

Energy Master Plan for Limbaži Region in Latvia

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Limbaži Region Portrait

- Northwest part of Latvia
- At the border with Estonia
- Capital: Limbaži with ~ 9 000 inhabitants
- Population: 38 000 inhabitants
- Area: 2 580 km²
- 11 rural municipalities
- 5 towns
- 43.9 % of inhabitants live in towns and 56.1% in the countryside



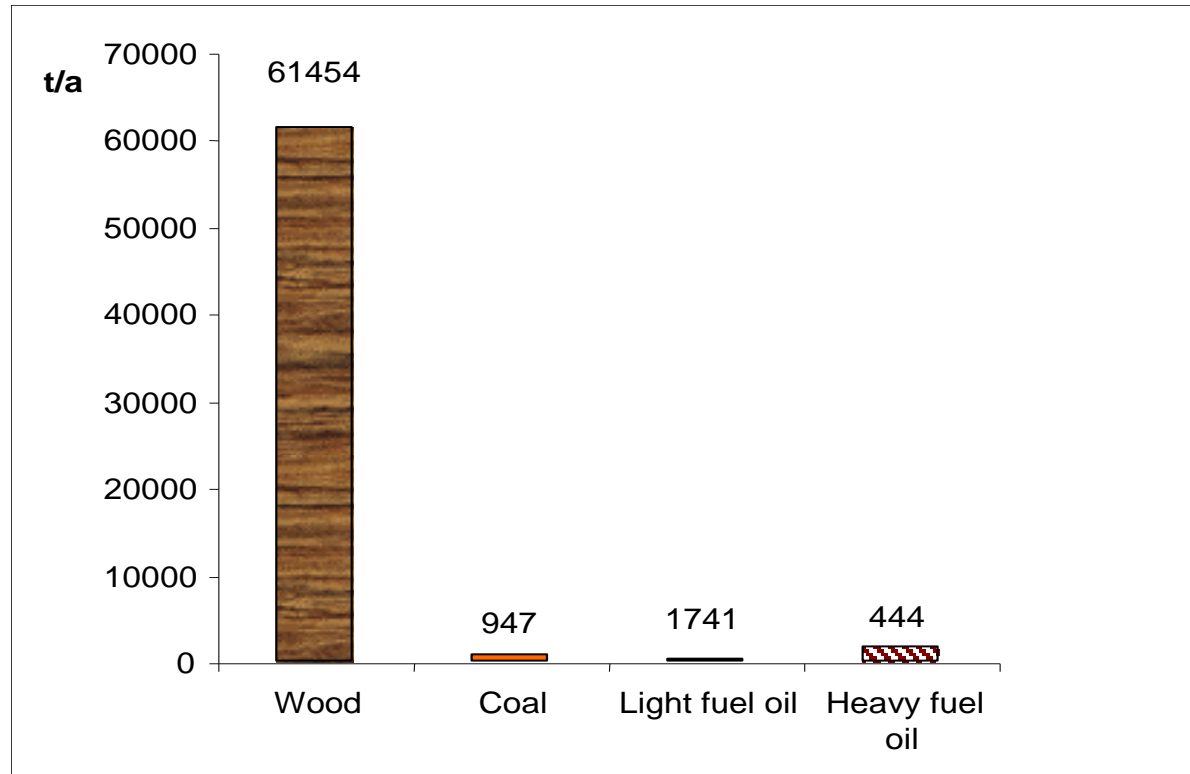
Current Energy Situation

- Total installed heat generation capacity $\sim 90 \text{ MW}_{\text{th}}$
- Electricity generation capacity $1,285 \text{ MW}_{\text{el}}$
- No connection to natural gas grid
- Wood fuel is basically used for heat production



Fuel Consumption Structure

Use of fuel in Limbaži region heat sources in 2005:



Data source: State agency of "Latvian Environment, Geology, and Meteorology Agency" data base "2-Gaiss"

Energy Saving Potential

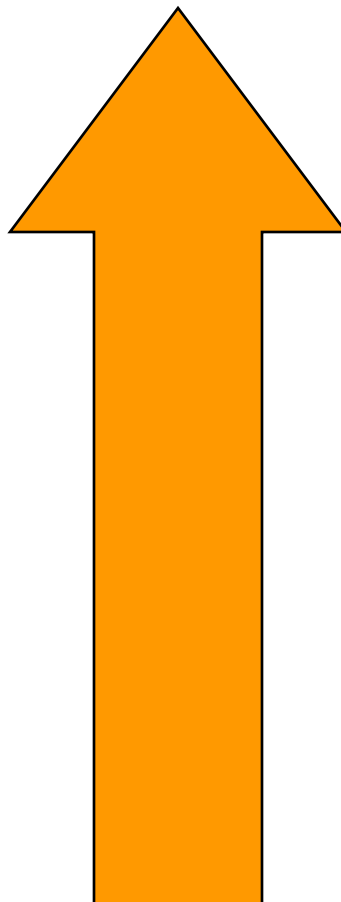
- The highest potential estimated for multi-apartment buildings
 - Total number of buildings ~ 270, insulated/partly insulated - 23
 - Estimated annual energy saving potential 50 000 – 100 000 MWh
- In public buildings
 - Total number of public buildings ~ 120, EE measures are implemented in 26 buildings
- In industry
 - The highest potential estimated in heat energy (incl. steam) generation;
 - Electricity saving potential (electrical motors, lighting, cooling and ventilation systems)
- In district heat production sources
 - Efficiency of boilers is between 50 – 92%
- In DH distribution networks
 - Heat losses in pipes are up to 30-35%

Renewable Energy Potential

- High potential

- Average potential

- Low potential



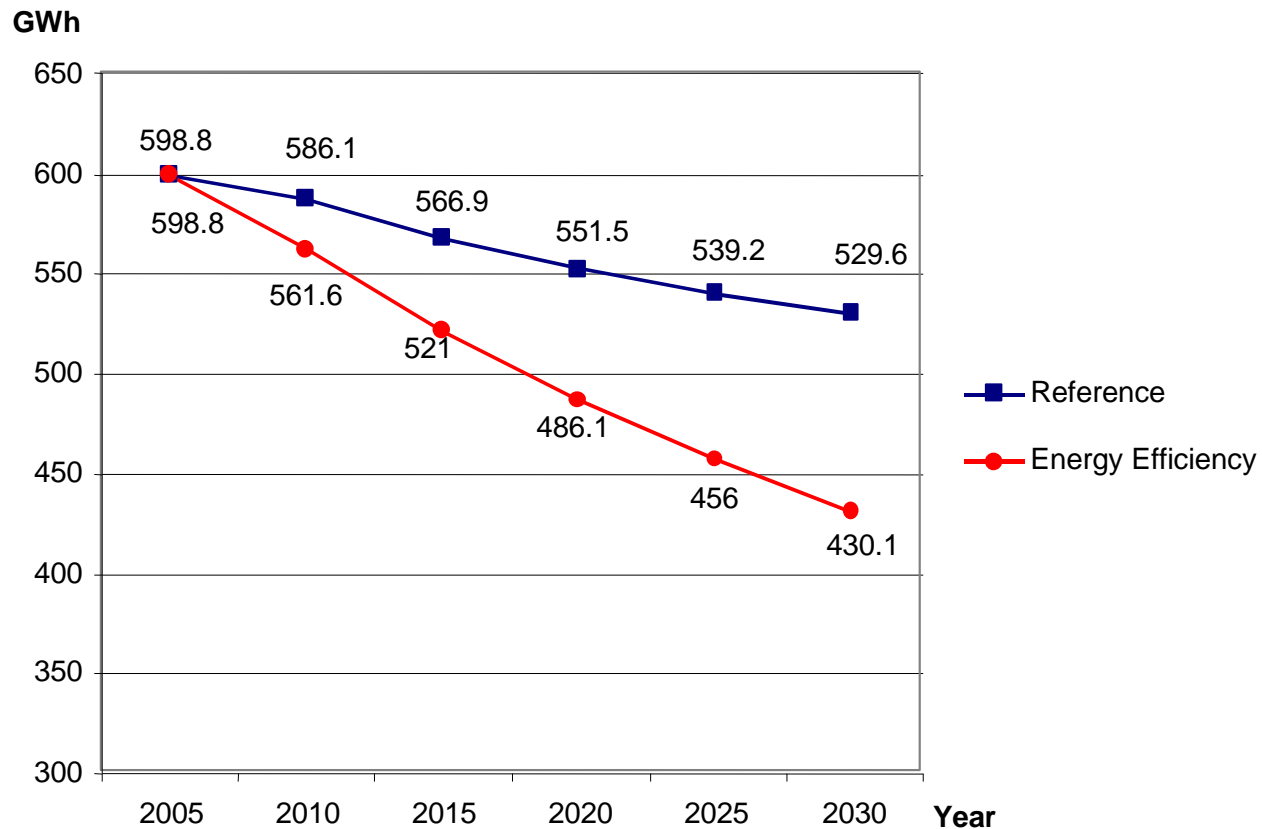
- Wind energy, Biomass

- Solar energy, Biogas

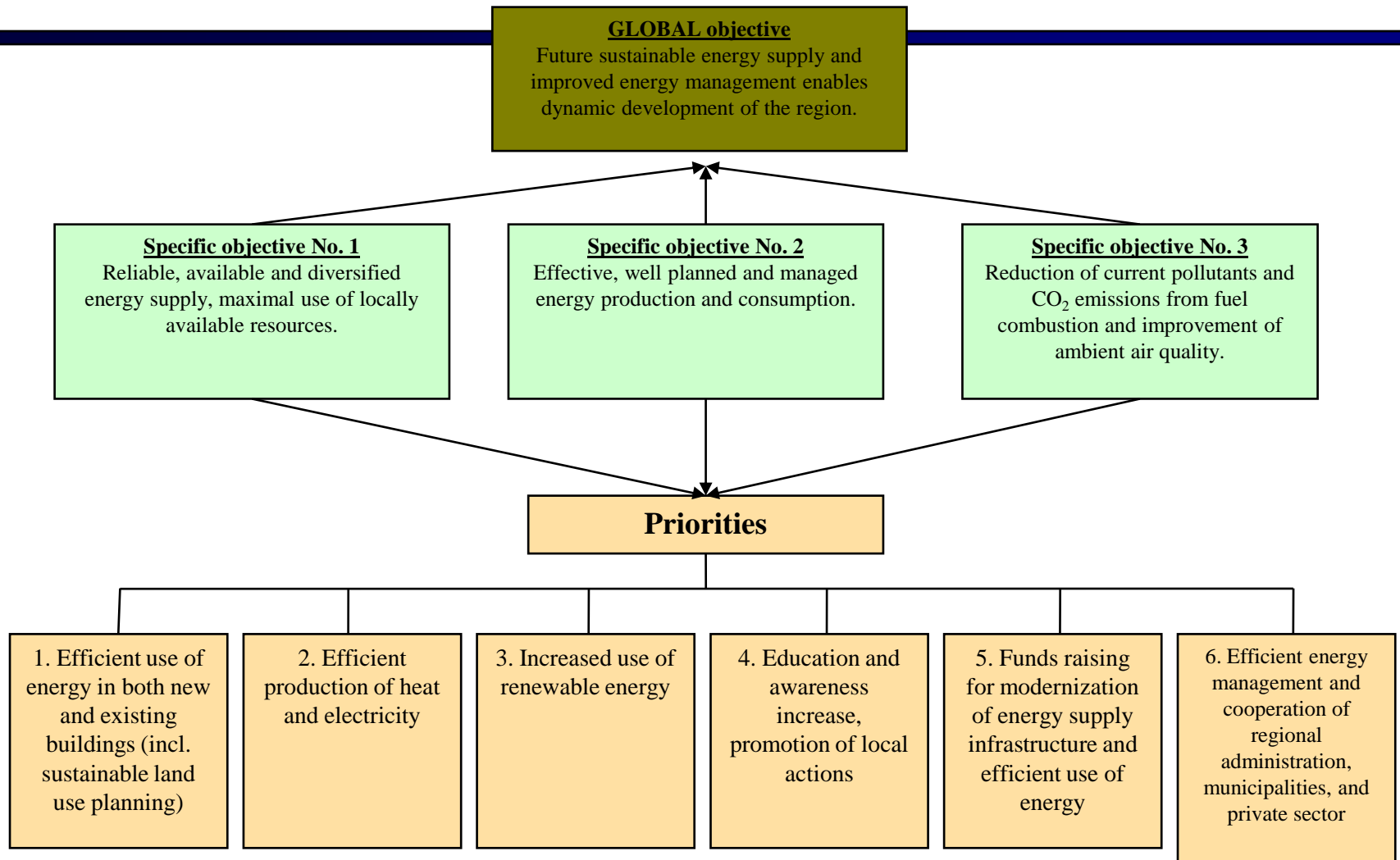
- Hydro energy,
Geothermal energy

Future energy demand

- Energy demand in Limbaži region:



Energy Vision



Energy Actions/Action Bundles Suitable for SF

- Action Bundle 1
Fuel switching with installation of solar collectors
- Action 2
Biomass CHP Plant
- Action 3
Renovation of DH network
- Action/Action Bundle 4
Energy Efficiency measures in multi-apartment buildings

Overview of Energy Actions

Action/Action bundle	Investment costs, EUR	Payback period, years		IRR, %		CO ₂ savings, t/year
		Without subsidy from SF	With subsidy from SF	Without subsidy from SF	With subsidy from SF	
Fuel switch & solar collector	282 000	11.6	4.9 (50%)	11.8	25.2	568
Biomass CHP Plant	7 000 000	24.3	8.5 (50%)	7.1	16.2	545
Renovation of DH network	188 000	24.0	12.5 (40%)	7.2	12.6	360
EE Measures in buildings	87 000	35.1	19.6 (25%)	-	7.1	-

Conclusion and Outlook

- The highest energy saving potential is estimated in housing sector
- The highest renewable energy potential is for wind energy and biomass sources
- The next steps to do:
 - Detailed Feasibility studies on four selected energy actions, implementation of energy audits and development of funding applications
 - Establishment of regional level energy data collection system
 - Monitoring and evaluation of Energy Master Plan results, regular update on objectives and priorities

Thank you!

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