SECURING FUEL SUPPLY
A PRECONDITION TO PROJECT FINANCE

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Substitution of Power plants and resulting future capacity in Europe

Source: Cooretec, 2004
Numerous new installations in development
Number of „bio“ power plants quickly increasing
Typical 20MW_{el} installation
Co-firing in very large scale coal power plants

Doubling of demand for biogenic fuels
Shift in demand structure for biogenic fuels
Volumes demanded at single locations increase
Security of supply and risk hedging possibilities requested
Dis-satisfaction with currently available structures
What is making Biomass different?

<table>
<thead>
<tr>
<th>Solar</th>
<th>Primary Energy availability is Independent from operator</th>
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<tbody>
<tr>
<td>Wind</td>
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<td>Hydro</td>
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<td>Tidal</td>
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<td>Geothermal</td>
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Biomass

Primary Energy availability needs management of operator
BIOMASS Projects impose a long term responsibility on the operator to secure the availability of fuel at any time.

Security of supply for the fuel is the basis for financing of any biomass project.
Challenges to fuel management

How much of which Quality is needed

How to bundle supply sources

Local versus interregional supply

Long term / short term / spot acquisitions

Hedging against price increases

What if suppliers default
Biogenic energy market today

- no transparency
- difficult getting of information
- lacking quality
- little confidence
- problems for boiler producers
- no products, scarcely brand marks
- etc.
- nevertheless: market volume ca. 450MEuro
Current situation for large scale bio-fuel buyers

- Limited no. of known large scale sellers
- PPP dominates market
- Demand rapidly increasing
- Regional price volatility
- Limited international trade expertise available
- Different levels of market development
- Different (understanding of) quality standards
- Long term (bankable) contracts rarely available
Current situation for large scale biogenic fuel suppliers

- Limited no. of known large scale buyers
- 20+ languages
- Multiple borders
- Different levels of market development
- Different (understanding of) quality standards
- Involvement in project finance schemes required
- Inflexible rail cargo companies
- Low level in logistics specialisation
- access to a much bigger market
- easy and simple accessible
- clearly defined goods
- complete supply chain service offered
- optimised logistics
- long term contracts on demand
- risk hedging tools available
Market exchange as open platform

FUNCTIONS
- INFORMATION
- SUPPLY/DEMAND
- QUALITY
- SECURITY
- EXCHANGE MEMBERSHIP
- CLEARING
- INVESTMENT STIMULATION
- COMMERCIAL STANDARDS
- LOGISTICS

Wood processors
Forestry managers
Fuel vendors
Pellet producers
Forest owners
Wood processors
Fuel vendors
Pellet producers
Food industry
Saw mills
Industry
Heating syst. operators
Briquette producers
Households
Heat suppliers
Saw mills
Utilities

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Forward Business

- "FUTURES, Forward contracts"
  - intermediation and realization of contracts
  - setting of standards for futures in the area of biofuels in order to get them tradeable
  - offering the trading platform
  - taking the position of a clearing house

- "OPTIONS"
  - setting of standards for options in the area of biofuels in order to get them tradeable
FUTURES TRADING

Promise to sell at fixed terms

Promise to buy at fixed terms

Clearing House

Promise to sell at fixed terms

Promise to buy at fixed terms

Sell

Buy

©EBES – European Bio Energy Services
SECURITY STOCKS – an insurance service of EBES

- EBES is building physical stocks
- EBES is holding options and forward contracts on biogenic material
- Power plant operator is buying an option at fixed or variable terms
- Option fees payable at annual basis
- Delivery after utilization of option within 6 weeks
- Accounting unit MWh
- Option is fully transferable
- Increased security for continuous operation
- Increased independence
Procurement portfolio proposal

interregional supply

- Local: 50%
- Local options: 20%
- Interregional: 50%
- Interregional options: 20%
Local Supply

Advantages

- Short transport distances
- Added value within region
- Personal contacts
- Believed higher reliability
- Less bureaucracy
- Quality claims easier
- No phytosanitation costs

Disadvantages

- Limited number of suppliers
- Dependency high
- High risk resulting from single performance failures
- Complete exposure to local developments
- Limited ways to avoid ruinous competition
- Limited resources
Interregional Supply

Advantages
- decreased dependency
- larger number of suppliers
- increased quality range
- additional products
- re-trading possibilities
- hedging tools easier applicable
- development of completely new supply chains
- basis for local development
- Larger quantities easily manageable

Disadvantages
- added value in other regions
- lower energy efficiency of total system
- organisation effort increases
- logistical know how necessary
- involvement of banks and financial institutions necessary
Ratio secondary/primary energy

Source: GEMIS
EBES – basic structure

Production

Storage

Trade

BioXchange

Europe

Growing
Harvesting
Processing
Storing
Clearing for transport

ByProducts

Overseas

Ready to harvest

Broker

Ready to load

Trader

Transport

Consumer

Registered brokers

deposits

futures

options/driv.

daytrade