

Forest

Knowledge

Know-how

METLA

Well-being

Mobilizing economically sustainable supply chains

Report of *“Economic sustainability of biomass feedstock supply”*

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Outline of the presentation

- What is economic sustainability?
- Economic sustainability and added value
- Economic sustainability of woody biomass
- IEA Task 43 report on *economic sustainability of woody biomass feedstock supply*

What is economic sustainability?

- When production or activity delivers more benefit than cost over its complete life cycle, when all dimensions of sustainability are taken into account, then activity is considered economically sustainable (Hardisty 2010)
- Produces positive external effects and added value.
- Strongly connected to other dimensions of sustainability.



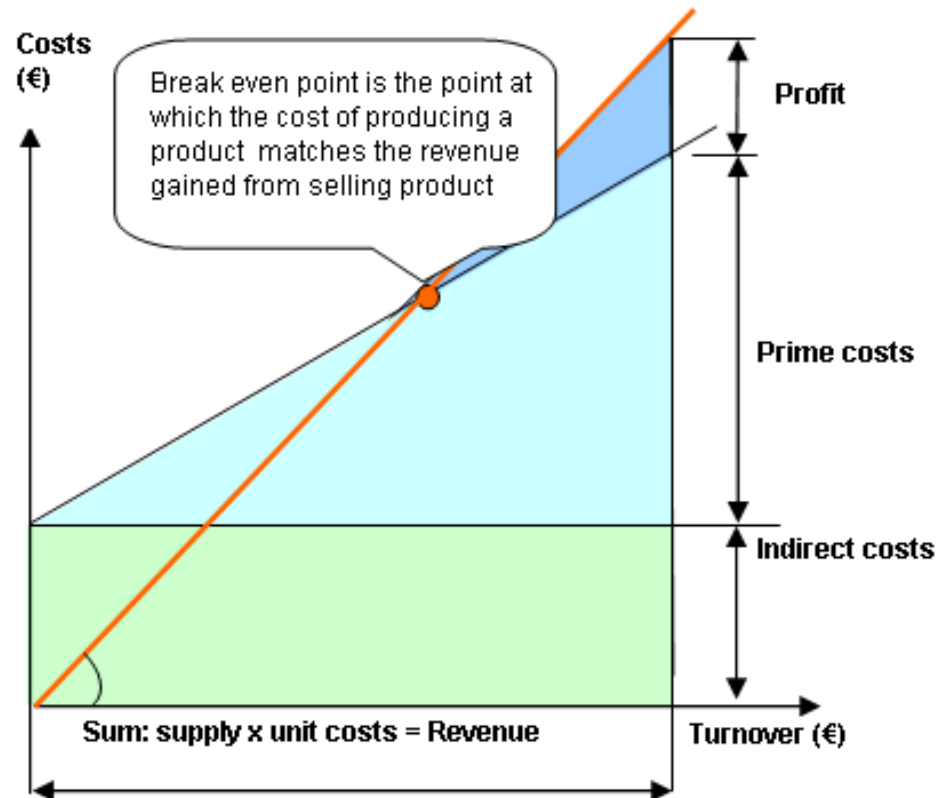
What is economic sustainability?

- Microeconomic sustainability implies the company's ability to maintain long-term profitability
- Measure of microeconomic sustainability is presented in monetary terms through which the added value can also be analyzed



What is economic sustainability?

- Production is profitable after break even point.
- Reducing the costs will affect the place of break even point, and profits will thus increase.
- **Increased profitability will increase microeconomic sustainability**



Economic sustainability and added value

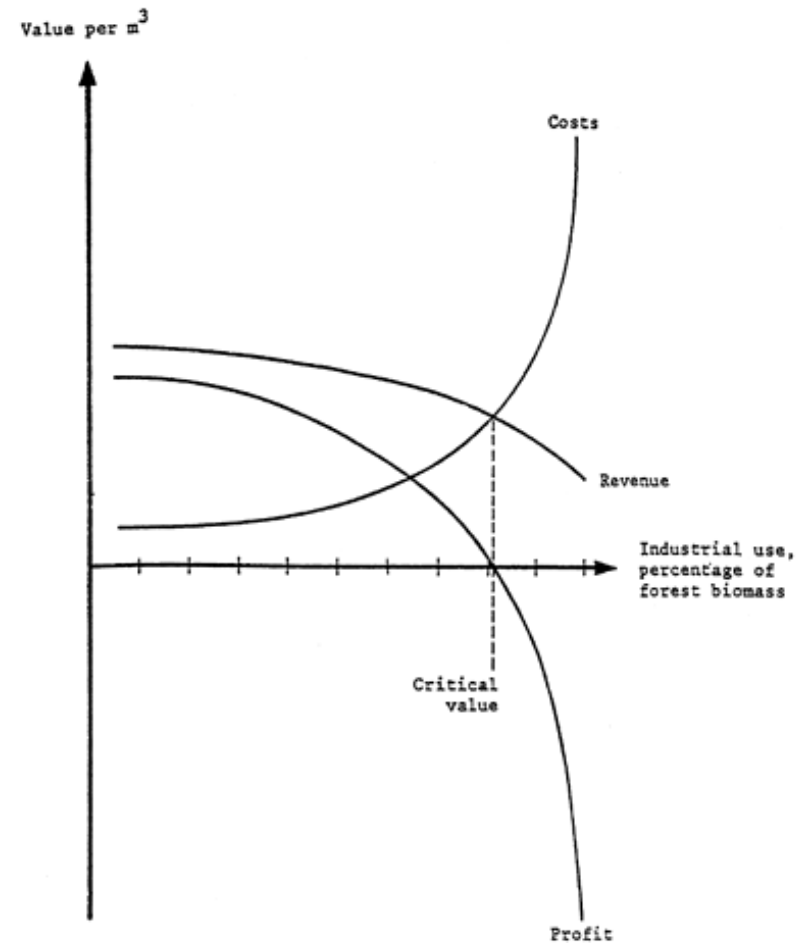
Indicator	Measure	Added value
Profit	Levels of profit, Profit margin, Production costs	Benefits to the local/national economy, Macroeconomic sustainability Microeconomic sustainability
Investments	Fixed costs, Return on Investment (ROI)	Economic growth, Macroeconomic sustainability Microeconomic sustainability
Employment	Annual wage(€), Number of employees, Quality of employment	Welfare Macroeconomic sustainability/economic growth
Outsourcing and supply chain management	Raw material/fuel costs, procurement costs, outsourcing costs	Improved profitability Microeconomic sustainability
Public policies and subsidies, Emission trade, Environmental management	Price of emission allowance, Costs of emission trade Subsidies	Decrease in CO ₂ emissions, Macroeconomic sustainability Environmental sustainability

Economic sustainability of woody biomass

- Four major criteria:
 - beneficial use,
 - economic viability,
 - economic equity,
 - property rights and landowner expectations (FAO 2010).
- Under these criteria, several indicators are measured, e.g.
 - production costs, feedstock supply costs
 - cost-competitiveness of woody biomass against competing energy resources
 - employment effects

Economic sustainability of woody biomass

- The break even analysis of woody biomass differs from other sectors
- The higher the yearly consumption of biomass, the higher procurement costs of biomass
- **Economic of scale doesn't give any advantage in transportation**



Objectives of the report

- Holistic analysis report on economic sustainability
- Focus on cost-competitiveness and profitability of the biomass supply
- Identify the key indicators of economic sustainability of biomass feedstock supply

Objectives of the report

- Describe the dimensions of economic sustainability of biomass feedstock chains.
- Analyze the cost-competitiveness of woody biomass compared to fossil fuels.
- Assess the effect of emission trade and subsidies on economic sustainability of woody biomass.
- Analyze environmental constraints and social aspects of biomass supply from economic point of view.

Material and method used

- Study is based on a review of existing information and literature.
- General framework from FAO`s criteria and indicar book on economic sustainability (FAO 2010).
- National and international statistical databases and reviews.
- Analyses of woody biomass supply costs and economical sustainability.

Some conclusions on economic sustainability

- Fluctuations of CO₂ and fossil fuel prices affects the cost-competitiveness of woody biomass in large plants and also availability in small plants outside emission trade system.
- Optimal size and location of bioenergy business is largely depended on biomass availability, procurement cost and radius. Conditions vary between regions.
- High procurement costs weakens the economical sustainability of woody biomass feedstock supply.
- International and national drivers advance woody biomass use but markets are still quite unstable. Long-term subsidy policy is needed to support the industry and investments.

Outline of the report

1. Sustainability criteria of biomass feedstock supply
2. Definitions of economic sustainability
3. Dimensions of economic sustainability
 - 3.1 Investments of machinery
 - 3.2 Storage management – controlling the quality and capital
 - 3.3 Seasonal variation of demand and fleet utilization
 - 3.4 Impacts of emission trade on biomass feedstock supply
 - 3.5 Competing fuels – world markets and economic cycles
 - 3.6 Impacts of national subsidies
 - 3.6.1 Direct subsidy for feedstock production
 - 3.6.2 Indirect subsidy of green electricity generation
 - 3.6.3 Labour skills and technology development
4. Ensuring the efficiency of biomass feedstock supply
 - 4.1 Risk management
 - 4.2 Operating environment – optimal location of bioenergy business
5. Environmental constraints
6. Certifications aspects
7. Social aspects

Report timetable and contribution

- Draft report done by February 2012
- Contribution from other writers during spring 2012 after which final reporting in summer 2012



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Thank you