RENEWABLE ENERGY AND ITS IMPACT ON RURAL DEVELOPMENT IN SLOVENIA

Matej Bedrac
Agricultural Institute of Slovenia

INTERNATIONAL SCIENTIFIC CONFERENCE
THE EU SUPPORT FOR 2007–2013:
NEW CHALLENGES AND INNOVATIONS FOR AGRICULTURE AND FOOD INDUSTRY
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OUTLINE

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- Use of renewable energy sources in Slovenia
  - Biomass
  - Biodiesel
  - Biogas
- Policy measures that promoting renewable sources of energy
- Conclusions
AGRICULTURAL CHARACTERISTICS IN SLOVENIA

- **75,340** agricultural holdings
- **489,000** hectares of utilized agricultural area
- **6,5** hectares of utilized agricultural area
- **75%** of holdings are situated in LFA
- **70%** of utilised agricultural area in LFA
- Unfavourable size structure of holdings
- Low level of specialization
LAND USE

- 489,000 hectares of utilized agricultural area
- Arable land: 174,895 hectares
- Grassland and meadows: 288,222 hectares
- Permanent crops: around 20,000 hectares
- Forests: 377,768
- 60% of total area is covered with forests
- 314,000 forest owners
- Farmers own only one third of all forests
- Average size of forests on agricultural holding is 5.6 hectares
LIVESTOCK PRODUCTION

- Agricultural holdings breeds 442,581 LSU
- Number of cattle: 470,218
- Number of pigs: 544,444
- Number of poultry: 5,364,220
- Number of sheep: 135,887
- Number of goats: 34,593

- Other gainful activities (4% of agricultural holdings)
  - services with agricultural machinery
  - farm tourism
  - wood processing
  - food processing activities
### PRODUCTION OF ELECTRICITY FROM RENEWABLE SOURCES OF ENERGY

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
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<td>Wood biomass</td>
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<td>54</td>
<td>84</td>
<td>98</td>
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<td>Liquid gas</td>
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<td>23</td>
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<tr>
<td>Share (%)</td>
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<td>22.0</td>
<td>29.1</td>
<td>24.2</td>
<td>24.4</td>
<td>22.1</td>
</tr>
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WOOD BIOMASS

Biomass potential in Slovenia:
- **450.000** dry tons of wood biomass per year from forests.
- **120.000** dry tons of wood biomass per year from abandoned agricultural land
- **361.000** dry tons of wood waste per year from wood processing industry

National Wood Biomass Action Plan 2007-2013:
- Electricity produced from wood biomass: **36 GWh**
- Production of heat from wood biomass: **2,77 PJ**
- Reduction of CO$_2$ emissions: **225 kt**
- Number of new direct jobs: **200**
- Number of farm households with new activity: **120**
Main barriers:
- lack of cooperation between different ministries
- complex and long term procedures for preparing the documentation
- high investment costs per unit of the energy
- complex system of subsidies
- low purchase prices of the electricity from wood biomass
- unfavourable size structure of farms
- fragmentation of forests
- large number of forest owners
BIO DIESEL

- Share of biofuels in Slovenia in 2007: **0.98%**
- Currant production: **12,000** tons of biodiesel
- Production of rape seed increasing:
  - 2001- **122** hectares
  - 2007- **5,357** hectares

The production of rape seed has numerous positive side affects:
- Reduction of greenhouse gas emissions
- Pure plant oil is biodegradable
- Protein feed
- Improves the security of fuel supply
- Improves crop rotation
Main barriers in biodiesel production:
- Sporadic repurchase of biofuels from national fuel distributors
- Obligatory bail (guarantee) of the biofuel producers for rapeseed (250 €)
- Destimulating excise (taxes) policy for biodiesel
- Limited production areas

Future plans:
- 2 large biodiesel factories
- Increased production of biodiesel (100,000 tons)
Biogas potential in Slovenia:

- **393** agricultural holdings which cultivates **15.701** hectares of utilised agricultural area
- **1.731** livestock farms which breed **110.000** live stock units
- **99.298.830** m³ of biogas or **205.748** MWh of electricity per year
BIOGAS

Nemscak pig farm

- **69,000 m³** of liquid pig manure
- **12,500 tons** of maize silage
- **4,500 tons** of waste from slaughterhouse industry
- Production of electricity in 2007: **11,000,000 KWh**
POLICY MEASURES THAT PROMOTING RENEWABLE SOURCES OF ENERGY

- Eco Fund-Slovenian Environmental Public Fund
  Diversification of Agricultural Activities and Activities Close to Agriculture:
  - 12 investments for the production of electricity
  - 25 investments for processing of wood biomass
- Rural Development Programme 2007-2013:
  - Modernisation of agricultural holdings (1 investment)
  - Diversification into non agricultural activities (26 applications)
  - Support for the creation and the development of micro enterprises (7 applications)
CONCLUSIONS

- Slovenia is aware of the importance of renewable sources of energy
- Renewable sources have positive impacts on the development of rural areas
- Loss of biodiversity
- Unfavourable size structure of agricultural holdings, fragmentation of forests and the large number of forest owners
- Relatively low interest of the farmers for investments in renewable sources of energy
- New employment possibilities in rural areas
THANK YOU FOR YOUR ATTENTION