

**Fördergesellschaft Erneuerbare Energien e.V.
MicroCHeaP – Workpackage 6
European Workshop – Technology transfer**



Month 18 Meeting

**Workpackage 6:
„Technology Transfer and Staff Secondments“**

**European Workshop – Technology Transfer
Dissemination, Knowledge, Know-how & Implementation**

“Instruments, Methods, Financing for RES-Micro-CHP Technology Transfer”

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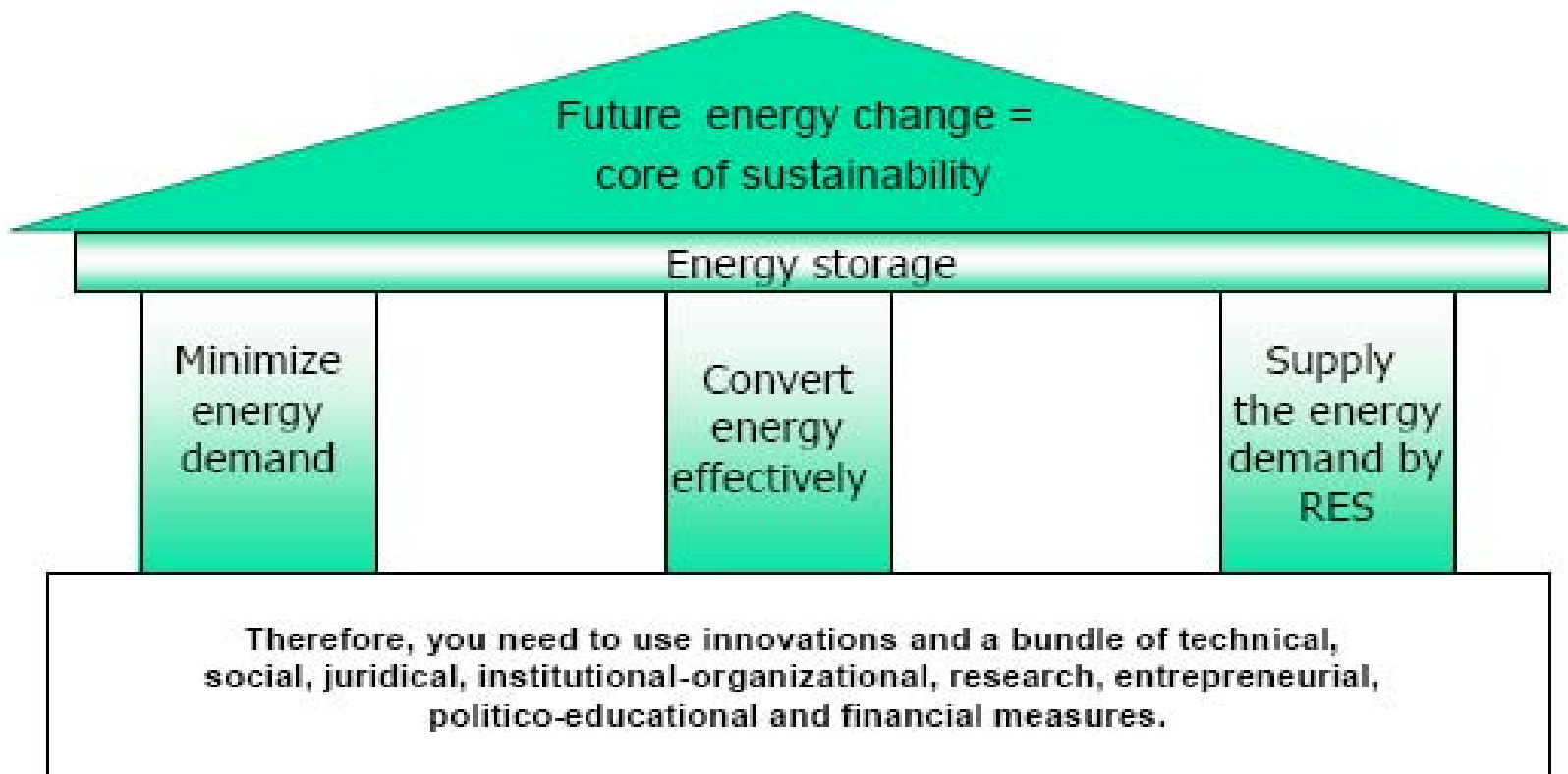
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Outline

- **Introduction**
- **Objectives**
- **Marketing experiences**
- **Barriers – hurdles – gaps**
- **Instruments**
- **Methods**
- **Financing**
- **Conclusions**
- **Next steps**

Introduction 1





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Objectives: Strategic basis

- **European Union (EU): Green house gas emissions have to be reduced by 8% until 2010, by 50% until 2020 and 80% by 2050 (1990)**
- **EU: In 2010 12% of end energy from renewables. In 2005 2% biofuel of total fuel consumption, in 2010 5.75%, in 2020 15 %**
- **EU: Green Paper on Security of Energy Supply: Europe should be independent on extra-European resources on primary energy carriers at least by 50% in 2030**
- **EU: Establish a hydrogen economy based completely on renewable energy sources**
- **Lisbon strategy: 3 % of BIP for research**

- **The switches are set leading to a new economy dominated by renewables, carbon and hydrogen.**
Enquête Commission of Bundestag: “Sustainable Energy Supply under the Conditions of Globalization and Liberalization”: In 2050 100% with renewables would be potentially and economically possible.



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The Objectives of WP 6

- **To transfer knowledge between partners (and interested parties)**
- **To identify opportunities for technology transfer within (and outside) the network**
- **To diffuse practical know-how and experience with the network, to aid future research and help overlap between technologies (and accelerate development by recoupling deficiencies back to researchers)**
- **To identify the main potential clients (and applications) for renewable RES-Micro-CHP**



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Marketing experiences

- **Combination of two in most cases expensive, financially in comparison with state- of- the-art fossil fuelled CHP not competitive Micro-CHP + RES**
- **Strong penetration of outer-EU-technologies into the EU-market**
- **Tendency of big market player to establish co-operation rather with technology developer from outside EU than with inside the EU situated companies**
- **Result of 14th European Conference “Biomass for Energy, Industry and Climate protection” decrease of EU-home-made TECHNICAL R&TD**
- **Most developers of new technical achievements are highly innovative SMEs**
- **Big companies often for shareholder value decline to develop new small-scale technologies, although they are potential mass market products**
- **Big companies and banks demand 1.5 ... max. 2.5 years of pay backtime of investment**



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Barriers, Hurdles and Gaps 1

Consulting with TECHNOSTART:

Salto mortale – The nearer the market the higher the obstacles

- **Research cooperation: Velocity, flexibility, need and search for sources of investment instead of continuity in research projects**
- **Manufacturing cooperation: Quality management, technical equipment, internal possibilities for supply**
- **Marketing cooperation: Lack of financial power, SME exhausted by invention, research and innovation process. Factor 3 to 5 needed for market penetration**

Barriers, Hurdles and Gaps 2

- **Innovative SMEs develop novelties, sometimes international best practice, which have to be marketed EU- or even worldwide**
- **Markets are often closed, occupied and dominated by strong competitors**
- **Level of turn-over of SMEs mostly insufficient for establishing strong and efficient marketing infrastructure**
- **Design and Finishing frequently imperfect**
- **Remuneration for RES electricity and RES heating in MicroCHP mostly not attractive**



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Instruments 1

- **Establishing of networks with preference for innovative SMEs (EU-ThermalNet, FEE “Gasification of Biomass” and “Biogenous Gases – Fuel Cells”, BMBF-International Research Networks on RES”)**
 - * **SMEs need someone for joint tasks, important for all, organisation, minimizing their individual risks, costs and efforts, representation**
 - * **Politicians prefer one partner and do not need a multitude of them**
 - * **Importance for hybrid big projects**

- **Examples:**
 - * **Big facility management companies need relations to clusters (Speicherstadt Potsdam Project)**
 - * **Utilities and gas suppliers are looking for experiences with grid integration**
 - * **Contact to foreign markets (Colombia)**
 - * **International relations (IEA gasification)**
 - * **Added-value chains (home-made fuel cells)**



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Instruments 2

Consultation with CEBra Centrum für Energietechnologie Brandenburg GmbH

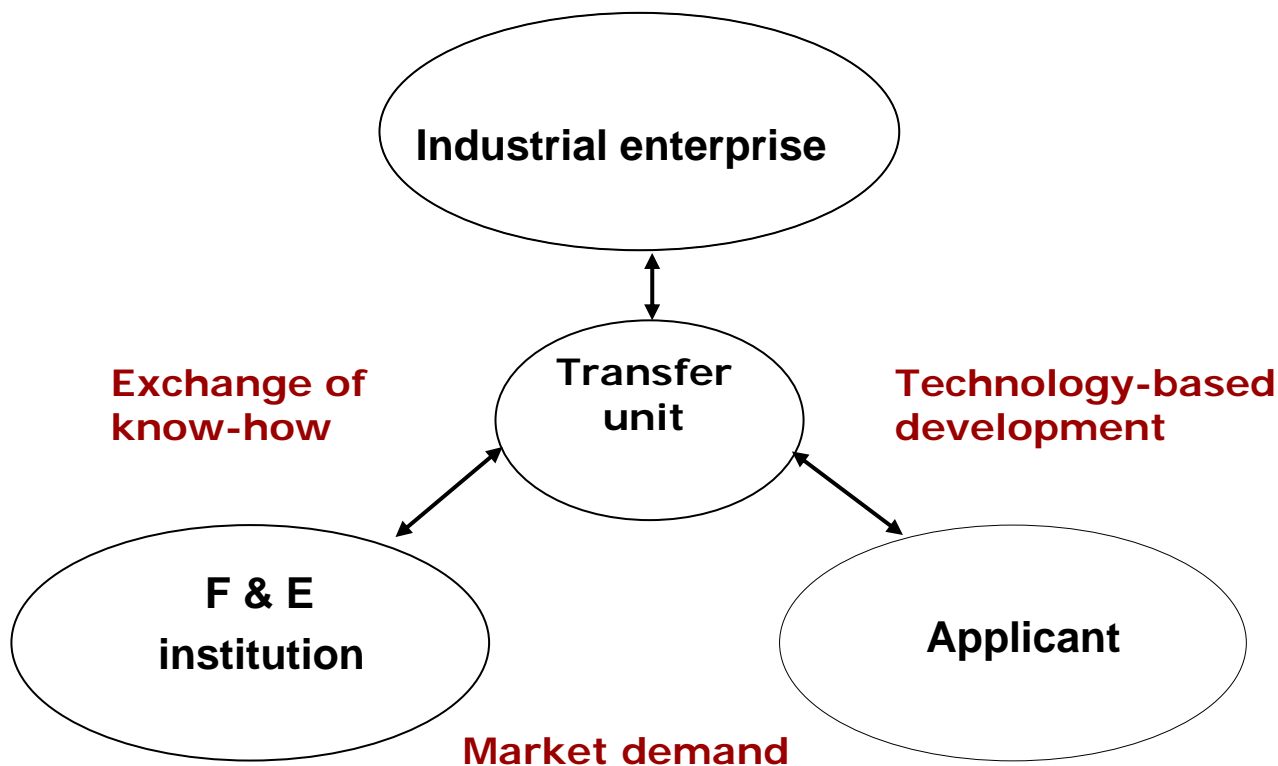
- **Establishing specialised transfer companies as link between universities, European partners, big companies and regional SMEs**

- **Steps:**
 - * **official technology transfer agency 2004**
 - * **establishing business area bioenergy by utilising bioenergy network of FEE**
 - * **combination with the business area energy management joint development of projects university-SMEs-NGO-big companies, co-ordinated by CEBra jointly with FEE**

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Instruments 3





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Instruments 4

Service of the transfer management

- **Market analysis**
- **Establishing relations between stakeholders**
- **Representing interesese of enterprises**
- **Defining projects and searching partners**
- **Organising financing for F & E, demonstration and projects**
- **Consulting for development of enterprises**
- **Conferences, workshops**
- **Consulting of clients**



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Instruments 5

- **Establishing a special service group within FEE for public relations and innovation marketing in favour of innovative SMEs consisting of:**
 - * **journalists specialised on reporting on technical and social innovations**
 - * **media experts for the production of clips, films and any other digital presentations in TV, on CD-ROM**
 - * **professional internet portal and**
 - * **interpreters and translators specialised on the subjects of energy, RES and related topics**

- **Increasing conviction of regional politicians and urban utilities: In times of globalization unique chances for regional economics by RES-CHP applications**



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Methods 1

- **Difference between one single product to penetrate into the market or a new technology → integration of μ -CHP and RES means a major industrial change**
 - in energy efficiency
 - in ownership
 - from energy supply-side offer to demand-side necessity
 - from huge centralized grid-operation to grid-connected but locally managed systems or even decentralized stand-alone delivery
 - from energy abundance to intelligent management



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Methods 2

- **Create and participate in networks**
- **Develop hybrid projects to balance fast encreasing prices for fossil fuels**
- **Target groups:**
 - **Communal utilities**
 - **Innovative companies**
 - **Municipalities (heating)**
 - **Real estate developers**



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Methods 3

- **Establish an innovation check, consisting of**
 - **Evaluation of the technology**
state-of-the development (idea → concept → R & D sample → prototype → pilot plant → first of its kind → semi- or industrial type → field tested → ready to the market)
 - **Performance with RES fuel**
 - **Market monitoring**
 - **Risk analysis**



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Methods 4

- **Market monitoring**
- **Analysing competition**
 - **competitors (EU, outside, EU-enterprises linked to foreign technology providers)**
 - **Know-how, scientific-technical potential**
 - **patents, copyrights**
 - **market position**
- **Market analysis (prices, additional added- value, regional added-value chains)**
- **Investigating trends → prognosing market developments**
- **Benchmarking**
- **Market and technology studies**



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Financing

- **Basel II in practice**
- **Change in real industrial policy of EU: Technology platform with financial participation of associates automatically excludes SME, as „lighthouse projects“, too**
- **Patent and copyright situation**
- **Lender bank focuses on getting loans back with high rate of profit therefore realises in depth risk management to**
 - **identify**
 - **assess**
 - **mitigate**
 - **exclude any own risk and**
 - **transfer it to someone else**



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Conclusions

- **Changes in technology fields need strategic regulations as driving forces and door openers (EU-guidelines, national jiridical acts)**
- **Cooperation and joint marketing needs economical potent partners**
- **Direct coupling of innovative SMEs with investors**
- **Joint marketing of innovations wi8th trading of further produkts**
- **NO EU- and national subsidies for foreign technologies at least strong preferences for EU-home-made**
- **Major change energy strategy of oil and gas possessing countries under discussion: Develop RES internaly → export fossil energy carriers, using them as source for investments**
- **Warranties up to 50 % by EIB for innovative technologies from SMEs**



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Next steps

- **Continuing strong involvement of industrial enterprises developing Micro-CHP**
- **Preparing new proposals:
European Network of RES-MicroCHP and demand-side decentralized energy supply
Novel instruments for financing RES-MicroCHP**
- **Proposal for European Conference**
- **FP 7 More emphasis on technical developments**
- **Analysing successes and drawbacks in staff secondments**