Perspectives on the generation adequacy on the Baltic TSO side

Ansis Žbanovs

Senior Electrical Engineer

AS "Augstspriegma tīkls"

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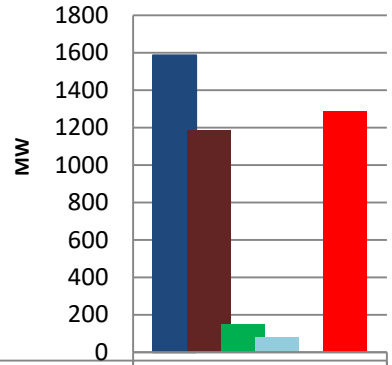
Content

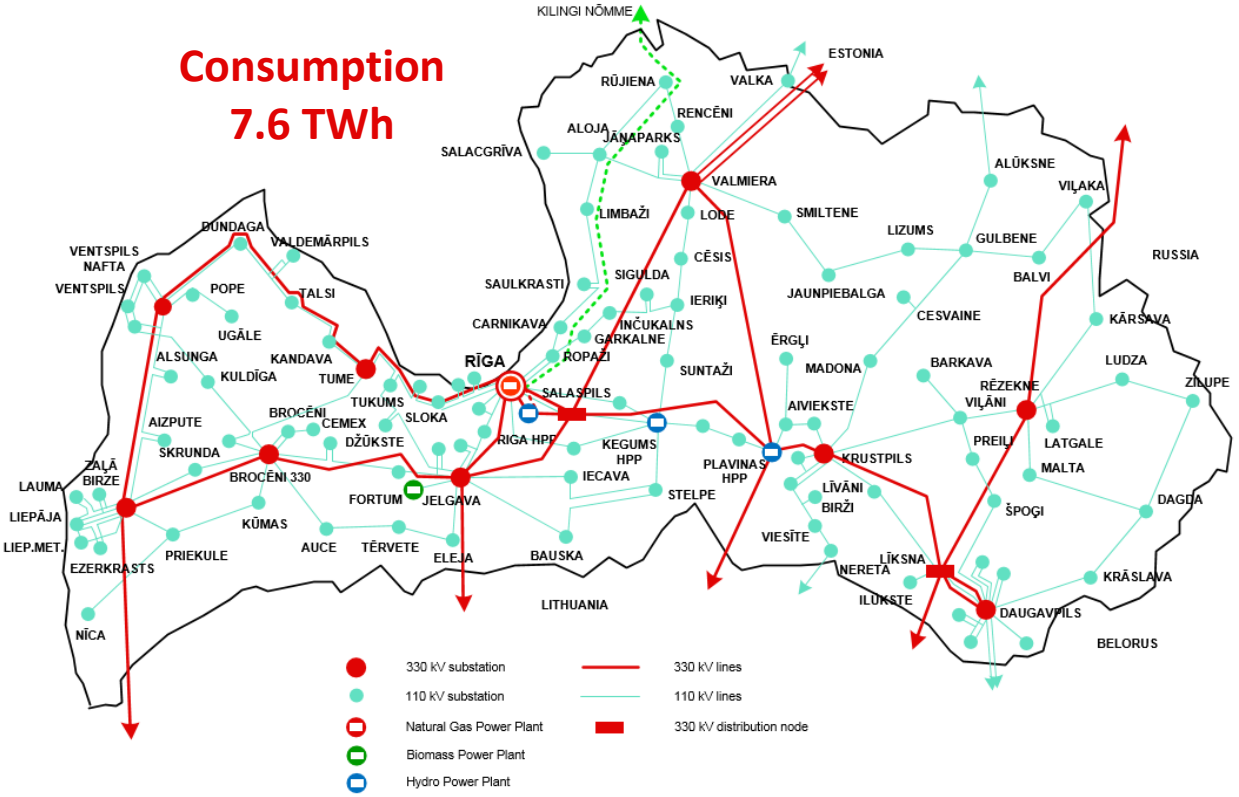
Latvian Power System - 2019

Installed Capacity



Hydro PPs	1587
Natural Gas PPs	1186
Biomass and Biogas	152
Wind	78
PV	2
Peak Load	1287

Consumption
7.6 TWh



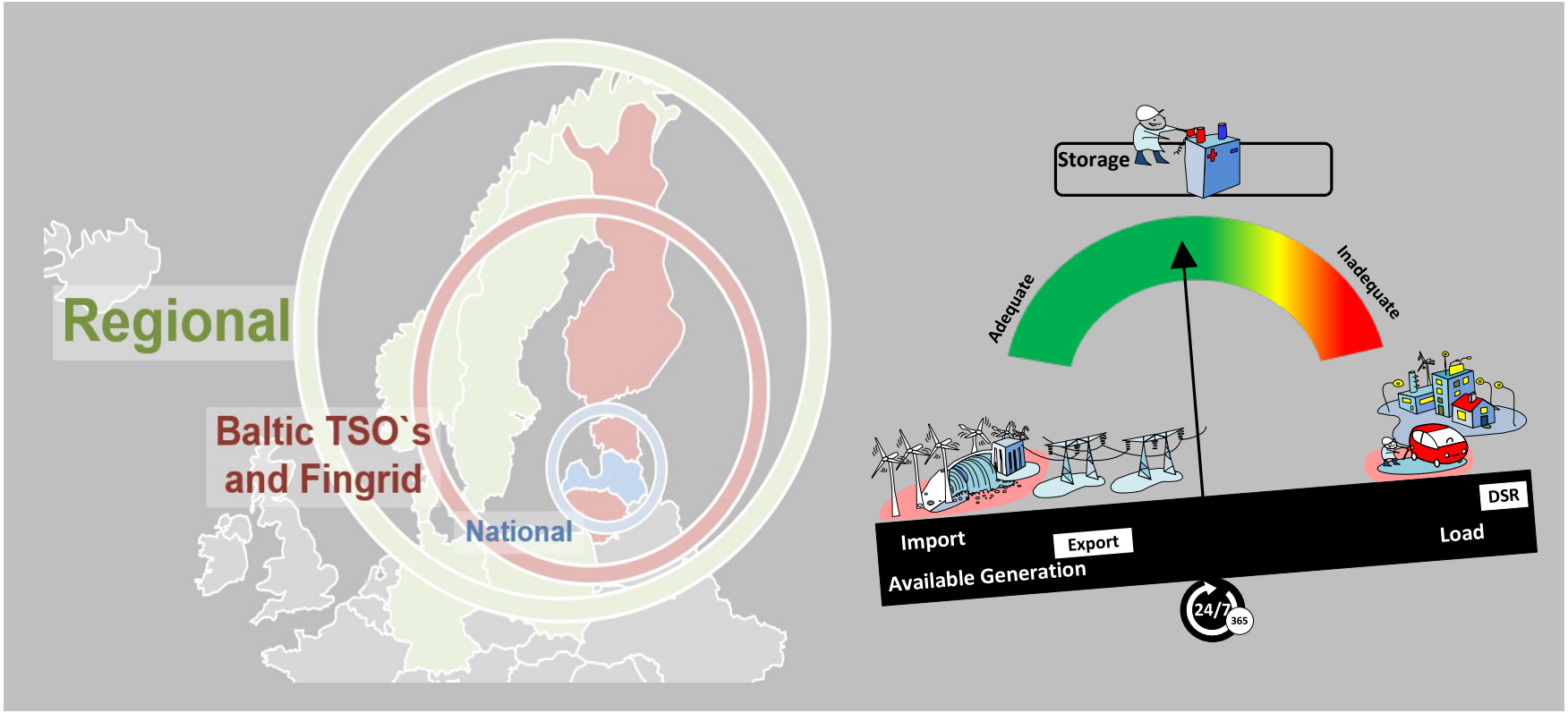
The EU Regulations

- **Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11th December 2018 on the Governance of the Energy Union and Climate Action,** which is amending
  - Regulations (EC) No 663/2009
  - Regulations (EC) No 715/2009
  - Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU, 2013/30/EU, 2009/119/EC and (EU) 2015/652
  - Regulation (EU) No 525/2013 of the European Parliament and of the Council

The long-term targets and objectives of the EU Regulation

- **Energy Security –** Baltic States Synchronization with Continental Europe
- **The internal energy market –** electricity interconnection target from 10 – 15 % in 2030
- **Energy efficiency –** from 27 % to at least 32.5 % in 2030
- **Decarbonisation**
  - Greenhouse Gas reduction – 40 % domestic reduction up to 2030
  - Consumed RES – 32 % in 2030
- **Research, innovation and competitiveness**

Levels of Power System Adequacy

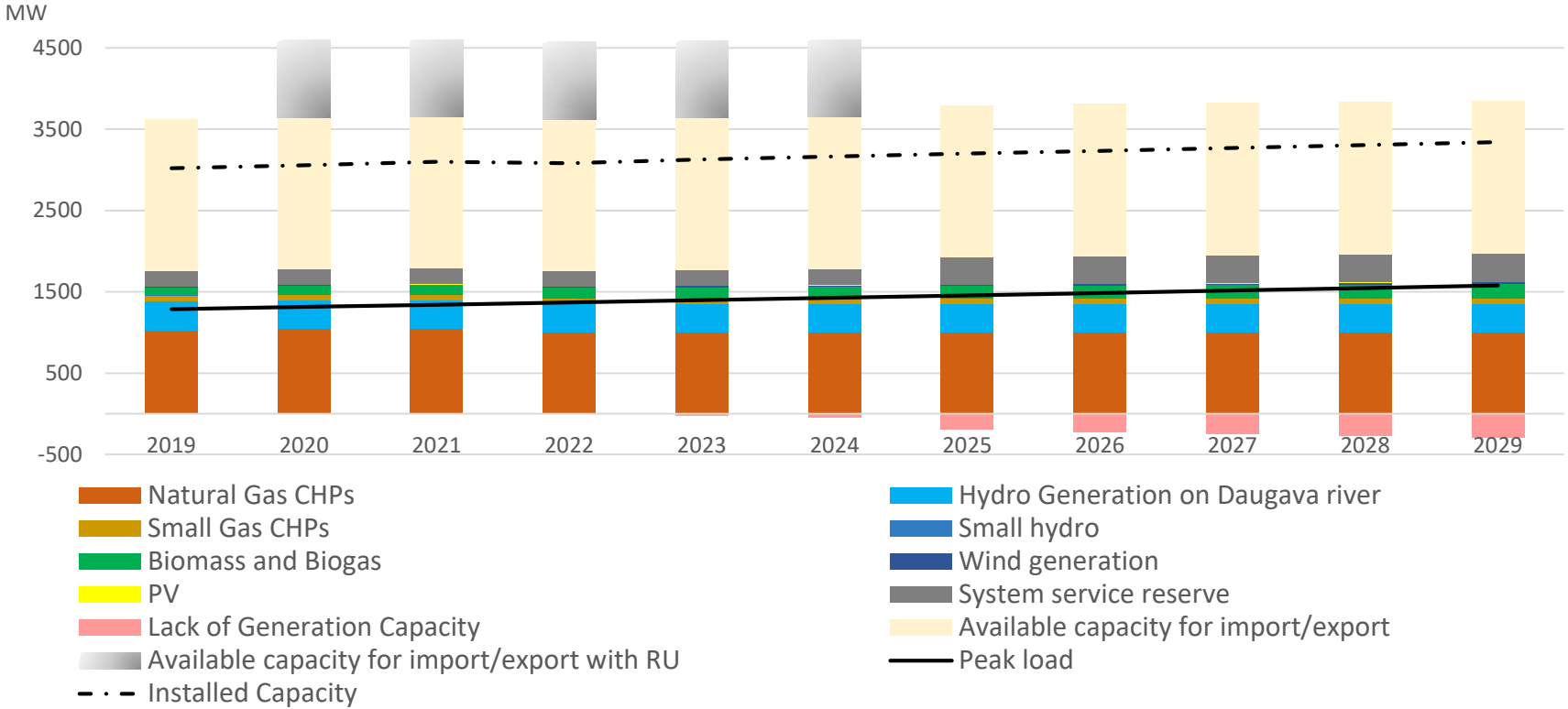


National Power System Adequacy - Latvia

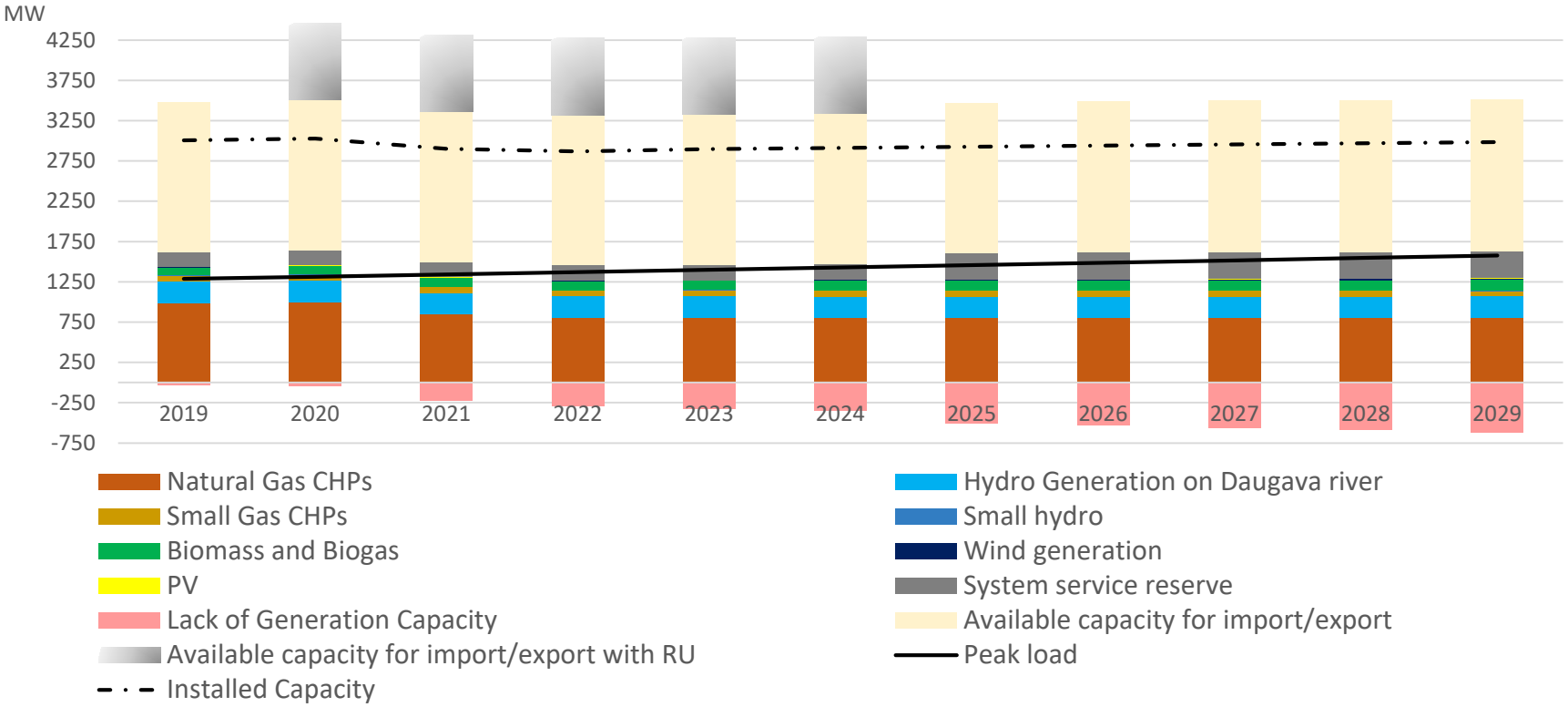
- In accordance with Regulation No 322 **"Regulations on the TSO's Annual Statement"** approved by Latvian Cabinet of Ministers from April 25, 2006
- **"Energy Development Guidelines for years 2016-2020"** in Latvia – approved by the Latvian Cabinet of Ministers on February 9, 2016
- Informative report on **"Long Term Energy Strategy for year 2030"**

The link to the Annual Statement of Transmission System Operator 2019

National Power System Adequacy – Latvia (Base Scenario)



National Power System Adequacy – Latvia (Conservative Scenario)



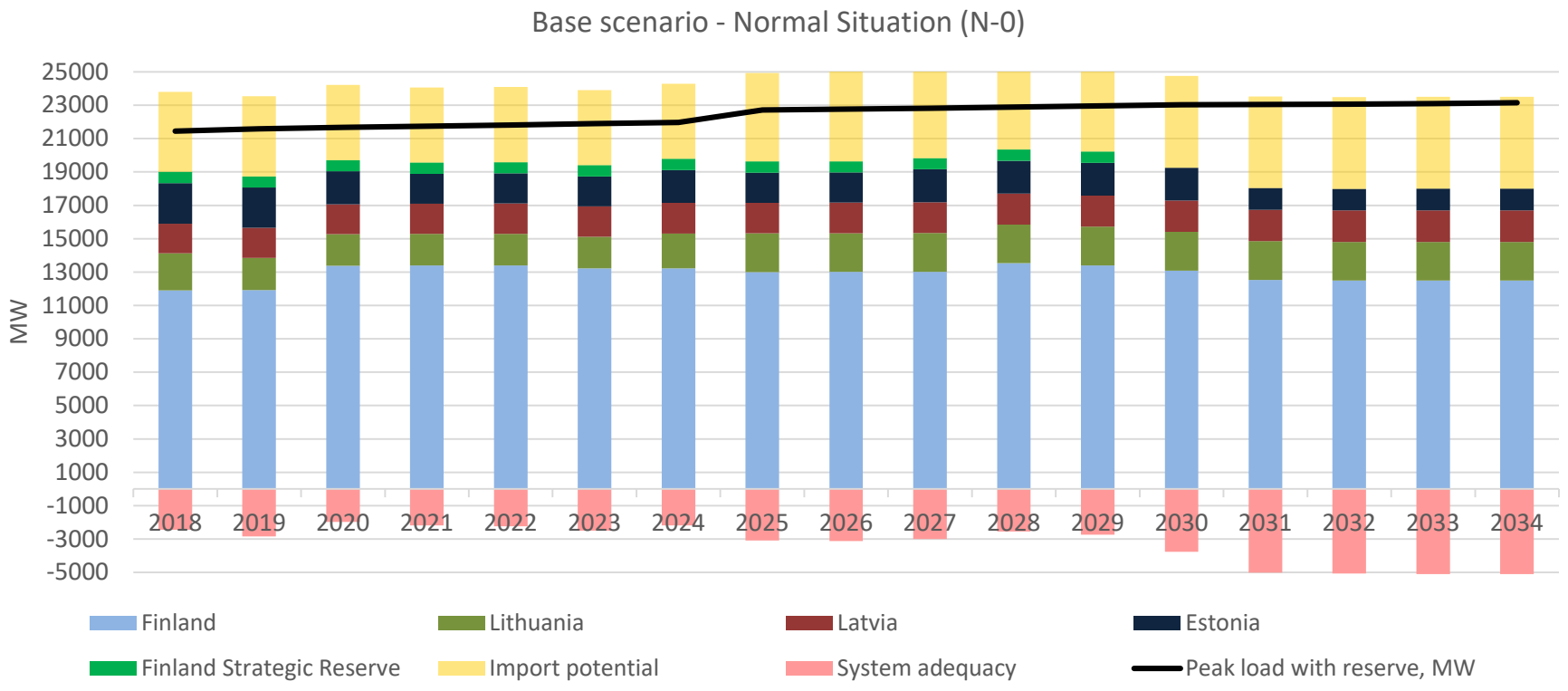
Baltic TSOs and Finland power system adequacy

- **Cooperation established on 2017 and based on Cooperation Agreement No 1.1-4/2017/442** – AST, Elering, Litgrid and Fingrid
- Prepared **"Baltic-Finnish generation adequacy data exchange report"**
- To highlight **Security of Supply** issues in region
- **Adequacy assessment performed with two approaches:**
  - Deterministic
  - Stochastic (BID3 Market Tool)

Baltic TSOs and Finland Power System Adequacy - Deterministic

- **The generation data provided by TSOs** – AST, Litgrid, Elering and Fingrid
  - **Base Scenario** – more favorable market situation
  - **Conservative Scenario** – decommissioning of old power plants and postponed investments
    - Some Narva Oil Shale units decommissioned until 2024 in Estonia
    - Decommissioning of Natural Gas power plants until 2021 (150 MW) in Latvia
    - Decommissioning of Natural Gas power plants in Lithuania and no 5th unit of Kruonis pump storage (200 MW)
    - Not prolonged Finnish strategic reserve after 2020 (667 MW)

Baltic TSOs and Finland Power System Adequacy - Deterministic



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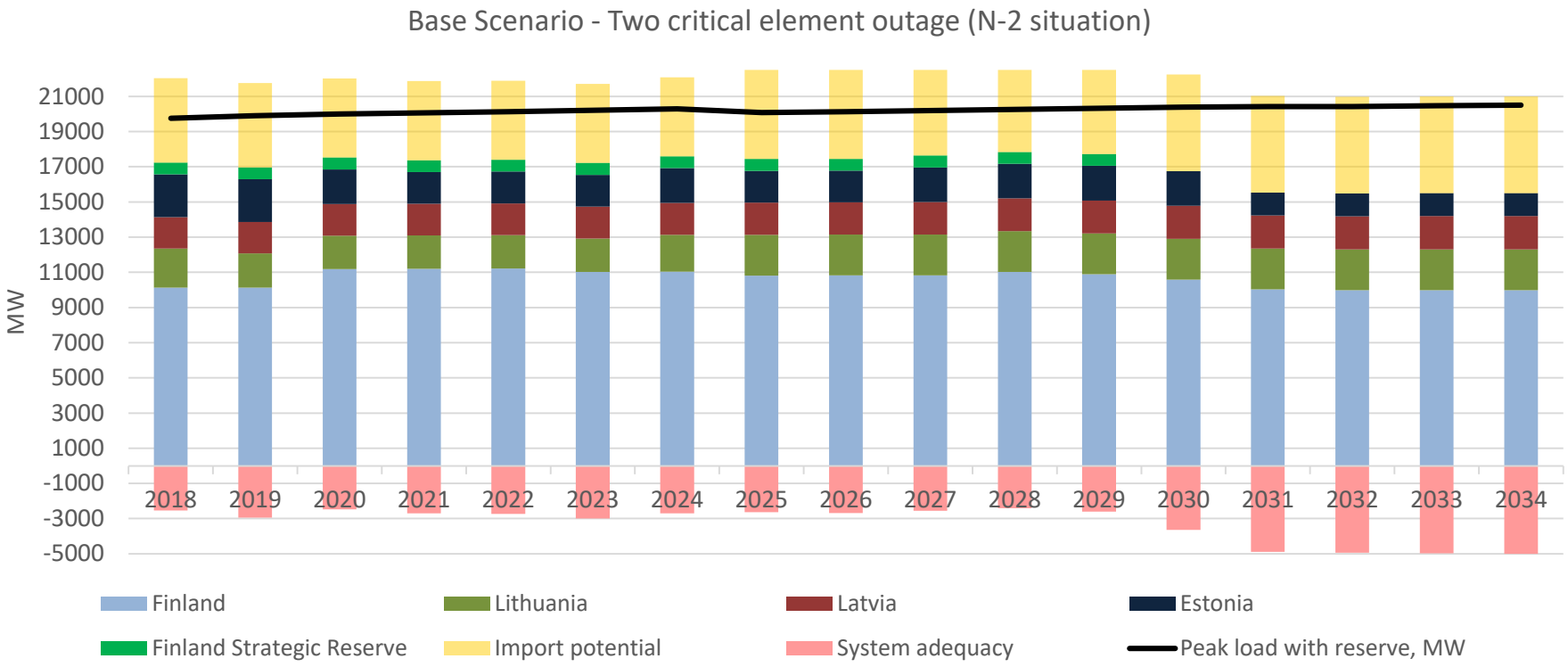
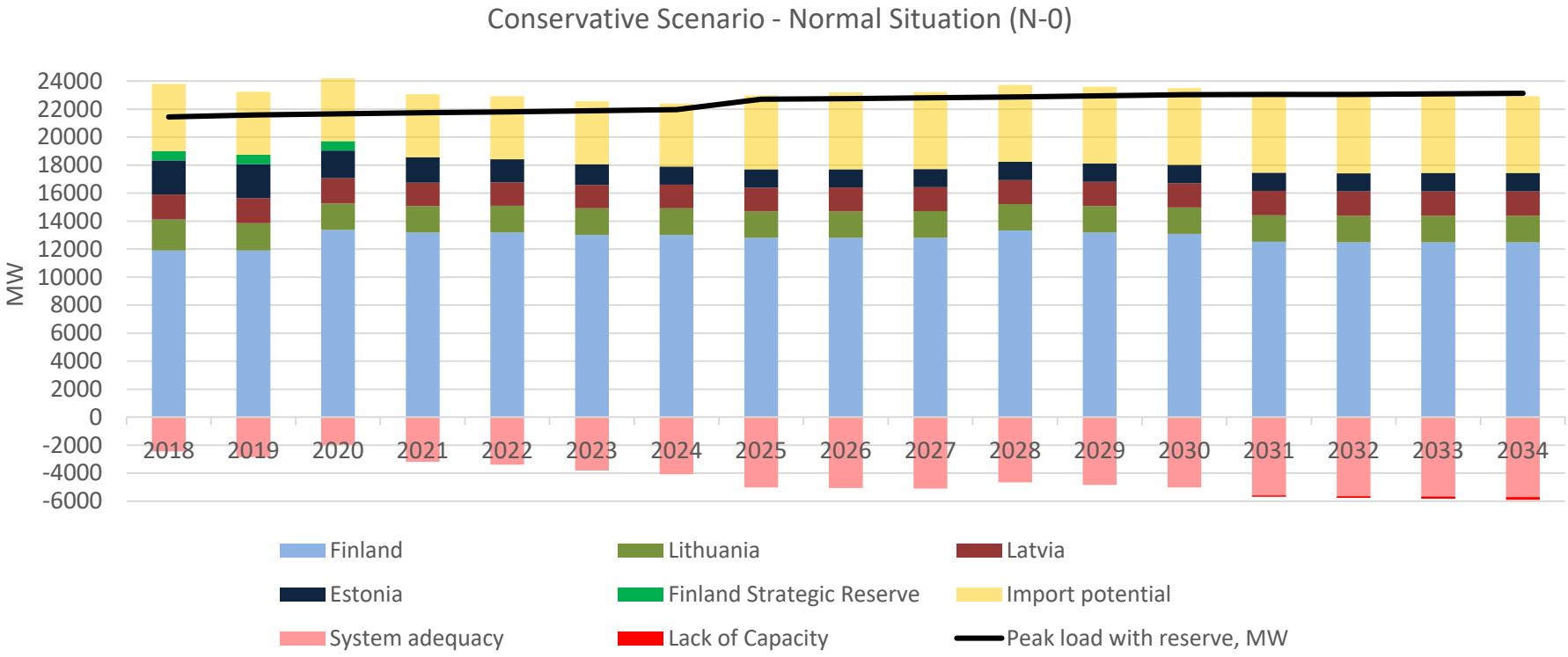
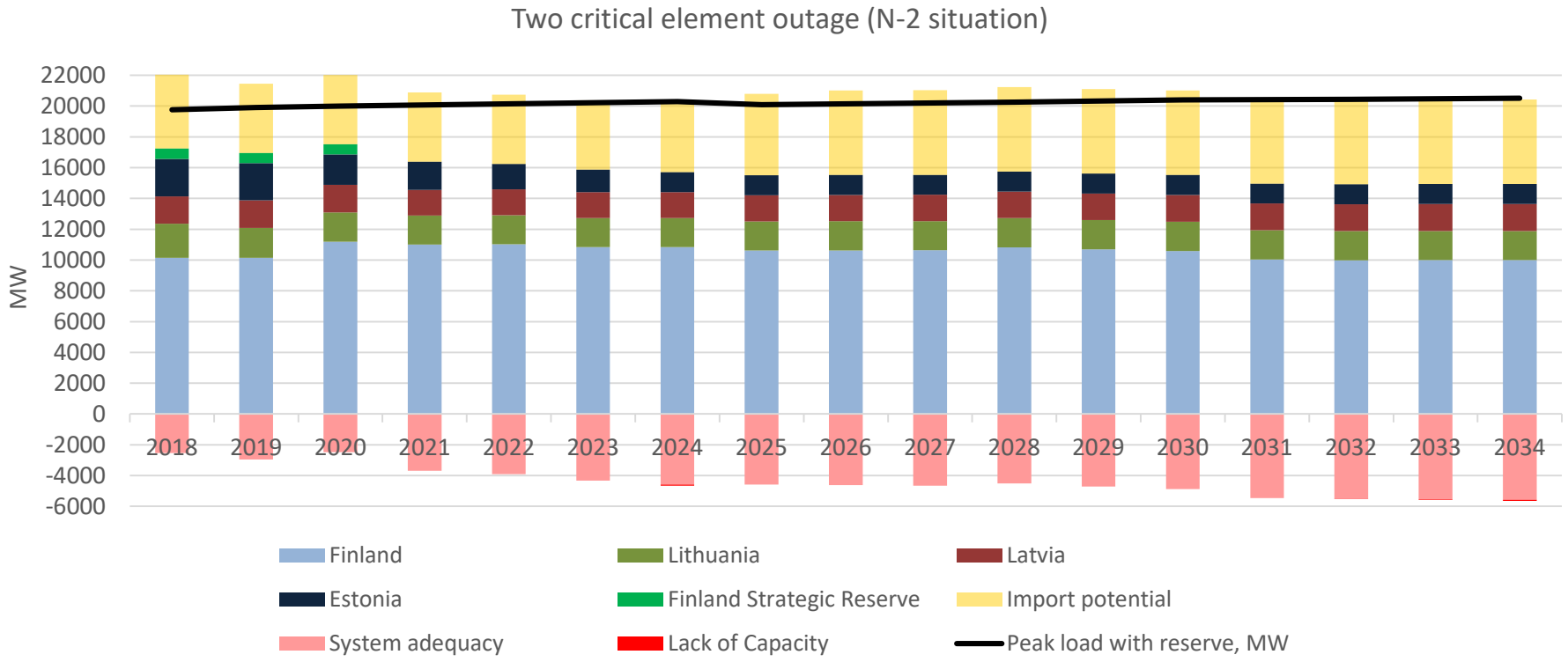


Baltic TSOs and Finland Power System Adequacy - Deterministic



Baltic TSOs and Finland Power System Adequacy - Deterministic



Baltic TSOs and Finland Power System Adequacy - Stochastic

- Assumptions
  - BID 3 Market Tool with Mid-Term Adequacy 2017 input data (ENTSO-E) – 136 yearly simulations
  - Two Scenarios – Base and Conservative
  - Weather dependent parameters based on historical weather data from years 1982-2015 (Hydro inflow, Wind power, Solar, Demand).
  - Day ahead capacities used cross-border exchanges

Baltic TSOs and Finland Power System Adequacy - Stochastic

- Two values are estimated
  - **Loss of Reserve requirement Expectation** (LORE) – h
  - **Energy Not Served** (ENS) – MWh;
- **LORE is less than 3 h/year** – sufficient level of adequacy
- 90 % of the years no adequacy issues
- 10 % of the years some LORE

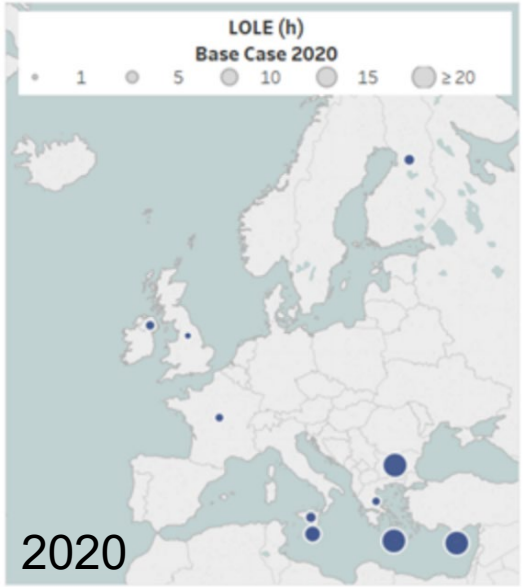
Base

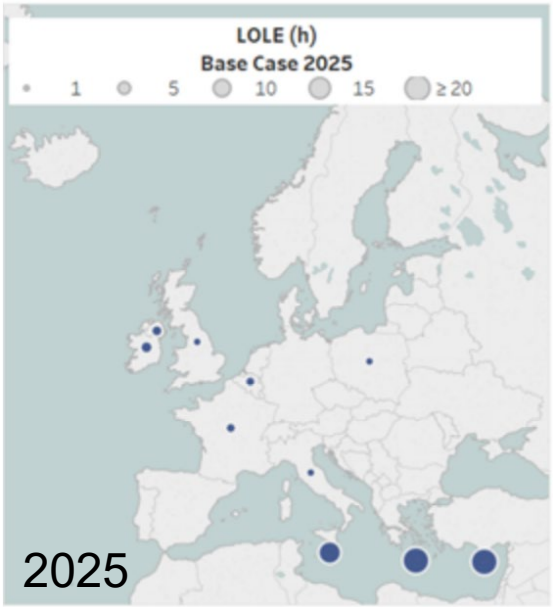
Conservative

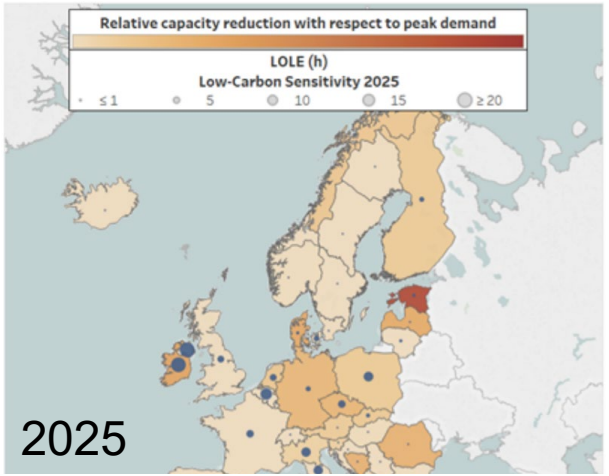
ENTSO-E Regional Power System Adequacy – MAF

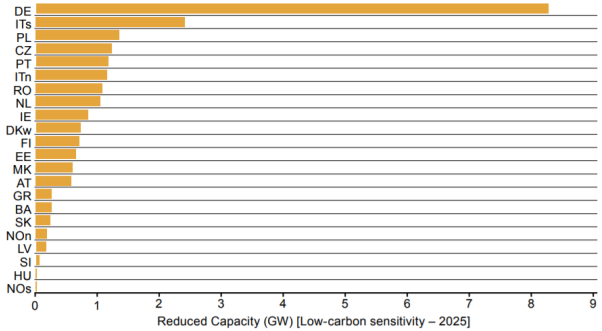
- Annual report issued by ENTSO-E – **Mid-Term Adequacy Forecast 2018**
- Probabilistic analysis conducted using sophisticated market-modelling tools (five tools) – two time horizons simulated 2020 and 2025
- Sensitivity analysis – Low Carbon 2025
- Outcome
  - Loss of Load Expectation (LOLE) h
  - Energy Not Supplied (ENS) GWh

ENTSO-E Regional Power System Adequacy – MAF 2018









Conclusions

In Latvia very slow developments of Wind and PV – a need for some governmental support (clear rules)

In Latvia is a lack of available generation capacity to cover peak load and system service reserve – the cross-border capacities are sufficient to import the required amount of power

In Baltic States and Finland available generation capacity is not sufficient to cover peak load and to ensure the requirements of system service reserve – cross-border capacities outside region are sufficient to contribute energy import up to 2030

After 2030 in Baltic States and Finland is a lack of available generation and cross-border capacity identified – developments of new generation sources are favorable and DSR in region

In Baltic States and Finland according to stochastic simulations the generation capacities and cross-border capacities are sufficient to cover load and reserve requirements – Loss of Load Expectation less than 3 hours per year (both scenarios)

In ENTSO-E MAF 2018 study minor Power System Adequacy issues recognized in Finland (2020) and Poland (2025) – between 1 and 5 hours per year

Thank you for attention!

Ansis Žbanovs

Senior Electrical Engineer

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AS ” AUGSTSPRIEGUMA TĪKLS”
Dārzciema iela 86, Rīga, LV-1073
T +371 6772 8353, F +371 6772 8858

ast@ast.lv, www.ast.lv