

EViews – IHS 1st User Meeting

**Global Commodity Markets - Scenarios, Prices and
Forecasts - Focus on Energy**

***Quantifying macroeconomic, ecologic and energetic
effects: Simulation model of the (Upper) Austrian
economy with main emphasis on energy - MOVE***

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Energy Institute: Focus on working fields

- ☉ Last three years: participation in **approximately 90 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,...
- ☉ **Macro-econometric modeling (of energy markets)**
- ☉ Comparative **technology evaluation** with **Life Cycle Assessment** and Product Sustainability Assessment methodologies

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, GHG targets 2030 and emission trading systems

Fuel poverty

Macroeconometric analyses

- ④ Quantitative macroeconomic analyses: Evaluation of the effects of the action / shocks on classical economic indicators (GDP, employees, private consumption, investment, etc.).
- ④ The analyses covers not only primary effects but also dynamic and second- and third-round effects.

- ④ Team:
 - ④ Martin Baresch, *Economist & Statistician, Researcher*
 - ④ Sebastian Goers, *Economist, Senior Researcher*
 - ④ Friedrich Schneider, *Economist, Head of the Department of Energy Economics & Professor at the Institute of Economics at the Johannes Kepler University of Linz*
 - ④ Robert Tichler, *Economist, Deputy Executive Director of the Energy Institute*

Macroeconometric analyses

e Development of the model MOVE (2004 to 2009)



MOVE - Overview

- 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

MOVE - Overview

Basic Procedure of MOVE

- ④ Integration of all regressions and all identities in an overall model
- ④ Solution of the overall model by **EViews** (Gauss-Seidel algorithm)
- ④ Illustration of a business-as-usual scenario; results of simulations by MOVE are to be regarded as a **departure from the business-as-usual scenario**

MOVE - Overview

EViews - [Workfile: BASIS BIS 2025_NEU - (i:\projekte\move\evIEWS-files\aktuelles file\basis bis 2025_neu.wf1)]

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Sample: 1980 2025 -- 46 obs

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<input checked="" type="checkbox"/> c_carfuel_1	<input checked="" type="checkbox"/> c_fw_brcoal_0s	<input checked="" type="checkbox"/> c_lng_0m	<input checked="" type="checkbox"/> ci_biof_0s	<input checked="" type="checkbox"/> ci_wasteh_0m	<input checked="" type="checkbox"/> co_refin_0	<input checked="" type="checkbox"/> e_af_biof_0s	<input checked="" type="checkbox"/> e_af_f_euro_0s	<input checked="" type="checkbox"/> e_bicoalb_0s
<input checked="" type="checkbox"/> c_carfuel_equation	<input checked="" type="checkbox"/> c_fw_brcoal_1	<input checked="" type="checkbox"/> c_lng_0s	<input checked="" type="checkbox"/> ci_biof_1	<input checked="" type="checkbox"/> ci_wasteh_0s	<input checked="" type="checkbox"/> co_refin_0m	<input checked="" type="checkbox"/> e_af_biof_1	<input checked="" type="checkbox"/> e_af_f_euro_1	<input checked="" type="checkbox"/> e_bicoalb_1
<input checked="" type="checkbox"/> c_coal	<input checked="" type="checkbox"/> c_fw_brcoalb	<input checked="" type="checkbox"/> c_lng_1	<input checked="" type="checkbox"/> ci_biof_a	<input checked="" type="checkbox"/> ci_wasteh_1	<input checked="" type="checkbox"/> co_refin_0s	<input checked="" type="checkbox"/> e_af_biof_a	<input checked="" type="checkbox"/> e_af_fueloil	<input checked="" type="checkbox"/> e_bicoalb_0m
<input checked="" type="checkbox"/> c_coal_equations	<input checked="" type="checkbox"/> c_ne_euro	<input checked="" type="checkbox"/> c_ne_euro_0	<input checked="" type="checkbox"/> ci_biof_equation	<input checked="" type="checkbox"/> ci_wasteh_a	<input checked="" type="checkbox"/> co_refin_1	<input checked="" type="checkbox"/> e_af_bicoalb	<input checked="" type="checkbox"/> e_af_fueloil_0	<input checked="" type="checkbox"/> e_bicoalb_0s
<input checked="" type="checkbox"/> c_coke	<input checked="" type="checkbox"/> c_fw_brcoalb_0m	<input checked="" type="checkbox"/> c_ne_euro_1	<input checked="" type="checkbox"/> ci_bioff	<input checked="" type="checkbox"/> ci_wasteh_equation	<input checked="" type="checkbox"/> co_refin_equation	<input checked="" type="checkbox"/> e_af_brcoalb	<input checked="" type="checkbox"/> e_af_fueloil_0m	<input checked="" type="checkbox"/> e_bicoalb_1
<input checked="" type="checkbox"/> c_coke_0								<input checked="" type="checkbox"/> e_carfuel_euro_0

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MOVE - Overview

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ews - [Model: ZZMODELL  Workfile: BASIS BIS 2025_NEU:Untitled]
File Edit Object View Proc Quick Options Window Help
roc|Object| Print|Name|Freeze| Solve| Equations|Variables|Text
tions: 330
Scenario 1
EQUATION 1 Eq1.. i_af, i_ew, i_ma, i_ct, i_mi, i_tc = F(c_e_euro, dummy1999ex, dummy2000ex, dummy2002ex, e_e_euro, gdp, gdp_austria, gva, gva_ew, gva_ma, gva_mi, i_austria_af, i_austr
EQUATION 2 Eq7.. i_srest, i_fi, i_pa, i_re, i_to = F(dummy1993ex, dummy1997ex, dummy1998, dummy1998ex, dummy1999ex, dummy2001ex, e_diesel_tr, e_petro_tr, gdp, gdp_austria, gva, g
= i_ew + i_fi + " Eq12: i = F(i_af, i_ct, i_ew, i_fi, i_ma, i_mi, i_pa, i_re, i_srest, i_tc, i_to, i_tr)
EQUATION 1 Eq13.. w_af, w_ew, w_ma, w_ct, w_mi, w_tc = F(c_e_euro, cpi, dummy2002ex, e_af_dh_euro, e_af_el_euro, e_af_f_euro, e_af_renew_euro, e_ct_dh_euro, e_ct_el_euro, e_ct_f_euro
EQUATION 2 Eq19.. w_srest, w_fi, w_pa, w_re, w_to, w_tr = F(cpi, dummy1999ex, gva_fi, gva_re, gva_tr, n_fi, n_pa, n_re, n_srest, n_to, u, ur)
= w_af + w_ct + " Eq25: w = F(w_af, w_ct, w_ew, w_fi, w_ma, w_mi, w_pa, w_re, w_srest, w_tc, w_to, w_tr)
EQUATION 2 Eq26.. n_srest, n_fi, n_pa, n_re, n_to, n_tr = F(c_ne_euro, dummy1993ex, dummy1994ex, dummy1995ex, dummy1996ex, dummy1997, dummy2004ex, gdp, gva_fi, gva_pa, gva_re,
EQUATION 1 Eq32.. n_af, n_ew, n_ma, n_ct, n_mi, n_tc = F(dummy1995, dummy1996ex, dummy1997, dummy1997ex, gva_af, gva_ct, gva_ma, gva_mi, gva_tc, hgv_diesel, hgv_petro, i_ew, n_ew
= n_af + n_ct + " Eq38: n = F(n_af, n_ct, n_ew, n_fi, n_ma, n_mi, n_pa, n_re, n_srest, n_tc, n_to, n_tr)
C EQUATION Eq39: ucc = F(cpi, ir)
/A EQUATION 1 Eq40.. gva_af, gva_ew, gva_ma, gva_ct, gva_mi, gva_tc = F(c_e_euro, co_e, cpi, dummy1990ex, dummy1991ex, dummy1995, dummy1995ex, dummy1999ex, dummy2000ex, e_af_
/A EQUATION 2 Eq46.. gva_srest, gva_fi, gva_pa, gva_re, gva_to, gva_tr = F(cpriv, e_diesel_tr, e_petro_tr, e_se_dh_euro, e_se_el_euro, e_se_renew_euro, gdp_austria, i_fi, i_pa, i_re, i
/BA EQUATION 1 Eq52: gva = F(gva_af, gva_ct, gva_ew, gva_fi, gva_ma, gva_mi, gva_pa, gva_re, gva_srest, gva_tc, gva_to, gva_tr)
/BA_T REST EQUATION Eq53: pub_t_rest = F(cpriv, dummy2002ex)
)P TREND Eq54: gdp_hp = F(gdp)
)P EQUATION Eq55: gdp = F(c_e_euro, c_ne_euro, i, nx_e_euro, nx_ne, pub_g)
)P EQUATION Eq56: ygap = F(gdp, gdp_hp)
)P EQUATION Eq57: pub_t_tmin1 = F(pub_t, pub_t_cred, pub_t_lu, pub_t_rest, pub_t_ret, pub_t_sha, pub_t_w)
)P EQUATION Eq58: yd = F(ntrans, w)
)P EQUATION Eq59: pub_tming = F(pub_g_adj, pub_t_adj)
)P EQUATION Eq60: pub_g = F(pub_g_amort, pub_g_i, pub_g_pers, pub_g_realty, pub_g_rest, pub_g_ret, pub_g_t2, pub_i)
)P EQUATION Eq61: pub_g_adj = F(pub_g_amort, pub_g_i, pub_g_pers, pub_g_realty, pub_g_rest, pub_g_ret, pub_i)
)P EQUATION Eq62: pub_i = F(pub_i_d, pub_i_supp)
)P EQUATION Eq63: pub_t = F(pub_t_cred, pub_t_lu, pub_t_rest, pub_t_ret, pub_t_sha, pub_t_tmin1, pub_t_w)
)P EQUATION Eq64: pub_t_adj = F(pub_t_lu, pub_t_rest, pub_t_ret, pub_t_sha, pub_t_w)
)P EQUATION Eq65: cpi = F(cpi, cpi_import, epi_priv_100, w, ygap)
)P EQUATION Eq66: nx_ne = F(cpi, cpi_world, dummy1997ex, dummy2002ex, gdp, gdp_austria)
)P EQUATION Eq67: c_ne_euro = F(c_e_euro, cpi, ir, yd)
)P EQUATION Eq68: ci_ambh = F(pr_ambh)
)P EQUATION Eq69: ci_biof = F(c_dh, c_el, ci_ambh, ci_el, ci_hydro, ci_wasteh, ci_wipho, dummy1996, e_dh, e_el, m_el, x_el)
)P EQUATION Eq70: ci_blcoal = F(c_blcoal, c_coke, ci_coke, e_blcoal, e_coke, m_blcoal, ne_coke)
)P EQUATION Eq71: ci_coke = F(c_coke, ci_convgas, e_coke, e_convgas, inv_coke, m_coke, x_coke)
)P EQUATION Eq72: ci_gas = F(c_dh, c_el, c_gas, ci_ambh, ci_biof, ci_brcoal, ci_el, ci_hydro, ci_wasteh, ci_wipho, dummy1992ex, e_dh, e_el, e_gas, m_el, m_gas, ne_gas, pr_gas, x_el, x_gas)
)P EQUATION Eq73: ci_hydro = F(dummy1991ex, rainfall)
)P EQUATION Eq74: ci_wasteh = F(c_dh, c_el, ci_ambh, ci_biof, ci_el, ci_hydro, ci_wipho, e_dh, e_el, m_el, x_el)
)P EQUATION Eq75: ci_wipho = F(c_el, ci_ambh, ci_biof, ci_gas, ci_hydro, dummy1995, e_el, p_el)
)P EQUATION Eq76: co_coke = F(ci_blcoal, ci_brcoal)
)P EQUATION Eq77: co_cokegas = F(ci_blcoal, ci_brcoal)
)P EQUATION Eq78: co_convgas = F(ci_coke)
)P EQUATION Eq79: co_dh = F(ci_ambh, ci_biof, ci_gas, ci_wasteh, dummy1996ex)
)P EQUATION Eq80: co_refinp = F(ci_fueloil, co_refinp, dummy1997ex, dummy1998ex)
)P EQUATION Eq81: c_ambh, c_biof, c_wood = F(c_dh, c_f, c_rw_ambh, c_rw_wood, dummy1994ex, heatdelta, p_ambh, p_biof, p_wood, yd)
)P EQUATION Eq84: c_petro, c_diesel = F(c_diesel, c_petro, dummy1991ex, dummy1996ex, dummy2003ex, p_diesel, p_petro, yd)
)P EQUATION Eq86: c_carfuel = F(c_diesel, c_petro)
)P EQUATION Eq87: c_fueloil, c_gasoil, c_lng, c_gas = F(c_dh, c_el, c_fw_gas, c_fw_gasoil, c_fw_lng, c_gas, c_gasoil, c_renew, dummy1994ex, dummy1995ex, dummy1996ex, dummy2001ex,
)P EQUATION Eq91: c_el, c_dh = F(c_f, c_renew, heatdelta, p_dh, p_el, yd)
)P EQUATION Eq93: c_e = F(c_ambh, c_biof, c_blcoal, c_brcoal, c_brcoalb, c_coke, c_dh, c_diesel, c_el, c_fueloil, c_wood, c_gas, c_gasoil, c_lng, c_petro)
)P EQUATION Eq94: c_e_euro = F(c_ambh, c_biof, c_blcoal, c_brcoal, c_brcoalb, c_coke, c_dh, c_diesel, c_el, c_fueloil, c_wood, c_gas, c_gasoil, c_lng, c_petro, p_ambh, p_biof, p_blcoal, p_b
)P EQUATION Eq95: c_fw_blcoal = F(c_brcoal, c_brcoalb, c_coke, c_fueloil, c_gas, c_gasoil, c_lng)
)P EQUATION Eq96: c_fw_coke = F(c_blcoal, c_brcoal, c_brcoalb, c_fueloil, c_gas, c_gasoil, c_lng)
)P EQUATION Eq97: c_fw_fueloil = F(c_blcoal, c_brcoal, c_brcoalb, c_coke, c_gas, c_gasoil, c_lng)
)P EQUATION Eq98: c_fw_gas = F(c_blcoal, c_brcoal, c_brcoalb, c_coke, c_fueloil, c_gasoil, c_lng)
)P EQUATION Eq99: c_fw_gasoil = F(c_blcoal, c_brcoal, c_brcoalb, c_coke, c_fueloil, c_gas, c_lng)
)P EQUATION Eq100: c_fw_lng = F(c_blcoal, c_brcoal, c_brcoalb, c_coke, c_fueloil, c_gas, c_gasoil)
)P EQUATION Eq101: c_fw_rcoil = F(c_blcoal, c_coke, c_fueloil, c_gas, c_gasoil, c_lng)
)P EQUATION Eq102: c_renew = F(c_ambh, c_biof, c_wood)
)P EQUATION Eq103: c_rw_ambh = F(c_biof, c_wood)
)P EQUATION Eq104: c_rw_biof = F(c_ambh, c_wood)

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MOVE - Overview

EViews - [Group: UNTITLED Workfile: BASIS BIS 2025_NEU::Untitled]

File Edit Object View Proc Quick Options Window Help

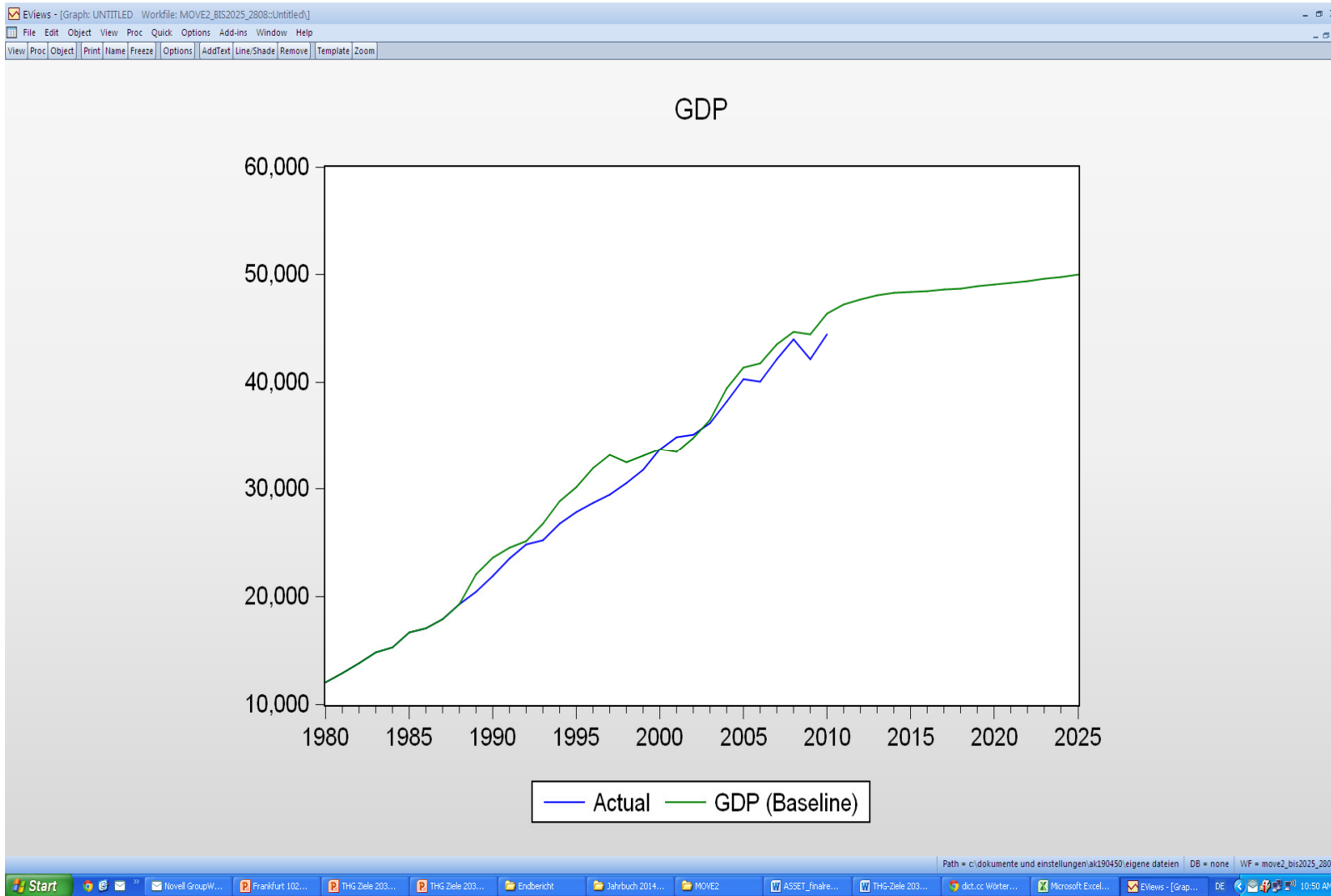
View Proc Object Print Name Freeze Edit+/- Font TabOptions RowOptions Title Sample

Scenario 1 Deviation From Baseline

		2010	2011	2012	2013	2014
E_AF_LNG	E_AF_LNG	0.00	0.00	0.00	0.00	0.00
E_EW_CONVGAS	E_EW_CONVGAS	0.00	0.00	0.00	0.00	0.00
GDP	GDP	0.00	0.00	0.00	0.00	0.00
M_BRCOAL	M_BRCOAL	0.00	0.00	0.00	0.00	0.00
M_BRCOALB	M_BRCOALB	0.00	0.00	0.00	0.00	0.00
M_DIESEL	M_DIESEL	0.00	0.00	0.00	0.00	0.00
M_EL	M_EL	0.00	0.00	0.00	0.00	0.00
M_LNG	M_LNG	0.00	0.00	0.00	0.00	0.00
M_PETROL	M_PETROL	0.00	0.00	0.00	0.00	0.00
I_SREST	I_SREST	0.00	0.00	0.00	0.00	0.00
I_EW	I_EW	0.00	0.00	0.00	0.00	0.00
		2010	2011	2012	2013	2014
C_GASOIL	C_GASOIL	0.00	0.00	0.00	0.00	0.00
CI_HYDRO	CI_HYDRO	0.00	0.00	0.00	0.00	0.00
E_AF_LNG	E_AF_LNG	0.00	0.00	0.00	0.00	0.00
E_EW_CONVGAS	E_EW_CONVGAS	0.00	0.00	0.00	0.00	0.00
GDP	GDP	0.00	0.00	0.00	0.00	0.00
M_BRCOAL	M_BRCOAL	0.00	0.00	0.00	0.00	0.00
M_BRCOALB	M_BRCOALB	0.00	0.00	0.00	0.00	0.00
M_DIESEL	M_DIESEL	0.00	0.00	0.00	0.00	0.00
M_EL	M_EL	0.00	0.00	0.00	0.00	0.00
M_LNG	M_LNG	0.00	0.00	0.00	0.00	0.00
M_PETROL	M_PETROL	0.00	0.00	0.00	0.00	0.00
I_SREST	I_SREST	0.00	0.00	0.00	0.00	0.00
I_EW	I_EW	0.00	0.00	0.00	0.00	0.00
		2015	2016	2017	2018	2019
C_GASOIL	C_GASOIL	0.00	0.00	0.00	0.00	0.00
CI_HYDRO	CI_HYDRO	0.00	0.00	0.00	0.00	0.00
E_AF_LNG	E_AF_LNG	0.00	0.00	0.00	0.00	0.00
E_EW_CONVGAS	E_EW_CONVGAS	0.00	0.00	0.00	0.00	0.00
GDP	GDP	0.00	0.00	0.00	0.00	0.00
M_BRCOAL	M_BRCOAL	0.00	0.00	0.00	0.00	0.00
M_BRCOALB	M_BRCOALB	0.00	0.00	0.00	0.00	0.00
M_DIESEL	M_DIESEL	0.00	0.00	0.00	0.00	0.00
M_EL	M_EL	0.00	0.00	0.00	0.00	0.00
M_LNG	M_LNG	0.00	0.00	0.00	0.00	0.00
M_PETROL	M_PETROL	0.00	0.00	0.00	0.00	0.00
I_SREST	I_SREST	0.00	0.00	0.00	0.00	0.00
I_EW	I_EW	0.00	0.00	0.00	0.00	0.00
		2020	2021	2022	2023	2024
C_GASOIL	C_GASOIL	0.00	0.00	0.00	0.00	0.00
CI_HYDRO	CI_HYDRO	0.00	0.00	0.00	0.00	0.00
E_AF_LNG	E_AF_LNG	0.00	0.00	0.00	0.00	0.00
E_EW_CONVGAS	E_EW_CONVGAS	0.00	0.00	0.00	0.00	0.00
GDP	GDP	0.00	0.00	0.00	0.00	0.00
M_BRCOAL	M_BRCOAL	0.00	0.00	0.00	0.00	0.00
M_BRCOALB	M_BRCOALB	0.00	0.00	0.00	0.00	0.00
M_DIESEL	M_DIESEL	0.00	0.00	0.00	0.00	0.00
M_EL	M_EL	0.00	0.00	0.00	0.00	0.00
M_LNG	M_LNG	0.00	0.00	0.00	0.00	0.00
M_PETROL	M_PETROL	0.00	0.00	0.00	0.00	0.00

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MOVE - Overview



MOVE - Overview

Characteristics of MOVE:

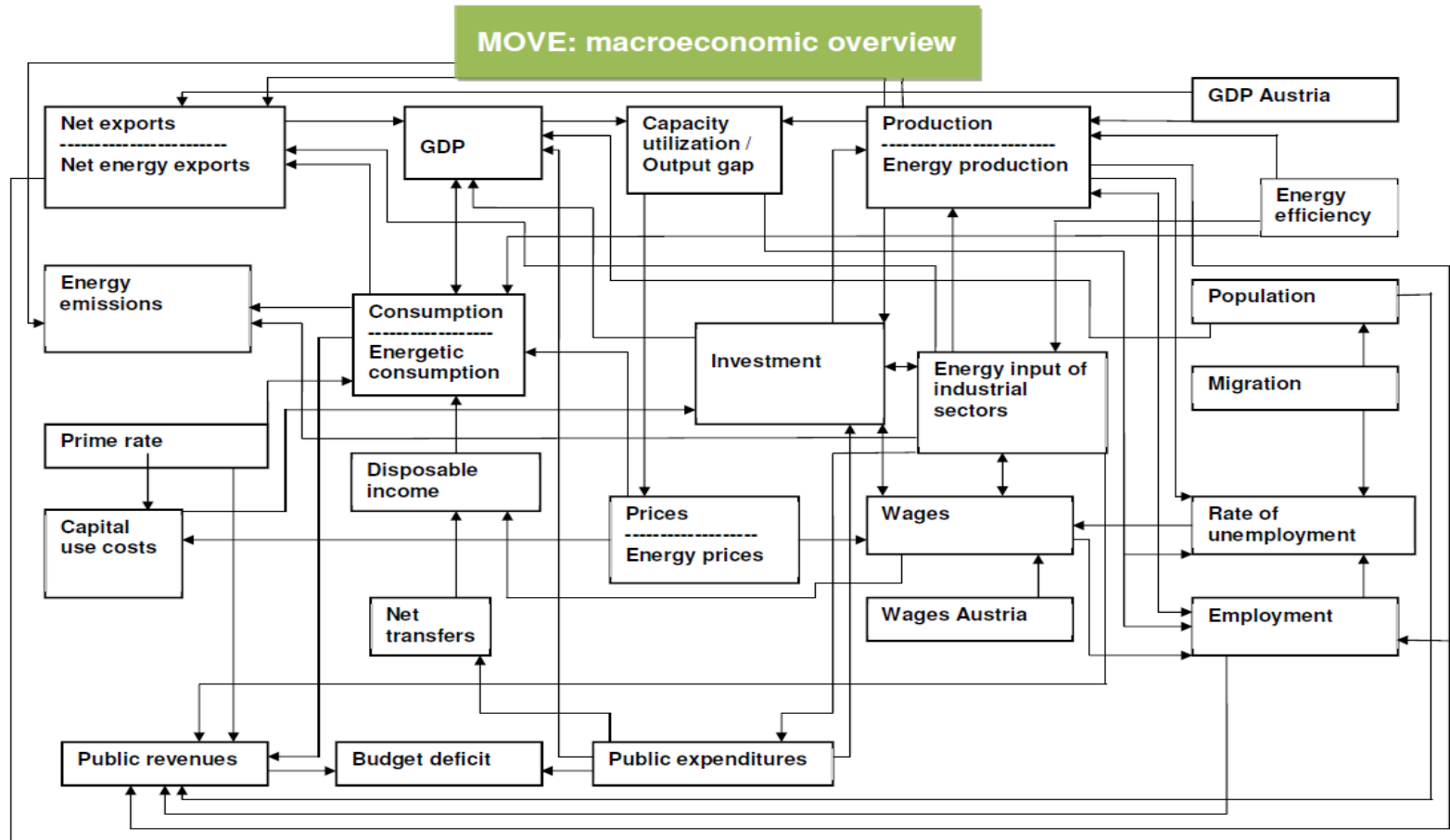
Number of equations:	~ 330
Number of variables	~ 542
Number of sectors (including private households)	13
Number of energy sources:	24
Preferred time frame for simulations	1-10 years

Covered energy sources:

ambient heat	combustible turf	fuel oil (heavy)	orher refinery inputs
biogenic fuel	crude oil	fuel oil (light)	petrol
brown coal	diesel	hydro power	solar and wind power
coal briquets	district heat	kerosene	stack gas
coke	electric power	liquefied gas	stone coal
coke oven gas	fire wood	natural gas	waste

MOVE - Overview

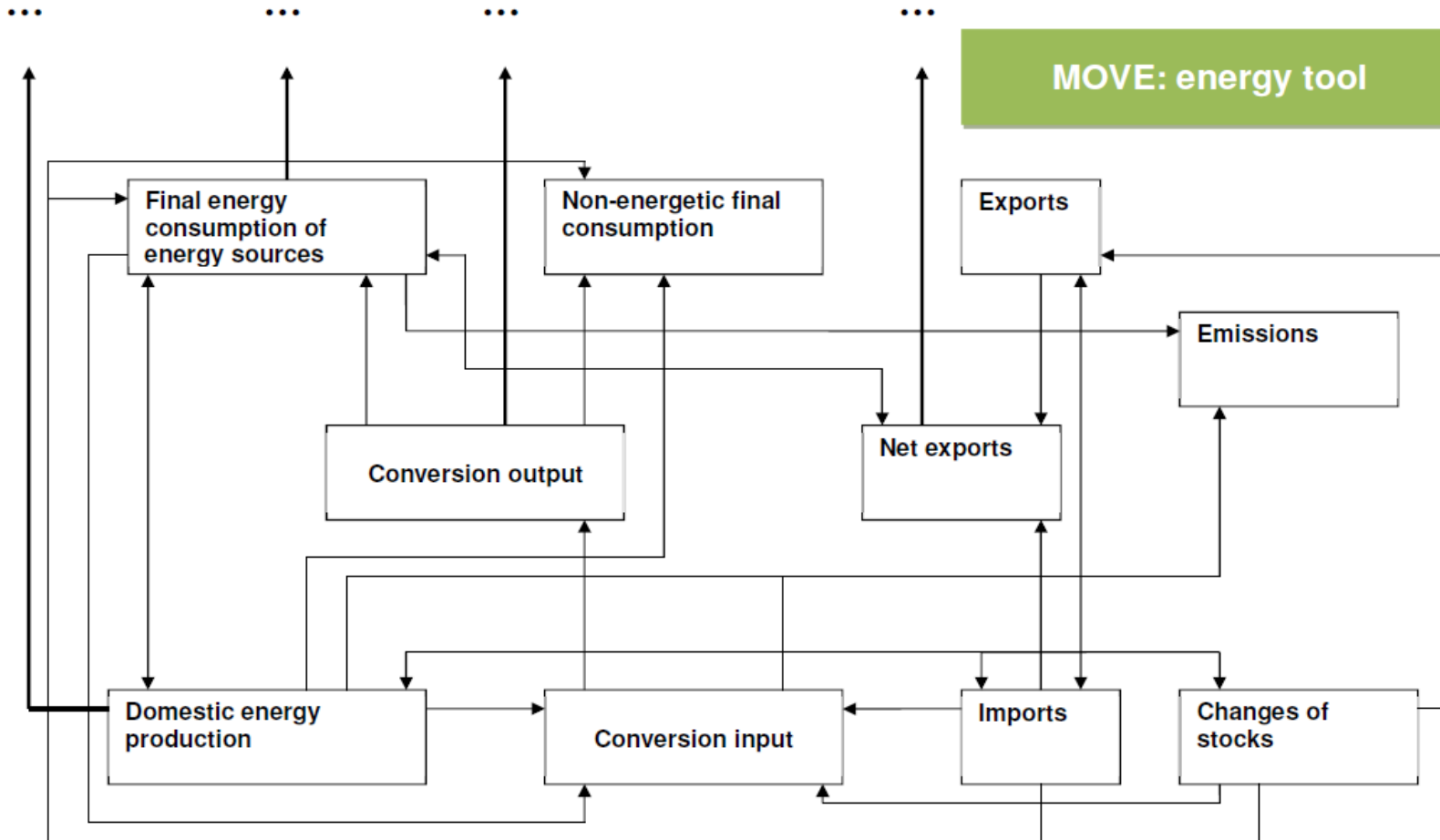
MOVE-Model: Economic module



Source: Kollmann (2009), Tichler (2009)

MOVE - Overview

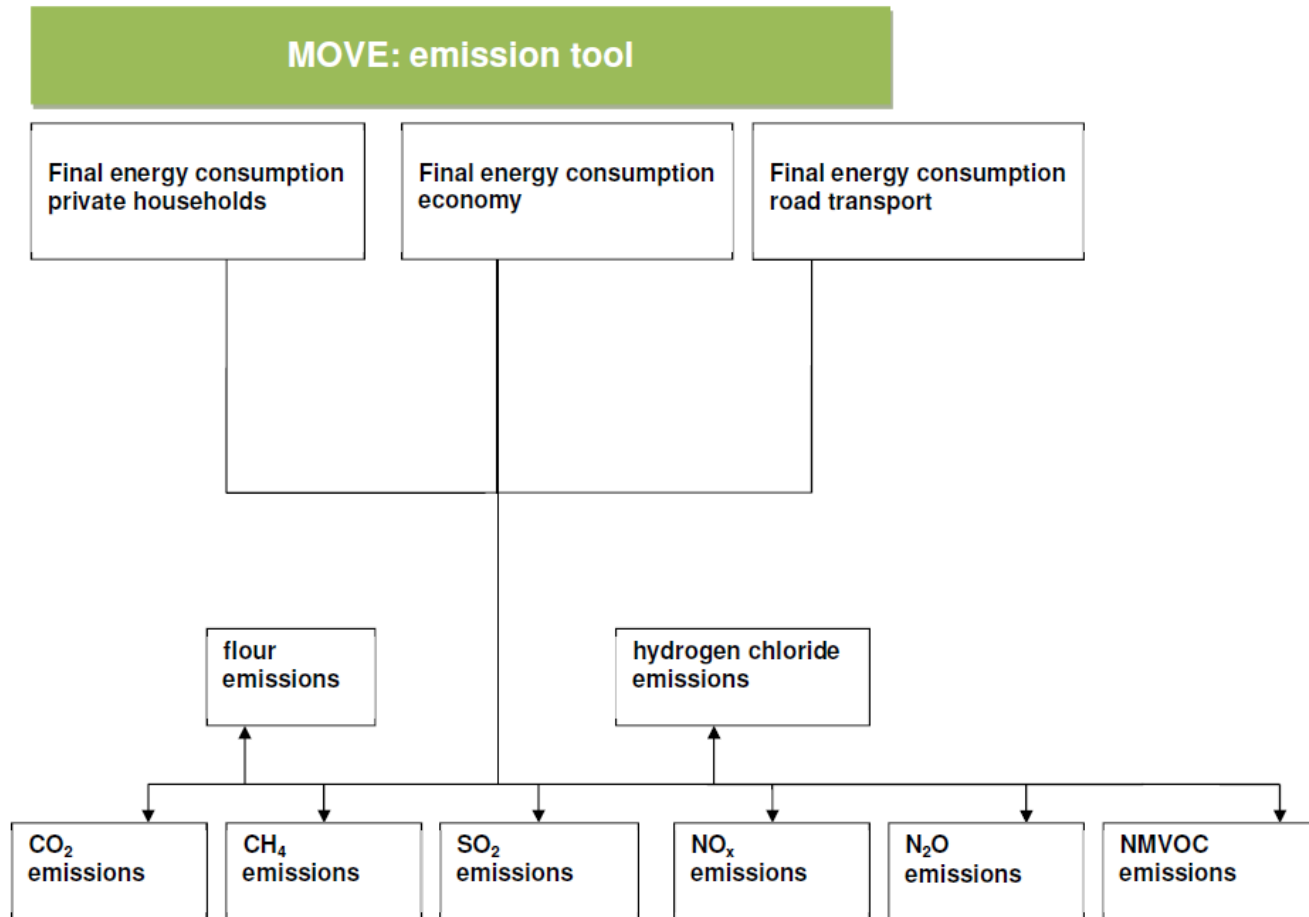
MOVE-Model: Energy module



Source: Kollmann (2009), Tichler (2009)

MOVE - Overview

MOVE-Model: Ecologic module



Source: Kollmann (2009), Tichler (2009)

MOVE – Applications for Upper Austria

④ Economic analysis of the proposal for actions of the Upper Austrian Program „Energiezukunft 2030“

④ 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

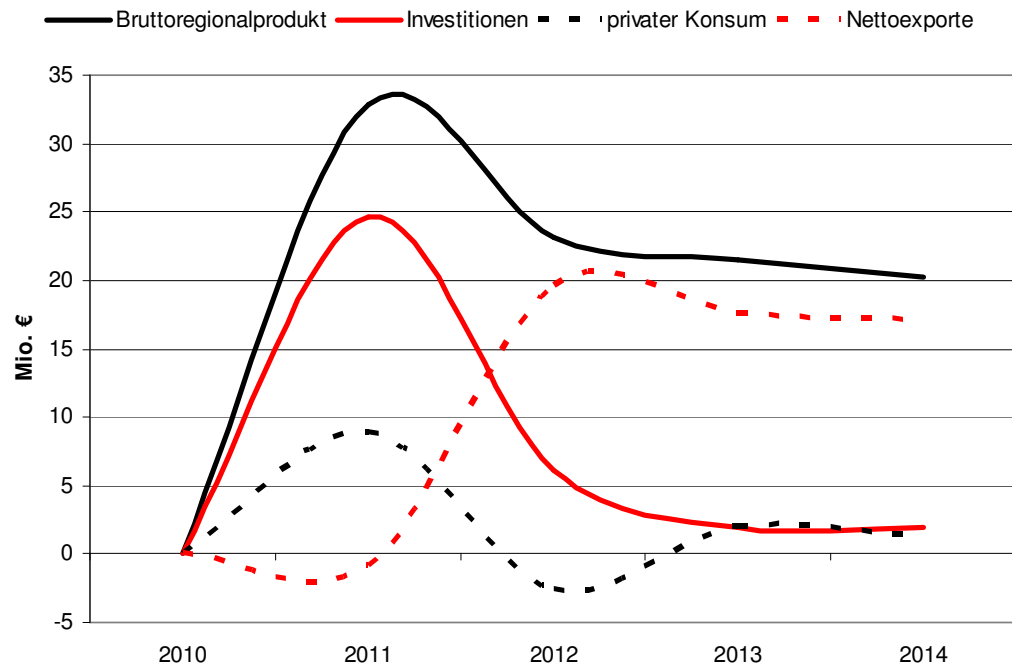
Note: minimum potentials

Source: Tichler, R. et al. (2009) , <http://www.esv.or.at>

MOVE – Applications for Upper Austria

E Economic impact of the construction and operation of the proposed wind farm Silventus and Munderfing

E Exploring the program's "Double Dividend"



Change in GRP
(Ø per year, 2010-2014): +23.5 m €

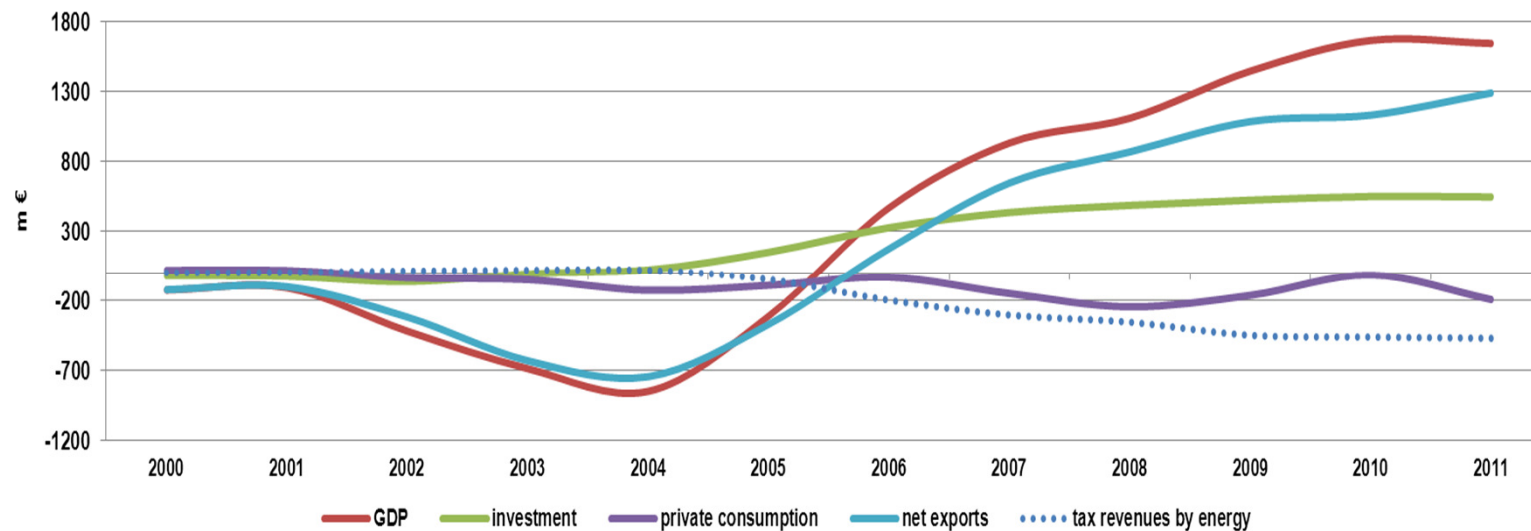
Change in CO₂ emissions
(Ø per year, 2010-2014): -13,500 t

Source: Tichler, R. et al. (2010).

MOVE – Applications for Austria

Economic potentials of renewables in Austria

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



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).

Energy Institute, Sebastian Goers | Frankfurt, 22nd October 2014

MOVE – Applications for Austria

Economic potentials of renewables in Austria

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

 **Effects on public tax revenues**


Tax revenues per year (2000-2011) – difference to business-as-usual scenario

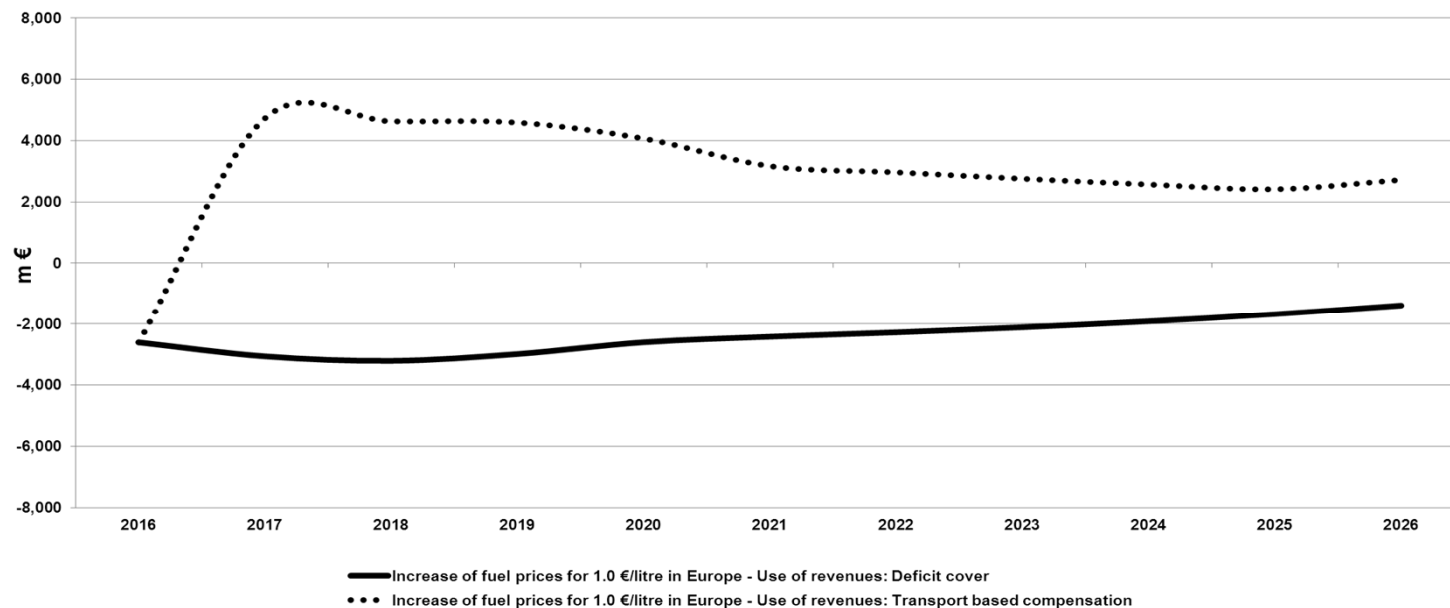
Tax revenue by energy consumption	- 186 m €
Value added tax revenue by non-energetic goods	- 4 m €
Revenues by employees	+67 m €
Total	-123 m €

Source: Bointner et al. (2013).

MOVE – Applications for Austria

Financial policies in the transport sector

-  Providing forecasts of indirect effects on economic sectors and private households in Austria due to an increase of fuel prices for 1.0 €/l in the EU - Use of revenues: deficit cover / transport based compensation



Note: Consumption of private households = energetic + non-energetic consumption. Net exports = (energetic + non-energetic) exports – (energetic + non-energetic) imports.

Source: Goers et al. (2014).

Energy Institute, Sebastian Goers | Frankfurt, 22nd October 2014

MOVE – Applications for Austria

Climate targets 2030

 Consequences for the Austrian energy-intensive industries and the electricity and heat sector


Reduction of GHG emissions in Europe in 2030	<i>average values</i>			
	<u>2010-2020</u> [m € per year]	<u>2021-2030</u> [m € per year]	<u>2010-2030</u> [m € per year]	<u>2030</u> [m €]
Change of gross value added in the energy-intensive manufacturing sector				
35%	-220	-1,100	-640	-790
40%	-310	-1,520	-880	-1,470
45%	-230	-1,280	-730	-990
Change of gross value added in the electricity and heat sectors				
35%	-50	-240	-140	-310
40%	-50	-330	-180	-420
45%	-70	-470	-260	-670

Note: rounded values

Source: Schneider et al. (2014).

MOVE – Applications for Austria

Climate targets 2030

 Consequences for the Austrian energy-intensive industries and the electricity and heat sector

Reduction of GHG emissions in Europe in 2030	<i>average values</i>			
	<u>2010-2020</u> [m € per year]	<u>2021-2030</u> [m € per year]	<u>2010-2030</u> [m € per year]	<u>2030</u> [m €]
Change of number of employees in the energy-intensive manufacturing sector				
35%	-1,500	-8,000	-4,600	-5,900
40%	-2,100	-11,000	-6,400	-10,500
45%	-1,600	-9,200	-5,200	-7,300
Change of number of employees in the electricity and heat sectors				
35%	100	-100	0	-200
40%	100	0	0	100
45%	100	-300	-100	-500

Note: rounded values

Source: Schneider et al. (2014).

MOVE2 – Update of MOVE

- ④ The **main differences** between MOVE and *MOVE2*:
 - ④ *MOVE2* includes additional data for the period 2005 to 2010.
 - ④ *MOVE2* includes effects of the financial and economic crisis and the changes in the behavior and decisions of consumers and producers. For example, it was found that the variation in consumer behavior in such cases lasted slightly longer in the following years as the model MOVE.
 - ④ After including new data points, all estimates were recalculated. This led to adjustments in the estimated coefficients and thus to slight changes in the model calculation based on the economic structure.

MOVE2 – Update of MOVE

Multiplying factors of investment and consumption in 2015

Investment in sector	Multiplying factor GDP MOVE2
Forestry and Fishery	1,03
Mining Industry	1,07
Manufacturing	2,17
Energy and Water Supply	1,30
Construction	1,48
Accommodation and Restaurant	1,64
Transport and Communication and Information Transmission	1,16
Credit and Insurance	1,13
Real Estate and Business Services	1,41
Public Services	1,15
Other Services	1,57
Consumption of private households	MOVE2
Non-energetic consumption	1,09

Source: Energieinstitut an der Johannes Kepler Universität Linz.

MOVE2 – Update of MOVE

📄 Release of **brochure** and **public presentation** in November 2014!



Thank you for your attention!

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