



# ECONOMIC EFFECTS OF REFORMING ENERGY TAX EXEMPTIONS FOR THE INDUSTRY IN GERMANY

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# 1. Background

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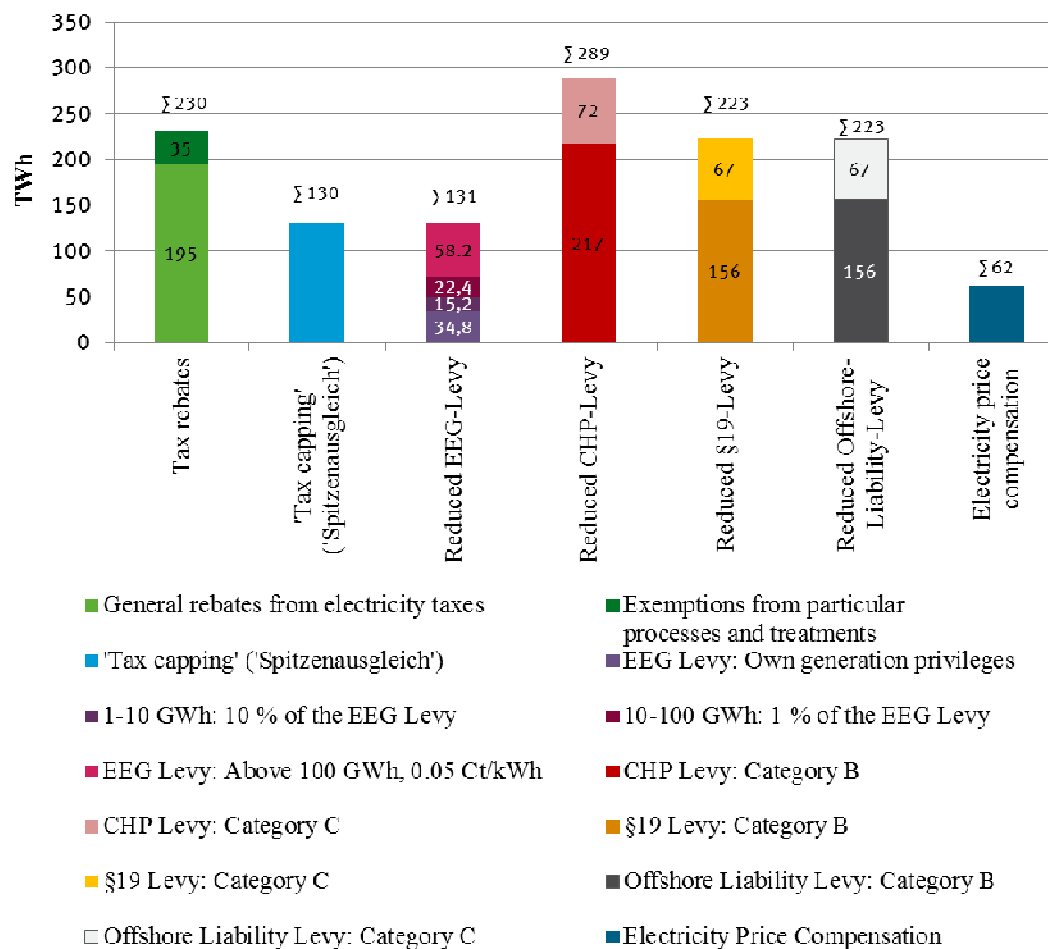
# Background

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- ▶ study “Approaches for further development of public finances” in Germany
  - ⇒ conducted by FÖS, Öko-Institute and GWS for the German Federal Environmental Agency between 2014 and 2016
- ▶ many exemptions from taxes and levies distort energy prices
  - ⇒ To prevent loss in international competitiveness (carbon leakage)
- ▶ practical and smart proposal for reform and harmonisation of current exemptions
  - ⇒ to eliminate or to sidestep existing perverse incentives
- ▶ macroeconomic impact analysis with PANTA RHEI

# Background

- ▶ Estimates of electricity volumes under present exemption regime benefiting from rebates (TWh, 2014)



# Background

## ► Reform proposal: levels of rebate and requirements

	Level 1	Level 2	Level 3	Hardship cases
<b>Reduction of the Fees</b>	70-80 %	50-70 %	25-50 %	50 %
<b>Industry Sector</b>	Primary sector traded on international commodity markets		-	Firms within the manufacturing sector
<b>Criteria A</b>	AND	OR		
	Electricity price compensation list from EU-ETS		-	
<b>Industry Sector</b>	Trade intensity (Germany-rest of world) of the industry sector > 30 %			-
<b>Criteria B</b>	AND Electricity intensity > 0.8 MWh/€1,000 of gross value added (GVA)			
<b>Firm Level</b>	Electricity intensity > 1.7 MWh/€ 1,000 of GVA			Electricity intensity > 2.5 MWh/€ 1,000 GVA
<b>Criteria C</b>				

## ► Recycling of additional revenues: labor cost reduction and investment in energy efficiency

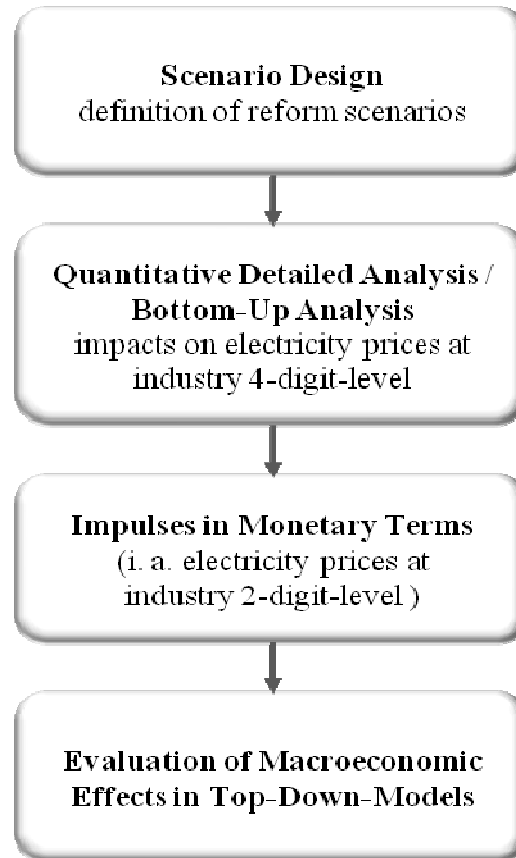
## 2. Methodology

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# Methodology

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⇒ Impact analysis



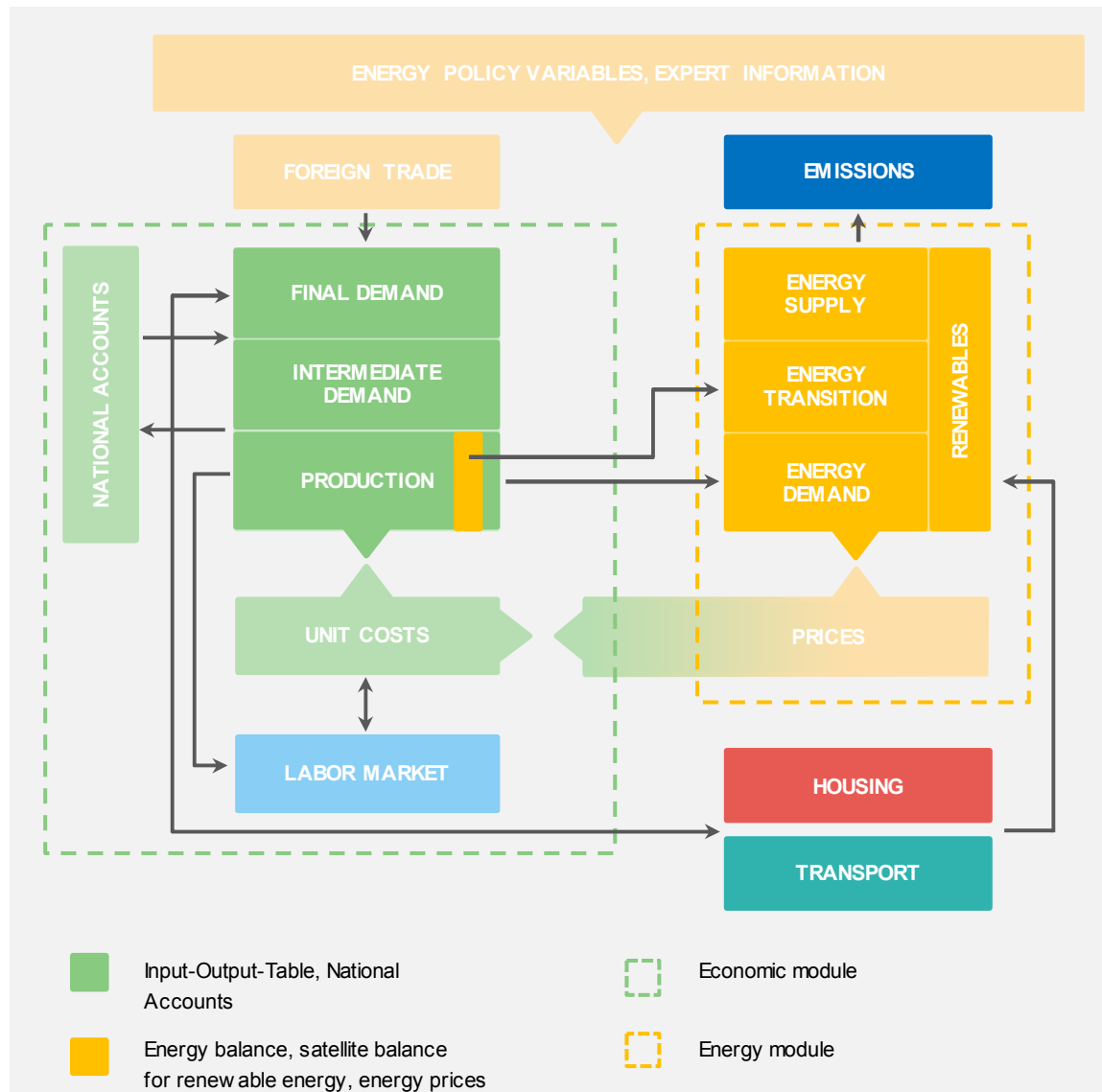


# Model PANTA RHEI

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- ▶ INFORGE + energy & environment
  - ▶ Macroeconomic energy and environmental model
    - Based on official statistics (SNA, time series of IOT)
    - Bottom-up (63/73 sectors)
    - Fully interdependent
    - Energy balance systematic
    - Parameters econometrically derived from historical time series, no neoclassical general equilibrium
- => **macroeconomic, not CGE**
- ▶ Suitable for simulation of direct, indirect and induced effects
    - ⇒ Net impacts
  - ▶ Electricity prices for 4 user groups: Extended to different prices for 63 industries and pr. households in the project

# Methodology: PANTA RHEI

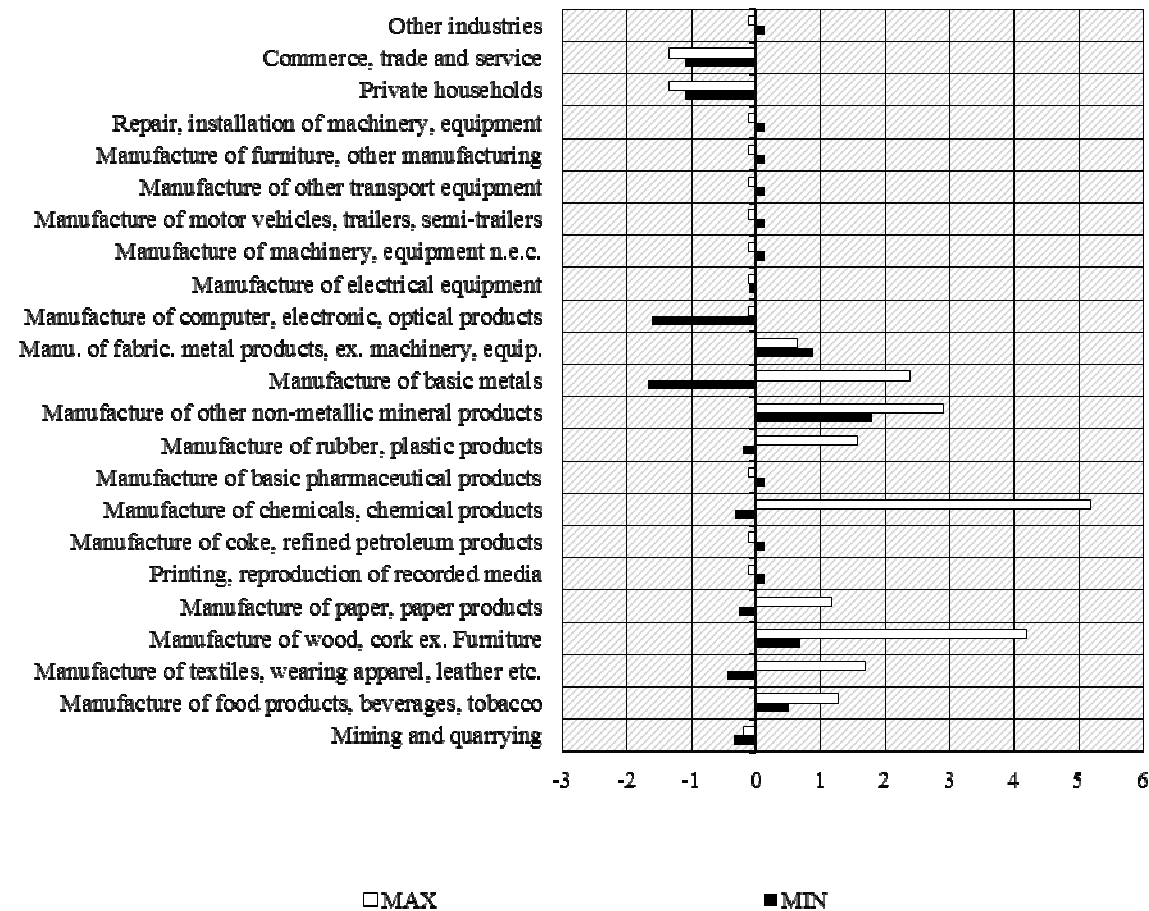


## 3. Scenario design and results

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# Scenario design

- Effects on electricity prices (after reimbursement) in selected industries in the MIN- and MAX-scenario compared to the reference scenario, 2016 in Cent/kWh



# Main drivers

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- ▶ Electricity costs are redistributed between industries (and households)
- ▶ Higher tax revenues reduce labor cost and increase investment
- ▶ Impacts on industry level depend on (changes in)
  - Electricity cost
  - Labor cost
  - Export shares
  - Investment
  - International competition / price setting
  - Macro level

# Results

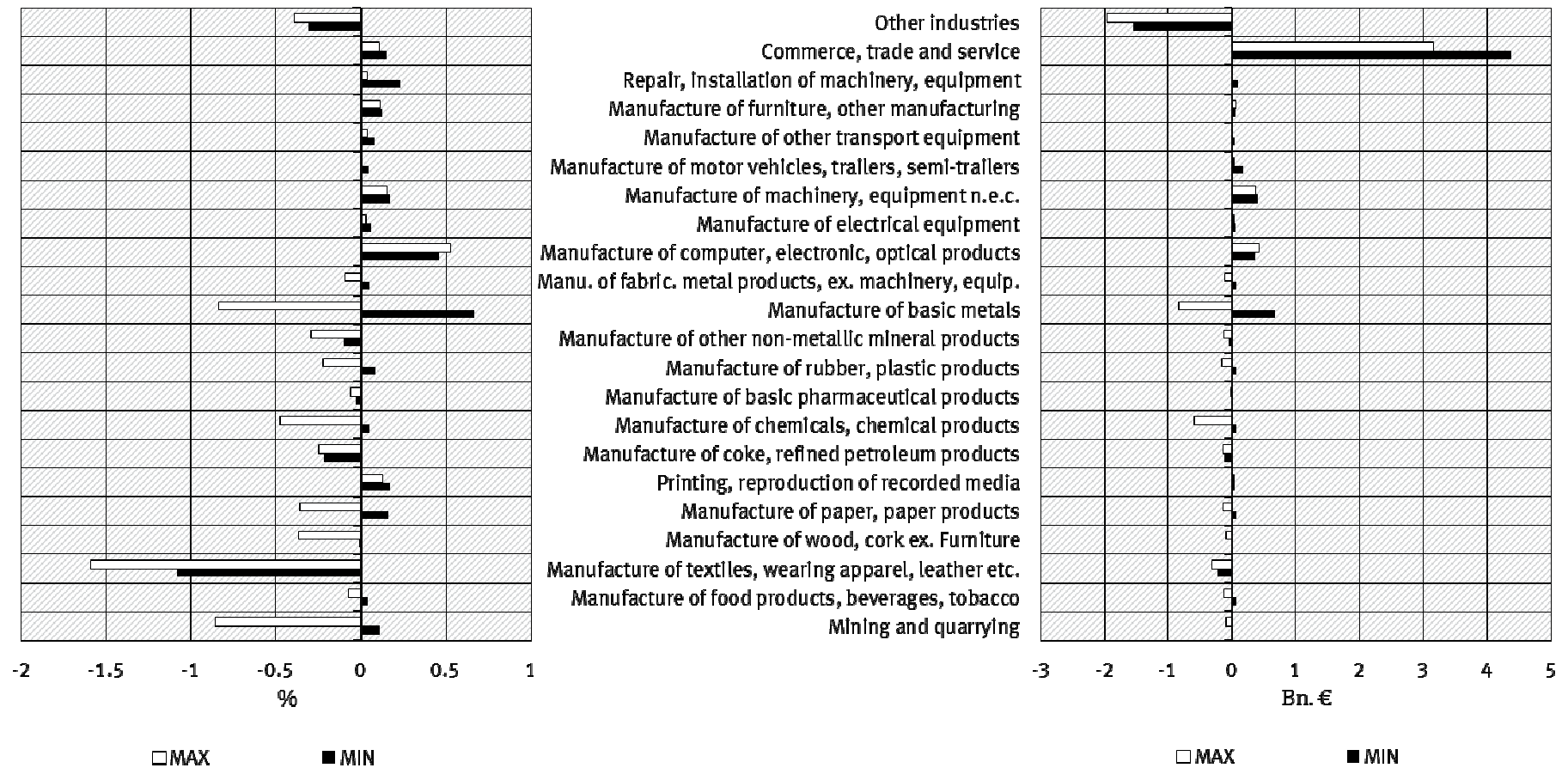
## ► Macroeconomic effects (2016)

	MIN	MAX	MIN	MAX
<b>Components of GDP (price-adjusted)</b>	<i>deviations in bill. €</i>		<i>deviations in %</i>	
GDP	5.13	0.82	0.18	0.03
Private consumption	2.13	1.62	0.14	0.10
Government consumption	0.10	0.09	0.02	0.02
Equipment	1.44	1.66	0.49	0.57
Construction	0.09	-0.06	0.03	-0.02
Exports	1.00	-1.76	0.07	-0.13
Imports	-0.38	0.65	-0.03	0.05
<b>Price indices (2010 = 100)</b>	<i>deviations</i>		<i>deviations in %</i>	
Private consumption	-0.06	-0.02	-0.05	-0.02
Production	-0.09	0.04	-0.08	0.04
<b>Labour market</b>	<i>deviations in 1,000</i>		<i>deviations in %</i>	
Employment	18.05	12.43	0.04	0.03

# Results

## ► Sector impacts

⇒ Real production, deviations in % and Bn. € (2016)



## 4. Conclusions

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# Conclusions

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- ▶ Analysis is quite challenging due to heterogeneous electricity prices on industry level
  - ⇒ Combination of detailed analysis on the 4-digit level
  - ⇒ Translation into electricity prices on 2-digit level
- ▶ Other studies show negative economic impacts (and carbon leakage) of unilateral elimination of exemptions on energy taxes and levies
- ▶ Smart tax reform
  - ⇒ some scope for reduction of tax exemptions
  - ⇒ small positive economic and environmental effects
  - ⇒ elimination of exemptions needs international coordination

# Thank you for your attention.

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