

REGIONAL APPROACHES: COOPERATION FOR ENERGY SECURITY

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NEW FRAMEWORK FOR THE UTILIZATION OF NUCLEAR ENERGY IN THE 21ST CENTURY:
Assurance of Supply and Non-Proliferation

ENERGY SUPPLY IN THE BALTIC REGION

- Natural gas supply from one source
- Not available supply of low sulphur heavy fuel oil
- Constantly raising prices
- Non-adequate balance of energy resources
- Obligations to close Ignalina NPP by the end of 2009

Lithuania

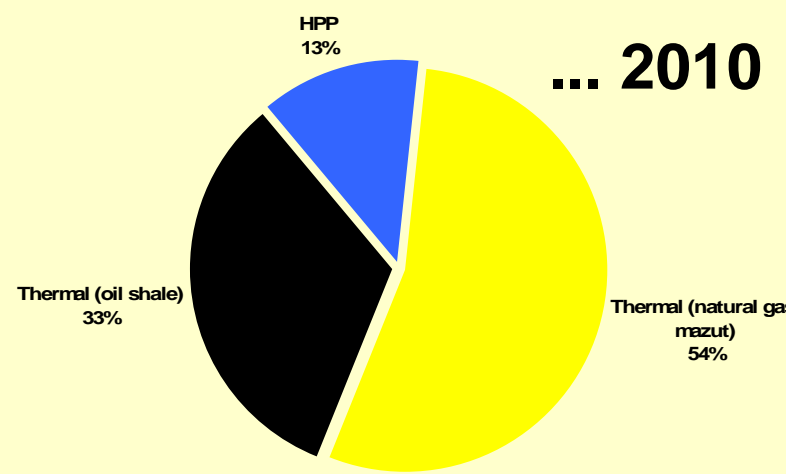
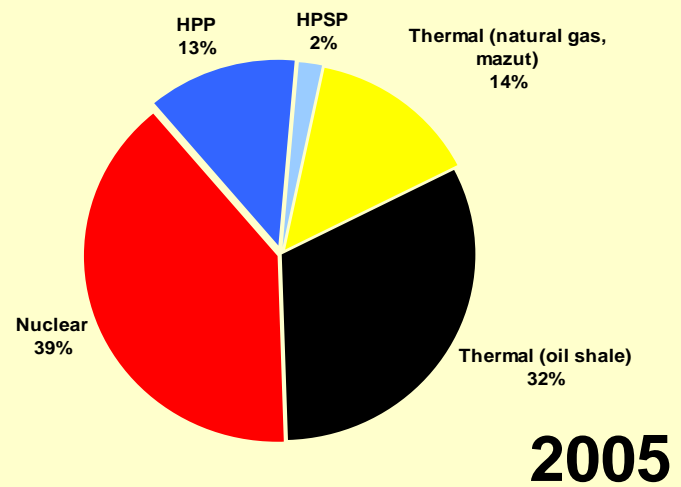


Population: 3,6 mill.
Area: 65 300 km²

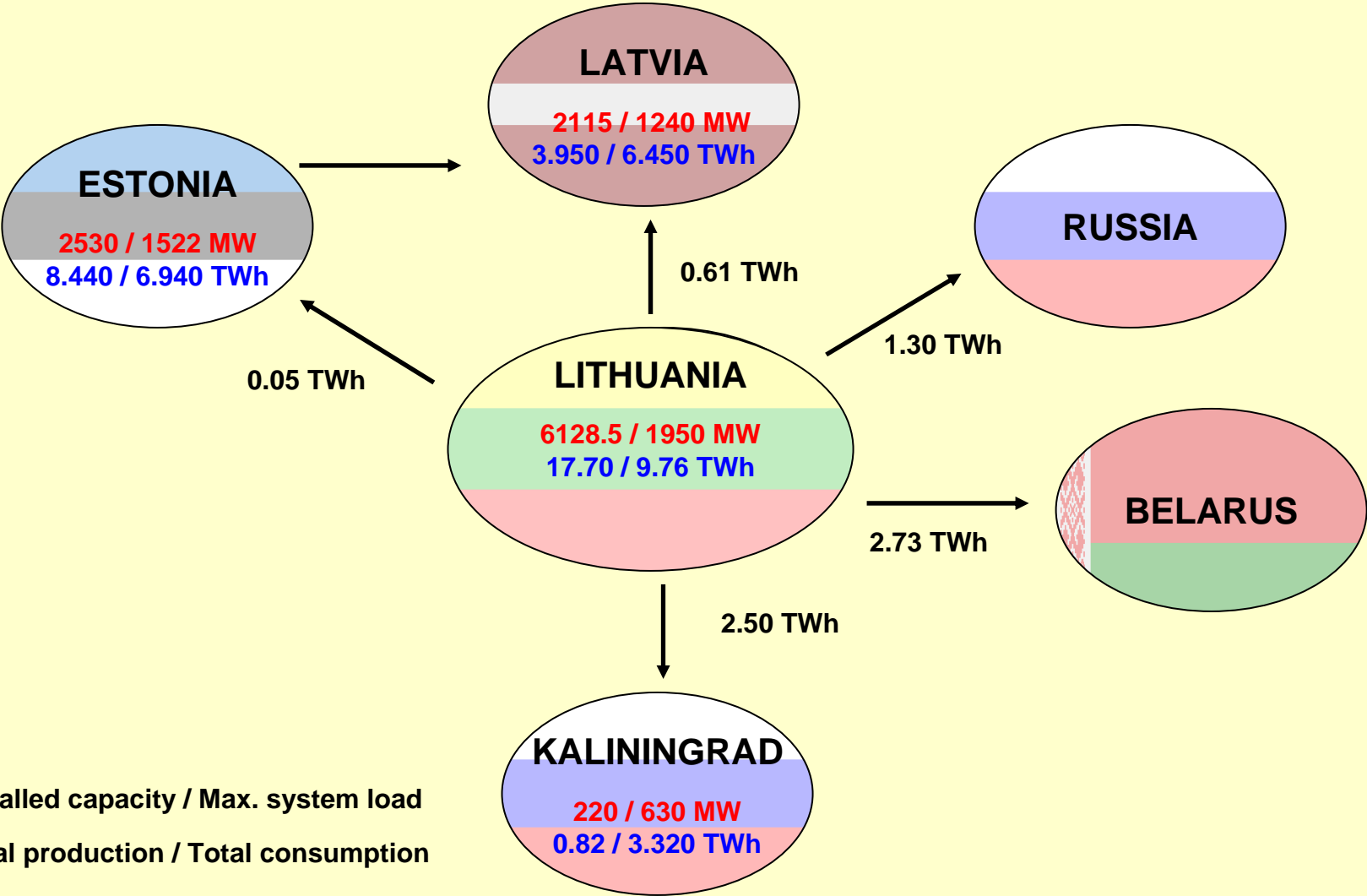
MAJOR GENERATION FACILITIES IN BALTICS



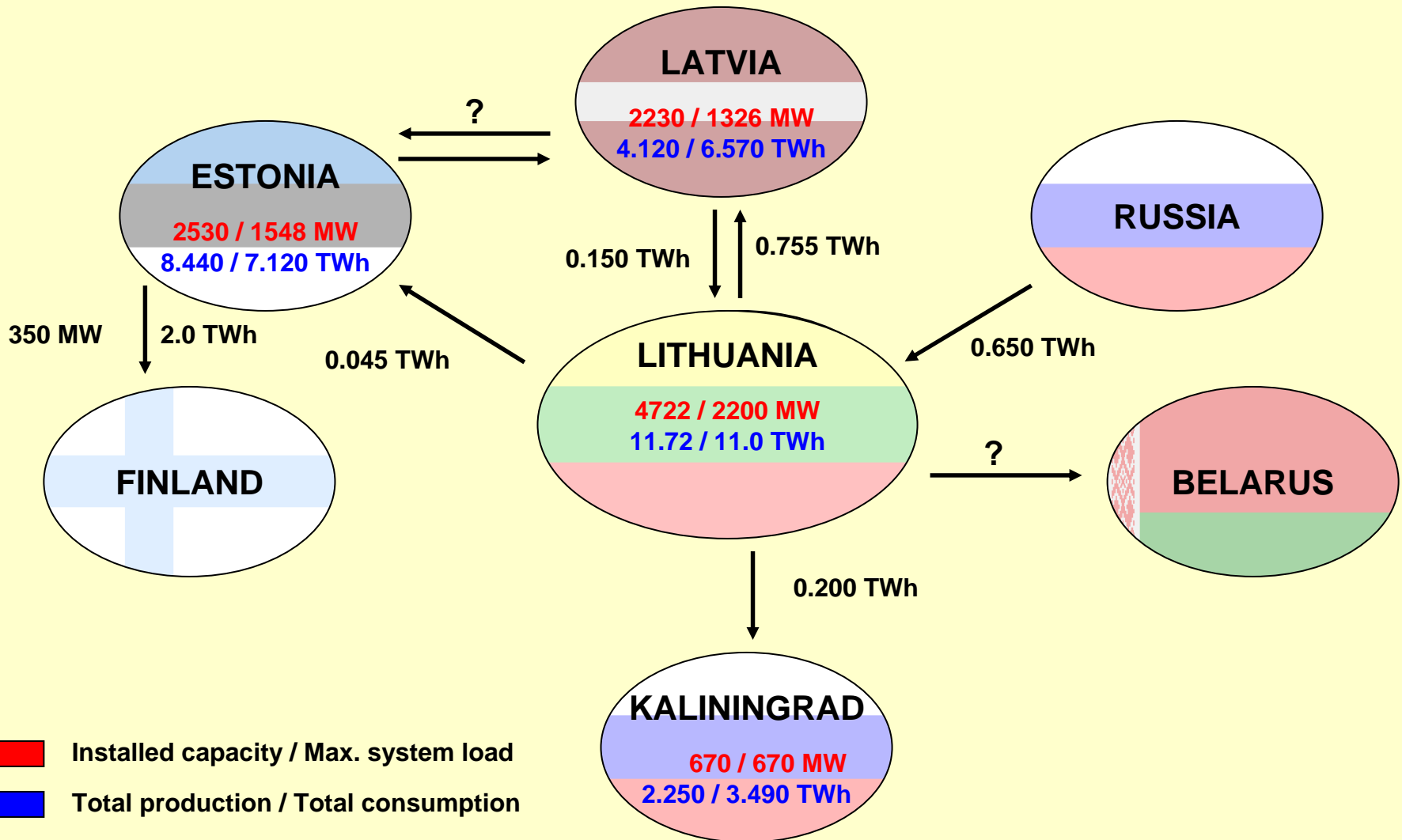
<u>PLANTS</u>	<u>INSTALLED CAPACITY (MW)</u>
<u>ESTONIA</u>	
NARVA TPP	1615
BALTIA TPP	1090
TALLIN CHP	190
	<u>2895</u>
<u>LATVIA</u>	
RIGA CHP-1	142
RIGA CHP-2	390
RIGA HPP	402
KEGUMS HPP	263
PLAVINAS HPP	870
	<u>2067</u>
<u>LITHUANIA</u>	
KAUNAS HPP	100
IGNALINA NPP	1300
KAUNAS CHP	178
MAZEIKIAI CHP	194
LIETUVOS TPP	1800
VILNIAUS CHP	384
KRUONIO HPSP	900
	<u>4856</u>



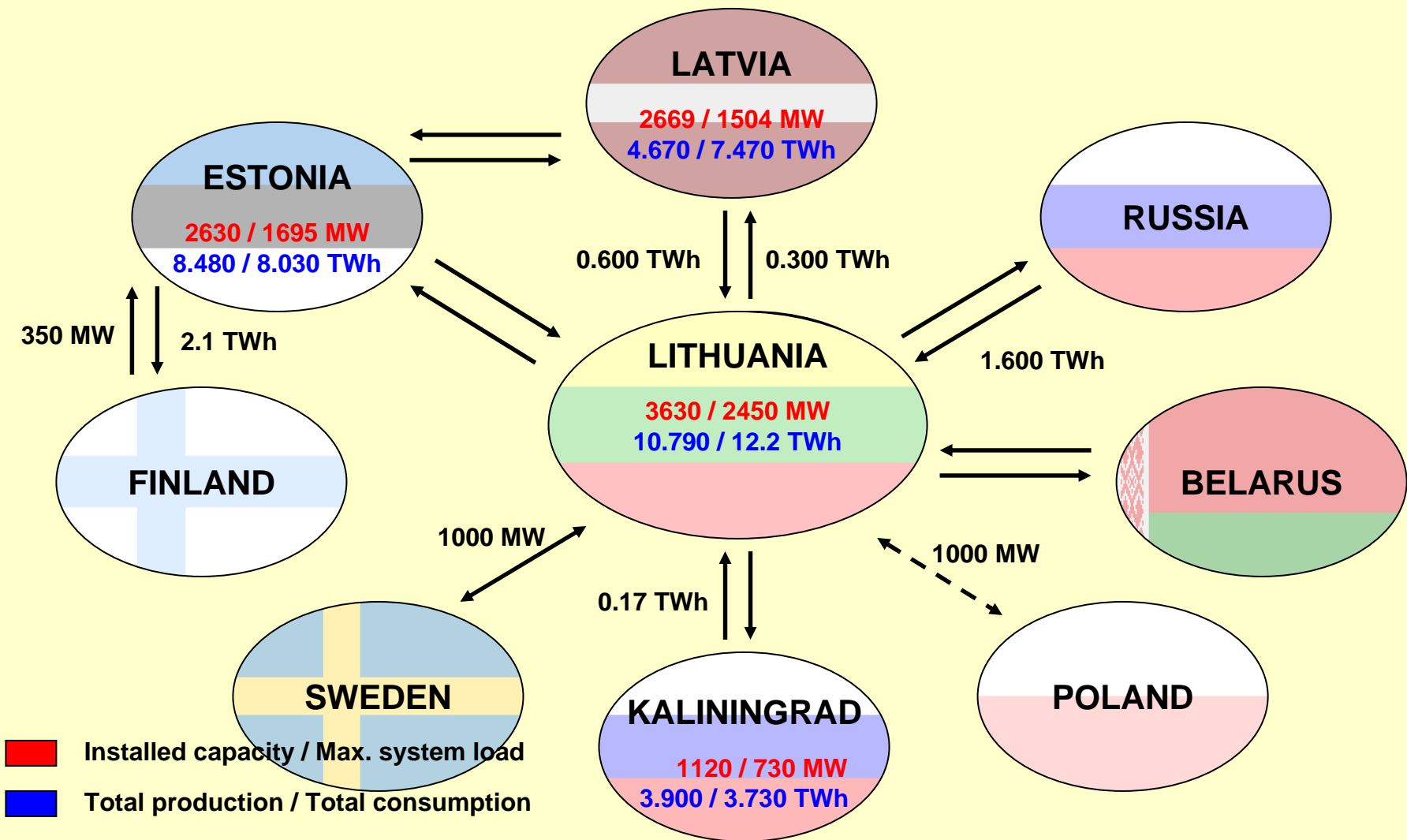
Export, installed capacity and consumption in 2004 (two units of Ignalina NPP in operation)



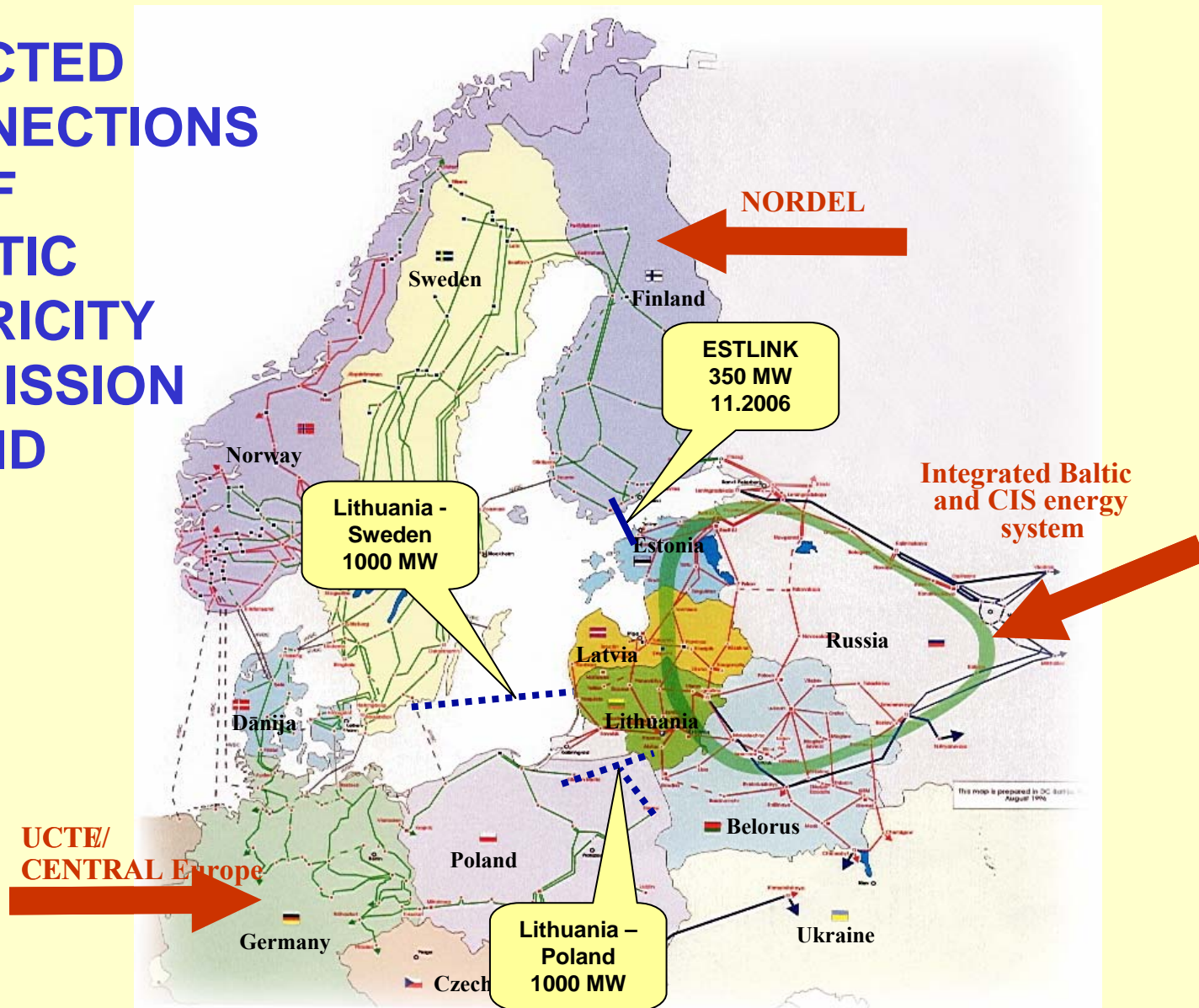
Export, installed capacity and consumption in 2007 (one Ignalina NPP unit in operation)



Export, installed capacity and consumption in 2010 (no Ignalina NPP units in operation)



EXPECTED INTERCONNECTIONS OF BALTIC ELECTRICITY TRANSMISSION GRID



COMMUNIQUE OF PRIME MINISTERS

The Prime Ministers of Lithuania, Latvia and Estonia signed Communiqué on 27th of February, 2006, where the following energy cooperation objectives were stated:

- To prepare a common energy strategy of the Baltic States by the end of 2006;
- To make common efforts necessary to fully integrate the Baltic electricity market and to harmonize the Baltic market rules with the Nordpool area market rules by 2009;
- To cooperate fully on and support the construction of interconnectors between the Baltic and other EU countries;
- To support the initiative to build a new nuclear power plant in Lithuania;
- To invite the state owned Baltic energy companies Lietuvos Energija, Latvenergo and Eesti Energia as the participating parties, on equal terms among them, to invest in the preparation and construction of the new nuclear power plant in Lithuania.

KEY MEASURES OF THE UPDATED NATIONAL ENERGY STRATEGY

- Together with Latvia and Estonia to prepare a common Energy Strategy and Action Plan, aimed to integrate energy networks to West European and Scandinavian systems, highlighting possibilities of better usage of existing and future generation capacities and measures for increased energy supply security
- By 2012 to built power links with Poland and Sweden and increase the security of electricity supply
- In 2015 to start operation of a new Nuclear Power Plant
- To implement economically justified natural gas interconnection projects to Polish and Finish gas supply systems
- Together with Latvia and Estonia to analyze expedience to construct LNG terminal in one of the Baltic States
- To construct underground gas storages at the integrated natural gas system of the Baltic States, where Lithuania shall have 1 billion m³ capacity
- By 2020 to construct 400 MW additional CHP capacities in Lithuania

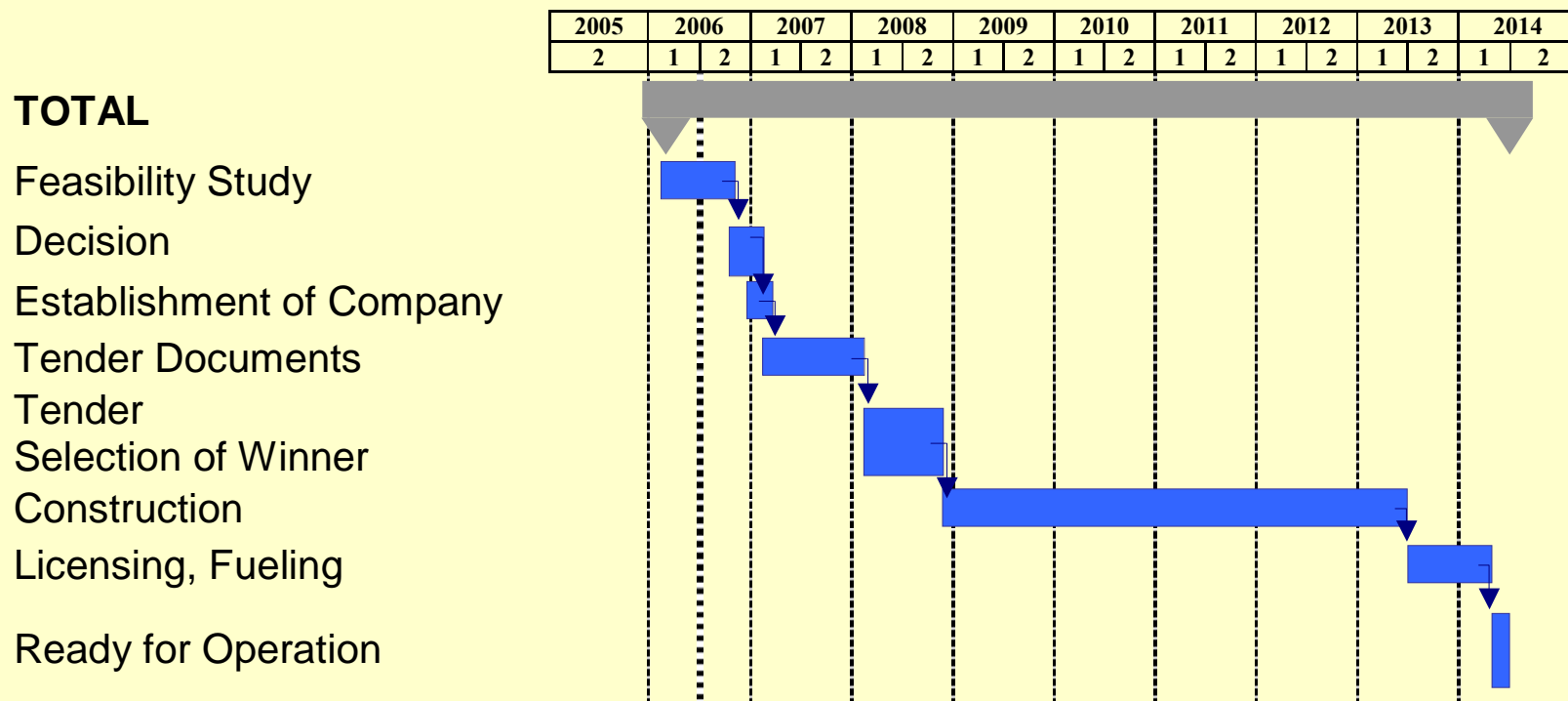
MAJOR INVESTMENTS IN POWER AND GAS SECTORS

PROJECT	CAPACITY	INVESTMENT MEUR	TIMING
Cable to Finland	350 MW	110	end 2006
Power line to Poland	1000 MW	300	2012
Cable to Sweden	1000 MW	400	2010
Nuclear unit(s)	1500 MW	3000	2015-2017
Combined Cycle Gas Turbine	400 MW	200	2010
Underground gas storage (Lithuania)	500 Mm ³	150	2010
Underground gas storage (Baltic - Latvia)	500 Mm ³	150	2009
LNG terminal (Baltic – Latvia)	3000 Mm ³	300	2008-2012

FIRST STEPS TOWARDS NEW NUCLEAR POWER PLANT

- Based on the signed Communiqué, the state owned power companies Lietuvos Energija, Latvenergo and Eesti Energija signed Memorandum of Understanding and started preparation of the Feasibility Study of the new nuclear power plant in the Baltic States
- Lietuvos Energija, Latvenergo and Eesti Energija established 4 working groups for preparation of the Feasibility Study
- The consultants are contracted:
 - Investment bank Dresdner Kleinwort Wasserstein (UK)
 - Colenco Power Engineering (Switzerland)
 - Freshfields Bruckhaus Deringer (UK)
- It is planned to finish the Feasibility Study by the 1st of November, 2006

PRELIMINARY SCHEDULE FOR THE CONSTRUCTION OF NEW NUCLEAR POWER PLANT



A EUROPEAN STRATEGY FOR SUSTAINABLE, COMPETITIVE AND SECURE ENERGY

POLICY OBJECTIVES	MEASURES
SUSTAINABILITY	Finalize creation of the internal gas and electricity markets
	Ensure that EU internal energy market guarantees security of supply and solidarity between Member States
COMPETITIVENESS	Community-wide debate on the fuel balance structure
	Impact of climate change
SECURITY OF SUPPLY	Common strategy on energy technology plan
	A common EU external energy policy

CRITICAL ELEMENTS IN ASSURANCE OF SUPPLY

- Economical
- Physical
- Environmental
- Other (overregulation, political overburdening and interference)

DELIVERY DISTURBANCES

- Temporary suspension of production
- Financial/legal difficulty for producers
- Lack of routes open to nuclear transports – concentration of nuclear transport companies
- Withdrawal from uranium mining towards more profitable activities. Uncertainty on long term prices and costs in mines – currency inflation, regulatory interference.
- Uncertainty in relation to secondary supplies: lack or postponement of investment in new mines, conversion and enrichment facilities.

COMMERCIAL AND TECHNICAL PROBLEMS

- Overdependence on a single source of supply
- Excess restrictions to Russian enrichment services, decrease of competition
- Common centrifuge technology for Urenco & Areva, and its effect on competition
- Uncertainty of US enrichment capacity in future
- Vertical business integration vs. competition and technological development.
- Loss of EU know-how in uranium exploration and mining

POLITICAL / REGULATORY PROBLEMS

- Overregulation, frequent changes and lack of harmonization in transport approvals and/or authorization
- Reduction in number of fuel fabrication plants and complication of related logistics
- Delays and increased uncertainty of new projects due to licensing/ environmental regulations
- Supply disruption from politically unstable regions

STABILITY OF INTERNATIONAL NUCLEAR FUEL SERVICES

- industry supply chain and policies adjustment (purchasing, logistics, inventory etc.);
- utilities enter into long-term business relationships at reasonable price levels with suppliers in order to secure the visibility of their own supplies and make it easier for their suppliers to decide on new investments;
- co-operation between the users of the nuclear fuel (utilities) and the producers is improved;
- a stable regulatory context is promoted to facilitate new investments for the new builds or extensions;
- the close monitoring and analysis of price-insensitive secondary supply is conducted.

FUEL BANK ISSUES - 1

- IDEAL CASE:
 - Fuel assemblies ready for shipment
- PRACTICALITIES:
 - The most expensive option
 - Too many types of reactors in operation
 - Different technological levels of countries dealing with nuclear energy generation

FUEL BANK ISSUES - 2

- RECOMMENDATIONS:
 - Assessment of operational fuel stocks at nuclear power plants
 - Analysis of possibilities to make unification of fuel assemblies used at different nuclear power plants
 - Evaluation of technical capabilities to produce required fuel type at major fuel fabrication plants (chains of plants)
 - Nuclear cooperation agreements between interested parties
 - Decision on incentives for fuel fabrication plants
 - OPEC (NUPC) ???.

BACKGROUND

**Analysis of the Nuclear Fuel Availability at EU Level from a
Security of Supply Perspective
Task Force on Security of Supply
Final Report of the Task Force
February 2005**