

Integrated Energy Plan of Frýdlant Microregion

**Managenergy Conference – Brussels,
20.- 21. October 2004**

**Parallel session F – Energy agencies and good
practice in the new Member States**

Jaroslav Jakubes – ENVIROS, Prague, Czech Republic



Contents of Presentation

- Context for regional energy planning in the Czech Republic
- Introduction of Frýdlant Microregion
- SAVE project „Integrated Energy Plan of Frýdlant microregion“ – aims and approach
- Energy Plan – key findings
- Action Plan for promotion of RUE and RES – vision and goals
- Conclusions – what next? + lessons learned
- Contacts

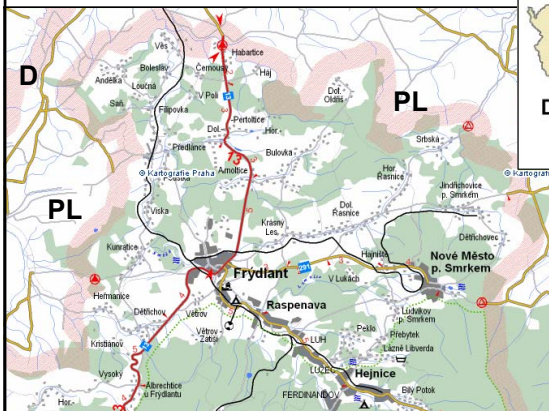


Context for regional energy planning in the Czech Republic

- Energy Management Law 406/2000 Coll. - TOP-DOWN approach
- Regional Energy Plans (Concepts) compulsory for 14 NUTS2 administrative regions till end 2004
- Regional / municipal Energy Plans for smaller regions/cities - voluntary
- Contents / structure:
 - Analysis of trends of energy demand
 - Analysis of sources and ways of energy management
 - Analysis of potentials of RES + economically viable RUE measures
 - Variant proposal of future energy system incl. assessment of environmental impact



Frýdlant microregion





ENVIROS  TODAY'S BUSINESS TOMORROW'S WORLD



 Managenergy Conference – Brussels, 20.- 21. October 2004

The complex block features a yellow header with the ENVIROS logo and the slogan 'TODAY'S BUSINESS TOMORROW'S WORLD'. Below the header is a collage of three images: a wind turbine in a field, a view from a red industrial platform, and a yellow industrial machine labeled 'TFA 150'. At the bottom left is a small yellow diamond logo with the letter 'E', and at the bottom center is the text 'Managenergy Conference – Brussels, 20.- 21. October 2004'.

SAVE Project „Integrated Energy Plan of Frýdlant microregion“ - aims

- BOTTOM UP approach - following up activities of local/regional stakeholders
- Support from EC SAVE 2001 Programme - local / national / intl. stakeholders - Enviros (CZ), Power Service (CZ), LEV Steiermark (A), IHK GmbH (D), support from Czech Energy Agency
- Aims:
 - Support local administration in regional planning
 - Increase of public awareness
 - Develop and transfer of methodology and know-how related to energy planning and energy management;
 - Transfer of technologies and organisational solutions;
 - Presentations of RUE/RES projects to possible investors;
 - Replication of best practices applied in the EU countries.



SAVE Project „Integrated Energy Plan of Frýdlant microregion“ - structure

1. Inception phase
2. Analysis of current energy supply and demand
3. Identification of potentials of RUE and RES
4. Development of an **Energy Plan**
5. Development of **Action Plan for promotion of RUE and RES**
6. **Dissemination** (seminars, training, poster exhibition ...)



Key findings - current energy supply and demand

- Very high share of coal and electricity in final consumption
- Negative impact on environment from coal-fired dispersed combustion sources and some large industrial sources + interference with impact from outside region (Turów PP) + no significant problem with meeting emissions limits = lower willingness to „act locally“
- Gas only in 4 municipalities – no chance for further extension of the network
- Own sources of electricity - 13 small hydro PP, 3 small CHP units, 2 wind turbines - approx. 7% of el. consumption
- Already high share of biomass (firewood, waste wood) in local heating sources



Key findings - RUE and RES potentials

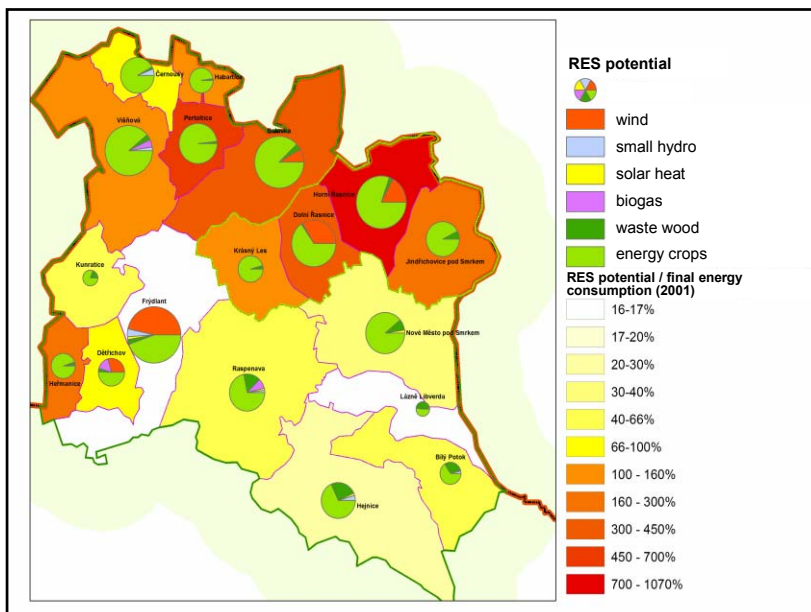
RUE

- Thermal insulation of residential and public buildings and measures in heating systems in buildings (regulation, losses reduction)
- Measures in heat sources (fuel switching, more efficient boilers, connection to district heating systems, CHP, reduction of DH networks losses)
- RUE in streetlighting (approx. 15- 20% savings)

RES

- Small hydro total approx 1.2 MW in several sites – 4,2% of el. consumption
- Wind energy - 7 potential sites – approx. 17,4 MW - 28% of el. consumption
- Waste wood from forestry and wood industry – 3,5% of TPES
- Energy crops (39% of disused agricultural land) – key potential 43% TPES
- Biogas – potential of biogas production at 3 large farms
- Solar thermal / PV, geothermal – complementary to biomass





ENVIROS TODAY'S BUSINESS TOMORROW'S WORLD

Conclusions of Energy Plan

Results of 3 energy supply and demand scenarios

- Change of structure of the energy balance - only by extensive coal to biomass switching in small and medium-sized sources and from coal to gas switching in large industrial heat sources.
- TPES consumption – stagnation or slow growth - can decrease only if coal to gas switching in large industrial sources takes place.
- Biomass potential (especially energy crops) - sufficient for replacement of coal in small and medium-sized sources until 2020, but not sufficient for large industrial and district heating sources.
- It is realistic to estimate that 4 - 6 municipalities can reach 100% energy self-sufficiency (from balance point of view) till the year 2020.
- By reaching of potential of 30% RES share – SO₂ a CO₂ emission reduction by 28% - BUT caution concerning potential solid particles and NO_x emissions from biomass!
- Social benefits – up to 90 jobs in 2010 and 280 in 2020

Managemery Conference – Brussels, 20.- 21. October 2004

Action Plan for promotion of RUE and RES

- Implementation document following up the analytical part and the Energy Plan
- Presenting energy vision of the Microregion + 7 qualitative and quantitative goals
- Identification of concrete RUE and RES projects
- Identification of sources of financing for RUE and RES projects
- Recommendations of low cost (organizational) measures (creating infrastructure and tools like energy consulting, awareness campaigns, education and training)



Vision of energy system in Frýdlant Microregion

- More efficient energy use - more population, higher living standard but lower of per capita energy consumption
- Significantly lower environmental impacts due to RUE and RES measures
- Electricity supply - mix of imported electricity with distributed generation (increasing role and share of wind, biomass, small CHP + solar PV, fuel cells in near future)
- Need for strengthening of electricity supply lines – increase of export/import balance. Increase of share of DG on total electricity supply will increase security of electricity supply
- Natural gas supply will reach saturation and will be further developed only in places with higher gas consumption concentration
- Open gas and electricity market – also small consumers
- Positive social impacts – improvement of energy supply reliability, creation of new jobs



7 proposed goals

Qualitative

- **Public Policy:** Achieve & represent consensus on energy issues
- **Security of energy supply:** Improve self-sufficiency and security of energy supply
- **Social impacts:** Achieve a positive social impact

Quantitative

- **Energy demand:** stabilisation of energy demand on the 2000 level till 2020.
- **Energy supply:** Increase total electricity supply from RES to 15% by 2010 and 25% by 2020, total energy supply from RES to 15% by 2010 and 26% by 2020.
- **Energy self-sufficiency:** 100% RES community in 4 municipalities by 2020.
- **Environmental Impact:** reduction of emissions of major air pollutants and GHG gases (CO₂ by 20% till 2010 and by 30% till 2020, SO₂ by 60% till 2010 and by 70% till 2020 and NO_x by 30% till 2010 and by 35% till 2020)



Direct results and follow-up activities

- Direct input in the Regional energy, air and climate protection plan of Liberec region (larger, NUTS 2 region)
- Proposal and application for support for establishment of Regional energy agency of Liberec region (2004/2005) based in Frýdlant
- Projects of biowaste processing plant and of low energy housing in Jindřichovice, further wind energy projects
- Awareness raising follow-up – continuing poster campaign at schools, Environmental Information Centre in Jindřichovice
- Utilisation and presentation of experience and approach (also this presentation at Managenergy conference)

More info

<http://www.enviros.cz/SAVE-Frydlant/index.html>



Conclusions & lessons learned

- Energy planning even in a small scale – very complex (not only technical) issue
- Small-scale energy plans can become pilot solution for larger regions energy planning as well as starting point for further activities within region (implementation of projects, regional energy agencies etc.)
- Strong involvement of local stakeholders and their motivation is crucial for success (cooperation and follow-up implementation)
- As perceived by local stakeholders, issues of **reaching of consensus, coordination and awareness** proved to be key problems and will require a special attention in a similar projects -> **interactive work!**



Thank you for your attention

Contacts:

Jaroslav Jakubes
Enviros, s.r.o,
Prague

Petr Pávek,
Mayor, municipality
Jindřichovice pod Smrkem

jaroslav.jakubes@enviros.cz starosta@jindrichovice.cz

www.enviros.cz www.jindrichovice.cz

