

RLS Energy Network

Regional Panel II: Regional Energy/Climate Policies, Industrial development and Bio Fuels

Energy and Climate Policies in Upper Austria and Socio-Economic Research on Energy Issues



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Western Cape, 12th March 2014



Austrian Energy Policy


- ☒ **Turn-over of EU 2020 targets on Austria:**
 - ☒ 20% increase of energy efficiency
 - ☒ 34% increase of renewable energy
 - ☒ 21% reduction of GHG emissions in EU ETS sectors
 - ☒ 16% reduction of GHG emissions in Non-EU ETS sectors


- ☒ Start of the **ENERGIESTRATEGIE ÖSTERREICH** in 2009 as a long-term transformation process of the Austria energy










Upper Austrian Energy Policy

ENERGIEZUKUNFT OBERÖSTERREICH 2030

-  Ambitious energy strategy for Upper Austria in 2007 decided by the federal state government





-  Sectoral division: electricity, heat, fuels

-  Strategy preparation covered
 -  Evaluation of renewable energy potentials in Upper Austria
 -  Establishment of a dialogue platform integrating the public
 -  Definition of scenarios
 -  Definition of targets
 -  Development of proposals for actions
 -  Economic evaluation

Upper Austrian Energy Policy

ENERGIEZUKUNFT OBERÖSTERREICH 2030

Implementation targets for 2030:

-  sufficient domestic production of renewable energy to cover the Upper Austrian electricity demand and room heating
-  gradual reduction by 39% of heat demand
-  Reduction by 41% of diesel and petrol consumption in the transport sector
-  Reduction of CO₂ emissions up to 65% accounting for economic and social factors

Upper Austrian Energy Policy

FIELDS OF ACTION

-  promotion of energy efficiency and development of energy-consumption potentials
 -  integration of renewable energies
 -  development of the energy infrastructure
 -  development of economic and innovation field of energy and environmental technologies
 -  enforcement of energy research
-
-  Upper Austria as a industrial and energy-intensive area in 2050 becoming a **leading region** in terms of energy efficiency, employment, social compatibility as well as economic and technological leadership

Upper Austrian Energy Policy

Key data of renewable energy in Upper Austria

	2011
Final energy by renewables	78.2 PJ
Relative to total final energy consumption	36.2%
Primary energy by renewables	92.5 PJ
Relative to total primary energy consumption	31.5%
Portion of renewables - heat sector	48.5%
Portion of renewables - electricity sector	67.6%
Portion of renewables - transport sector	6.1%

Source: Energiebericht zum O.Ö. Energiekonzept – Berichtsjahr 2012. Federal State Government of Upper Austria 2013.

http://www.esv.or.at/fileadmin/redakteure/ESV/Info_und_Service/Energie_in_OOe/Umsetzungsbericht/Umsetzungsbericht_2012_homepage.pdf



Upper Austrian Energy Policy

Key data of energy efficiency in Upper Austria

	Energy savings in 2012
Total	3,135,875 MWh
Envelope renovation	1,785,735 MWh
Heat supply and distribution	630,098 MWh
New buildings' envelope	336,198 MWh
Solar/PV	309,360 MWh
Consulting services and others	74,483 MWh

Source: Energiebericht zum O.Ö. Energiekonzept – Berichtsjahr 2012. Federal State Government of Upper Austria 2013.





http://www.esv.or.at/fileadmin/redakteure/ESV/Info_und_Service/Energie_in_OOe/Umsetzungsbericht/Umsetzungsbericht_2012_homepage.pdf



Energy Institute: Socio-economic research activities

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Energy Institute: Socio-economic research activities

- ④ **Quantifying macroeconomic, ecologic and energetic effects:** Simulation model of the (Upper) Austrian economy with main emphasis on energy – **MOVE**
- ④ The main emphasis lies on energy which enables comprehensive and complex studies of all aspects of the (local) energy market.
- ④ The model was principally designed for Upper Austria, but is suitable for the entire Austrian area accounting for special structural characteristics.
- ④ MOVE was already applied in several regional and national projects (financed e.g. by the Austrian Climate and Energy Fund, regional institutions and energy providers) particularly for the economic analysis of energy and environment related
- ④ Within the level of Central Europe, no comparable simulation tool regarding the energy sector exists.

MOVE-Model: Economic module

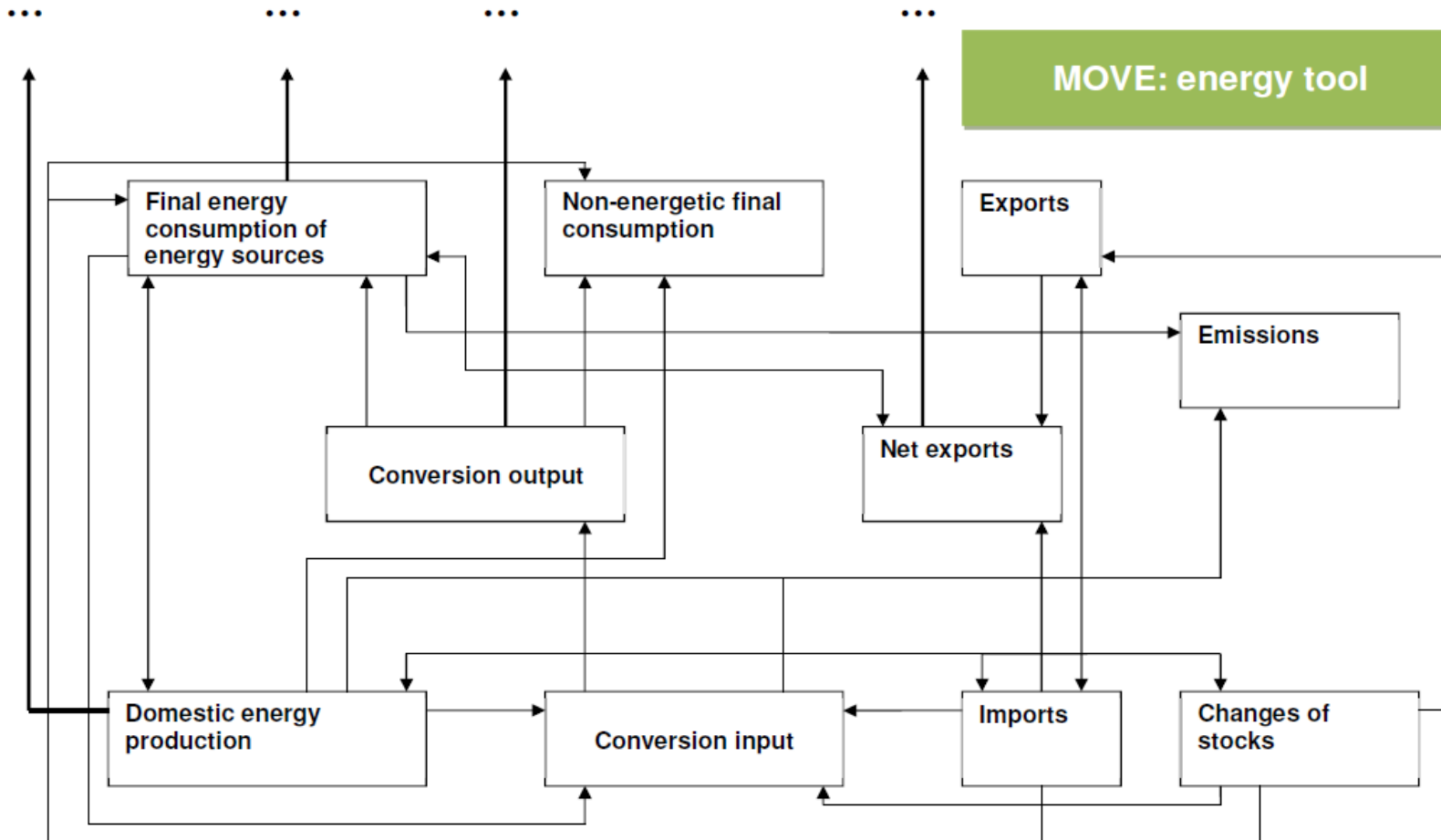


Source: Tichler, R. (2009), „Optimale Energiepreise und Auswirkungen von Energiepreisveränderungen auf die öö. Volkswirtschaft. Analyse unter Verwendung des neu entwickelten Simulationsmodells MOVE“, Energieinstitut an der Johannes Kepler Universität Linz, Energiewissenschaftliche Studien, Band 4, ISBN 978-3-99008-016-0

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MOVE-Model: Energy module

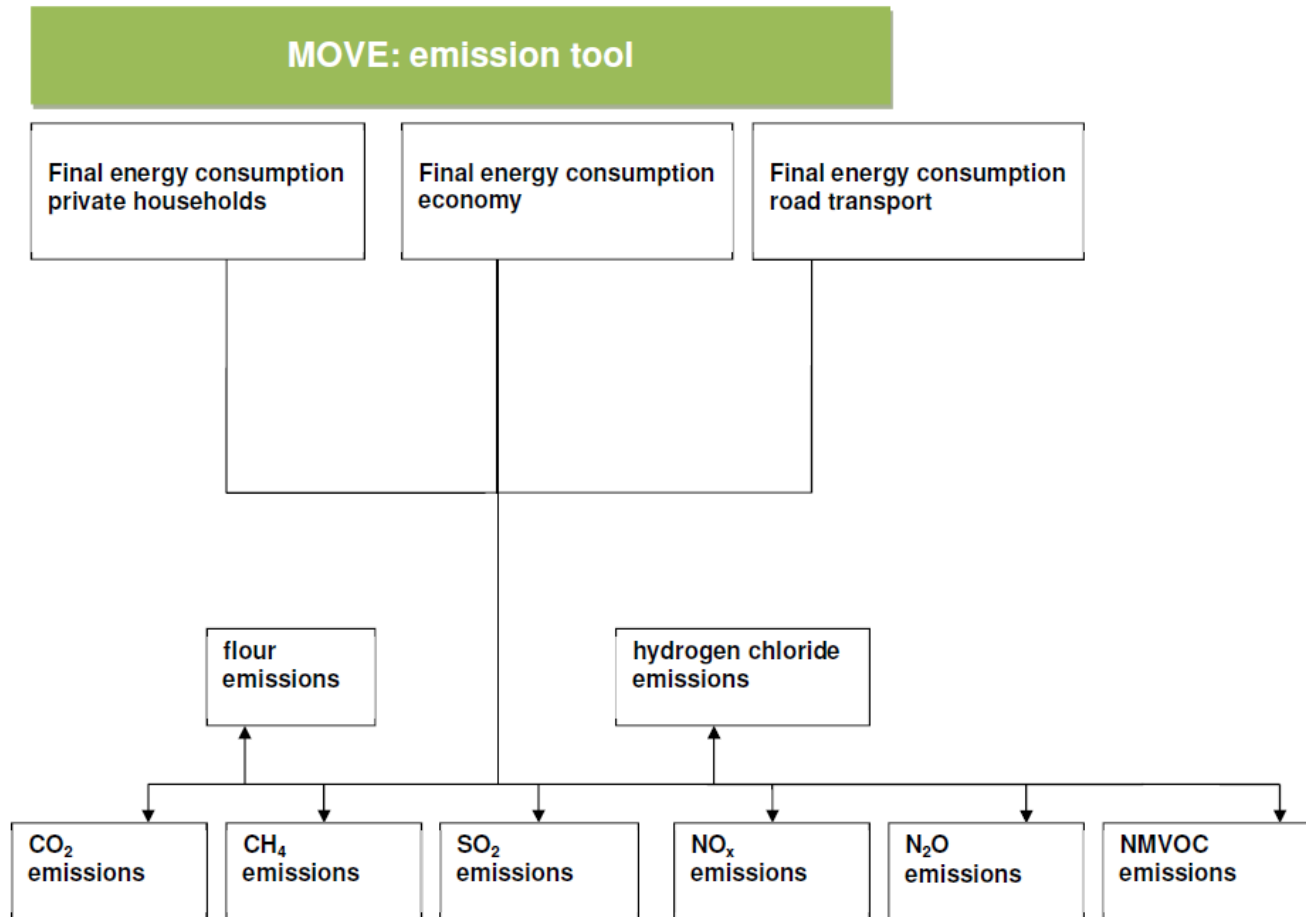


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MOVE-Model: Ecologic module



Source: Tichler, R. (2009), „Optimale Energiepreise und Auswirkungen von Energiepreisveränderungen auf die öö. Volkswirtschaft. Analyse unter Verwendung des neu entwickelten Simulationsmodells MOVE“, Energieinstitut an der Johannes Kepler Universität Linz, Energiewissenschaftliche Studien, Band 4, ISBN 978-3-99008-016-0

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Economic analysis of the proposal for actions of the Upper Austrian Program „Energiezukunft 2030“

 Exploring the program's “Double Dividend”


Sector	Differences per year compared to a business-as-usual scenario	
	Gross regional product [Mio. €]	Employees
Heat	+560	+2,000
Electricity	+220	+550
Transport	+290	+2,600
Total	+1,070	+5,150

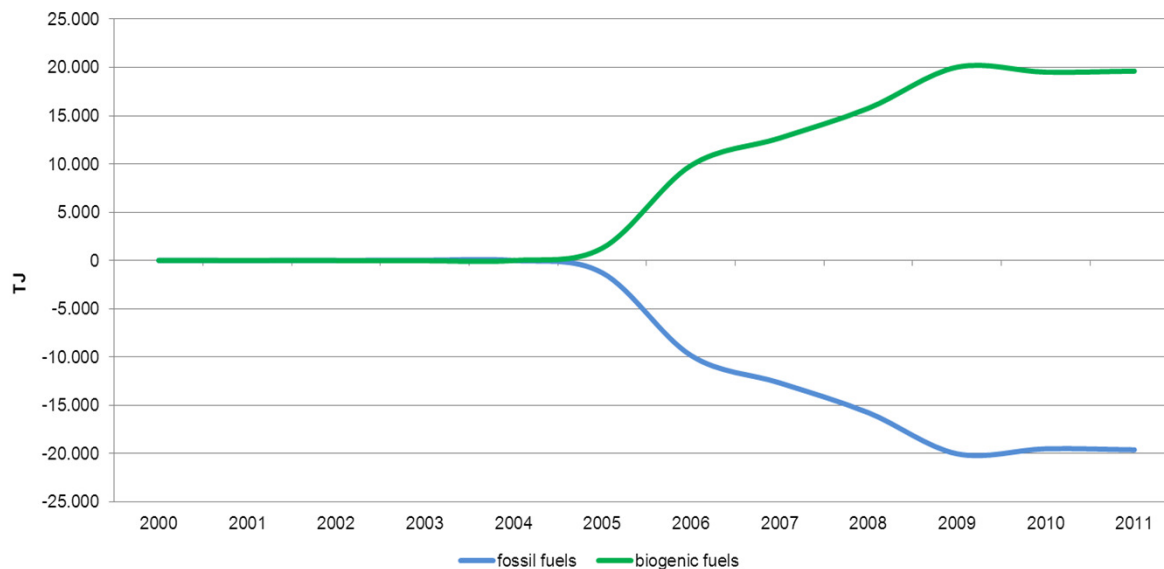
Note: minimum potentials

Source: Tichler, R., Schneider, F., Steinmüller, H. (2009) Volkswirtschaftliche Analyse des Maßnahmenprogramms 'Energiezukunft 2030 der Oberösterreichischen Landesregierung'. <http://www.esv.or.at>

Energy Institute: Socio-economic research activities

Economic potentials of renewables in Austria

-  Quantification of energetic effects by the Austria energy system's changeover from fossil to renewable energy (2000-2011), transport sector



Note: Consumption of private households = energetic + non-energetic consumption. Net exports = (energetic + non-energetic) exports – (energetic + non-energetic) imports. The compensation of lower tax revenues is disregarded in the economic effects.

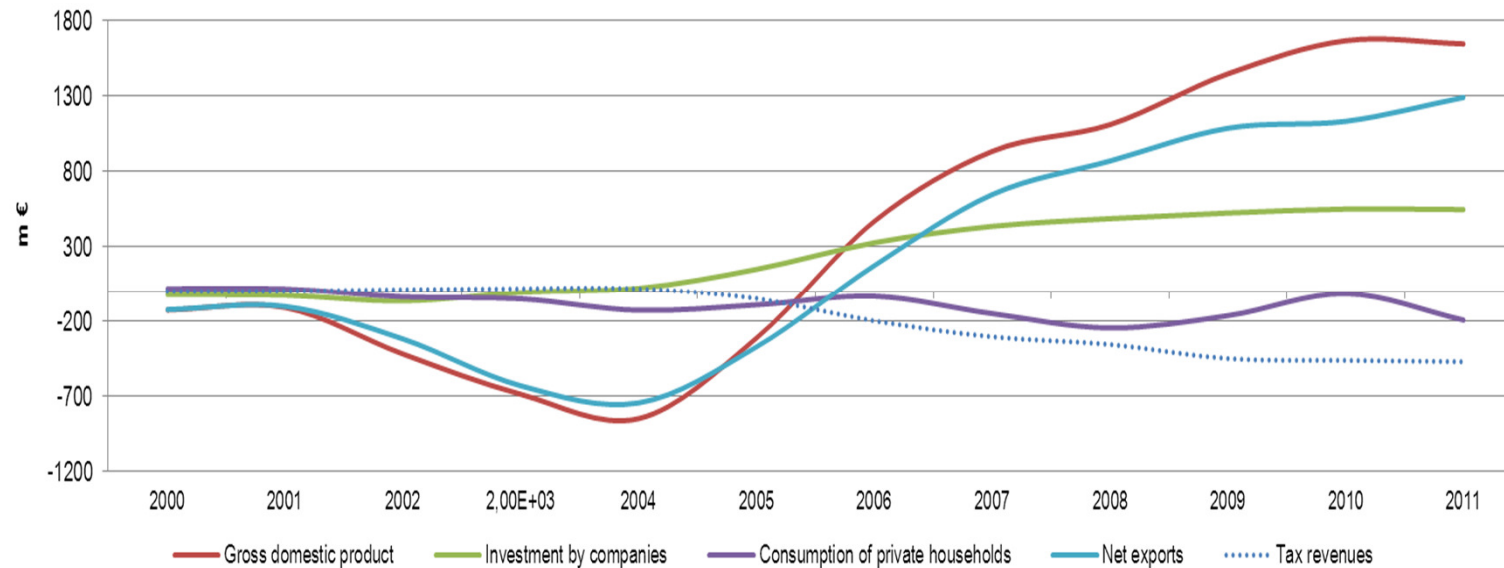
Source: Bointner et al. (2013) Wirtschaftskraft Erneuerbarer Energie in Österreich und Erneuerbare Energie in Zahlen. Blue Globe Report Erneuerbare Energien #1/2013.

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 **Effects on public tax revenues**

Tax revenues per year (2000-2011) – difference to business-as-usual scenario	
Tax revenue by energy consumption	- 186 m €
Value added tax revenue by non-energetic goods	- 4 m €
Revenues by employees	+67 m €
Total	-123 m €

Source: Bointner et al. (2013) *Wirtschaftskraft Erneuerbarer Energie in Österreich und Erneuerbare Energie in Zahlen. Blue Globe Report Erneuerbare Energien #1/2013.*

Energy Institute: Socio-economic research activities

Fuel Poverty in (Upper) Austria

-  Research by Christina Friedl: *Fuel Poverty in private Households*
-  Fuel Poverty is an essential issue within European energy policy goals whereas the discussion and the implementation of adequate measures have only taken place to a small extent in Austria
-  Causes of energy poverty are the combination of:
 -  Low income: About 1 m people (12% of the Austrian population) are at risk of poverty
 -  Rise in fuel prices – comparison (June 2011/2012): + 4 % gas, + 10 % district heating und + 1 % solid fuels (biomas, wood) / 8 % share of energy costs to the whole household consumption expenditure in the lowest income group
 -  Energy-inefficient housing stock & high energy consumption

Energy Institute: Socio-economic research activities

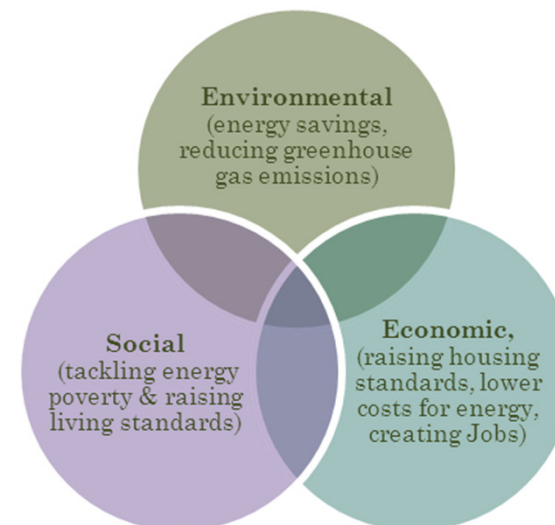
e Measures & Activities against Fuel poverty in Austria

- e Grants by the government: winter fuel payment for people with low income, differs nationally between 120 and 250 Euro but is not bound to ecologic criteria
- e Actions by energy suppliers: Installation of prepayment-meter, disconnections, payment in instalments
- e Temporary offers: Exemption from special parts of the electricity and gas price, replacement of inefficient appliances, free month of electricity (2010)
- e Social organisations: Consulting and financial aid for people who are in debt or are no longer able to pay their energy bills (also within the framework of project subsidies)
- e Energy consulting in combination with replacement of inefficient appliances and energy saving items

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e Energy Efficiency – An Adequate Measure for Fuel Poor People?

- e Fuel Poverty as an aspect of poverty & a complex problem determined by various factors
- e Tackling Energy Poverty against the background of various aims not only in social politics but also in energy politics
- e Improvement of the quality of life and standard of living as well as energy savings in low income households
- e Energy Efficiency as a sustainable solution to Energy Poverty
- e **There are already some measures & projects concerning the fuel poverty issue in Austria**



Thank you for your Attention!

contact:

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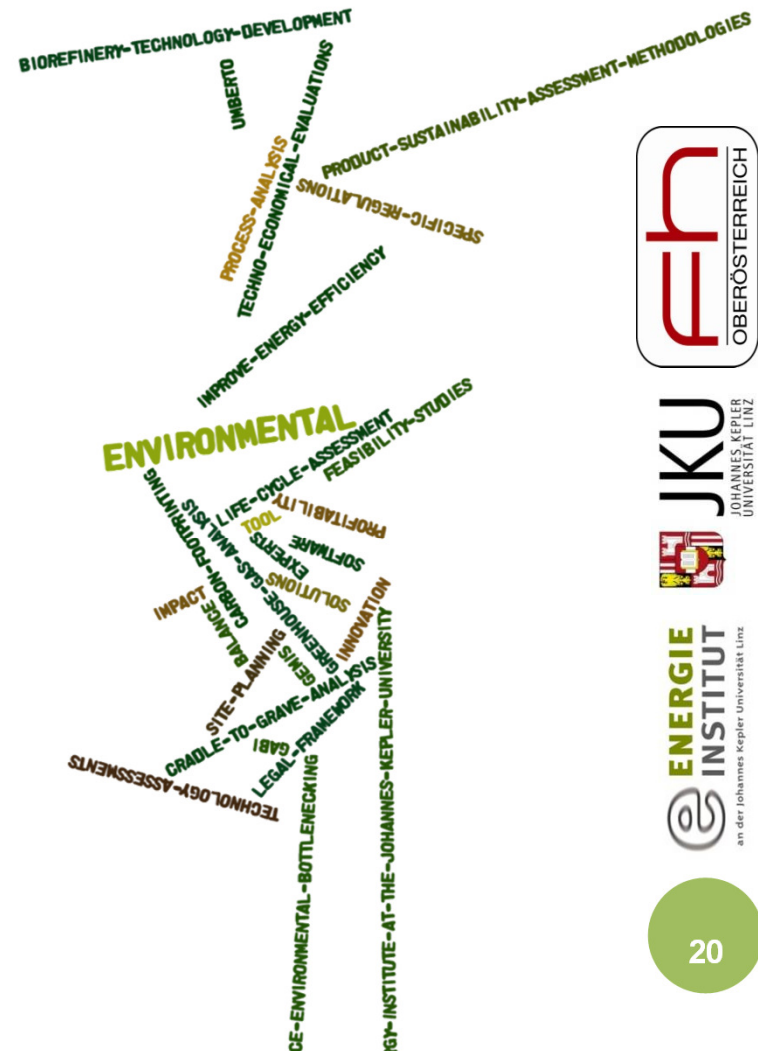
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Appendix - Energy Institute: Focus on working fields

- ☉ Last three years: participation in **approximately 70 projects**
 - own research
 - contract research
 - public funded research
- ☉ Strength: **multidisciplinary knowledge** of more than one scientific field in energy research (economics, law, technics, sociology)
- ☉ combination of these three core disciplines allows **comprehensive analyses** and accounts for all aspects of future-oriented energy topics
- ☉ Special focus an **macro-perspective**: integration of macroeconomic effects/welfare effects of certain technologies, actions, services, productions, systems,...
- ☉ **Econometric modeling of energy markets**
- ☉ Comparative **technology evaluation** with **Life Cycle Assessment** and Product Sustainability Assessment methodologies



Appendix - Energy Institute: Focus on working fields

- ☞ Combination of the core disciplines (economics, law, technics, sociology) allows **comprehensive analyses** and accounts for all aspects of future-oriented energy topics

Recent projects

- Energy Economics

Macroeconometric modelling of the energy sector

Strategies for energy efficiency improvements

Smart Metering and consumer motivation

CO₂ abatement costs and emission trading systems

Fuel poverty



Appendix - Energy Institute: Focus on working fields

Recent projects

- Technology Development and Assessment

Techno-economical evaluation of renewable energy technologies

Biorefinery technology development

Life cycle assessment based on ISO 14040/14044

- Energy law

Comments on energy legislation

Smart metering and privacy policy

More information on projects are available at the website:

<http://www.energieinstitut-linz.at>

<http://www.energyefficiency.at/>

