

Biomass for heat or electricity?

Results of 4Biomass project

Arkadiusz Figórski

Akademia Górniczo-Hutnicza im. Stanisława Staszica w Krakowie,
The Krakow Institute for Sustainable Energy

10th International Conference „enef 2012“

Banská Bystrica, October 16 – 18, 2012



Central Europe Countries and project partner organisations

48 months -
Dec 2008 until
Nov 2012



Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit



CZBiom



ENEA

***Fostering the Sustainable
Usage of Renewable Energy
Sources in Central Europe –
Putting Biomass into Action!***

Background

- Project 4Biomass was designed to assist the Central European Member States in the implementation of plans Renewable Energy Action Plans (nREAPs)
- In more than 3 years of project work, studies on potential and application of biomass, on political frameworks and trade have been completed

Findings

- Legal measures for promotion of RES implemented in all Central European countries
- Feed-in tariffs for electricity fed into the grid are legally established in AT, CZ, GE, HU, IT, SK and SL.
- Quota obligations for electricity are used only in PL, together with Green Certificates
- More legal acts support the use of biomass also for new or refurbished heating/cooling systems in public and residential buildings, for combined heat and power (CHP) plants and for refurbishment of district heating systems based on RES and co-generation
- The support of the heating/cooling e.g. CZ, GE, HU, PL from renewables is currently under revision

Current support schemes overview (an important example)

- In several countries (particularly in Poland), biomass is mainly used for electricity generation in co-firing with coal, which is heavily supported by public money
- This is criticised by experts and environmentalists, because:
 - *per saldo* it is very expensive and not optimal for reduction of CO₂ emissions
 - causes severe transportation, technological and operational problems (eg. two big fire cases recently in Poland)

Criticism by experts and politicians

Eg: Dariusz Szwed (National Board of Polish Greens)

February 29, 2012 at the Polish Parliament hearing:

„Energy companies received 1,7 bln PLN of subsidies for co-firing. We hope that this should be subject of investigation of special parliamentary commission.”

Currently the Polish government considers phasing out this support, which caused huge outcry of cofiring industry and their supporting lobbies

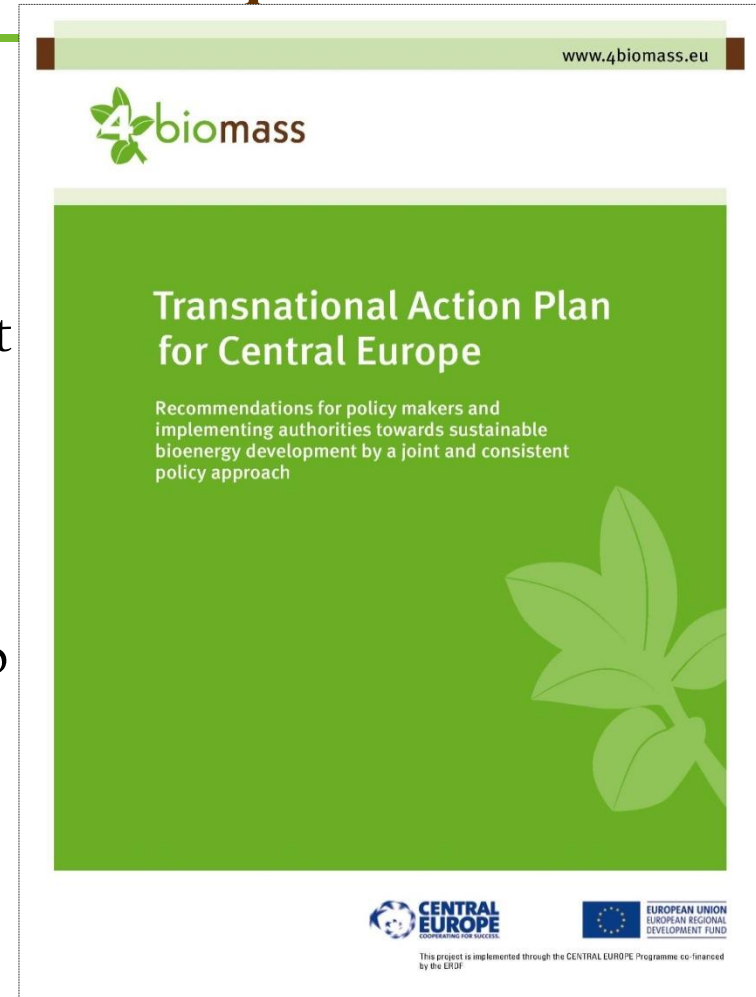
Present status

- In the draft law on RES more support will be given to small scale installations and support for large scale co - firing of biomass with coal will be gradually reduced.
- A conflict of interest between Ministry of Economy and the Ministry of the Treasury, which does not agree with new provisions.

4Biomass: Recommendations towards a sustainable bioenergy development

The Transnational Action Plan (TAP):

- is based on project results
- Gives suggestions to address the most important and urgent activities towards an independent, reliable, socially and environmentally responsible energy supply
- Addresses policy makers who develop programmes and strategies for sustainable and efficient biomass/bioenergy politics in Central Europe



Recommendations for biomass for heating and cooling

- Biomass is a limited resource that should be used as efficiently and economically as possible.
- National, regional and local governments should
 - **Stimulate the heat and cold production from locally available biomass**, if possible in cogeneration with electricity from biomass sourced within a radius not exceeding a stipulated number of kilometres.
 - Give heat production the same support as electricity generation.
 - Introduce feed-in tariffs or green certificates for heat
 - Continuously promote energy efficient bioenergy technologies and require fast socially acceptable and economically viable deployment
 - **Withdraw support for co-firing biomass with fossil fuels**

CASE OF POLAND:

Flat country - small hydro potential

Not much wind either

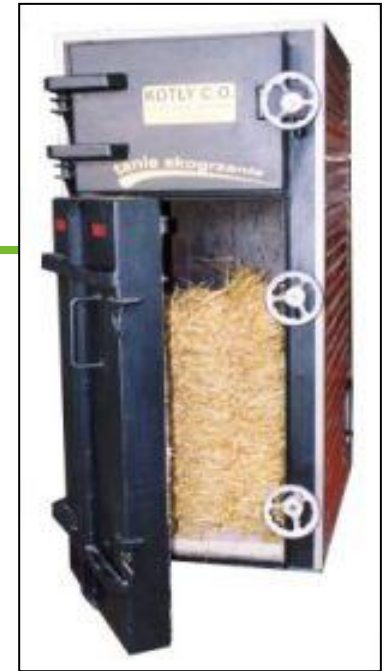
biomass (straw) is relatively abundant

Examples of local biomass heating:



Trzcianne

- 20 kW for straw or waste wood
- house 100m²
- 4 years payback time



Wichów

- 40 kW for 3 cubical straw bails 80x40x40 cm
- house 200m²
- 5-6 years payback time



**Instead of
buying coal
using own
biomass**



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



Chrzelice 100 kW



6 cubical straw bails

80x40x40 cm

4 years payback time

water tank 6 m3 accumulating heat

total cost 7000 Euro



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND





- Left: 400 kW,
 - two cubical bails 1,7x1,7x1,2 m
-
- Right: 300 kW,
 - one round straw bail 180cm diameter



- Heating of the school located in a palace and several public buildings in commune of Trzebiechow
- savings several thousand Euro per year depending of the winter



**8MW thermal ONLY - DH station
Luban (south west Poland)**

- **Radius of delivery ≤ 30 km**



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



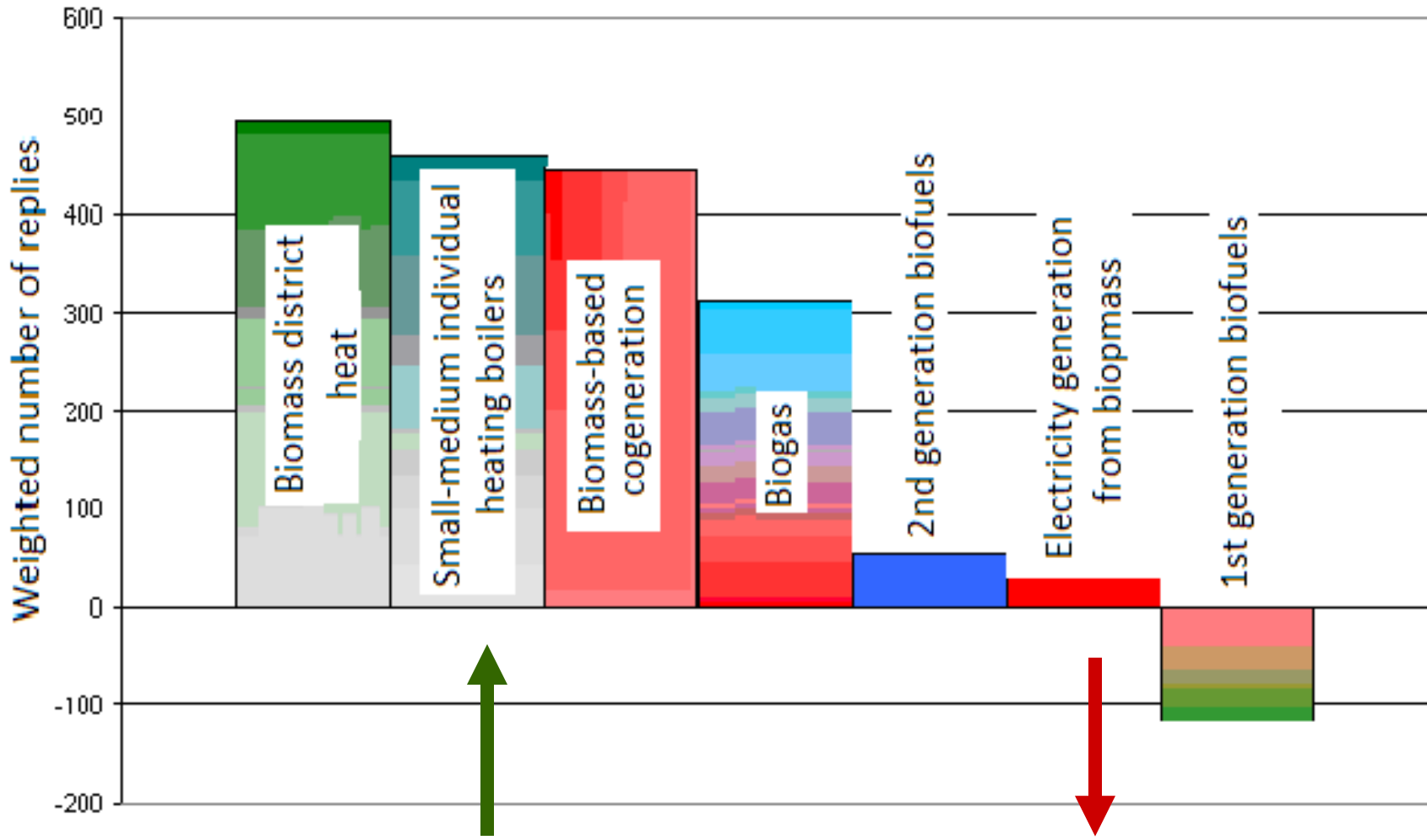
Those examples show that biomass:

- Can be used in a sustainable way,
- Create local jobs (esp. in rural areas),
- Stimulate local (and national) economy,
- Decrease costs of heating,
- Prevent „thermal poverty,, (health impact).

4Biomass Stakeholders opinion survey

on a sample of 1221 biomass experts from:

Austria,
Czech Republic
Germany
Hungary
Italy
Poland
Slovakia
Slovenia



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



**CENTRAL
EUROPE**
COOPERATING FOR SUCCESS.

Conclusions:

Biomass should be used:

- Locally
- In small to medium units
- Preferably for local heat/cold
- **First satisfy own local needs,
export only surplus**

More information available online

- Project studies and results are available for download
- www.4biomass.eu



The screenshot shows the 4biomass website homepage. At the top, there is a navigation menu with tabs for Project, Sustainability, Best practise, Policy, CE Network, Publications, and News/events. Below the menu is a large image showing a field with haystacks and a close-up of green biomass crops. The main content area is divided into several sections: a left sidebar with a navigation menu (Mission, Partners, Work packages, TAG, Info Pool on REAPs, Contacts and RSS, Join Management Tool), a central main content area with three green boxes for 'Transnational Action Plan', 'Joint Management Tool', and 'Demoprojects', and a right sidebar with a 'Register to 4biomass!' button and a 'News' section. The 'Transnational Action Plan' box includes bullet points: 'Common action plan for the Central Europe' and 'Biomassbased energy plants from all over Central Europe with special regard to their sustainability'. The 'Joint Management Tool' box includes bullet points: 'Tool to support investors in bioenergy providing an overview of national political frameworks, contacts to implementing agencies and provider of technology and fuels'. The 'Demoprojects' box includes bullet points: 'Interactiv overview of demoprojects' and 'Biomassbased energy plants from all over Central Europe with special regard to their sustainability'. The 'News' section shows a recent article titled 'Joint Management Tool available on the project home page' dated 24 May 2012. At the bottom of the screenshot, there is a small text prompt: 'Klicken Sie zum Starten auf diese Schaltfläche.'

Thank you for your attention



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND

