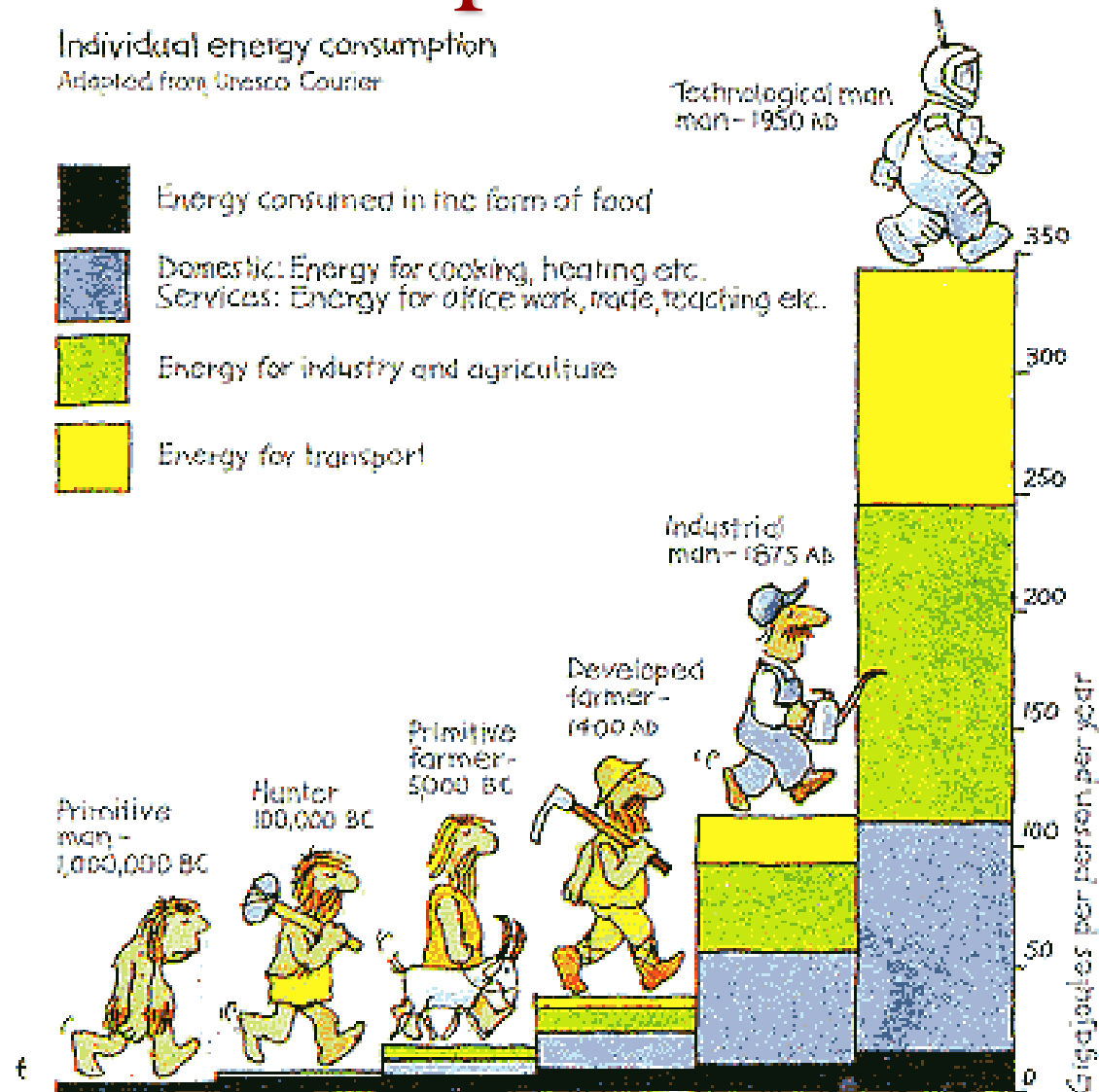


# Security of gas supply: Baltic prospects in European context

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# Supply security: multi-dimensional aspects

- energy security;
- security of delivery;
- general affordability – social tension;

100% security cannot be achieved!

## Aspects:

- disruption risks vs economic reasonability, security costs;
- short-term and long-term security;
- centralized vs distributed/networked system;
- European, regional, national issues;
- private (to quote in stock exchange) and state owned actors;
- competition security / market measures vs monopole security / non-market measures;



# Security – an integral part of energy policy

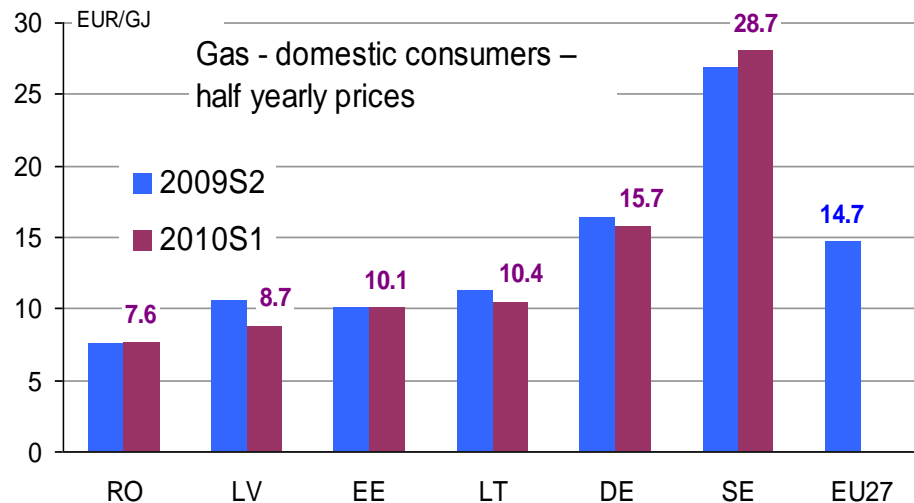
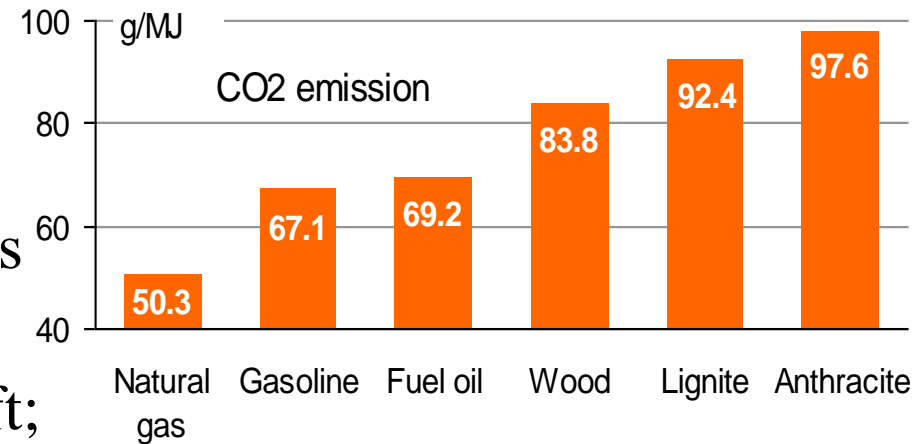
- energy is not an economic category only:
  - category of basic level of Maslow's hierarchy of needs;
  - a significant (the most significant?) component of national security;
- governmental regulation of economic processes (including energy sector) in interests of society;

Adequacy with current political, economic and social situation



# EU: shift of energy paradigm

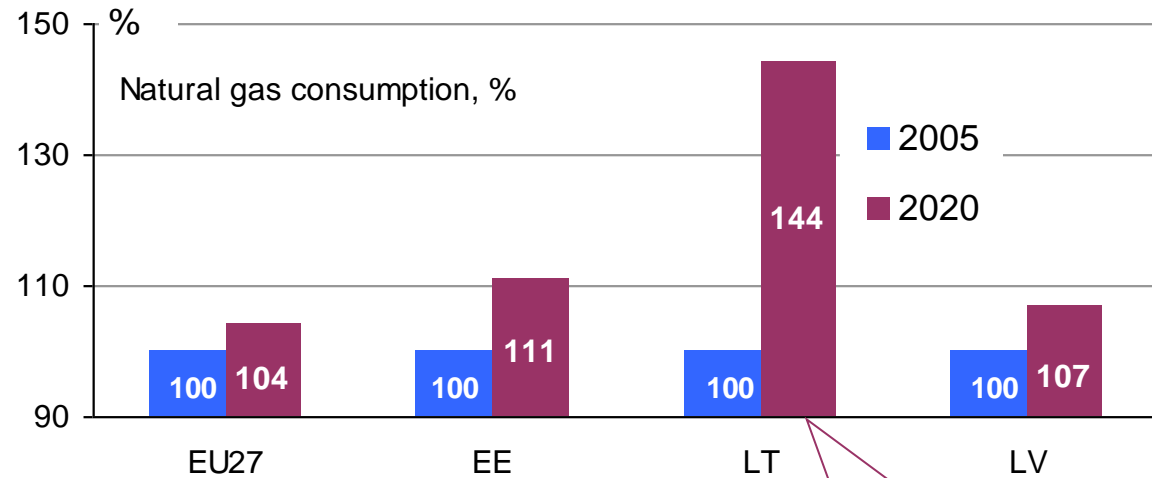
- Second Strategic Energy Review COM(2008) 781;
- BEMIP;
- Regulation No ....2010 on measures to safeguard security of gas supply;
- Energy Infrastructure Package; draft;
- Energy Strategy for Europe 2011-2020; draft;



The overall goal of European energy policy – to assure reliable availability of affordable and sustainable energy:

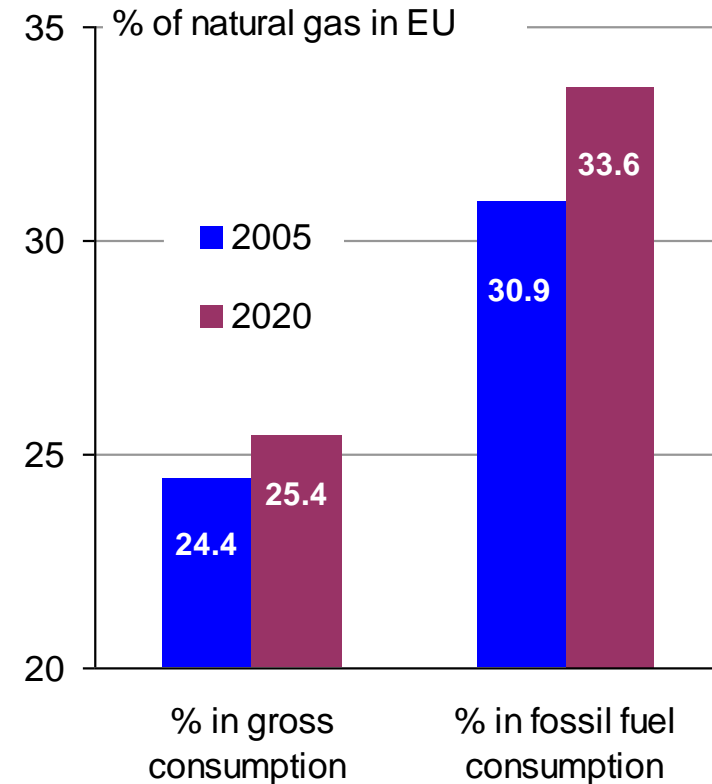
- low-carbon energy system;
- modern integrated energy networks;
- external energy policy;

# Natural gas – a vital component of energy mix



Natural gas for Latvia:

- 40% of kitchens;
- up to 70% of district heating;
- up to 40% of produced electricity;

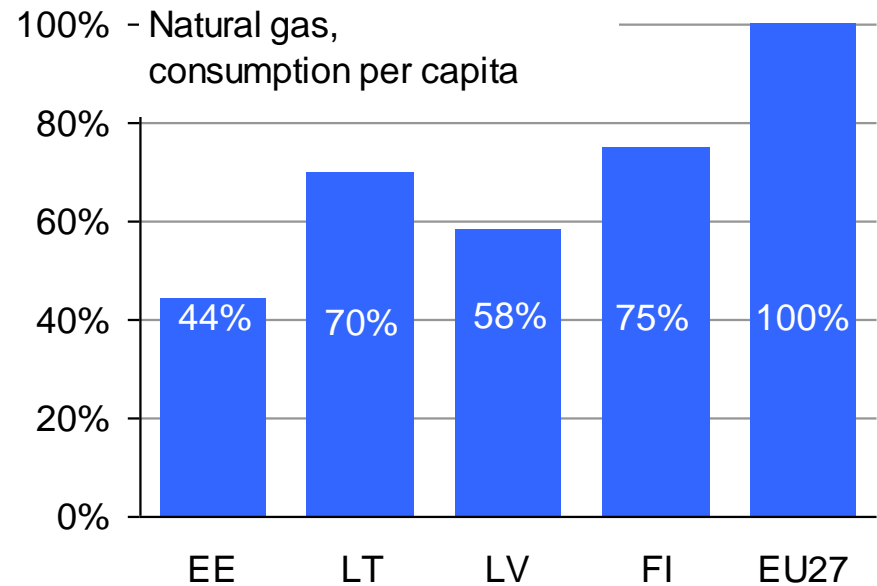
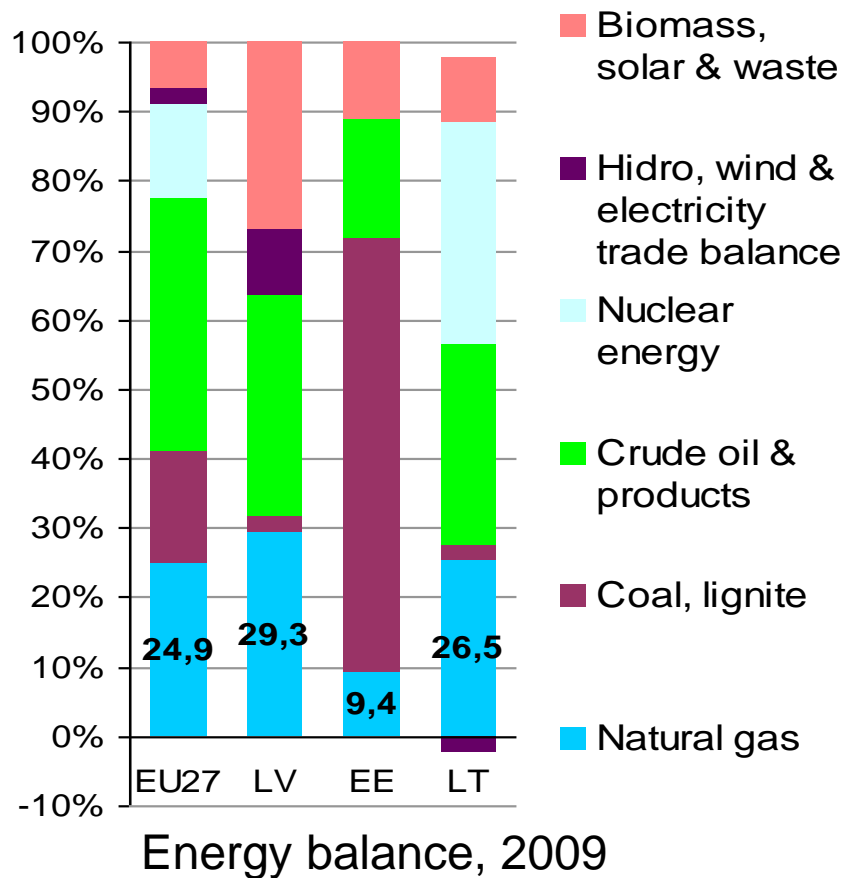


EU27 and Baltic States:  
increasing natural gas consumption

# Security algorithm: is Baltic on the *gas needle*?

Baltic:

- developed system of pipelines;
- Incukalns UGS;



EU natural gas suppliers (2009):

Russia – 33,2%;

Norway – 28,8%;

Algeria – 14,7%;

LNG – 18% of total gas import;

**Supply diversification  
(not the product replacement) –  
tool to increase security level**

# Need to strengthen security of supply

- disruption: technological, economic, terrorism, political?
- Baltic's peak demand – 40 Mcm/day;
- eventual disruptions:
  - Incukalns UGS (24 Mcm/day);
  - Byelorussian pipeline (30 Mcm/day);
  - supply from Russia (30 Mcm/day), partial or total;
  - internal pipelines;
- supply individualities;
- possibility of partial compensation;

Some level of security in Baltic do exist, but it should to be increased



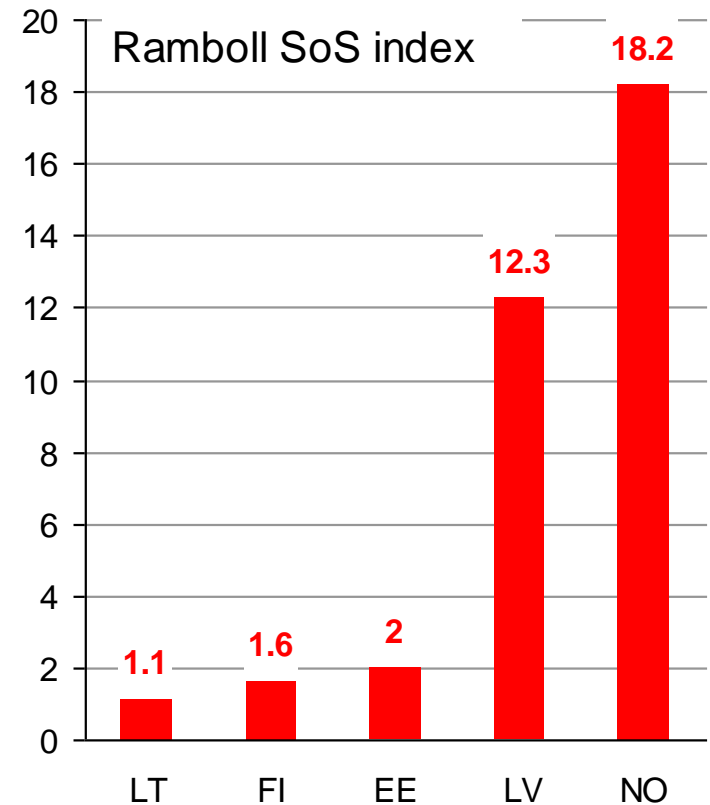


# Risk assessment



Impact of 2008/2009 gas crisis

Supply security mainly is  
a macroregional issue



LT: no gas, transit supply?  
FI: no gas, direct supply;  
EE: no gas, double supply;  
LV: UGS, summer supply;  
NO: gas field;

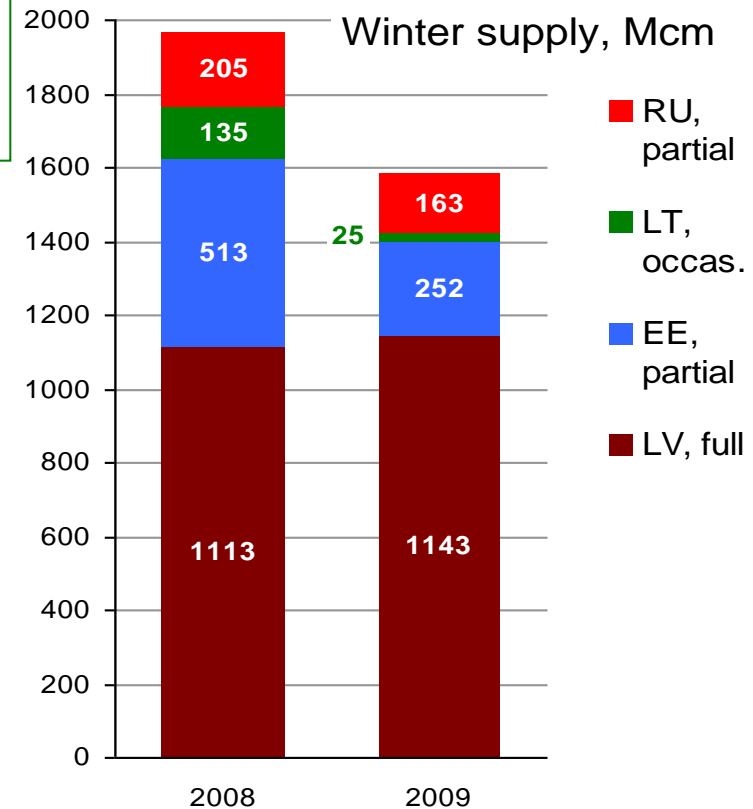


# Underground gas storage: stability of supply

- terminated one's own supply;
- injection during low demand season;
- shortened supply chain;



Incukalns UGS



- volume of the storage – 4,5 Bcm, active volume – 2,3 Bcm;
- delivery capacity – 24 Mcm/day;

Consumption (2008):

LV – 1,6 Bcm;

LT+EE+FI – 8,6 Bcm;

Peak demand – 60 Mcm/day;

Sources: Eurostat, Latvijas Gaze

# Extended UGS system – a kernel of Baltic's supply



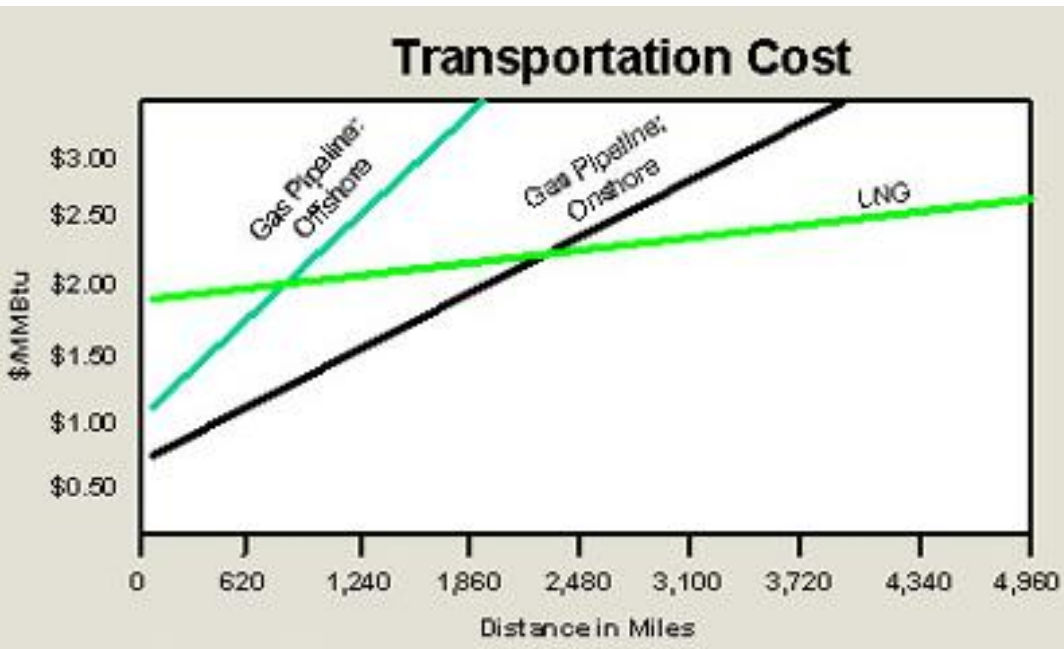
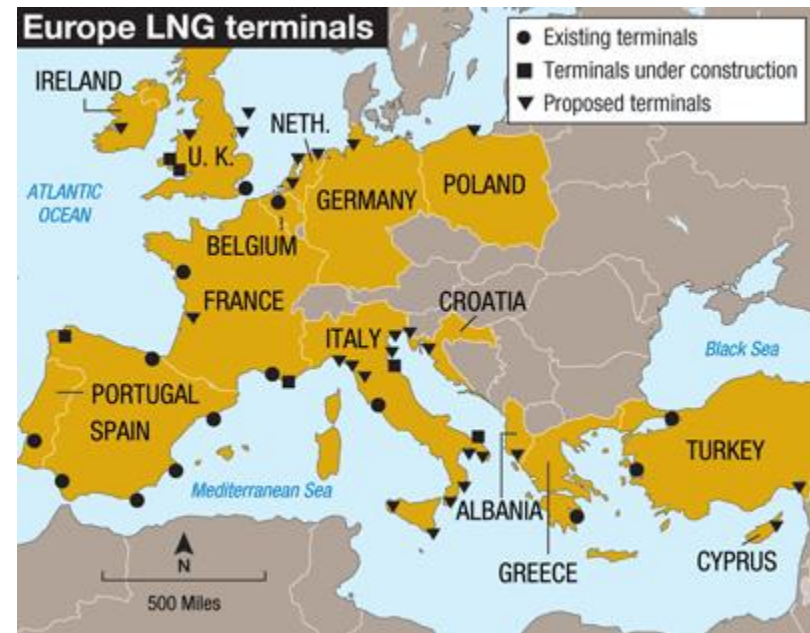
**Basics:** extension of Incukalns:  
Volume of the storage – 6,2 Bcm;  
Active volume – 3,2 Bcm;

- Latvia: at least 11 facilities, active total volume of up to 50 Bcm;
- Dobeles-Blidene – the most explored and perspective UGS, active volume of up to 10 Bcm;
- likely Lithuania UGS (active volume up to 0,5 Bcm);

**Economically efficient usage  
of unique, concentrated geological formations**

# LNG – real replacement/diversification

- new gas, new suppliers;
- existing infrastructure (non-principal technological actions) and demand;
- shortened supply chain;

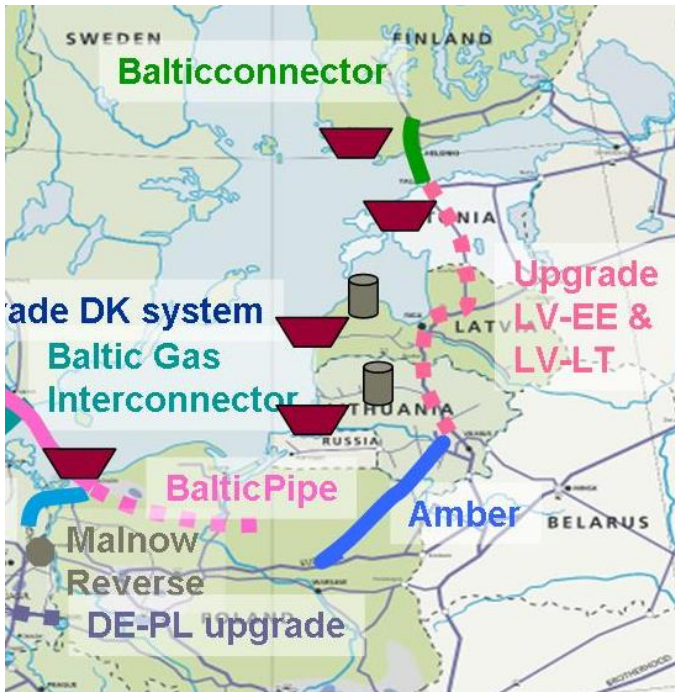
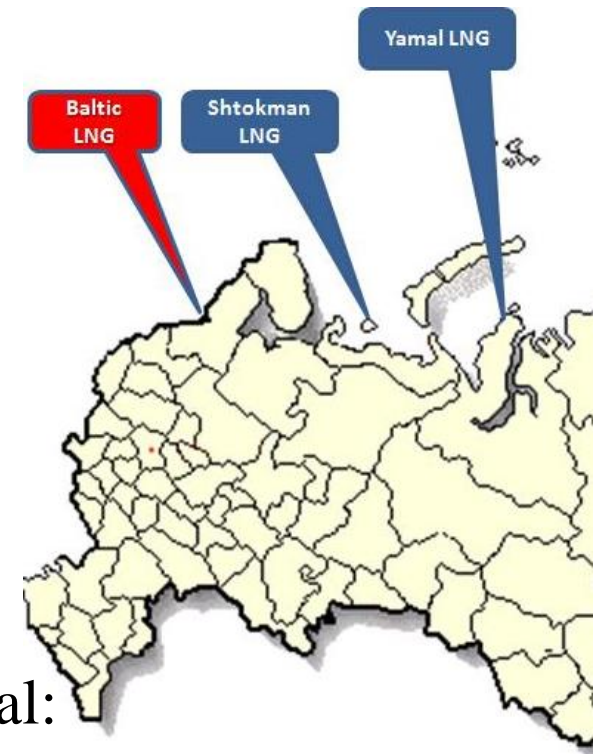


- LNG exporters – Algeria, Nigeria, Qatar, Trinidad & Tobago;
- EU27: + 23% in 2009; 2030 – (3-6)-fold increase;
- Spain: LNG – 60% of total gas demand;

# LNG in Baltic

Baltic:

- EU27 suppliers, Russia (Barents Sea)?
- reloading (e.g., Zeebrugge), vessels capacity less than 50 000 cm;
- price higher than Southwest price;



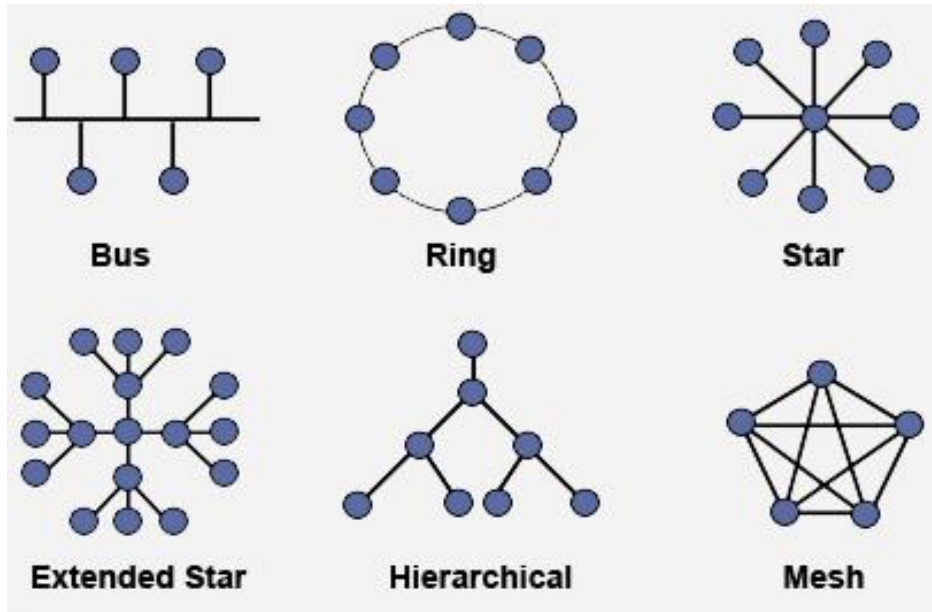
LNG receiving terminal:

- one LNG terminal for Baltic (scale effect);
- Swinoujscie (Poland)? Finland?
- top destination – Riga (Incukalna);
- Dobeles UGS – Liepāja, Ventspils, Klaipėda (Lithuania UGS);

**LNG terminal has to be built near UGS**



# Network configuration: from isolated bus /star pipeline system via Baltic Ring to single mesh network



Notwithstanding on twofold capacity of trunk pipelines, current network configuration should be improved

- national & macroregional – reliability of supply;
- connection of UGS and LNG terminals;
- cross-border capacity and internal systems;
- reverse flows;

# Supply security: regional interconnection

## BEMIP:

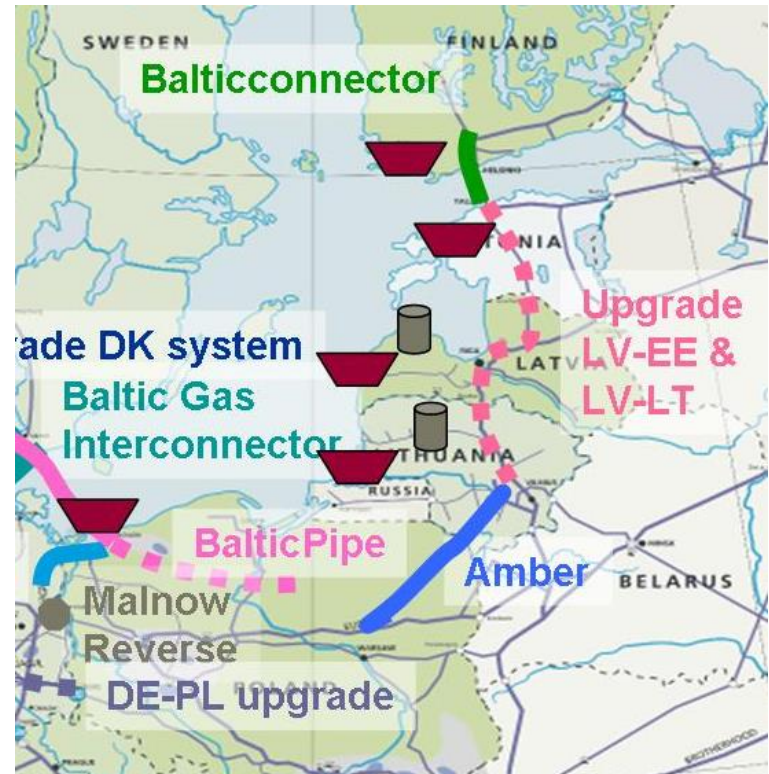
- upgrade Lithuania – Latvia;
- upgrade Latvia – Estonia;

## Next steps:

- Finland – Estonia (Balticconnector);
- Poland – Lithuania (Amber); shale gas?!

## Future:

- connection to Norway ?? (gas price);



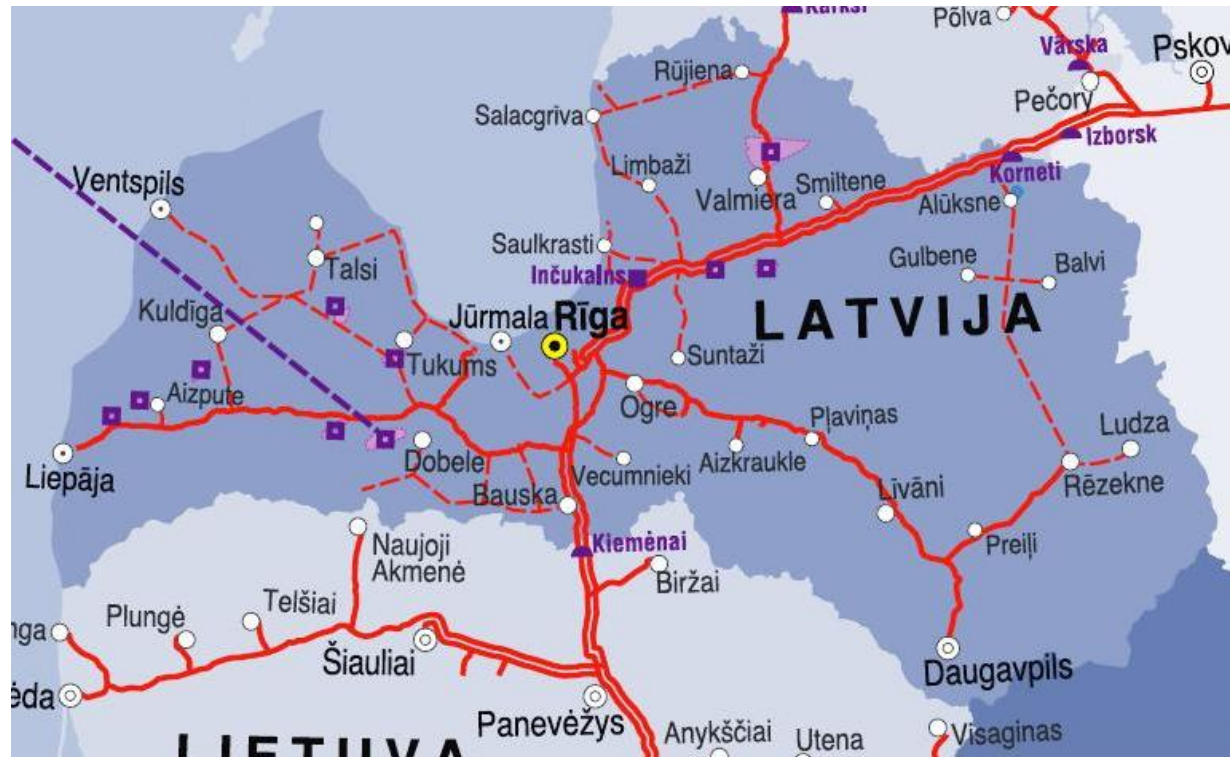
Premature unbundling and ownership issues related to transmission networks – political, sensitive issue:

- no technical necessity – availability of new suppliers (LNG);
- no legal necessity – derogation (EE, LV, FI); LT?
- to observe shareholder's interests of Gazprom; EON Energy



# Synchronous increase of security on national level

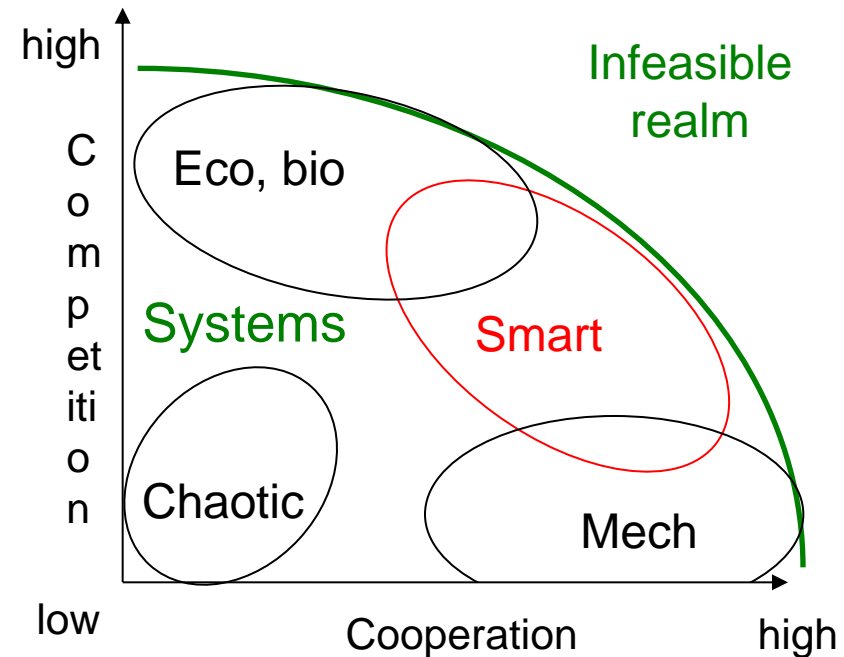
- mesh network and consumers access;
- access to Inčukalns – duplication;
- networked power supply – coordinated electricity and gas systems (CHP!);
- financial sources; budget of national security?



National / internal security is as much important for consumers as macroregional security

# Complexity of actions and solidarity of countries

- complex implementation of all instruments: LNG terminal & UGS & pipelines, UGS and reverse flows, cross-border and national developments, etc;
- solidarity, partnership and conformity of countries – policy, actions, investments;
- current strong accent on competition – creaking European energy infrastructure and low security level; experience from electricity sector has to be evaluated;
- unsuccessful cases (electricity): DC Baltic, Visagina project;



Evaluation of current policy and shift to balanced cooperation and competition is necessary to achieve reliable gas supply

# EU Regulation: macroregion – expansion



- supply from RU, transit via BY;
- solidarity in investments; development of RU and BY gas systems;
- impact of Shtokman and North Stream pipelines;
- centralized dispatching – scale effect, security level and costs;
- political aspects: Ukrainian case, EU-Russia endless energy dialogue;

Expanded solidarity, ie. macroregion:

- supplier-countries – Russia, (Central Asia, the Near East, etc.);
- transit-countries – Byelorussia, (Ukraine, Turkey, Balkans, etc.);

# EU Regulation: implementation, actors



*Political*

UNECE

European  
Commission

*Expert*

Expert  
working group

Gas Coordination Group

*Paneiropean*

ENTSO for  
Gas

ERRA

Agency for the  
Cooperation of  
Energy Regulators

*Macroregional*

?

?

?

?

?

*National*

Supply & transit  
countries

Competent  
Authority

TSO

National  
Regulatory  
Authority

*E U Member States*

UNECE – scale, willingness, capacity, experience

# EU Regulation: principles and actions – weaknesses and problematic issues

- bottom up (risk assessment) vs top-down (mandatory n-1 principle);
- weakly defined connection between strategic activities and investments from financial sources on EU and national levels;
- cybersecurity issues are not included (networked business and finance transactions, information and management systems, etc.);
- non-market measures are activated in emergency case only; is competition so substantial during crisis (early warning and alert)?
- typical EC huge bureaucracy; even in emergency case 10 days are necessary for notification procedure;

Will reasonably high security level  
be achieved in the Regulation framework?





# Cost for security of supply



- current long-term contracts (LT and EE – 2015, LV – 2030) vs spot;
- impact of North Stream – price decrease for Germany 20 USD/1000 cm; Baltic price?
- UGS: tariff payment: Incukalns UGS – 16 EUR/1000 cm; Incukalns extension (0,9 Bcm) – 500 MEUR/Bcm; Dobele (5 Bcm)totālo!! – 600 MEUR/Bcm; Lithuania UGS (0,5 Bcm) – 700 MEUR/Bcm;
- LNG: import: Northwest Europe spot prices + 11 USD/1000 cm; 2,5 Bcm/year – 500 MEUR (200 MEUR storage facilities);
- pipelines: Amber PolLit – 300 MEUR; Balticconnector – 120 MEUR; Upgrade LT/LV & EE/LV – 80 MEUR;

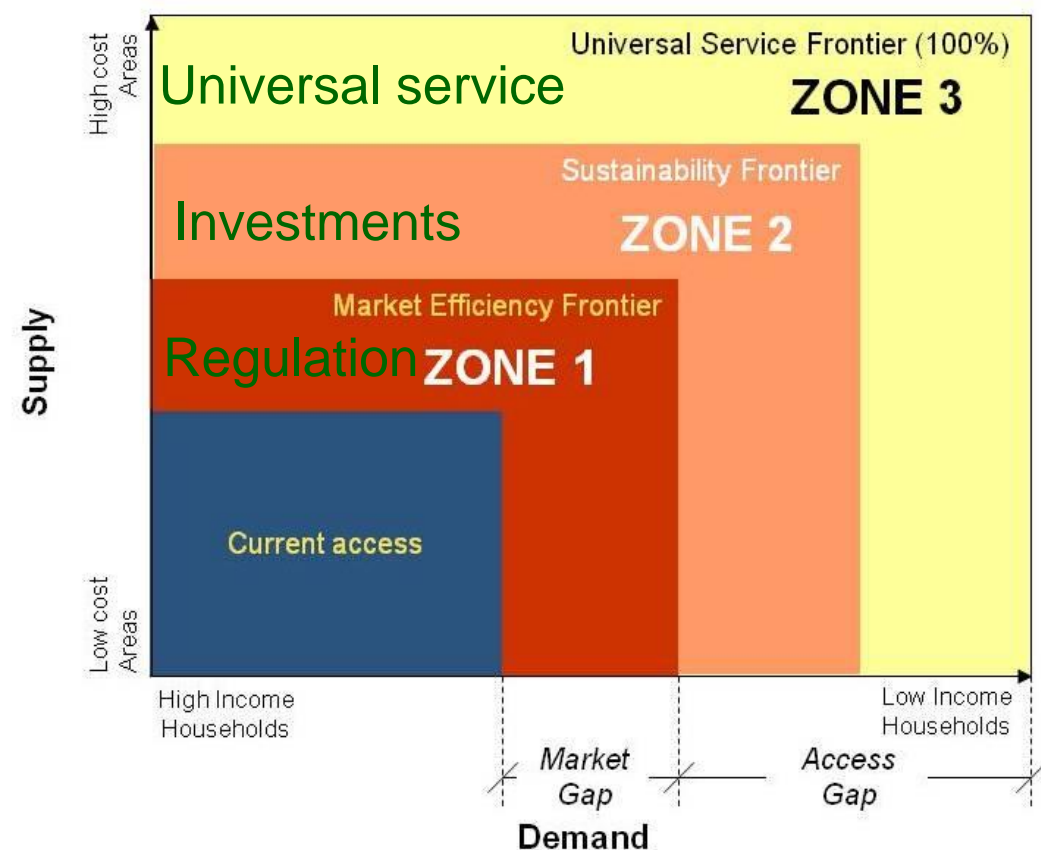
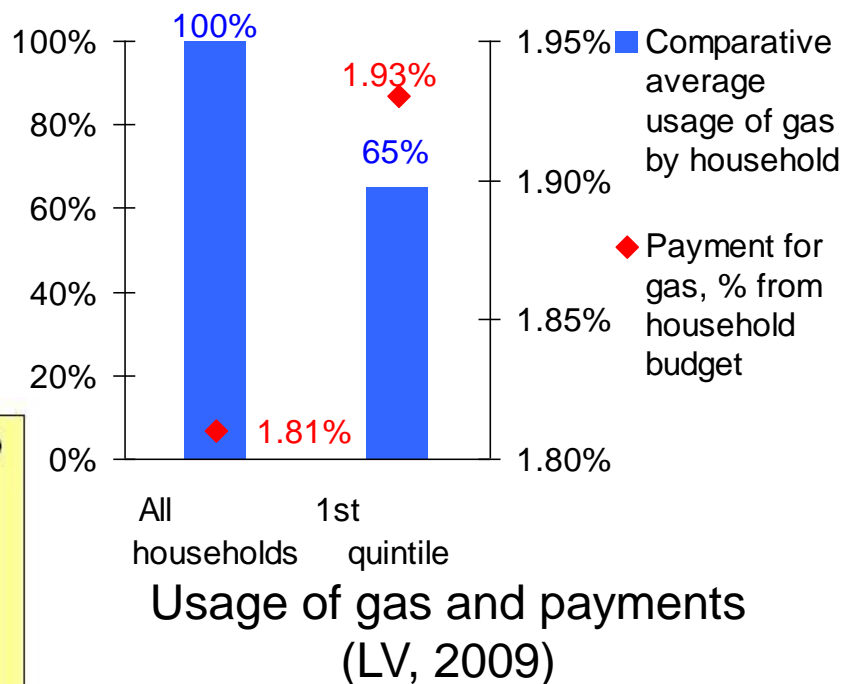
Objective risk assessment minimizes costs



# Vulnerable customers: affordability

Member States shall ensure that there are adequate safeguards to protect vulnerable customers.

Directive 2009/72/EC



Supply security  
for vulnerable customer:  
physical access and  
financial affordability

# Thank you for attention!

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