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The Baltic Gas Market

Ongoing Trends and Recent Developments

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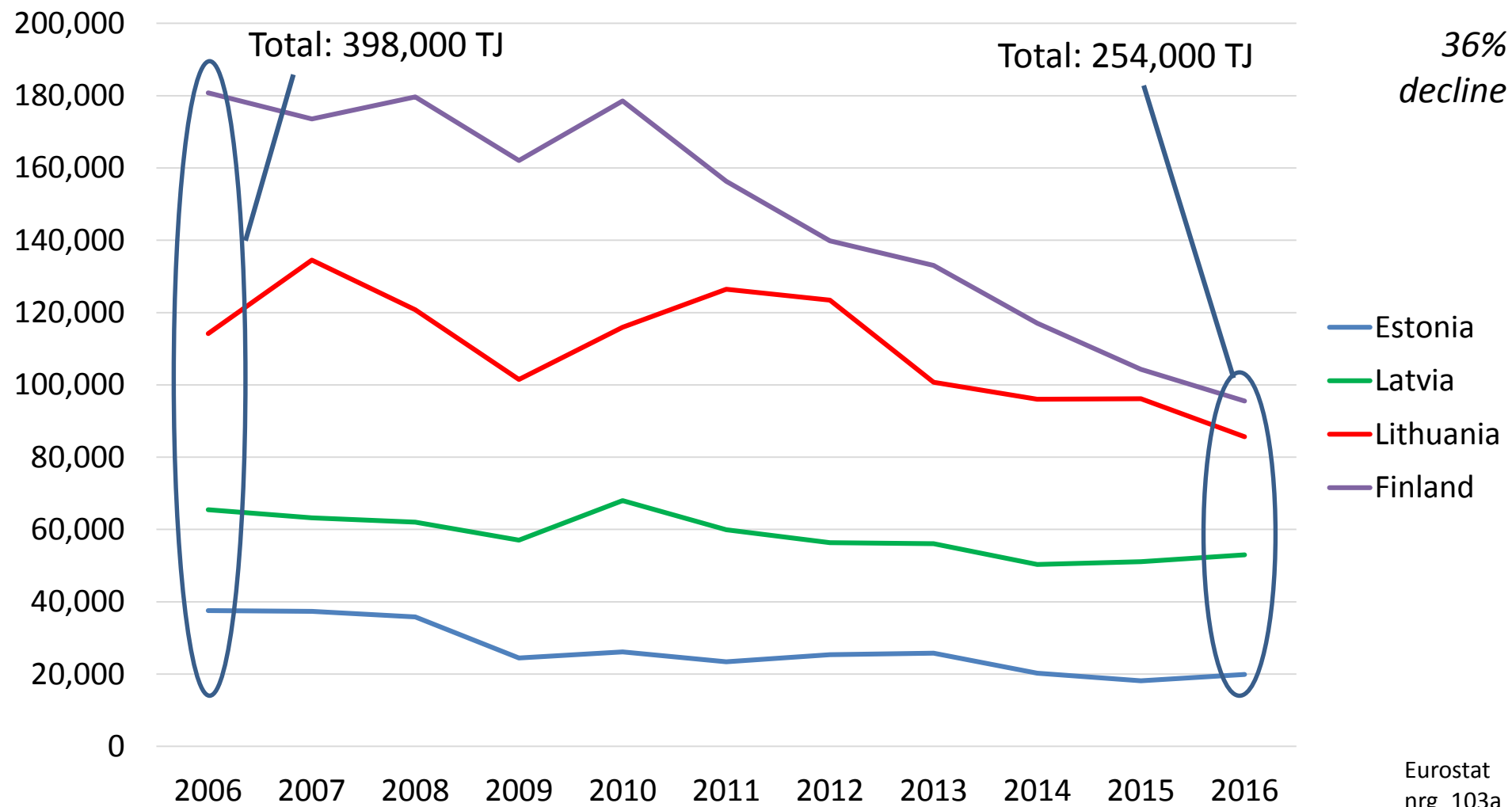




*Trend No 1:
Declining Regional Gas Demand*

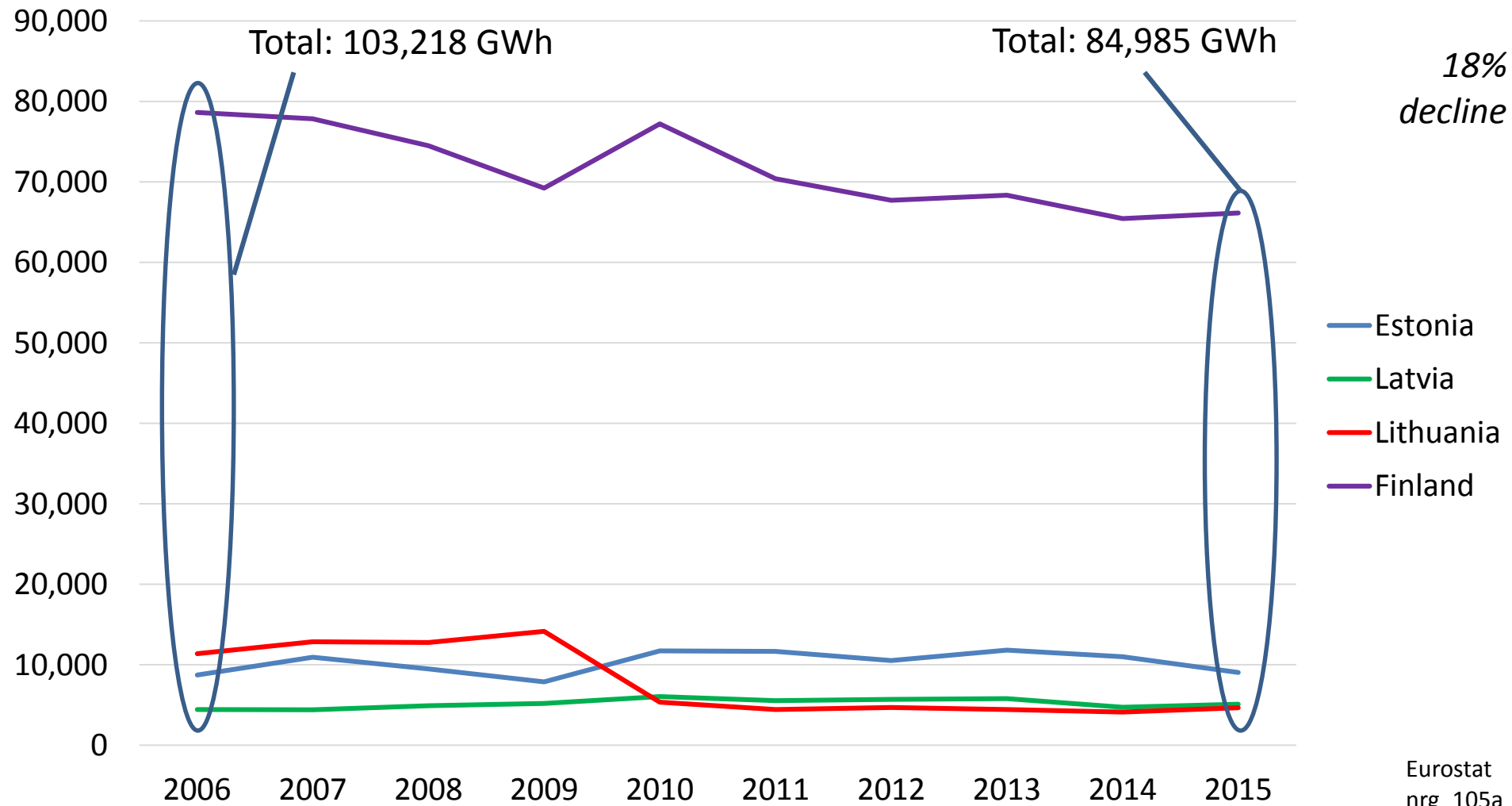


Baltic Gas Demand (Terajoule GCV per Year)



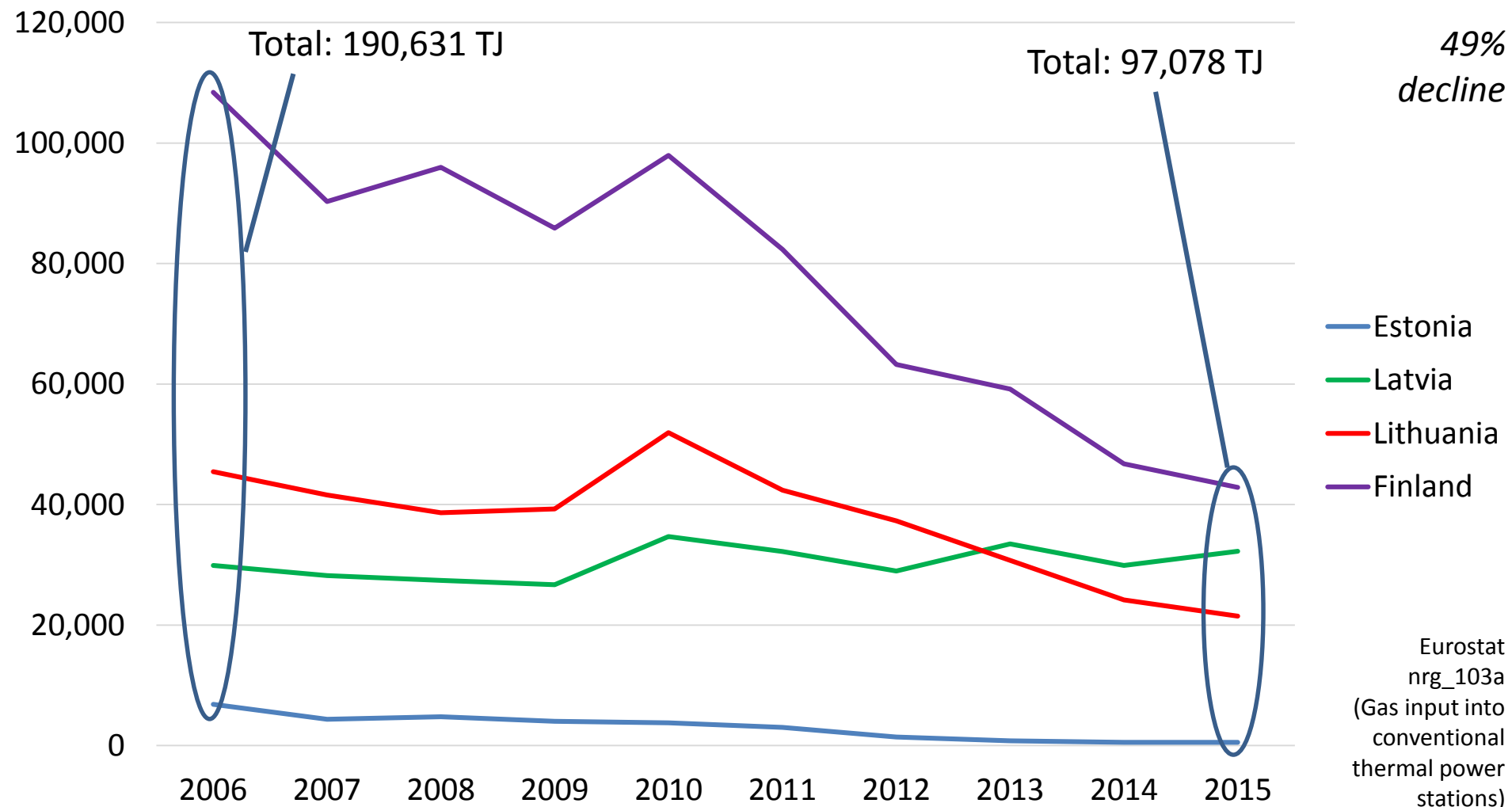


Total Electricity Generation (GWh per Year)



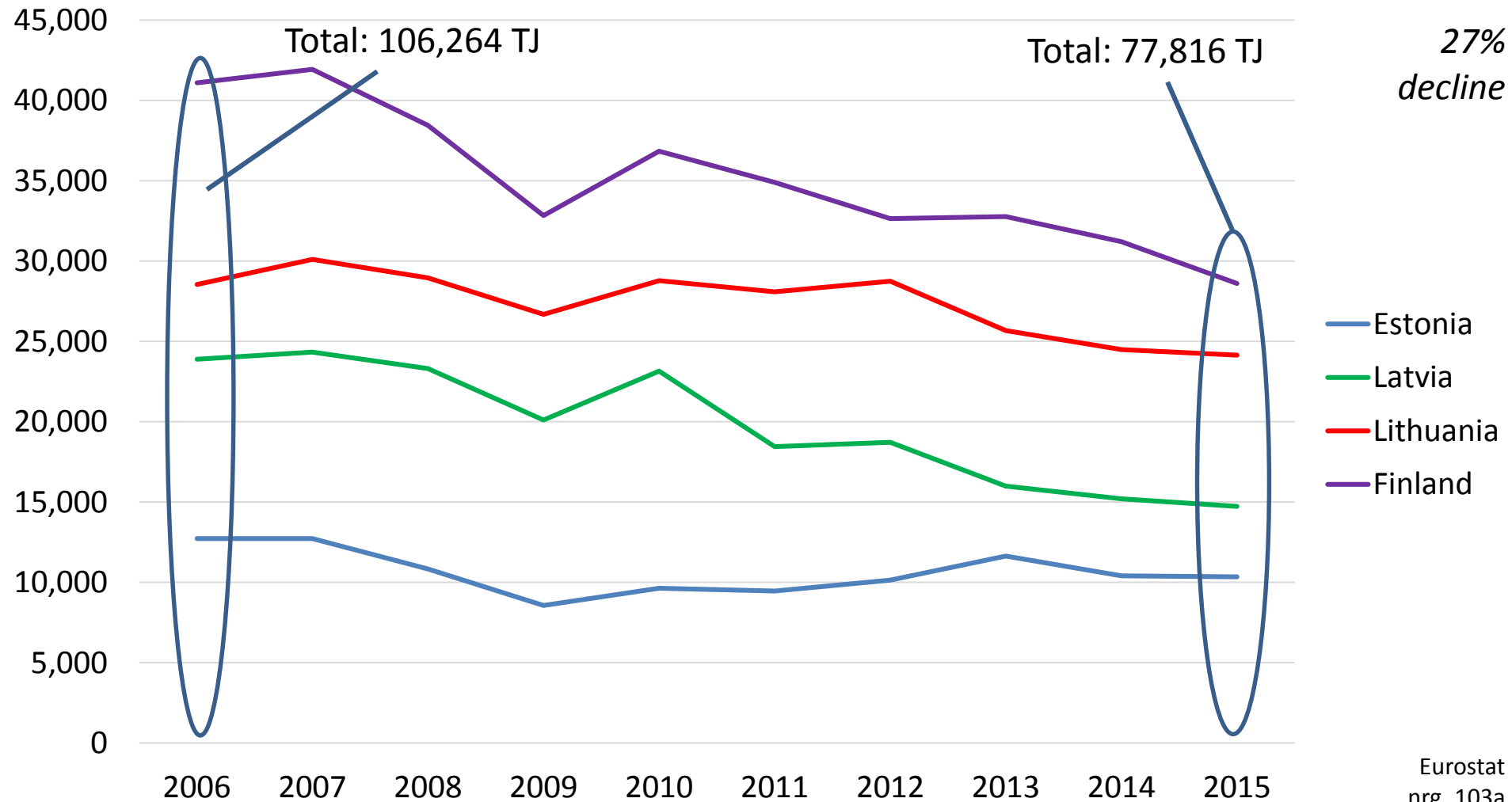


Gas Consumption in Power Generation (Terajoules GCV per Year)





Final Gas Consumption (TJ GCV per Year)





The Baltic Gas Market

- **Baltic regional gas demand is declining:**
 - From 398k Terajoules in 2006 to 254k Terajoules in 2016 (-36%)
- Electricity generation is also declining (mostly 2006-2012):
 - Declining gradually in Finland, but stable in Latvia and Estonia
 - Sharp drop when Ignalina NPP closed in Lithuania (2009)
 - Regional decline from 103k to 85k GWh (-18%) in 2006-2015
- Declining use of gas in power generation in all except Latvia
 - Regional decline from 191k to 97k TJ (-49%) in 2006-2016
- Baltic NG consumption stable in H1 2017, compared to H1 2016



Baltic Electricity Trends

- **Estonia:** RES is limited and gas is being displaced by other combustible fuels (esp. locally-produced oil shale)
 - Only country to show increase in use of combustible fuels for power gen
- **Latvia:** Decline in hydro is being offset by gas consumption
- **Lithuania:** Modest growth in wind RES and decline in power gen from combustible fuels (esp. gas)
- **Finland:** Stable NPP, increase in hydro, substantial expansion of wind RES, and decline in combustible fuels (coal/gas)



Baltic Final Gas Consumption Trends

- At regional level, final gas consumption declined 27% 2006-2015
 - Industry: -34%
 - Residential/Services/Agriculture/Fishery/Forests: -8%
- **Estonia:** Industry: -45%; Residential/Services: +23%
- **Latvia:** Industry: -58%; Residential/Services: -12%
- **Lithuania:** Industry: -20%; Residential/Services: -12 %
- **Finland:** Industry: -30%; Residential/Services: -29%
 - Finland and Latvia accounted for 73% of Baltic regional decline in industrial gas consumption



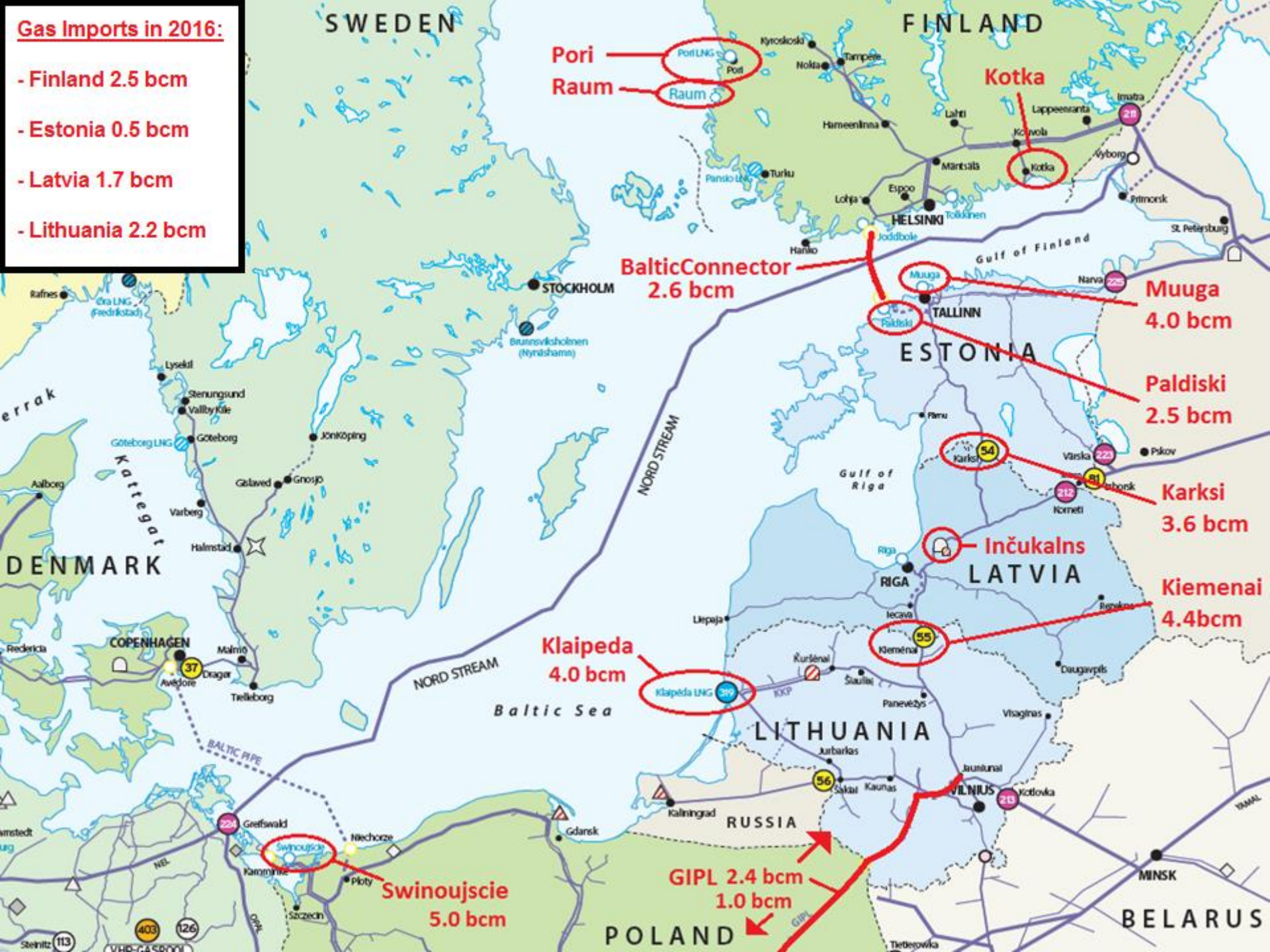
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*Trend No 2:
Development of Regional Infrastructure*

Gas Imports in 2016:

- Finland 2.5 bcm
- Estonia 0.5 bcm
- Latvia 1.7 bcm
- Lithuania 2.2 bcm





Regional Infrastructure

- Klaipeda LNG import terminal launched in Dec 2014
- Planned upgrades of cross-border interconnections by 2020:
 - Lithuania-Latvia: From 2.6 bcm to 4.4 bcm per year [[link](#)]
 - Latvia-Estonia: From 2.2 bcm to 3.6 bcm per year [[link](#)]
- New interconnection between Estonia and Finland by end 2019
 - BalticConnector (2.6 bcm per year) onshore construction to begin in spring 2018 - On schedule as of October 2017 [[link](#)]
- Gas Interconnector POL-LIT (GIPL) delayed from 2018 to 2021
 - Aims to connect the Baltic region to the 'continental' European gas market via Poland [[link](#)]



Proposed LNG Terminals

- Gasum abandoned 2.5 bcm Finngulf LNG terminal in Oct 2015:
 - Focus switched to small-scale, off-grid LNG import terminals
 - Pori (Sep 2016), Tornio (first ship due Nov 2017), Kotka (FID Jun 2017)
- Two Estonian LNG terminals remain 'on the table':
 - Paldiski LNG (2.5 bcm) by Alexela vs Muuga LNG (4 bcm) by Vopak
 - Limited Estonian gas demand means that new terminal will be used for exporting gas to neighbouring countries (primarily Finland)
 - Paldiski denied EU funding in Feb 2017 - Baltic PMs visited in May 2017
 - Sept 2017: Šefčovič suggests Estonia focus on SSLNG for marine bunkering and heavy road transport – No demand for new terminal



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Recent Developments: Regulatory Changes



Regulatory Developments

- Baltic political leaders reached agreement in Dec 2016 to create regional gas market
- Lithuanian and Estonian gas markets already liberalised
- Latvian gas market opened to competition in April 2017
- Finnish gas market to open to competition by 2020
 - Decision taken by Finnish govt in May 2017
- GET Baltic gas trading platform opened in July 2017
 - LDT contract with Latvenergo (gas for power generation)



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Recent Developments: Regional Suppliers



Regional Suppliers: Gazprom

- Gazprom LTCs with Latvijas Gāze (2030) and Gasum (2031)
- Gazprom contract with Eesti Gaas valid until end of 2018
- Also in March 2016, Gazprom sold gas at auction, mostly to Lithuanian consumers, for delivery in winter 2016/17
 - Proposed, but not repeated, in summer of 2017
- Gazprom can afford to be flexible and price competitive in order to retain market share in the Baltic region
- This flexibility & competitiveness has been stimulated by changing market conditions



Other Supplies to the Baltic Region

- Lithuania:
 - Contract with Statoil for 350mmcm p.a. until 2025
 - Two shipments of US LNG in August and September 2017
 - LNG imports in H1 2017 were 50% of H1 2016 volume
- Estonia and Latvia:
 - Small-scale imports via Lithuanian Klaipeda LNG terminal
 - Gazprom remains dominant in Latvia
 - Estonian gas demand remains limited, and new Estonian LNG terminal appears unlikely



Other Supplies to the Baltic Region

- Finland:
 - Gazprom remains dominant supplier
 - Development of off-grid, small-scale LNG for local consumption
- Poland:
 - First shipment of US LNG arrived in June 2017
- Russia:
 - Gazprom-Shell Baltic LNG feasibility study signed August 2017
 - Gorskaya LNG (private company) aims to supply bunker fuel to the Baltic region from 2020 (1.26 mtpa) [[link](#); [link](#)]



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Conclusions



Conclusions

- Baltic regional gas demand is declining, specifically in power generation and in the industrial sector
- New demand to come from transportation (shipping/HDVs)
 - Such demand is 'off grid'
- Combination of Klaipeda LNG and cross-border interconnections are opening up new supplies for Baltic states
- Related liberalisation of national markets & possibility of cross-border trading is essential part of the process
- However, Gazprom will remain the major supplier to the region, due to its price competitiveness & existing contracts



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Thank you for your attention

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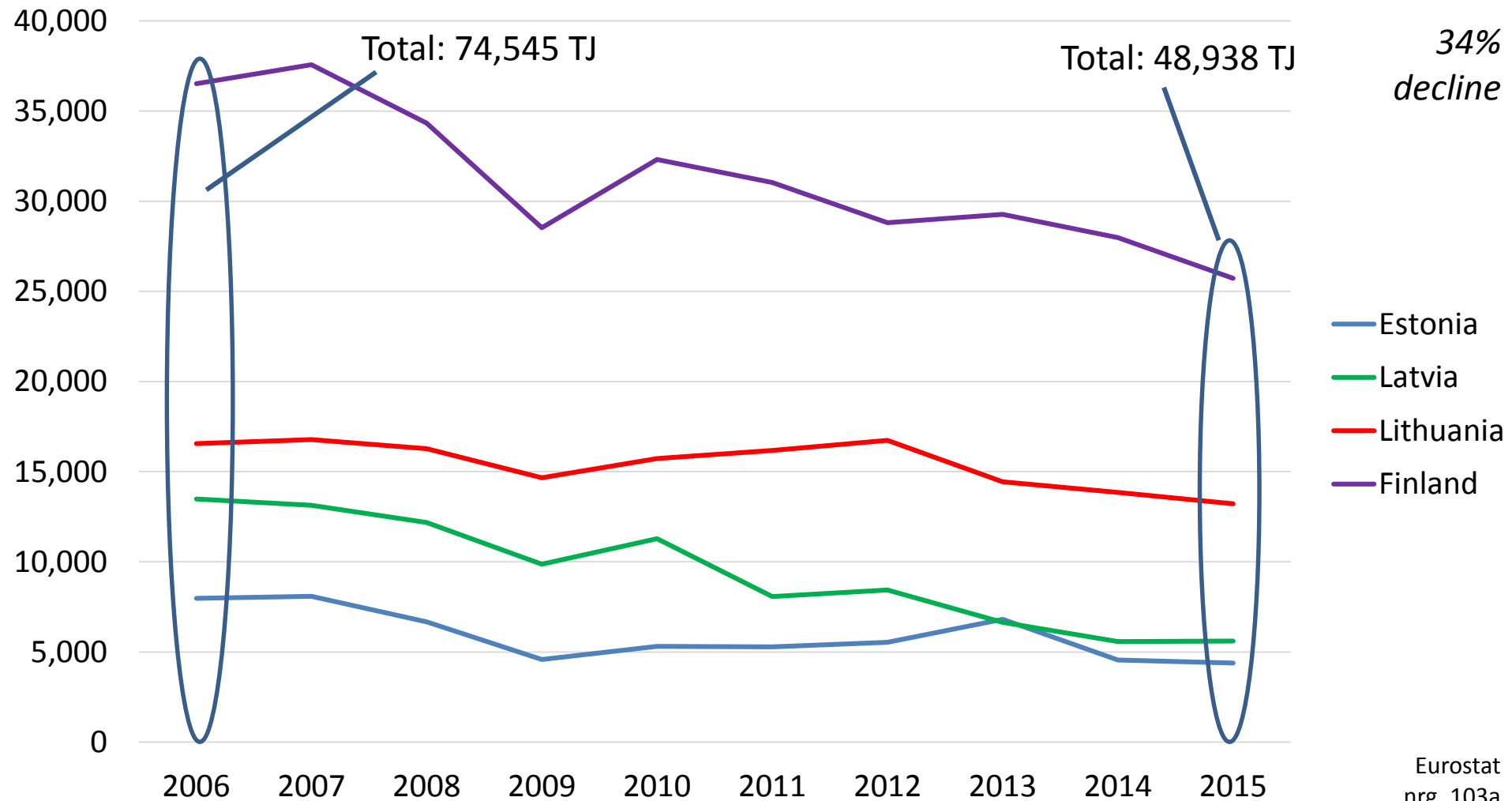
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Appendix

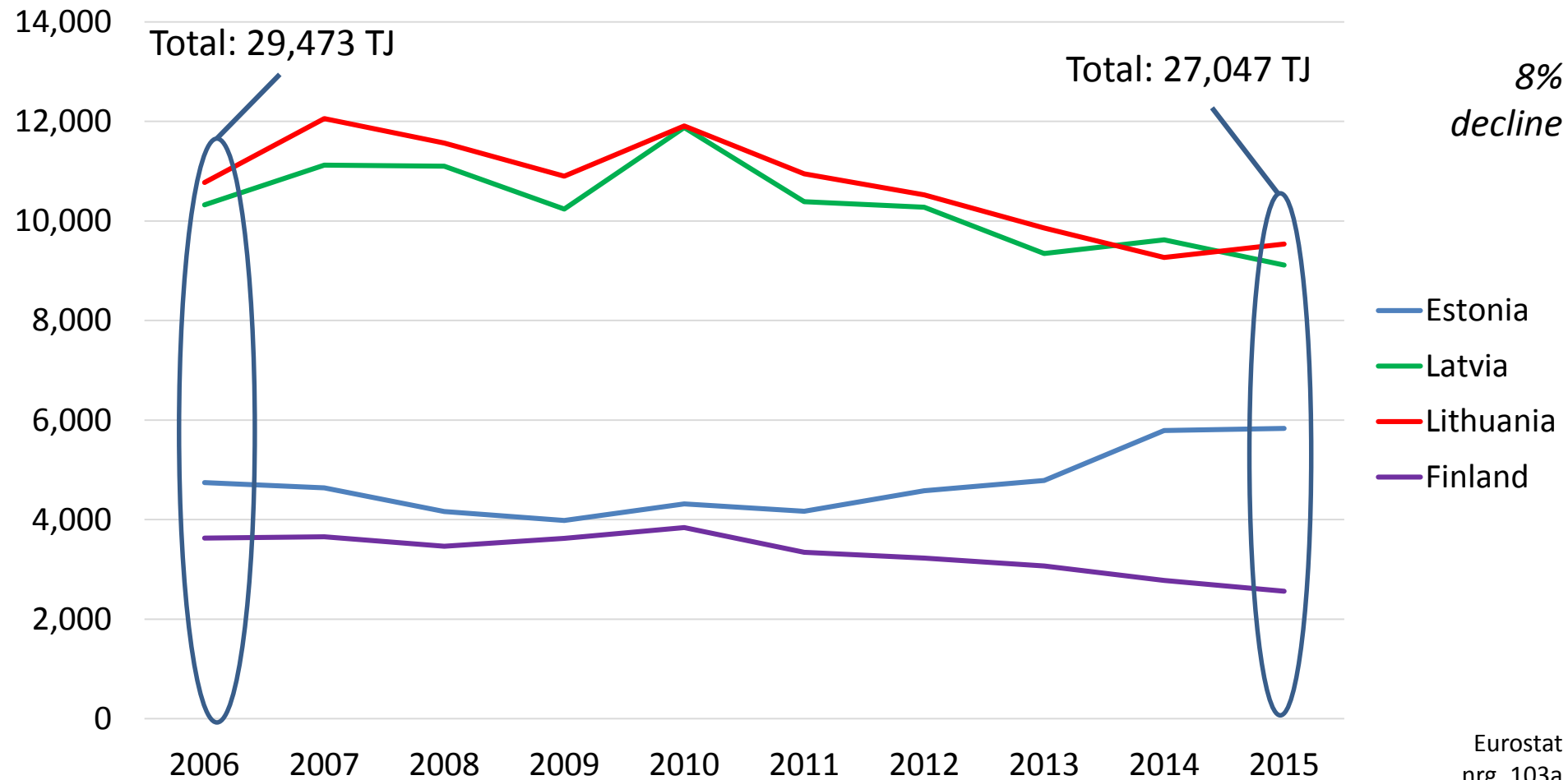


Industrial Gas Consumption (TJ GCV per Year)





Residential/Commercial/Other Sectors Gas Consumption (TJ GCV per Year)





The View from the European Commission

“It is important for Estonia and Finland to be joined by the Balticconnector pipeline. Participants need European support as it is not certain the pipeline would be feasible under market conditions. It is an important infrastructure object in terms of energy security...”

The Klaipeda LNG-terminal is a real source for diverse supply, the potential volume of which could cover Baltic consumption. The ship is on contract until 2024.

I understand Estonia is interested in constructing a small LNG-terminal. However, from the business side of things, there is only sense in constructing a tiny LNG-terminal to service maritime transport needs in Estonia, as more and more ships use LNG instead of heavy fuel oils.

Terminal investors must decide for themselves whether they see a business opportunity there, especially in a situation where the Klaipeda terminal can satisfy Baltic demand. I believe Estonians should concentrate their LNG efforts on maritime and heavy transport needs”





State (2016)	Import Dependency	Net Imports (bcm)	From Russia (bcm/%)	From Other (bcm/%)
Finland	100%	2.49	2.49 / 100%	0.00 / 100%
Estonia	100%	0.52	0.52 / 100%	0.00 / 0%
Latvia	100%	1.73	1.69 / 97%	0.04 / 3%
Lithuania	100%	2.22	0.83 / 37%	1.39 / 63%
Baltic Total	100%	6.96	5.53 / 80%	1.43 / 20%

- *Estonia's gas imports include pipeline imports from Russia (0.19 bcm) and from Latvian gas storage (0.33 bcm) during the winter, which could be supplies from Russia or from Lithuania*
- *Latvia withdrew 0.49 bcm from gas storage in 2016, which was Russian gas and is treated as imports from Russia*



Contracts

- **Contracts:**
 - **Poland:** PGNiG gas supply contract with Gazprom until 2022
 - **Lithuania:** LDT contract with Gazprom expired at end of 2015
 - **Lithuania:** Contract with Statoil for 350mmcm p.a. until 2025
 - **Latvia:** Latvijas Gāze contract with Gazprom until 2030 (since Feb 2009)
 - **Estonia:** 3-year contract with Gazprom signed March 2016, expires end of 2018
 - **Finland:** In Dec 2015 Gazprom-Gasum contract extended from Dec 2025 to Dec 2031, with change in gas price formula (reportedly 50-50 oil-indexed/spot)



Shareholdings

- Shareholdings:
 - Gazprom sold its shares in Lietuvos Dujos (2014), Gasum, & Eesti Gaas (2016)
 - Gazprom retains 34% stake in Latvijas Gāze, along with Itera Latvia (16%)
 - Latvian gas market opened to competition in April 2017



Regional Infrastructure (Electricity)

- Estlink 1 (Finland-Estonia) operational since 2007
- Estlink 2 launched March 2014
- NordBalt (Sweden-Lithuania) fully operational since June 2016
- Only Estonia is a net exporter of electricity
- Closure of Ignalina NPP in 2009 led to Lithuania ceasing its electricity exports, and becoming net importer



Electricity Cross-Border Trade

- All states registered an increase in electricity imports:
 - **Estonia:** Dramatic increase in imports from Finland
 - **Latvia:** Substantial increase in imports from Estonia, decline in imports from Lithuania since 2009, imports from Russia relatively stable
 - **Lithuania:** Imports from Latvia and Russia doubled, imports from Belarus fell
 - **Finland:** Dramatic increase in imports from Sweden (+15,000 GWh) and decline in imports from Russia (-8,000 GWh)
 - Regional imports (inc. imports from Sweden, Russia, Belarus, and other Baltic states) rose from 23,000 GWh in 2006 to 40,000 GWh in 2015
 - Expected increase in Swedish exports to Lithuania after launch of NordBalt cable link in mid-2016