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Latvian Gas Market in Transition – Challenges of Inčukalns Underground Gas Storage

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- Area: 64 589 km2
- Population: 1.95 MLN
- GDP per capita (PPP): 27 291 USD
- Internet speed: 13,8 MB/s

- Memberships:
- EU: 2004
- NATO: 2004
- EuroZone: 2014
- OECD: 2016

Background: general facts about Latvia

Content

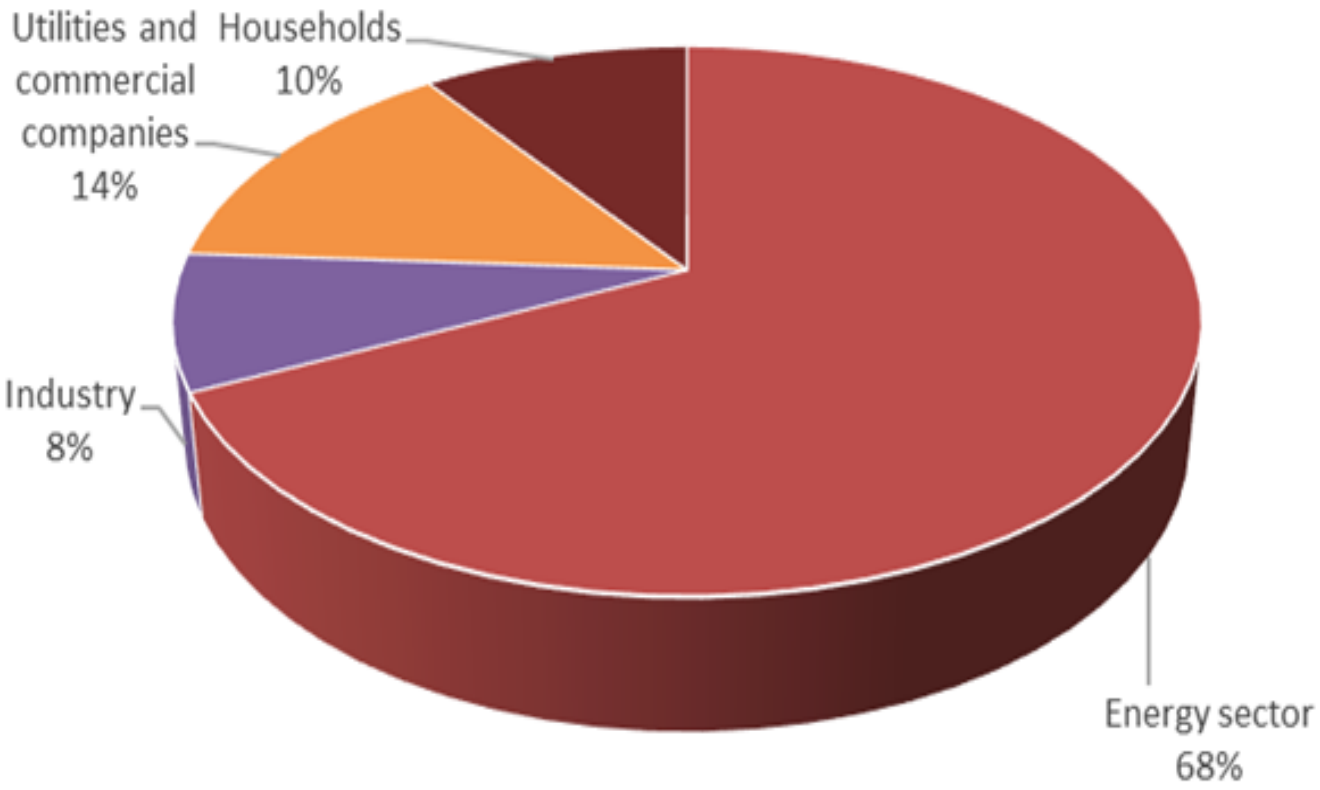
I. Natural gas market

II. Gas infrastructure

III. Role of Inčukalns Underground Gas Storage

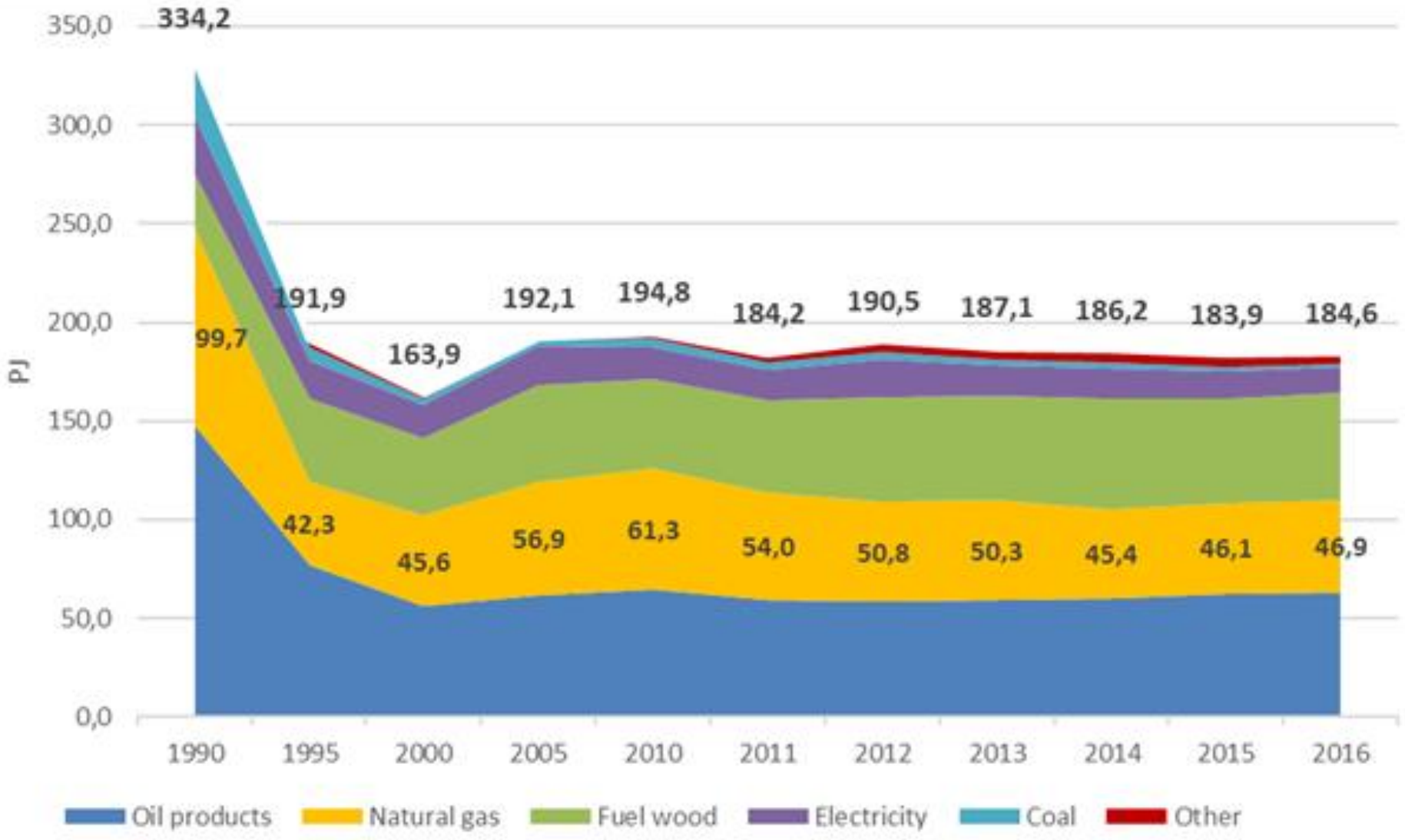
IV. Future implications

I. Structure of Natural Gas Consumption in Latvia



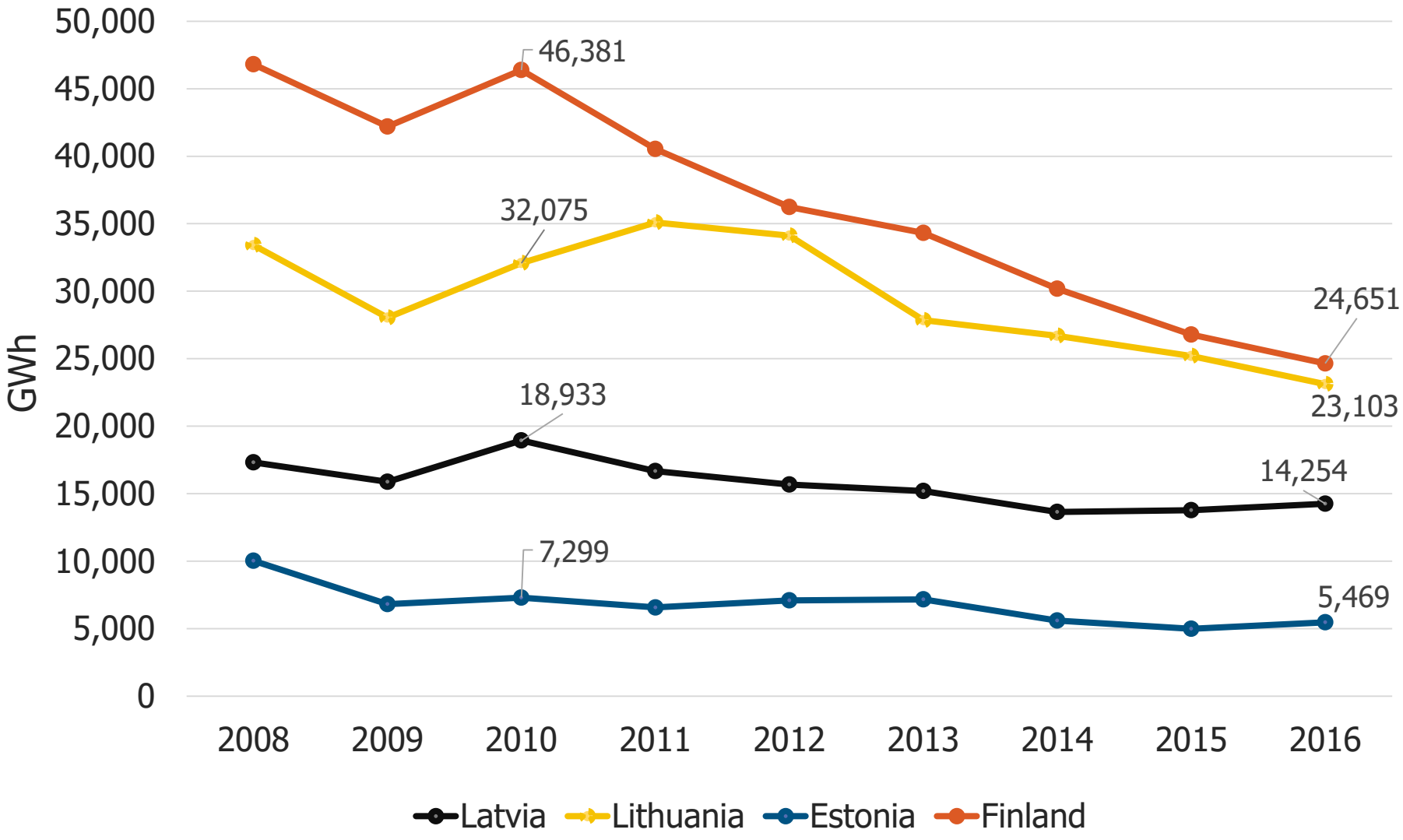
Source: Central Statistical Bureau of Latvia, 'Energy Balance in Natural Units, www.csb.gov.lv

I. Energy mix of Latvia



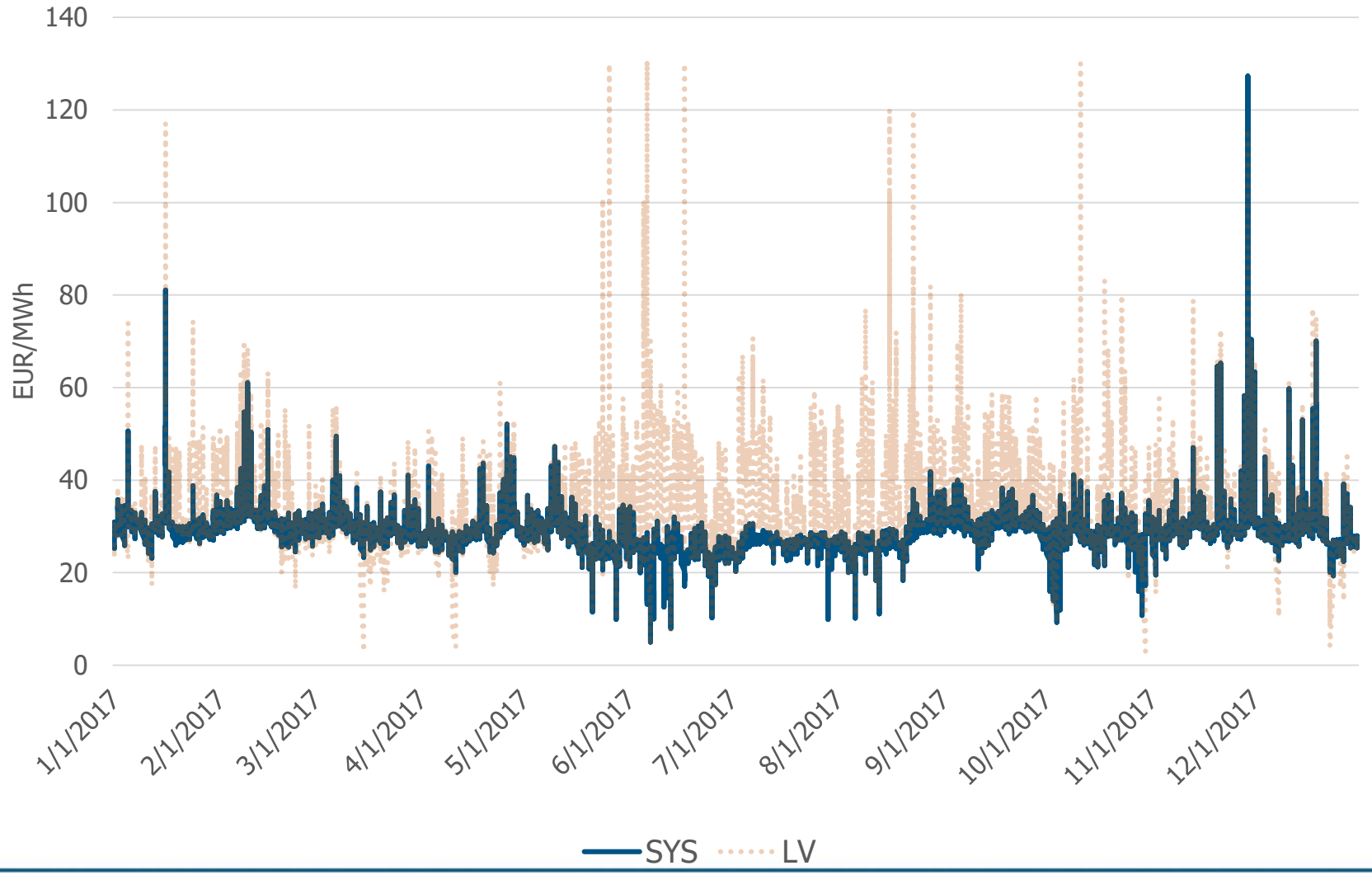
Source: Central Statistical Bureau of Latvia, 'Energy Balance in Natural Units, www.csb.gov.lv

I. Natural gas consumption in Baltic region



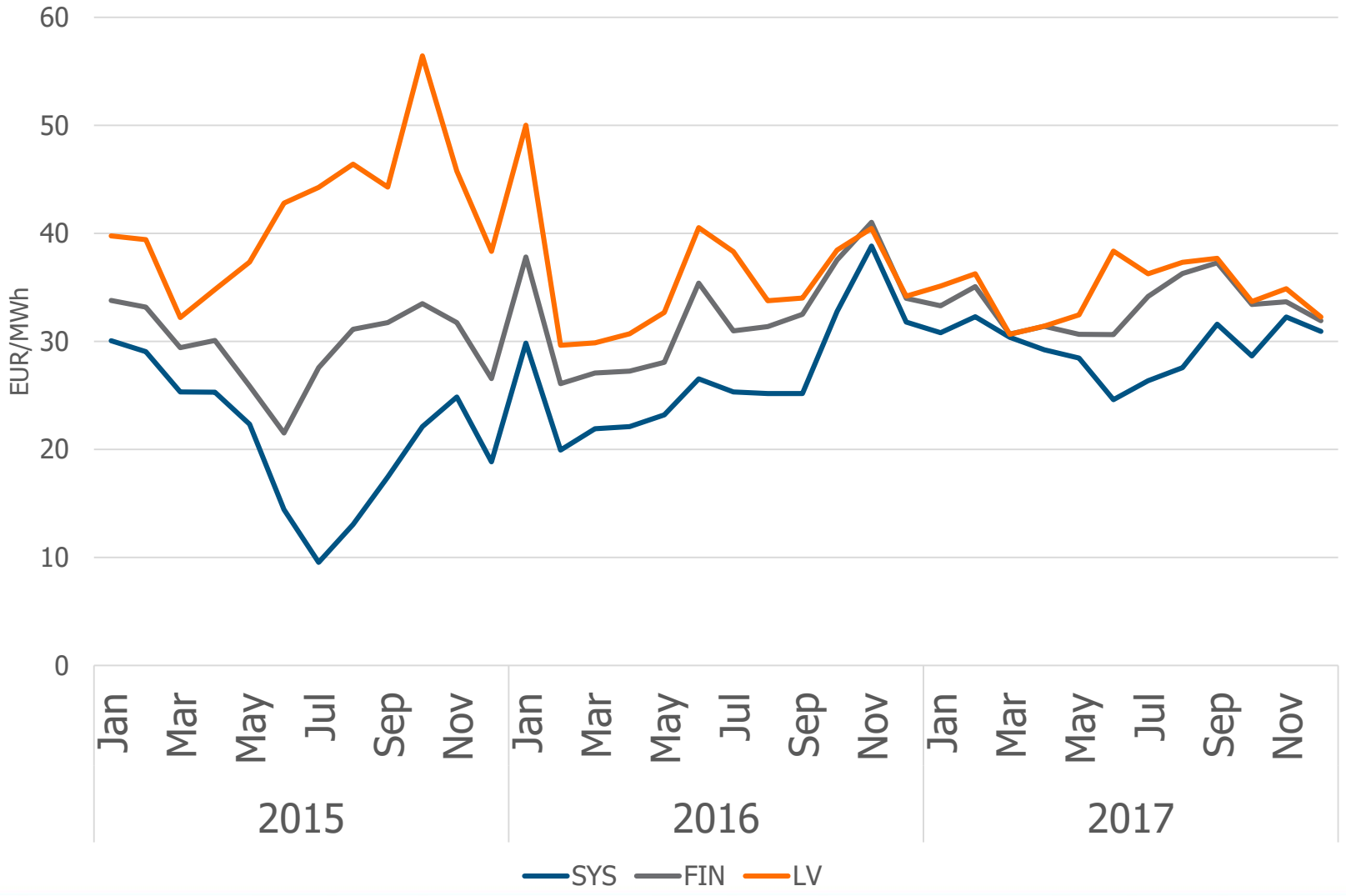
Source: Eurostat, Supply, transformation and consumption of gas- annual data, http://ec.europa.eu/eurostat

I. Demand in electricity sector: Hourly electricity prices in NordPool



Source: Nord Pool, 'Historical Market Data, Elspot Prices, 2017', www.nordpoolgroup.com,

I. Demand in Electricity sector: Monthly electricity prices in NordPool

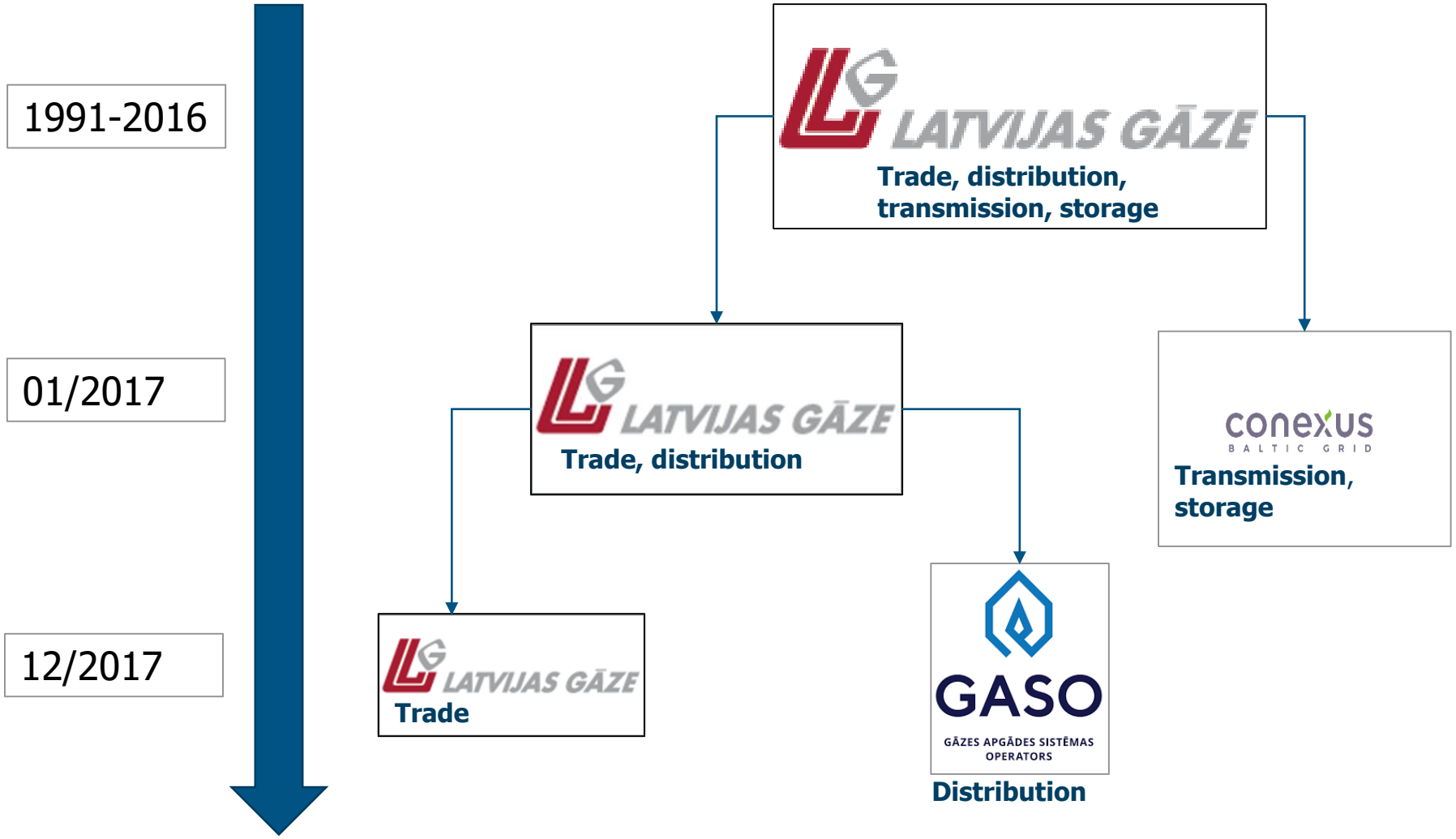


Source: Nord Pool, 'Historical Market Data, Elspot Prices 2015, 2016, 2017', www.nordpoolgroup.com,

I. Latvian Gas Market Opening

- April, 2017 - JSC «Latvijas Gaze» is split up into two independent «sister» companies with the same ownership structure (transmission & storage and trade & distribution).
- April, 2017 - all natural gas users have the right to freely choose a natural gas trader. Regulated prices for households.
- December, 2017 - 35 registered gas traders.
- December, 2017 - ownership unbundling of transmission system and storage system operator has to be completed.
- January, 2018 - unbundling of distribution system operator has to be completed.

I. Spin-off of JSC «Latvijas Gaze»



II. Natural gas supply system in Latvia

- Transmission network – 1198 km, distribution network – 5055 km.
- 442,8 thousand consumers.
- The natural gas system operates without congestions (40% backup capacity).
- Inčukalns Underground Gas Storage
- Klaipeda LNG

II. Future Gas Infrastructure Development

Interconnection Estonia – Finland, Balticconnector, 2019

Enhancement of EE-LV interconnection, 2019

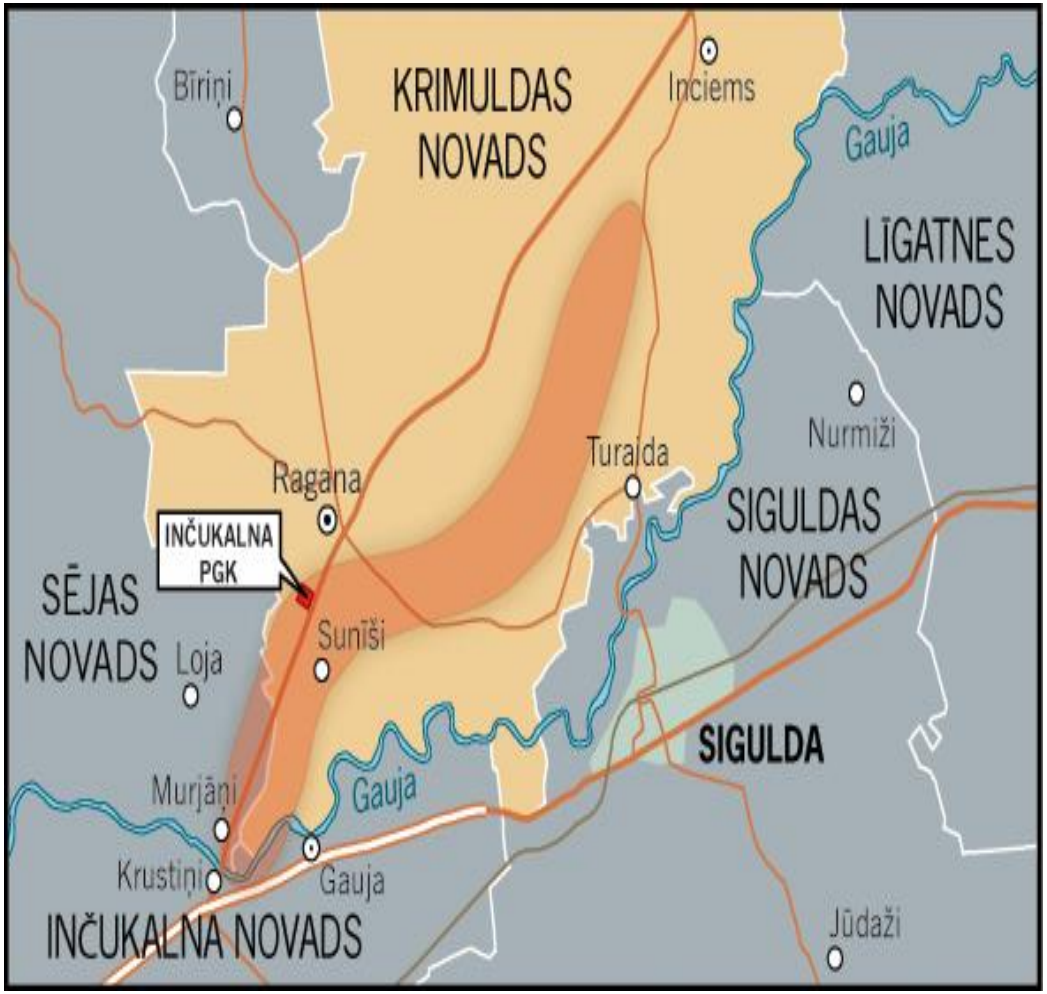
Enhancement of Inčukalns Underground storage, 2019

Enhancement of LV-LT interconnection, 2020

Poland – Lithuania interconnection GIPL, 2021

Source: **COMMISSION DELEGATED REGULATION (EU) of 23.11.2017 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as regards the Union list of projects of common interest**

III. Inčukalns IUGS

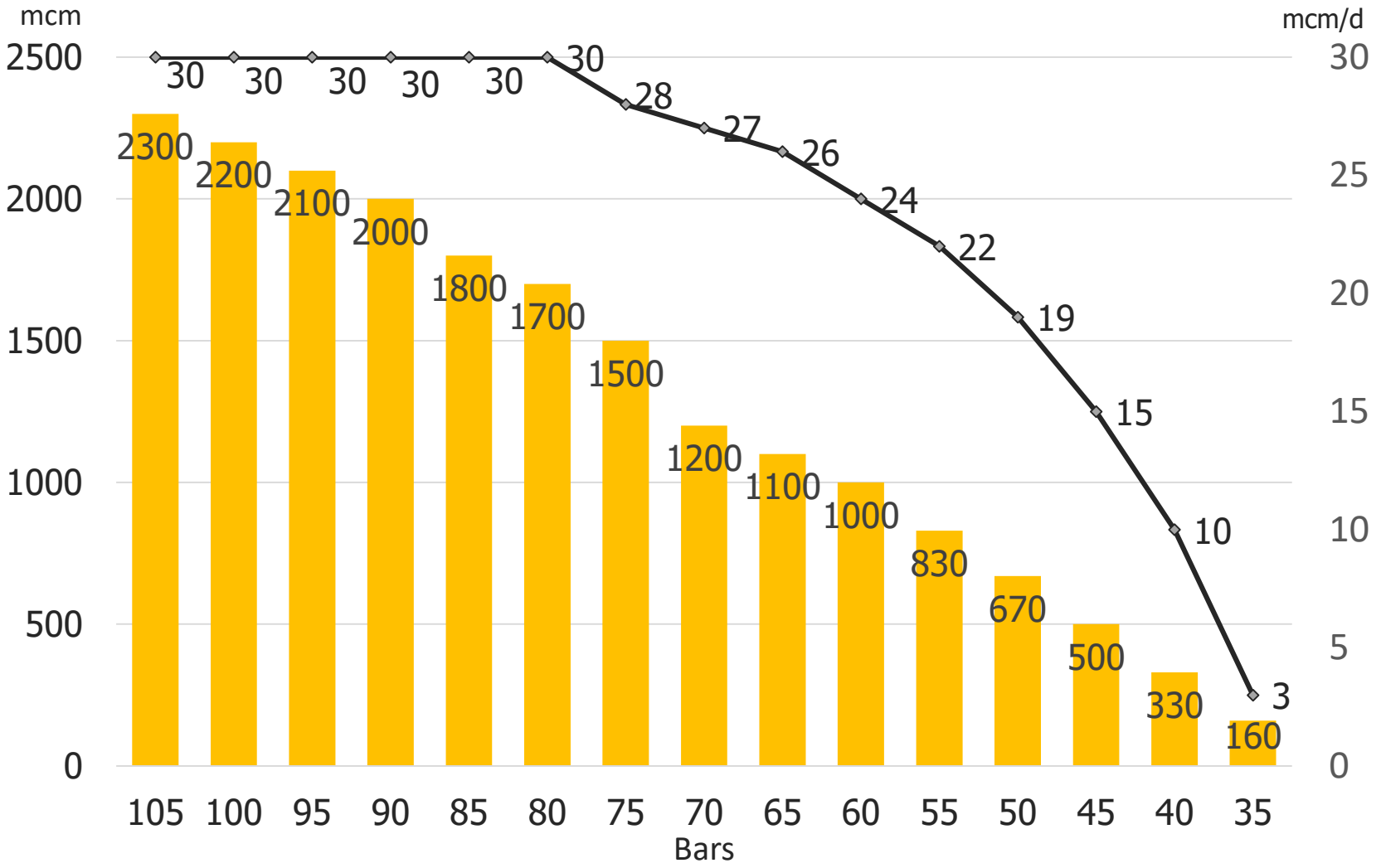


- Acquifer type
- Total capacity:48 TWh
- Working gas volume 24,2 TWh
- Injection max 190 GWh/d;
- Withdrawal max 295 GWh/d.
- Operated by JSC Conexus Baltic Grid
- Regulated third party access regime

III. Challenges of Inčukalns underground gas storage

- Use of storage in 2017/2018 storage season decreased from typical ≈22 TWh to 15 TWh
  - Storage costs have not significantly dropped as ≈ 90% are fixed
- Decrease in general natural gas consumption in LV and entire Baltics
- Greater reliance to gas pipeline deliveries during the heating season
  - Risky due to potentially insufficient gas flow from Russia during very cold days (-15C and lower) due to infrastructure restrictions within Russia

III. Withdrawal capacity dependence on active gas volume in storage



Source: JSC Conexus Baltic Grid

IV. IUGS demand drivers

- Commercial interests:
  - Utilizing Winter and Summer price spread (currently < 1 EUR/MWh)
  - Price insurance for 3 winter months (compared to alternative of gas purchasing based on imbalance prices)
- Balancing purposes (short-term)
- Security of supply
  - Ensures pressure in the system,
  - Sufficient withdrawal rate in spring (~3,16 TWh in March),
  - Strategic reserves for captive consumers (SoS Regulation)

IV. Gas Storage Tariffs, in force from 1 June, 2018

❑ Market based product:

- Price is determined weekly: Gaspool Winter 2018 forward price minus Gaspool front month forward price,
- Minimum level: 0,92 EUR/MWh,
- Price for virtual counterflow: 0,322 EUR/MWh,
- Secondary priority booking of storage injection and withdrawal
- Additional cost for gas injection of ~ 1.2% of the volume

❑ Standard product:

- Maximum level for 2018/2019 is set at 2,95 EUR/MWh,
- Virtual counterflow: 0 EUR/MWh,
- Priority booking of storage injection and withdrawal capacities.
- Additional cost for gas injection of ~ 1.2% of the volume

❑ Auctions

IV. A Way Forward

- Flexible market based storage products
- Implementation of Regional Infrastructure projects
- Development of Baltic common gas market (FI, EE, LV, LT)
  - Internal interconnection points removed
  - Common balancing rules
  - Common entry tariffs
  - Inter TSO Compensation mechanism

Thank you!

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Historical tariffs of IUGS

- The last tariff prior liberalization was confirmed in 2008 and was valid (with minor transformations in 2017) until June 1 2018:
  - Storage tariff: 1,504 EUR/MWh/Storage cycle,
  - Entry tariff to storage: 0,0475 EUR/MWh
  - Exit tariff from storage: 0,0473 EUR/MWh
  - Virtual counterflow can be used without limitations any time.
- Total costs of storage considering financing was ca 1.80 EUR/MWh
  - Sufficiently low to utilize seasonal contract price spreads

Gas Exchange - GET BALTIC; fulfilled trades