

»» Biomass projects on the Balkans - KfW's assistance to stimulate regional market opportunities

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Bank aus Verantwortung

KFW

»» Energy - Priority area of cooperation

KfW sector activities in the WB6

Modernization

- Expansion and rehabilitation of renewable energies and energy efficiency
- Know-how and technology transfer
- Smart solutions for networks
- Climate and environmental protection

Economic growth

- Support for sector and structural reforms
- Promotion of economic development and employment
- Participation in European Energy Markets
- Relief of public budget

Integration

- Regional connectivity (Western Balkan 6 Process, Energy Community)
- EU pre-accession and implementation of the *acquis communautaire*
- Implementation of international conventions on climate protection

»» Biomass projects on the Balkans

KfW's assistance to stimulate regional market opportunities



› Fuel Substitution:

Reduction of CO₂ and polluting emissions (SO₂, NO_x) from electricity generating and district heating facilities through fuel switch from e.g. lignite or mazut to wood-based fuel.

› Domestic Energy Resources:

Reduction of fossil fuel import dependencies (e.g. mazut) through use of domestic biomass potentials.

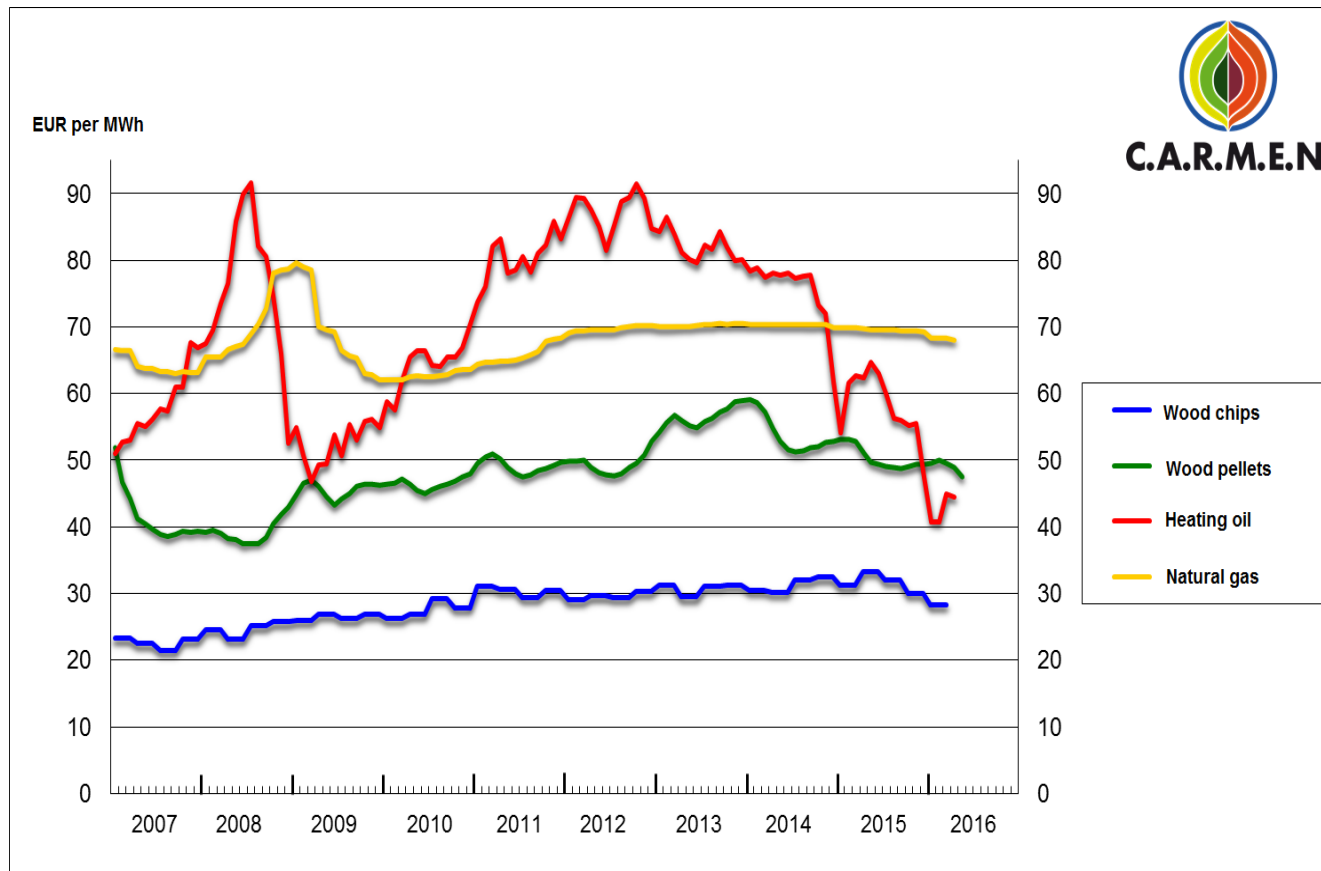
› Economic development and employment:

Market and job opportunities for collection, transport and handling of biomass products.

»» Why wood-based fuel?

The economic dimension:

Price development of different fuel types in Germany



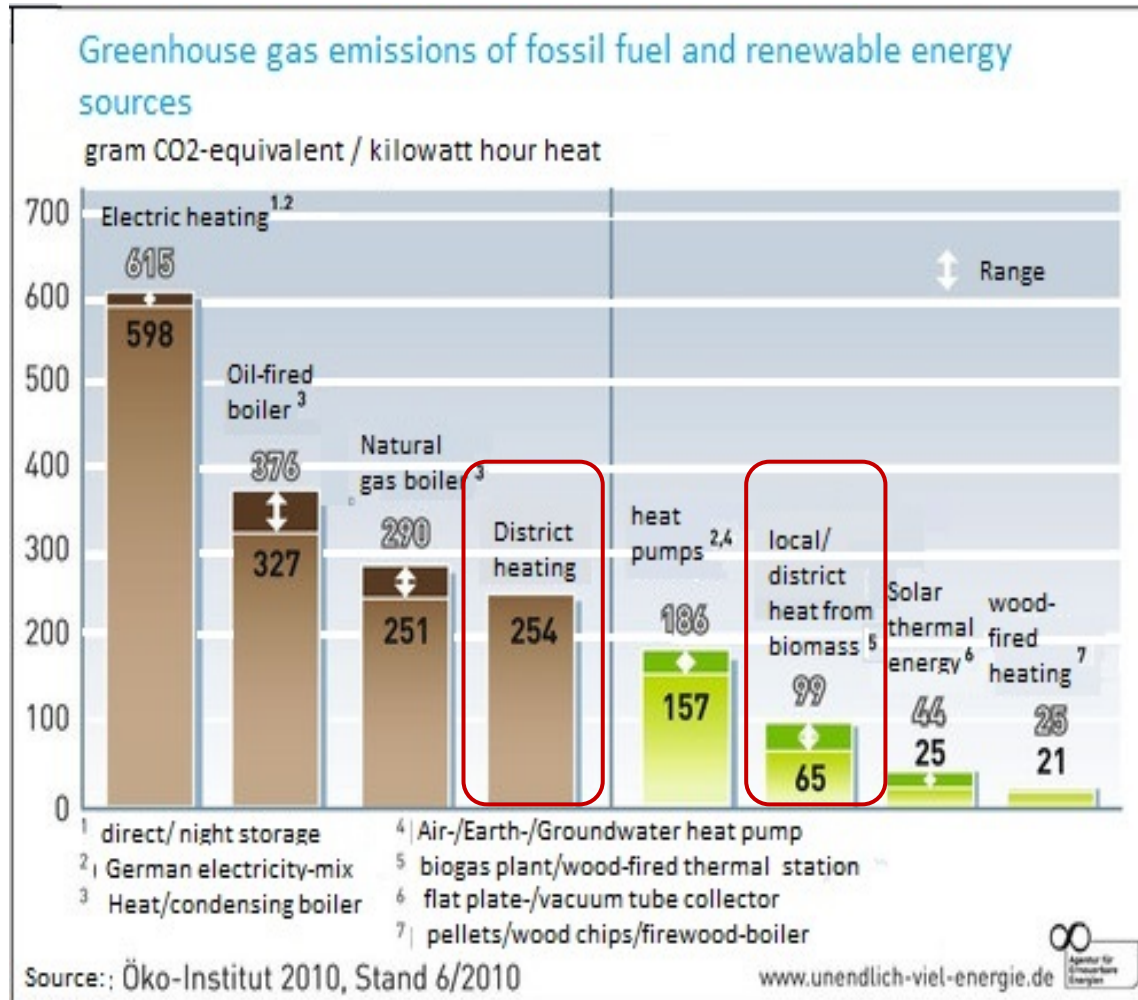
Source: Wood chips and pellet prices: C.A.R.M.E.N. e.V.; Heating oil and natural gas price indices: German statistical office

Advantages of wood chips

- › Low price volatility
- › Low unit costs
- › Import substitution
- › Local value generation

»» Why mainly for District Heating?

The ecological dimension:



Advantages of Biomass

- › CO₂ neutral
- › SO₂-reduction
- › Reduction of environmental risks (e.g. through oil leakages)

»» Biomass projects on the Balkans

Croatia: Electricity generation and heat supply for industry

- › Project owner: Strizivojna Hrast d.o.o.
- › Type of investment: co-generation power plant with auxiliary equipment
 $P = 3.3 \text{ MW}_{\text{el}}$ and 20 t/h steam
- › Total investment: 15.6 Mio Euro
- › Current status: Implemented since 2014
- › Fuel: Wood logs based on contract with Croatian National Forest; own wood chipper



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Croatia: District heating and power generation in Osijek and Sisak

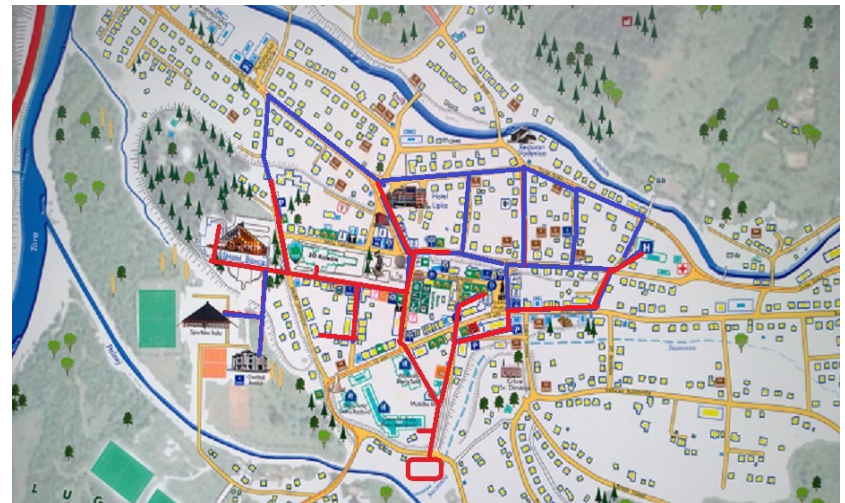
- › Project owner: HEP d.d.
- › Type of investment: Two co-generation power plants with auxiliary equipment
 - $P = 3.0 \text{ MW}_{\text{el}} / 10.0 \text{ MW}_{\text{steam}}$ (Osijek)
 - $P = 3.0 \text{ MW}_{\text{el}} / 10.0 \text{ MW}_{\text{steam}}$ (Sisak)
- › Total investment: ~ 35 Mio Euro
- › Current status: Under construction (Dec 2016)
- › Fuel: Wood chips based on contract with Croatian National Forest. At a later stage own wood chipper is considered.



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Montenegro: District heating system Kolasin

- › Project owner: Community of Kolasin
- › Type of investment: Installation of new Heat-only-Boilers (2 x 3.6 MW), fuel switch to wood chips, rehabilitation of pipe network and heat exchangers.
- › Total investment: ~ 6 Mio Euro
- › Current status: Feasibility Study by IPF3
- › Fuel: Wood logs from local forests.
Wood harvesting is supervised by MNE State Forest Agency. Own wood chipper and handling equipment.



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Albania: Rehabilitation of Student Dormitories in Tirana

- › Project owner: City of Tirana
- › Type of investment: Rehabilitation of the Student City Complex including installation of small decentralized Heat-only-Boilers for up to 29 student dormitory buildings.
- › Total investment: ~ 32 Mio Euro
- › Current status: Implementation starts 2017
- › Fuel: Wood chips or pellets to be contracted from local suppliers.



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Serbia: Fuel switch for district heating systems of several communities

- › Project owner: Different Serbian communities
- › Type of investment: Installation of new Heat-only-Boilers at new locations, fuel switch to wood chips, rehabilitation of pipe network and heat exchangers.
- › Total investment Phase 1: ~ 27 m EUR incl. 5 m co-financing from SECO
- › Overall Programme: 107 m EUR
- › Current status: Implementation starts 2017 with 8 municipalities
- › Fuel: Wood logs based on contract with Serbian National Forest or local suppliers; eventually own wood chippers.



»» Biomass projects on the Balkans

Main Challenges

- › Supply chain: sufficient quantity of wood available,
=> sustainable supply chains have to be organized – logistical challenge
- › Transforming the sector: Introduction and implementation of new energy source for DH needs lot of lobbying.
- › Sustainable supply: FSC or similar standards for sustainable forest management (national forest authorities in the Balkan countries usually have strict standards)



»» Thank you for your attention!

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