



Latvia's vision for Sustainable energy 2050
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 Latvian Green Movement

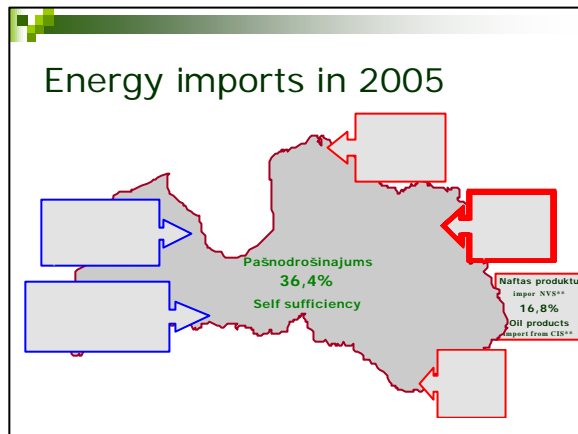
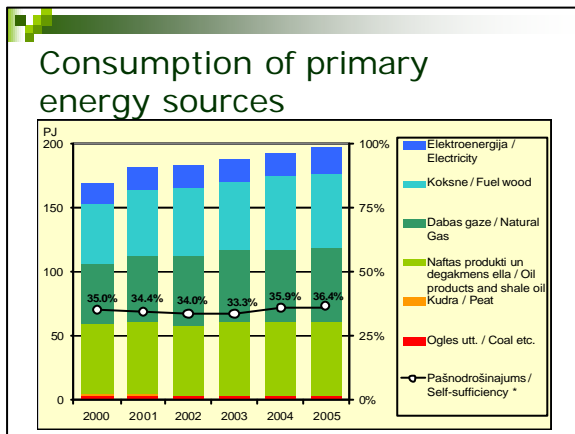
Sustainable Energy Policy Seminar
 October 1-5, 2007
 Samsø, Denmark

http://www.inforse.org/europe/seminar07_samsø.htm



Contents

- Current energy consumption and trends
- Latvian energy policy
- Sustainable energy vision for Latvia 2050



- ### Characteristics and challenges for energy market
- Composition of resources:
 - Relatively large share of renewables in primary energy balance, especially biomass
 - High dependence from import of primary energy sources (29% - gas provided by Gasprom)
 - Increase in the use of fossil fuels both in absolute and relative terms
 - Isolation of Baltic energy markets
 - Low energy efficiency in whole cycle: production, transmission, distribution and final consumption

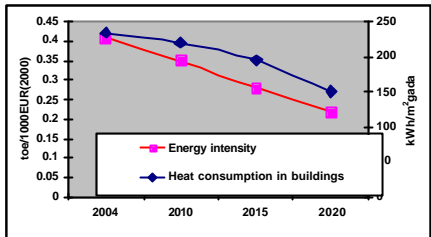
- ### Energy policy in Latvia
- Key policy documents:
 - National energy strategy for 2007-2013
 - Renewable energy strategy 2007-2013
 - National energy efficiency plan?
 - Commitments towards EU:
 - 49,3% from electricity produced using RES by 2010
 - 5,75% of bio-fuels from the fuel used in transport sector

Energy policy priorities

- **Goals:**
 - Security
 - Independence (self-sufficiency in electricity production by 2016)
- **Tools and action points:**
 - External links
 - Diversification of energy sources
 - Increase in energy efficiency

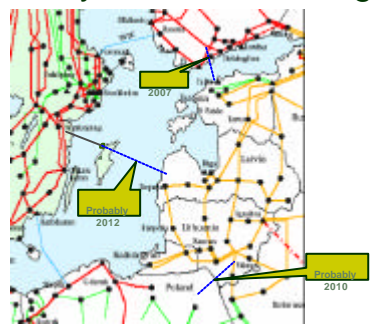
Energy efficiency target

- Reduction of heat consumption in buildings from 235 kWh/m² in 2004 to 150 kWh/m² in 2020

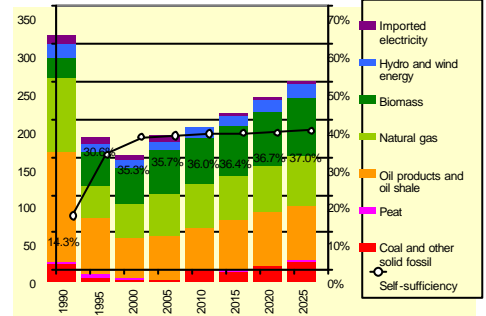


Year	Energy intensity (toe/1000EUR(2000))	Heat consumption in buildings (kWh/m ² /geb)
2004	~0.42	235
2010	~0.35	~200
2015	~0.28	~175
2020	~0.22	150

Electricity links in Baltic region

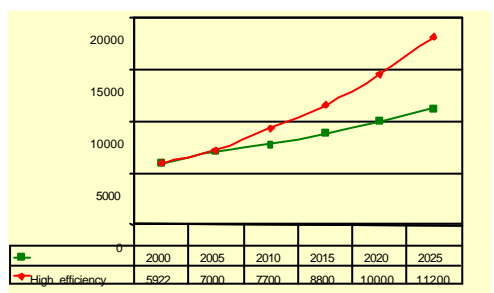


Prospects for primary energy demand



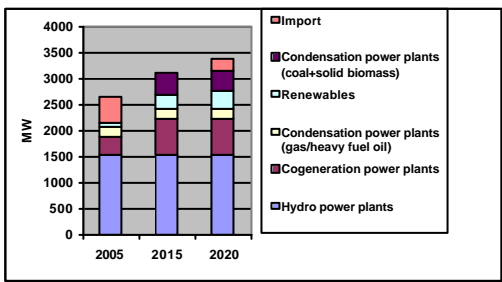
Year	Self-sufficiency (%)
1990	14.3%
1995	20.6%
2000	25.2%
2005	35.7%
2010	35.0%
2015	35.4%
2020	37.7%
2025	37.0%

Electricity demand



Year	Low efficiency (MW)	High efficiency (MW)
2000	5922	7000
2005	7200	7700
2010	9300	8800
2015	11500	10000
2020	14500	11200
2025	18100	-

Electricity production



Sustainable energy vision for Latvia 2050

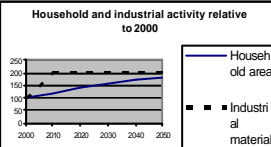
- Made within the project "Baltic-Nordic cooperation for sustainable energy"
- Partners: Inforse (Denmark), Green Liberty (Latvia), Latvian Green Movement
- Vision includes a transition of the energy supply and demand with phase-out of fossil energy and energy imports over a 50-year period.

A sustainable energy vision for Latvia, proposals until 2020

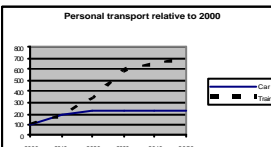
- **Windpower** - 600 MW
- Better **biomass** use (clean and efficient)
- **Straw** use and **energy plantations** (180,000 ha for liquid + 220,000 ha for solid fuel)
- District **heating** and **CHP** plans, 1150 MWe CHP
- Strategies for:
 - Biofuels in **transport**
 - **biogas, solar, geothermal, hydro**
 - **Energy efficiency** for heating, electricity, service sector, transport

Some assumptions for Latvia

Household and industrial activity relative to 2000



Personal transport relative to 2000



Developments from 2000

Housing: increase to 41 m²/person in 2050 (+80%)

Service sector: 3.3 times increase till 2050

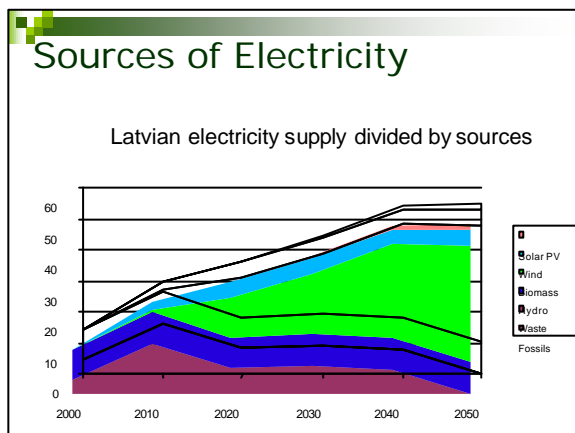
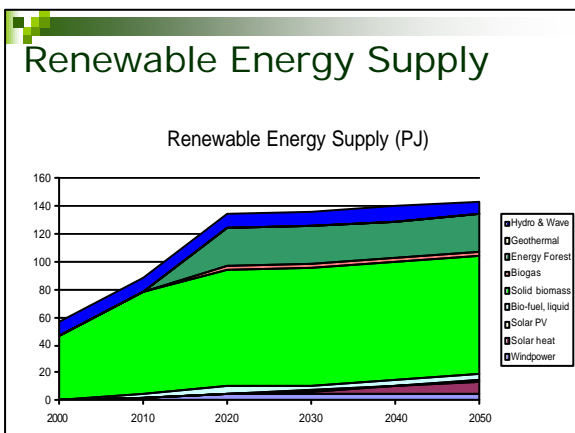
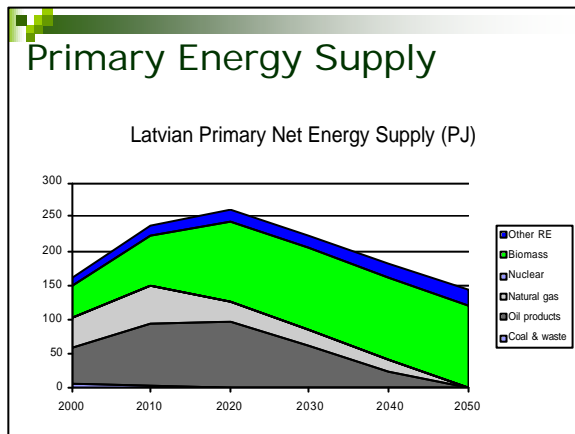
Electric appliances: three times increase in housing and 5 times in service sector till '50

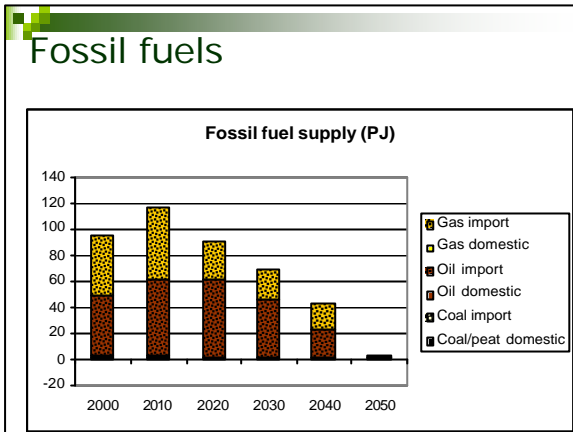
Car use: Western European level (EU-15)

Bus transport: 1.5 times increase till 2050

Road freight: 4 times increase till 2010, 5 times increase till 2050

Rail freight: 2.2 times increase till 2010, 3.3 times till 2050





Power sector proposals

Possible expansion of CHP plants in Latvia, 2000 – 2020

Site	Heat load (GWh)	nominal CHP capacity (MW-heat)	Electricity efficiency	Electricity / heat ratio	CHP nominal electric capacity (MW-electric)
Rīga	4000	489	48%	1.50	733
Daugavpils	820	100	43%	1.16	123
Liepāja	655	80	42%	1.11	93
Ventspils	330	40	40%	1.00	42
Rezekne	245	30	40%	1.00	32
Smaller	1095	134	38%	0.90	127
Total					1150

Power costs

Possible Biomass Power plants	Rīga	Daugavpils	Liepāja	Smaller plants	
Specific invest. Costs	mill. €/MWe	1.3	2.12	2.18	2.6
Capacity installed	MWe	400	100	80	200
Total investment	mill. €	520	212.31	175	500
Lifetime	years	30	30	30	30
LFCC	€/Mwe	84567	138109	142112	162629
O&M-1	€/Mwe/year	25000	59615	61923	70000
O&M-2	€/MWh	2.7	12.1	12.7	18
Eq. full load	hours/year	5606	5606	5606	4292
O&M costs	mill. €/year	35.9	12.7	10.6	26.9
Eff-el	%	48	40	40	38
Eff-total	%	80	78	78	78
Fuel costs	€/MWh	10	10	9	6
Energy costs	€/MWh - total energy	26	37	37	41
Electricity costs	€/MWh - electricity	33	49	48	56
Electricity costs	€/kWh	0.022	0.033	0.033	0.038

- ### Opportunities for Latvia
- Phase out electricity import by 2010
 - Reduce gas use by 40% by 2020
 - Phase out fossils by 2050
 - Electricity costs 3-6 €cent/kWh (below nuclear)

Follow-up of the vision 2050

- Presentation to the energy experts
- Communication on vision with various stakeholders
- Updating of input data
- Elaboration of proposals for activities that would lead towards vision



Jouma vizija atjaunojamo resursu izstrādāšanai

Latvijas enerģētiskās sistēmas attīstības stratēģijas izstrādāšanai ir nepieciešams veikt pētījumus un izstrādāt konkrētus pasākumus, kas nodrošinātu energosistēmas drošību un konkurētspējīgumu. Šajā ziņā ir būtiski veikt pētījumus par atjaunojamo enerģijas resursu izstrādāšanu un integrāciju enerģētiskajā sistēmā.

Thank you!

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