarnita Lapustesti to the grid.	Planning	2018	2018	Investment on time	The investment shall be built only if the Hydro Pumped Storage plant shall be built. Final investment decision is pending.

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109. A38	Northern Ireland (NI)	East Coast Offshore (NI)	'East Coast Off-shore' wind farm connecting to a 275 kV station to be determined. Multiple connection options are under consideration.	Under Consideration	2018	2020	Rescheduled	Since the last TYNDP, the rights to develop the offshore site at County Down have been awarded. The developer has provided an indicative construction timeline, with completion now scheduled for 2020.
110. 424	Kvilldal (NO)	tbd (GB)	A new 1400MW HVDC bipolar installation connecting Western Norway and Great Britain via 800km subsea cable; DC voltage is to be determined.	Design & Permitting	2018/2021	2020	Investment on time	
111. 396	Finland North (FI)	Sweden bidding area SE1/SE2	Third single circuit 400kV AC OHL between Sweden and Finland	Under Consideration	2021	2025	Rescheduled	Rescheduled following a review of priorities and dependencies for all grid reinforcements in Sweden. Thanks to postponement of this investment, other internal investments will be commissioned on time
112. 98	Pordenone (IT)		Voltage upgrade of the existing Pordenone 220kV substation up to 400kV. The substation will be connected in and out to the existing Udine O. – Cordignano 400kV line.	Planning	long term	2025	Investment on time	
112. 105	Treviso (IT)		New 380/132kV substation in Treviso area, connected in and out to the existing 380kV line "Sandrigo - Cordignano".	Design & Permitting	mid term	2022	Delayed	Long permitting process (request for building and operation)
112. 106	Schio (IT)		New 220/132kV substation in Schio area, providing the connection in and out to the existing 220kV line "Ala-Vicenza Monte Viale".	Planning	mid term	2025	Rescheduled	Preliminary localization of new substation in accordance with local Authority, still to be decided

TYNDP 2012 Investment Number	Substation 1	Substation 2	Brief technical description	Present status	TYNDP 2012 expected date of commissioning	Expected date of commissioning as of mid 2013	Evolution compared to the TYNDP 2012	Evolution driver
112. 107	Vicenza Industrial (IT)		New 380/132kV substation in the industrial area of Vicenza, connected in and out to the existing Sandrigo-Dugale 400kV line.	Planning	long term	2025	Investment on time	
112. 108	North West Padova (IT)		New 220/132kV substation in North West Padova area, complying with 400kV standards, providing the connection in and out to the existing Dugale-Marghera Substation 1 220kV line.	Planning	long term	2025	Investment on time	