



KURZEME RING PROJECT

Antons Kutjuns

AS AUGSTSPRIEGUMA TIKLS

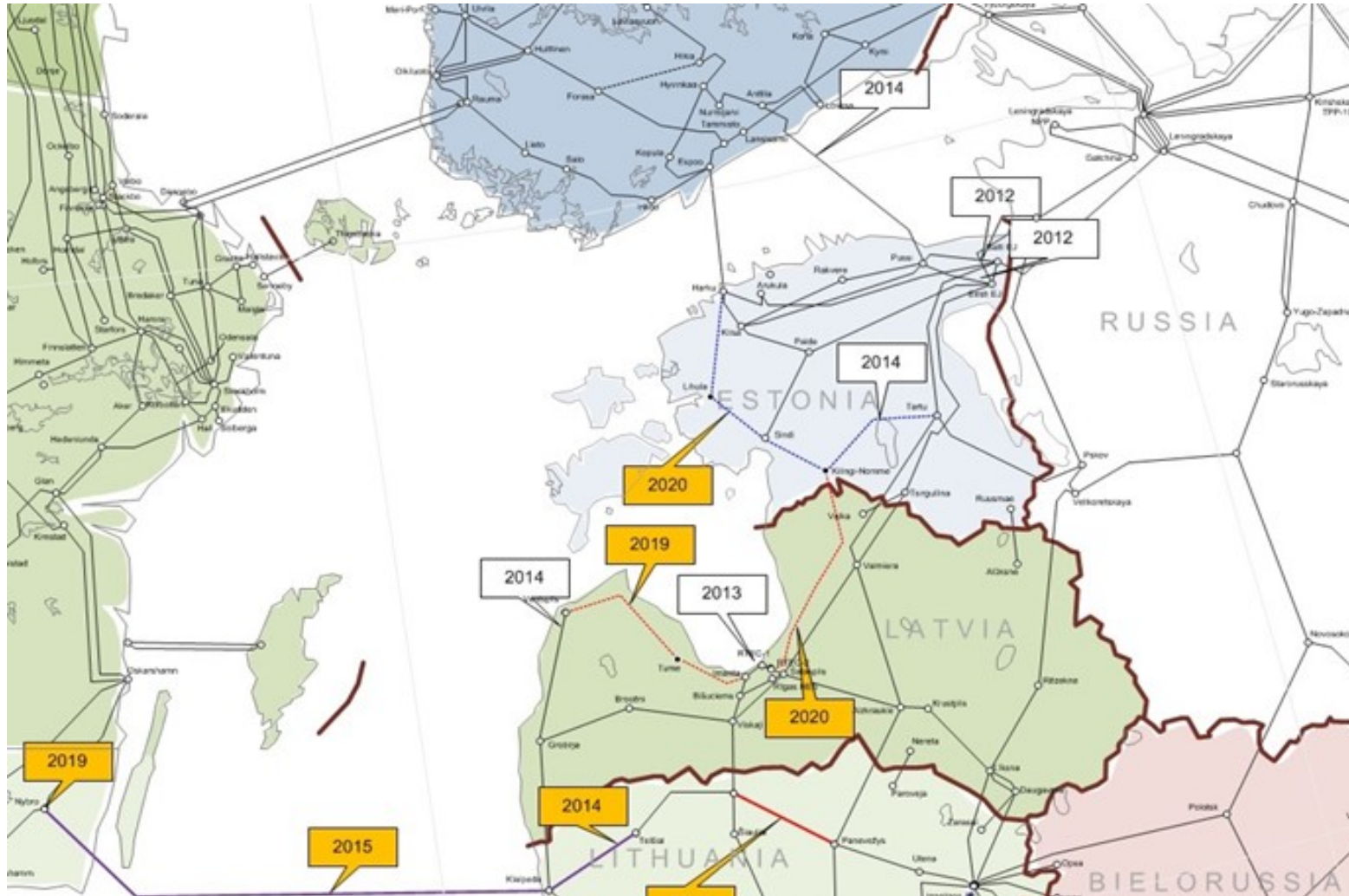
Head of International Development Projects

Division



Co-financed by the European Union
Connecting Europe Facility

LOCATION OF THE PROJECT



- 1-st stage – 330kV AC cable line RigaCHP1-Imanta (2013). Co-financed from EEPF fund. Commissioned in 09/2013
- 2-nd stage – 330kV transmission OHL Grobina-Ventspils. Commissioned in 07/2014. Co-financed from EEPF fund
- 3-rd stage – 330kV transmission OHL Ventspils-Tume-Imanta. Co-financed from CEF funds. Commissioning date – 12/2019

BENEFITS OF KURZEME RING PROJECT



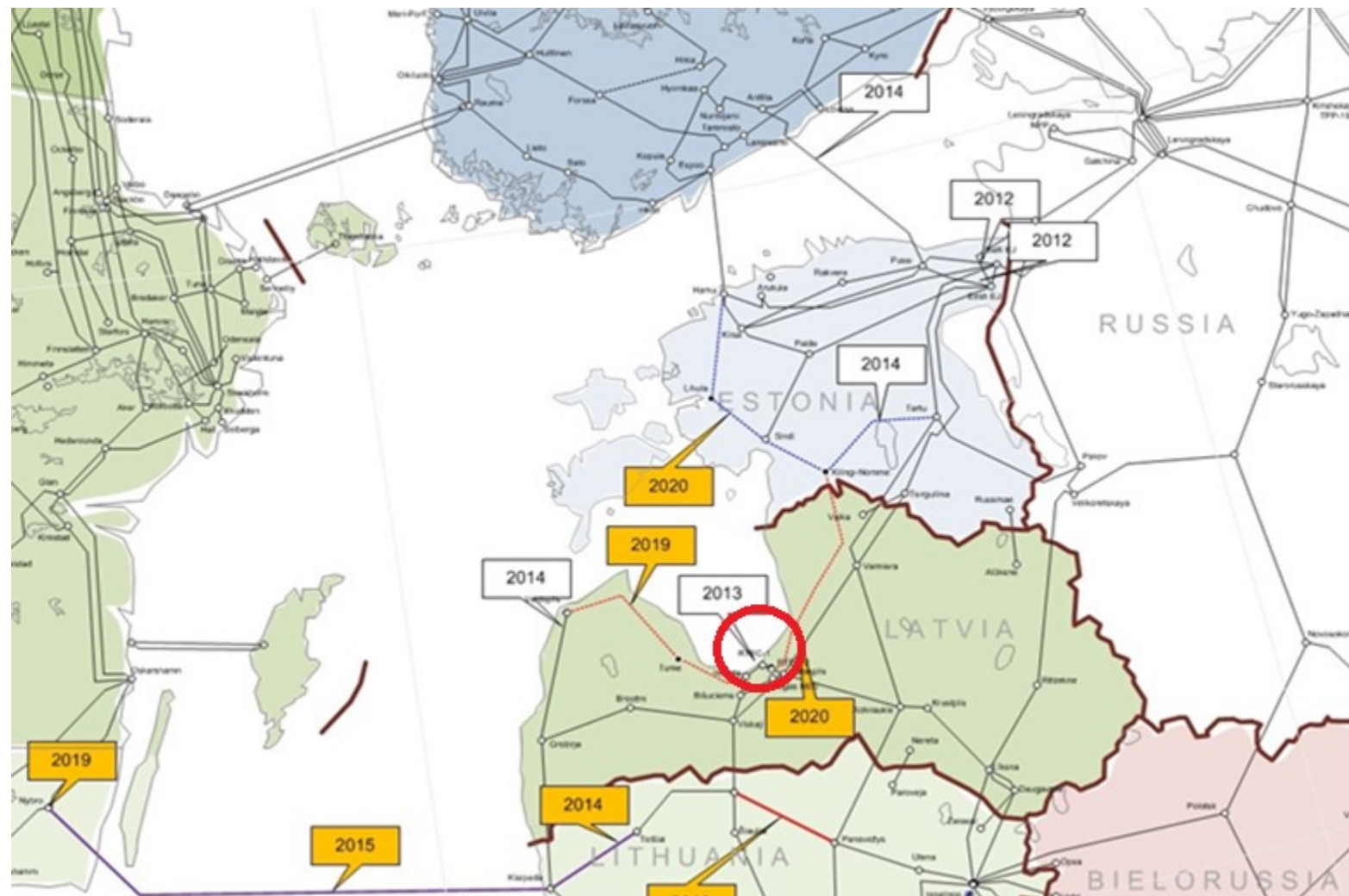
- Improving of security of supply in Latvia, especially in the Western part of Latvia
- Reliable transit corridor for effective NordBalt operation, especially in the emergency and repair modes
- RES connection possibilities to the transmission network in Latvia
- Improving of Baltic states electricity market efficiency and competition

BENEFITS OF KURZEME RING PROJECT

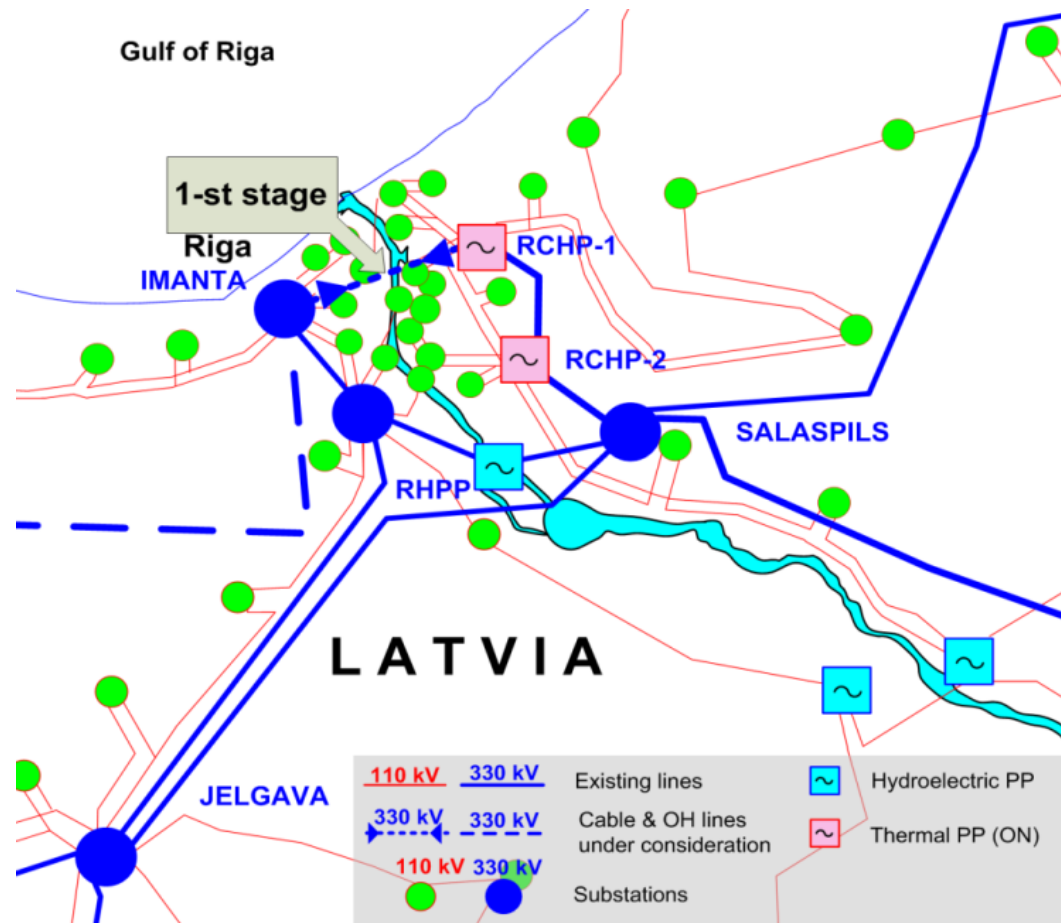


- The project has been included in ENTSO-E TYNDP since 2012 as investment item under NordBalt Cluster
- The Benefits for the Project calculated as a part of NordBalt Project under TYNDP-2012:
 - SEW (EU-wide market study) – 4.9 MEUR
 - Variation of generation curtailments (RES integration) – 1.9 MEUR
 - Variation in losses – 0.79 MEUR
 - Security of Supply – not monetized
 - Other benefits (generally CO2 reduction) – 0.48
 - Total benefits – **7.98 MEUR**

1-ST STAGE. 330KV CABLE LINE "RIGACHP1-IMANTA"



1-ST STAGE. 330KV CABLE LINE "RIGACHP1-IMANTA"



- Total length of AC cable line is **13.64 km**. Length of AC cable under Daugava river ~ **0.7 km**
- 330 kV cable line nominal amperage is **1420A**
- December 2012 – Commissioning of reconstructed 330kV substations RigaCHP1 and Imanta
- **September 2013** – Commissioning of 330kV AC cable line RigaCHP1-Imanta
- Total costs – **28,9 MEUR**, 50% co-financing from EPR funds
- Cable – AHXCHBMK – W 1x2500/90 Prysmian Cables and Systems OY (Finland)

1-ST STAGE. 330KV CABLE LINE "RigaCHP1-IMANTA"

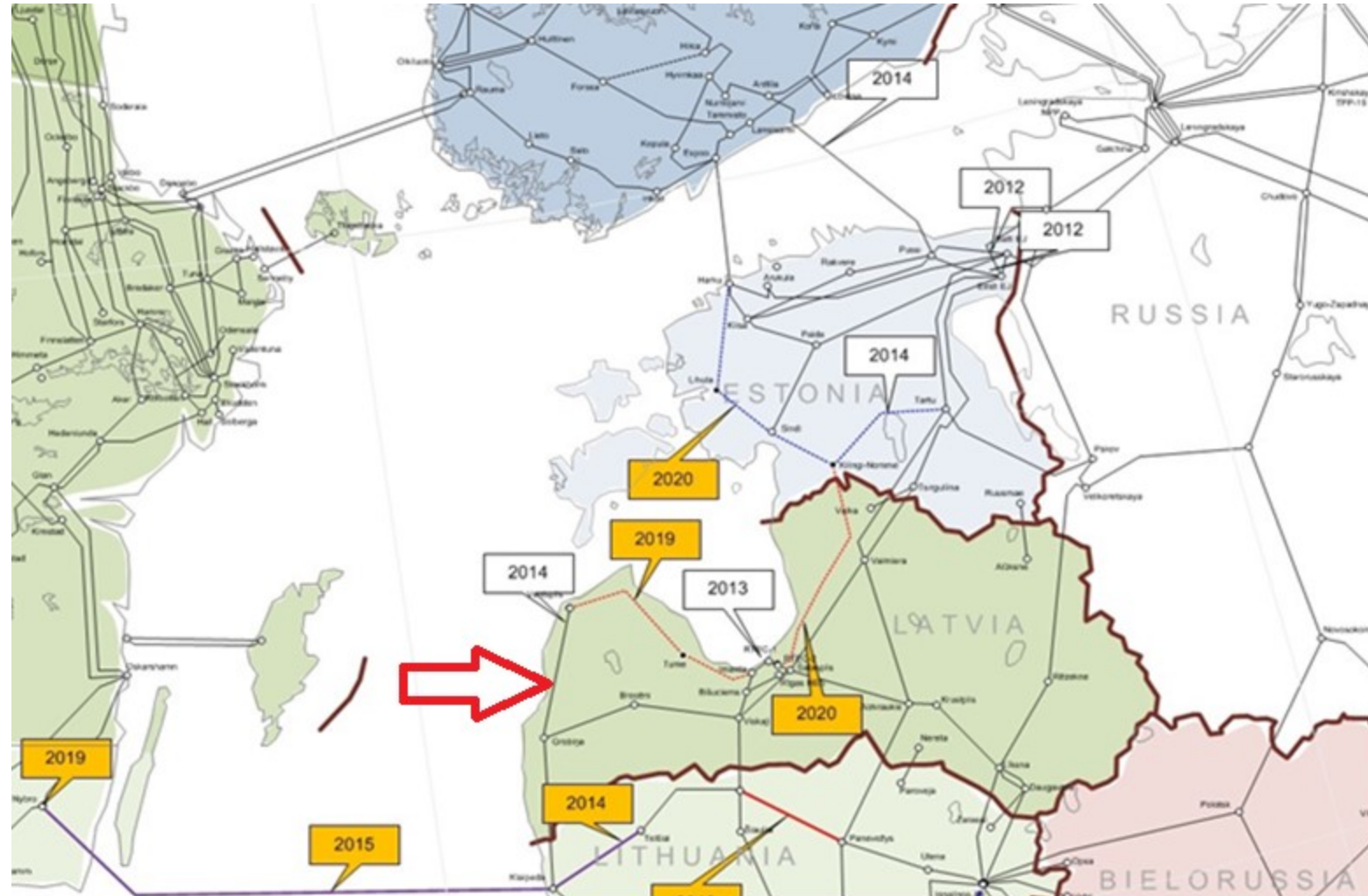


330kV substation "RigaCHP1"
Gas-insulated switchyard



330kV substation "Imanta"
Outdoor switchyard

2-ND STAGE. 330KV OHL GROBINA-VENTSPILS



2-ND STAGE. 330KV OHL GROBINA-VENTSPILS



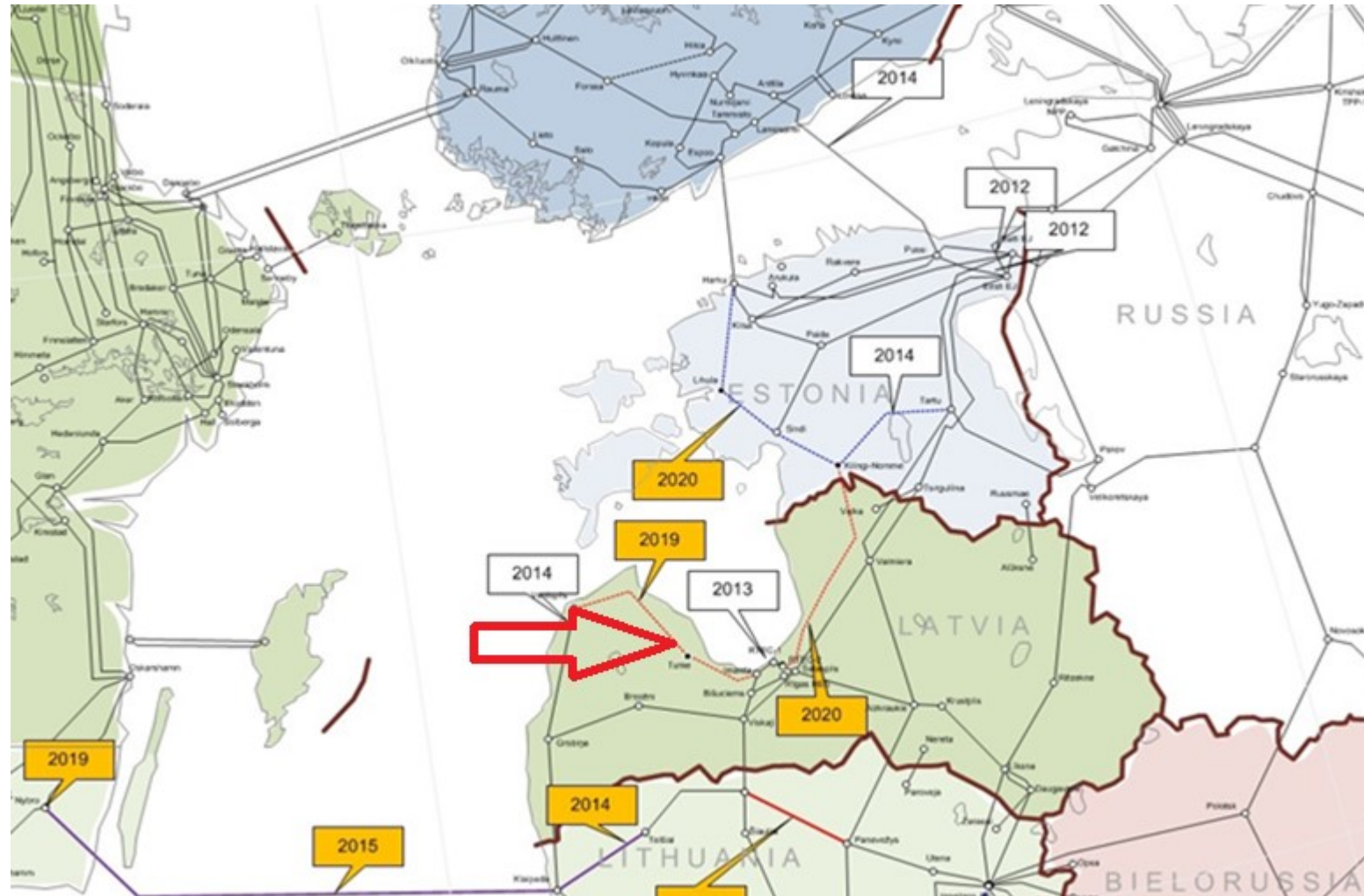
- EIA and RoW studies completed in January 2011
- Start date of construction – December 2012
- 330 kV line is located on the same towers as 110 kV line
- 330kV – triple wire solution:
 - ✓ 3x400mm²
 - ✓ 2000A
 - ✓ ACSR CONDOR 3x402-AL1/52-ST1A
- 110kV – double wire solution:
 - ✓ 2x240mm²
 - ✓ 1200A
 - ✓ ACSR Hawk 2x242-AL1/39-ST1A
- Commissioning – 2014 July 1
- Total costs – **62,8 MEUR**, 50% co-financing from EEPR funds.

2-ND STAGE. 330KV OHL GROBINA-VENTSPILS



- Rated operational temperature for line conductors: +70°C at the +25°C ambient temperature.
- Climatic conditions:
 - Maximum ambient temperature: + 40°C
 - Minimum ambient temperature: -40°C
 - Yearly average ambient temperature +5°C
- Lightning protection wires (OPGW) with built-in fiber-optic cable: Prysmian 43D55z-96M
- Polymer rod-type insulators: Pfisterer and YuAIZ
- Construction of new 330kV substation Ventspils and extension of existing 330kV substation Grobina
- Reconstruction and leadings of 110kV substations Aizpute and Alsunga

3-RD STAGE. 330KV OHL VENTSPILS-TUME-IMANTA



3-RD STAGE. 330KV OHL VENTSPILS-TUME-IMANTA



- EIA and RoW studies completed in 2013 and approved in 2015
- Start date of construction – April 2016
- 330 kV line is located on the same towers as 110 kV line
- 330kV – triple wire solution:
 - ✓ 3x240mm²
 - ✓ 1600A
- 110kV – double wire solution:
 - ✓ 2x240mm²
 - ✓ 1000A
- Commissioning – end of 2019
- Expected total costs – **127,8 MEUR**, 45% co-financing from CEF funds

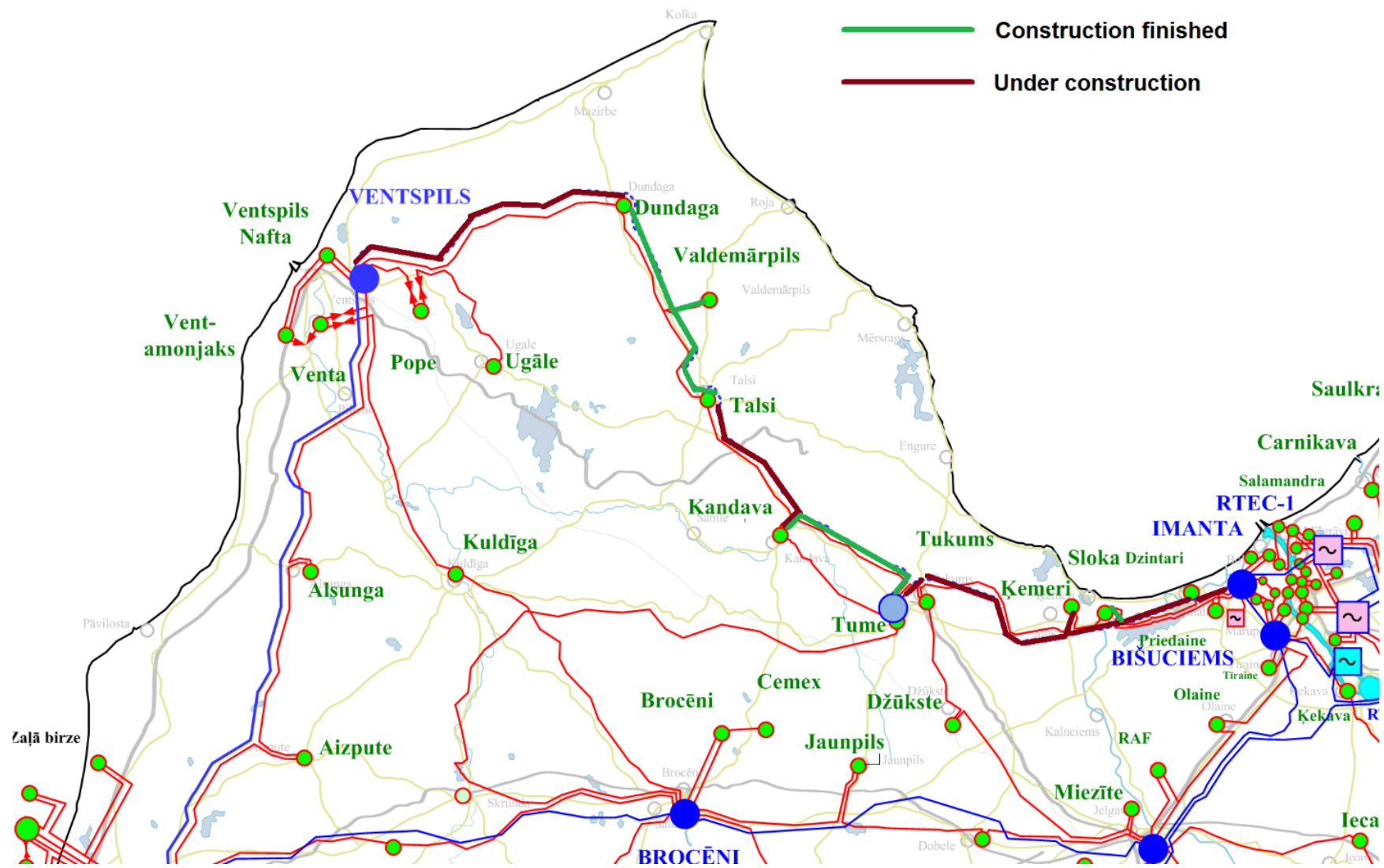


3-RD STAGE. OHL VENTSPILS-TUME-IMANTA



- Included in PCI list, NDP and TYNDP
- Public discussions, EIA and RoW studies finalized in 2015 and approved in 2015
- 21.11.2014 – EC decision for Project granting from CEF program with 45% of total project costs
- 17.03.2015 – Cabinet of Ministers decision of allocation to the “Ventspils-Tume-Imanta” National strategy status project in Latvia
- 04/2016 – signed turnkey agreement with constructor “LEC, RECK and Empower”
- 05/2017 – signed agreement with constructor SIA “RECK” for new 330 kV substation Tume construction and extension of existing 330 kV substation Imanta

3-RD STAGE. CONSTRUCTION OF OHL VENTSPILS-TUME-IMANTA



3-RD STAGE. OHL VENTSPILS-TUME-IMANTA



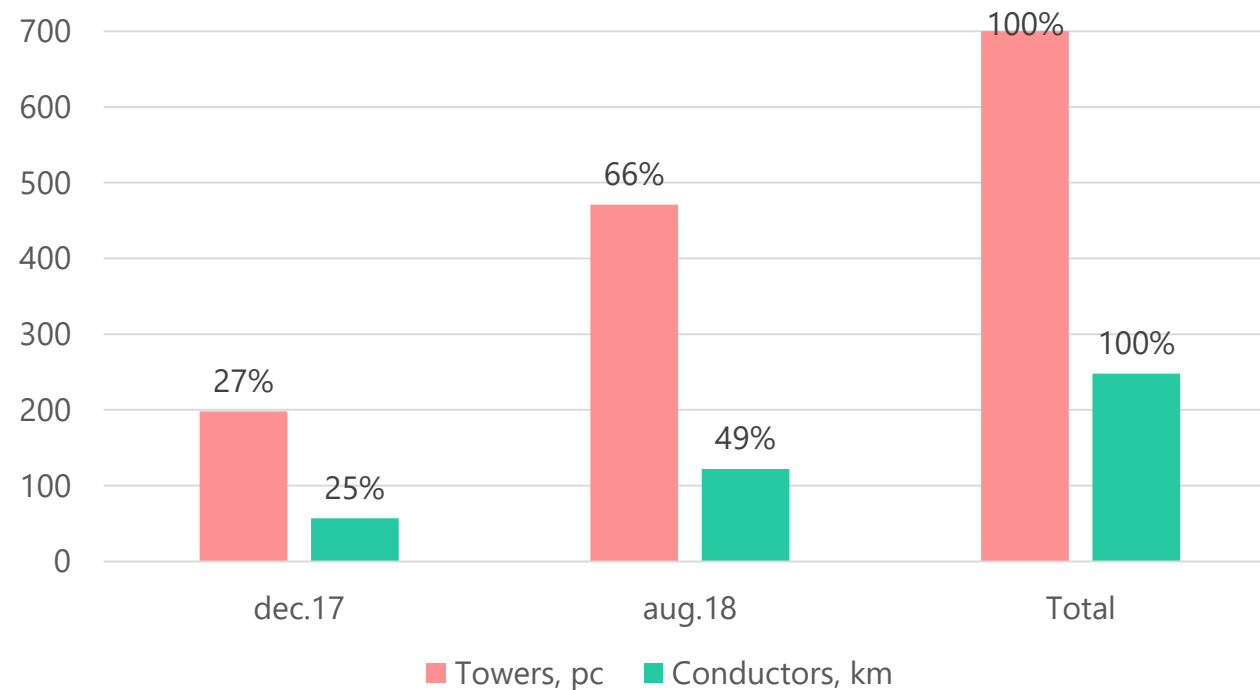
- 330 kV line is located on the same towers as 110 kV line. On the stage Sloka-Imanta on the same tower 330kV line and two 110kV lines
- Conductor wires:
 - *Stage Ventspils-Sloka (2 lines on same tower): 330 kV line – 1600A , 110 kV line – 1000A*
 - *Stage Sloka-Imanta (3 lines on same tower): 330 kV line – 1600A , and each 110 kV line – 600A*
- Rated operational temperature for line conductors: +70°C at the +25°C ambient temperature
- Lightning protection wires (OPGW) with built-in fiber-optic cable
- Polymer rod-type insulators
- Construction of new 330kV substation Tume, with 330kV shunt reactor and AT
- Extension of existing 330kV substation Imanta
- Reconstruction of 110kV substations and leadings 110kV: Dundaga, Talsi, Kandava, Valdemarpils and Priedaine
- Increasing of capacity of 110kV busbars and 110kV leadings: Tukums, Kemeru, Dzintari and Sloka
- Three 330kV cable sections (near Jurmala city) with a total length approx. 10km

PROGRESS OF VENTSPILS-TUME-IMANTA CONSTRUCTION



471 TOWERS (~66%)

122 KM (~49%)
OF CONDUCTORS

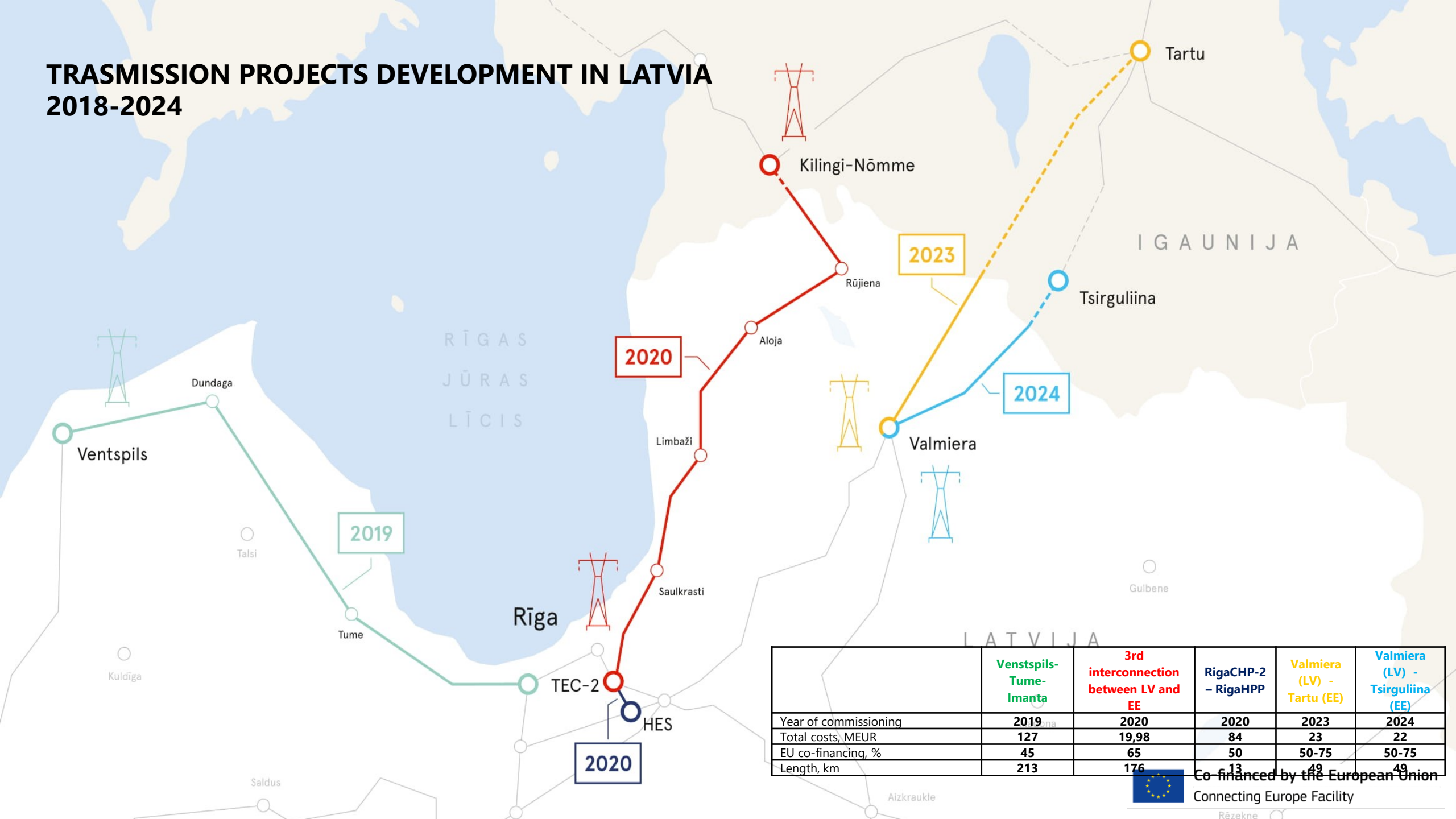


Innovations of Kurzeme Ring project



- Two circuits 330 kV and 110 kV are located on the same towers. On the stage Sloka-Imanta on the same tower 330kV line and two 110kV lines.
- Height of towers is increased over the trees.
- Combined OHL and cable solution.
- Implementation of first 330 kV AC line with length 13km in Baltic.
- Gas-insulated switchyard construction on 330 kV substation "RigaCHP-1"

TRANSMISSION PROJECTS DEVELOPMENT IN LATVIA 2018-2024



	Ventspils-Tume-Imanta	3rd interconnection between LV and EE	RīgaCHP-2 – RīgaHPP	Valmiera (LV) - Tartu (EE)	Valmiera (LV) - Tsirguliina (EE)
Year of commissioning	2019	2020	2020	2023	2024
Total costs, MEUR	127	19,98	84	23	22
EU co-financing, %	45	65	50	50-75	50-75
Length, km	213	176	13	49	49


 Co-financed by the European Union
 Connecting Europe Facility

We are all about

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not burning
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