



Renewable Energy Use and Future Perspectives in Austria

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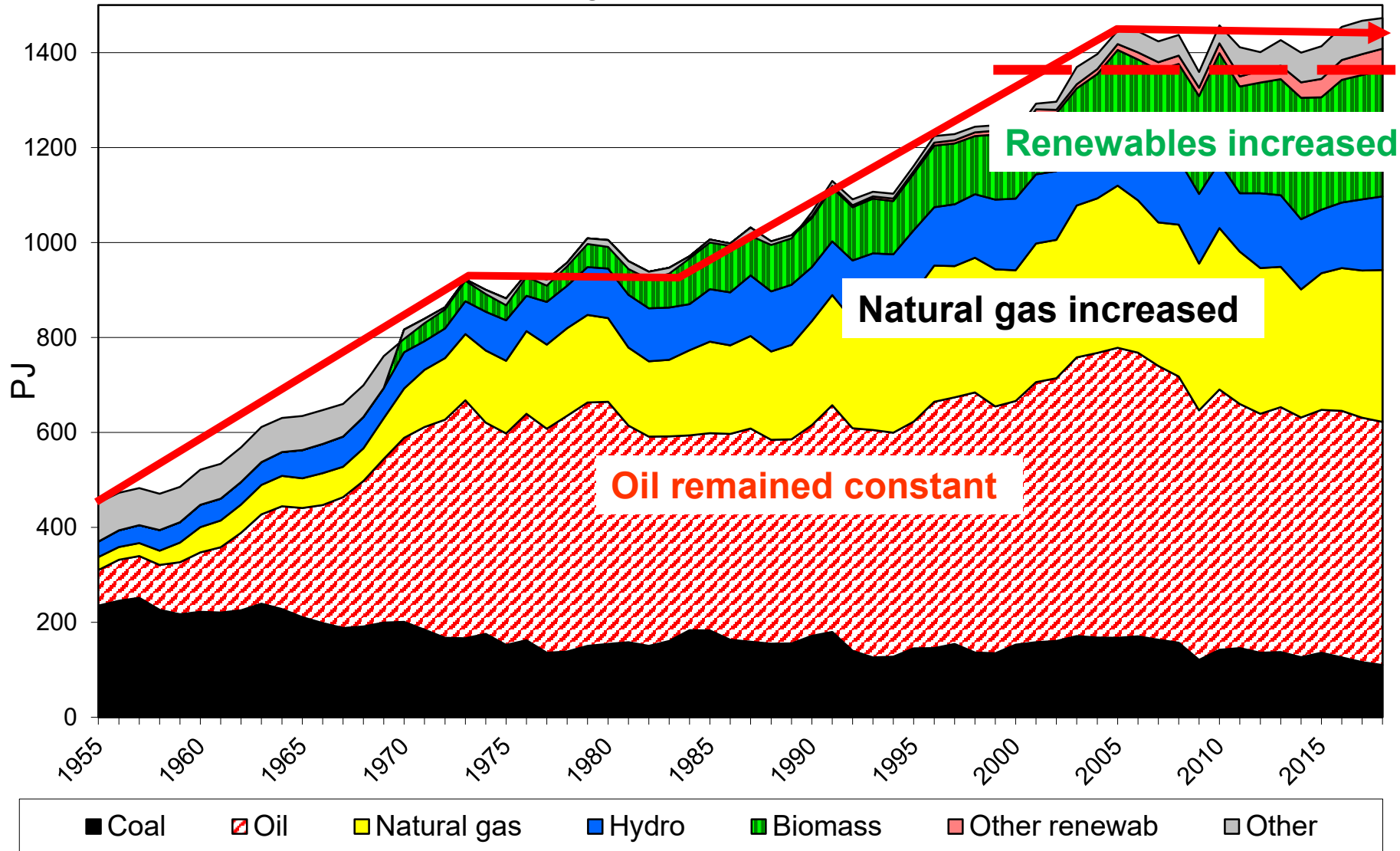


CONTENT:



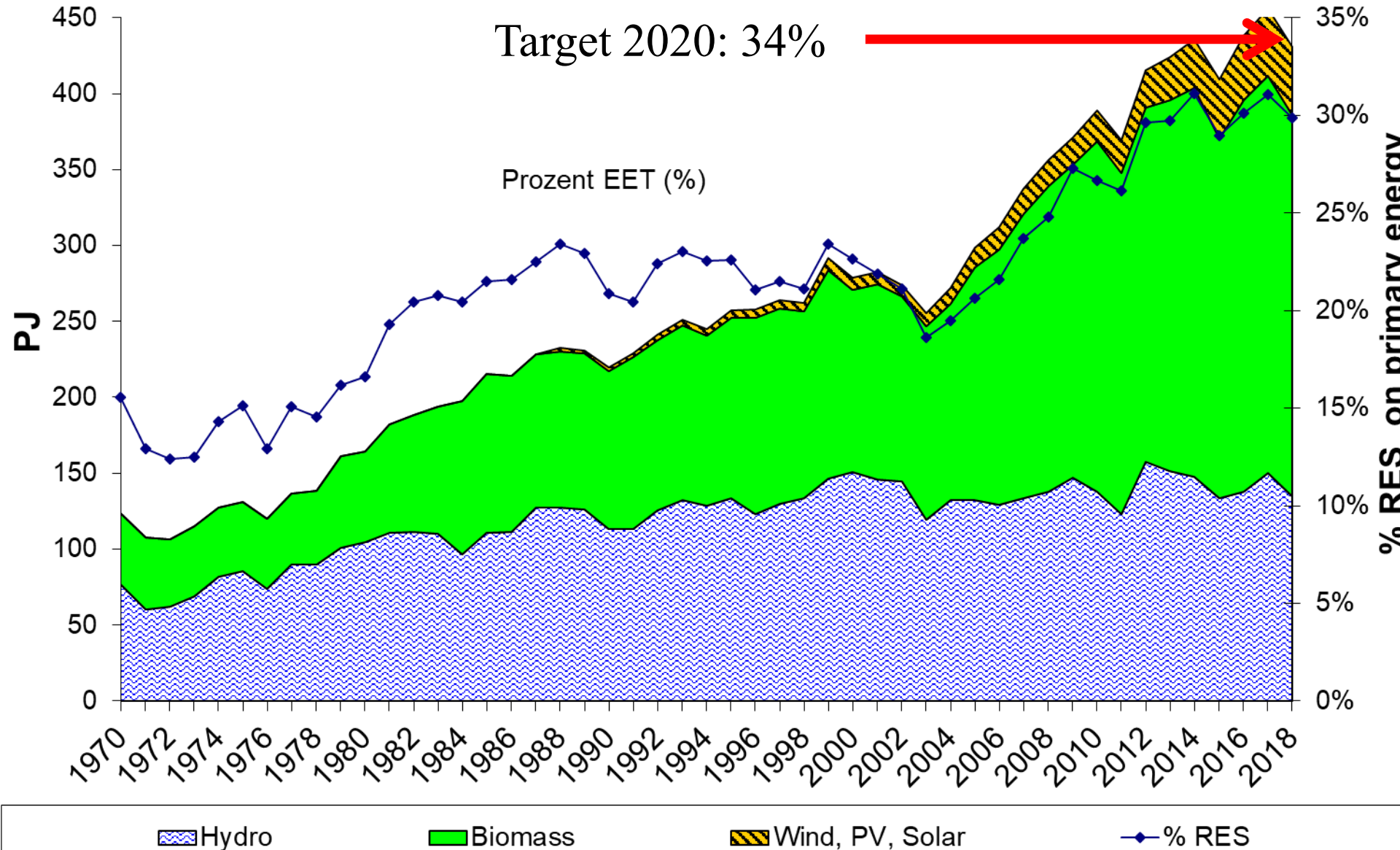
- 1. Historical developments: Primary energy, heating, transport, electricity**
- 2. Potentials**
- 3. Future scenarios**
- 4. Conclusions**

Primary energy consumption Austria





Renewable Energy in AT



SHARE OF GHG-EMISSIONS IN AUSTRIA 2017

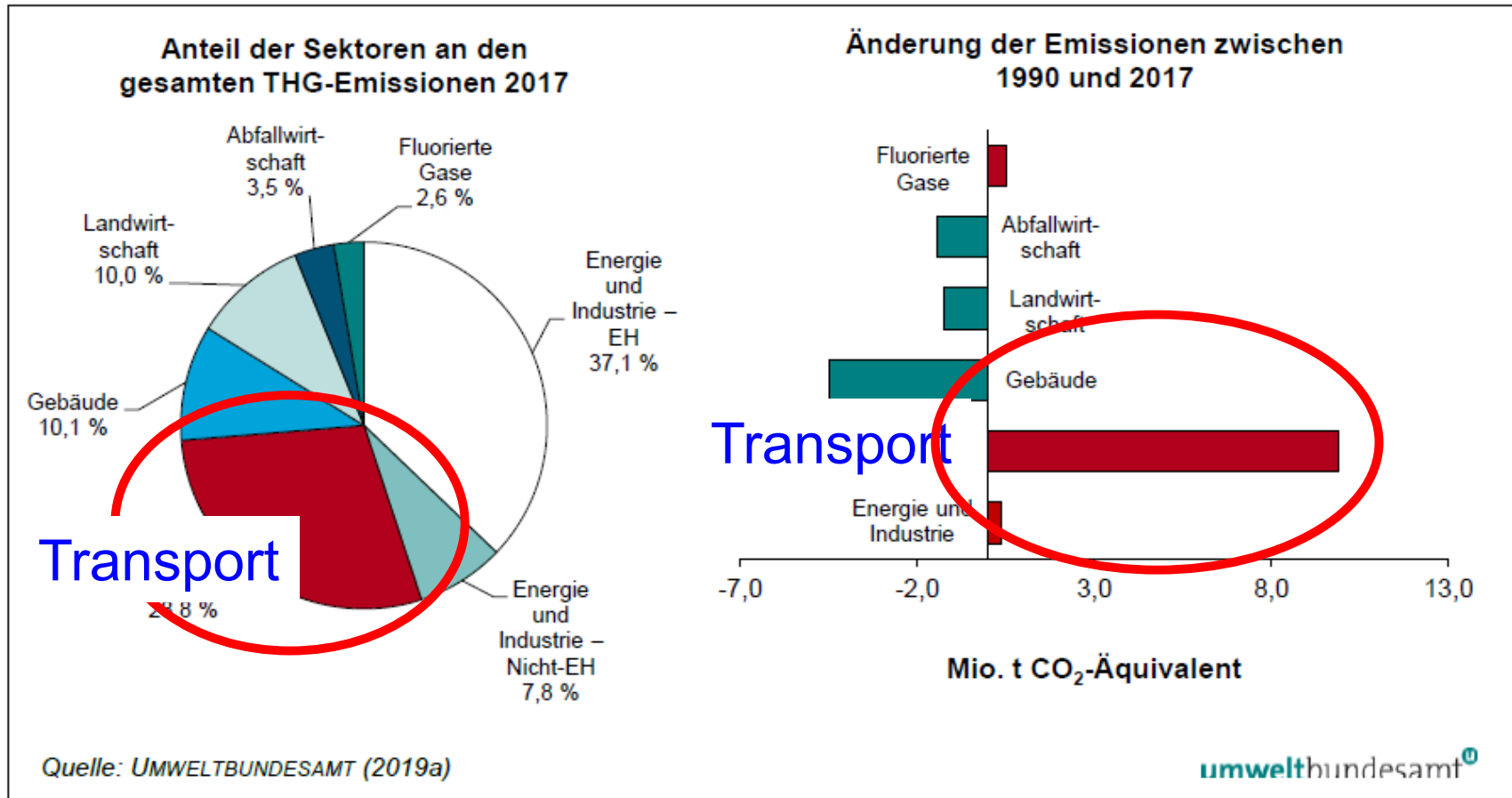
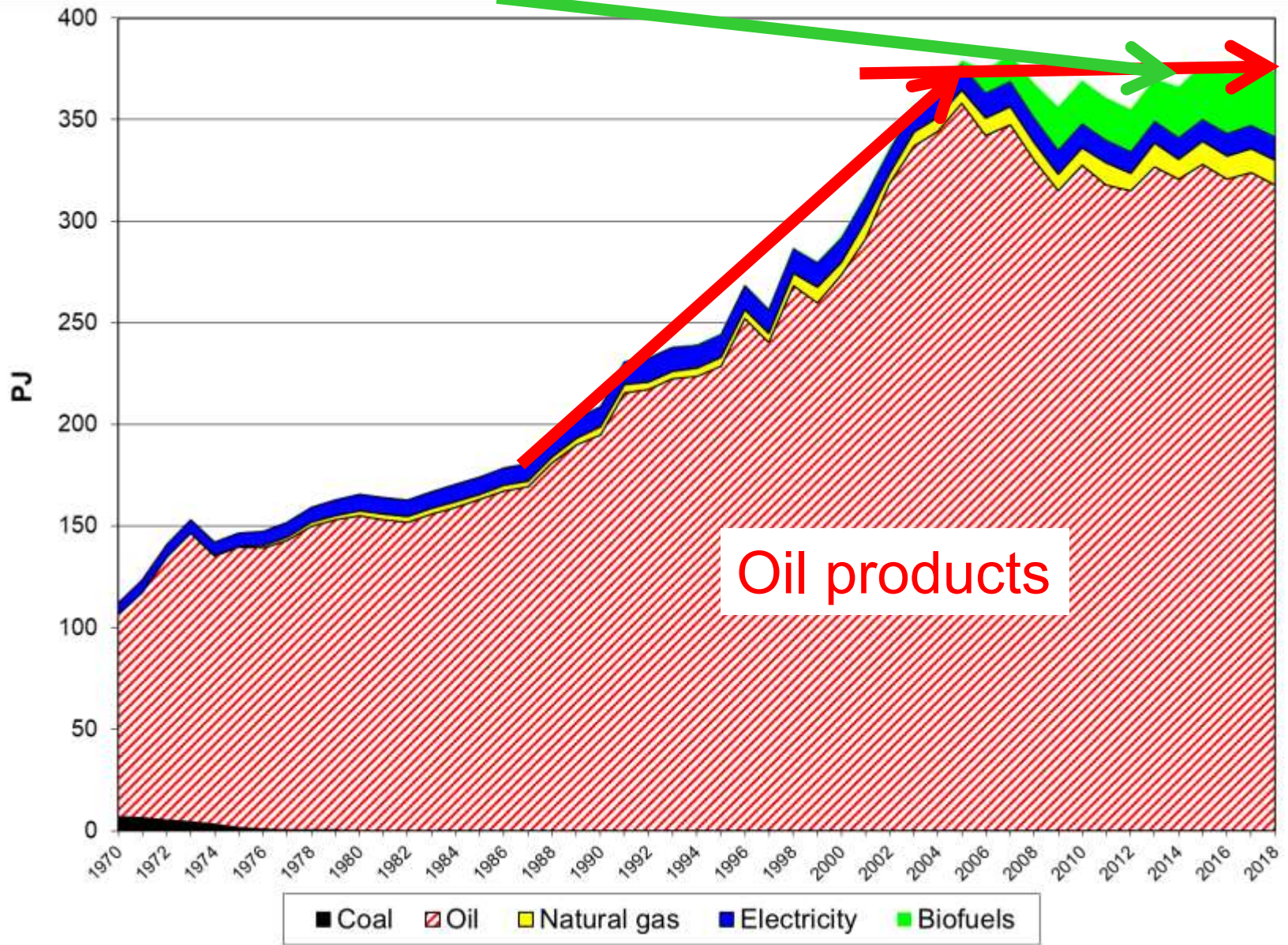


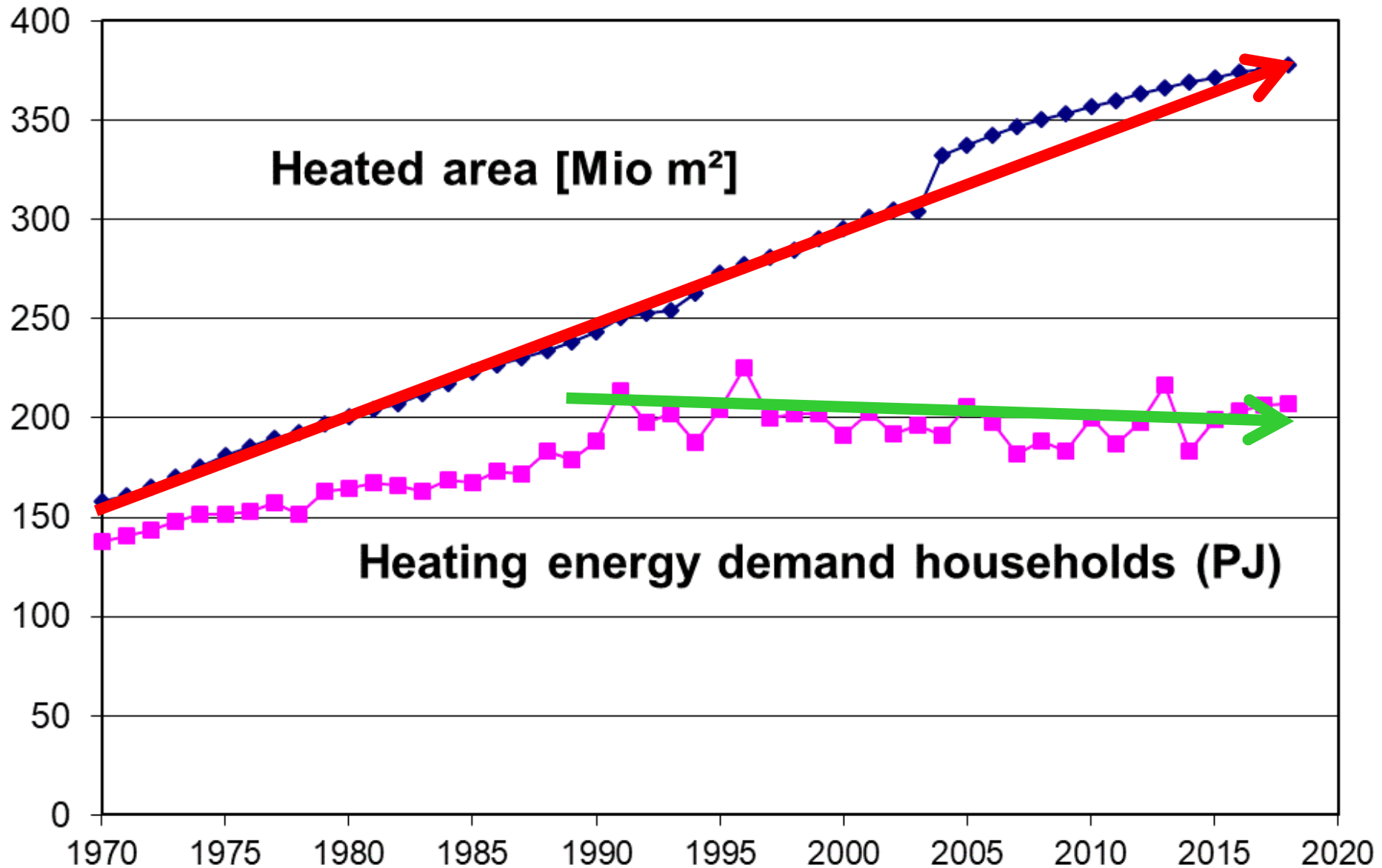
Abbildung 14: Anteil der Sektoren an den Treibhausgas-Emissionen 2017 (inkl. Emissionshandel) und Änderung der Emissionen zwischen 1990 und 2017.



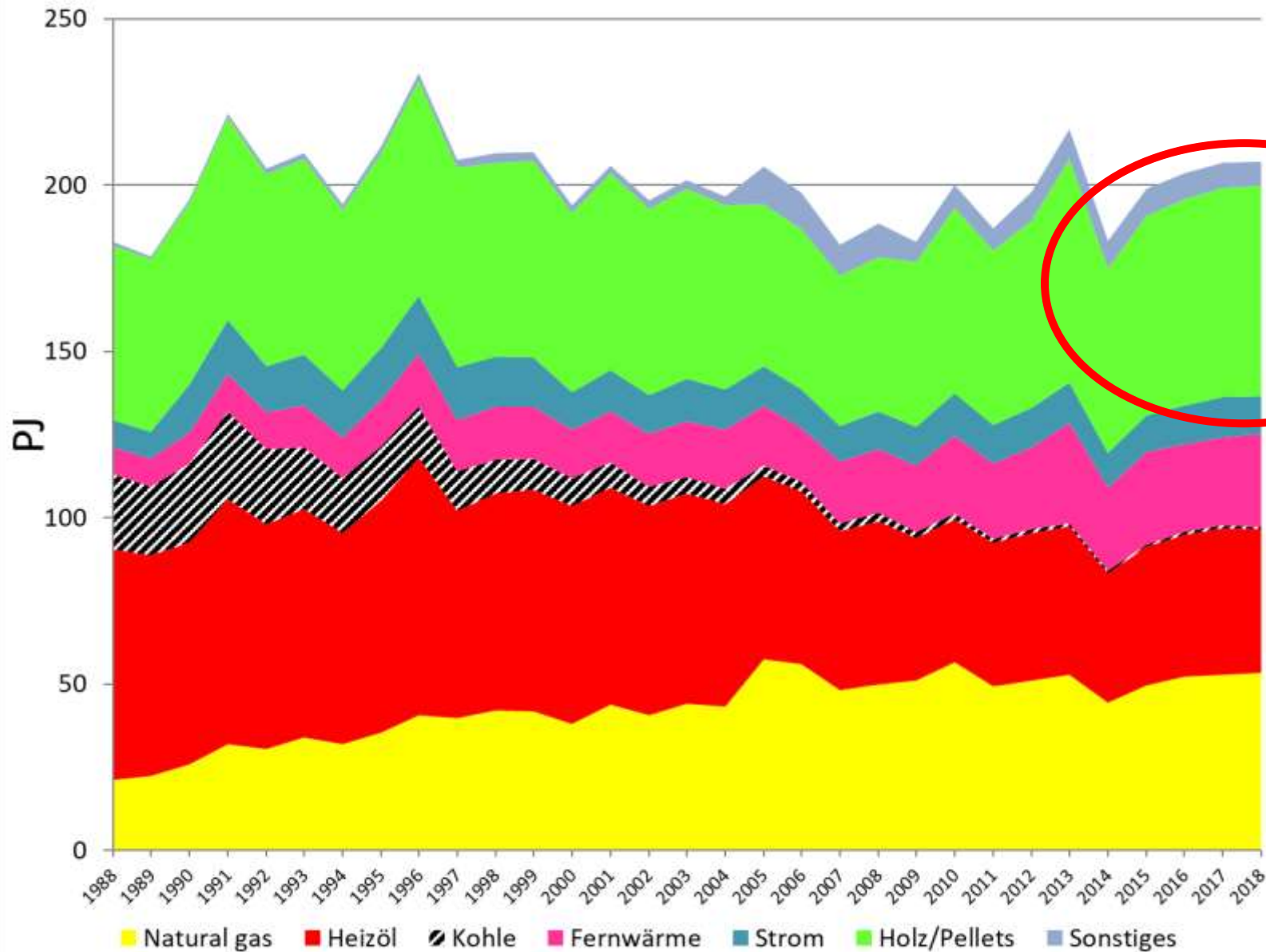
ENERGY IN TRANSPORT



HEATING PRIVATE HOUSEHOLDS

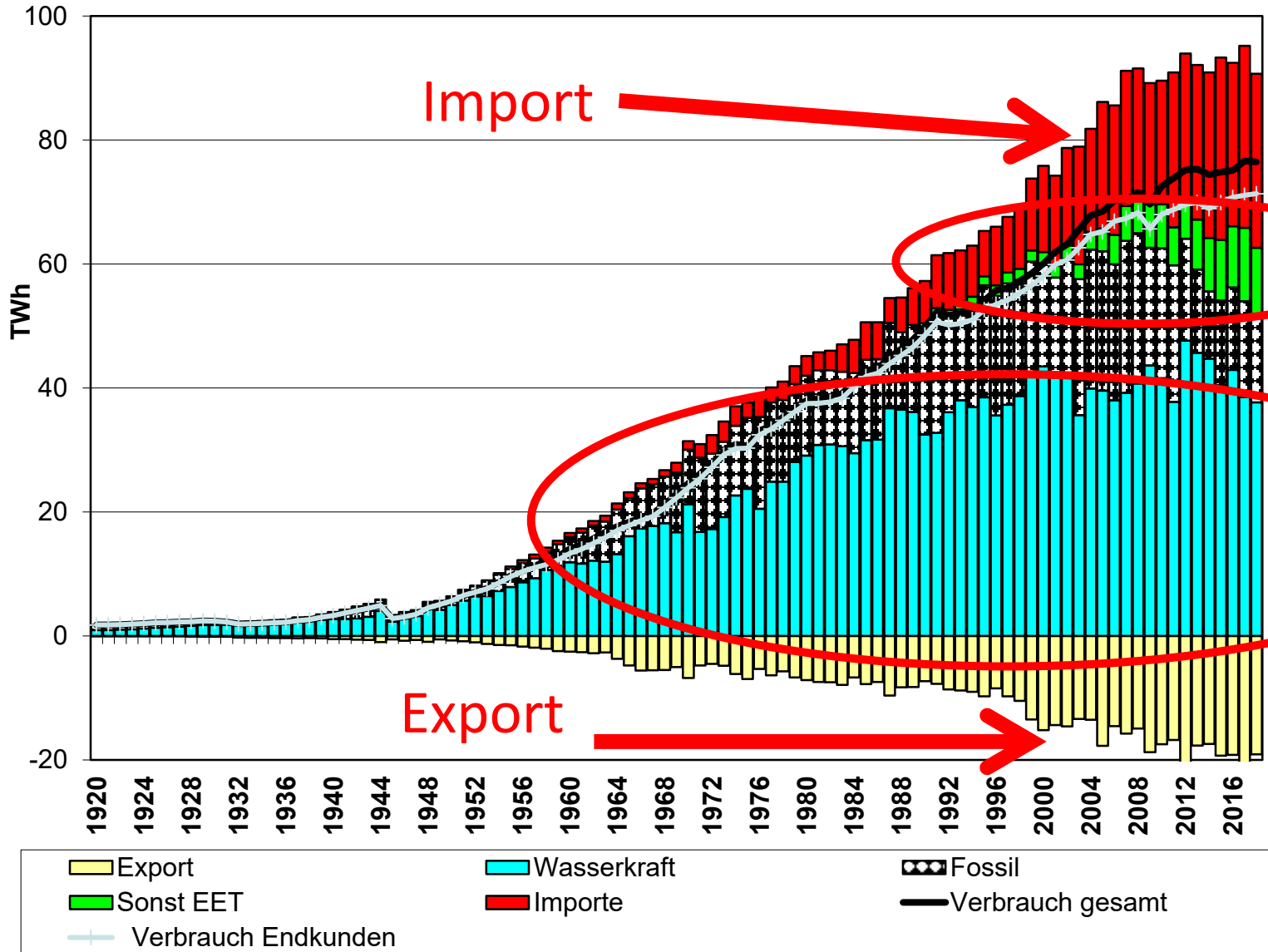


ENERGY DEMAND HEATING OF PRIVATE HOUSEHOLDS



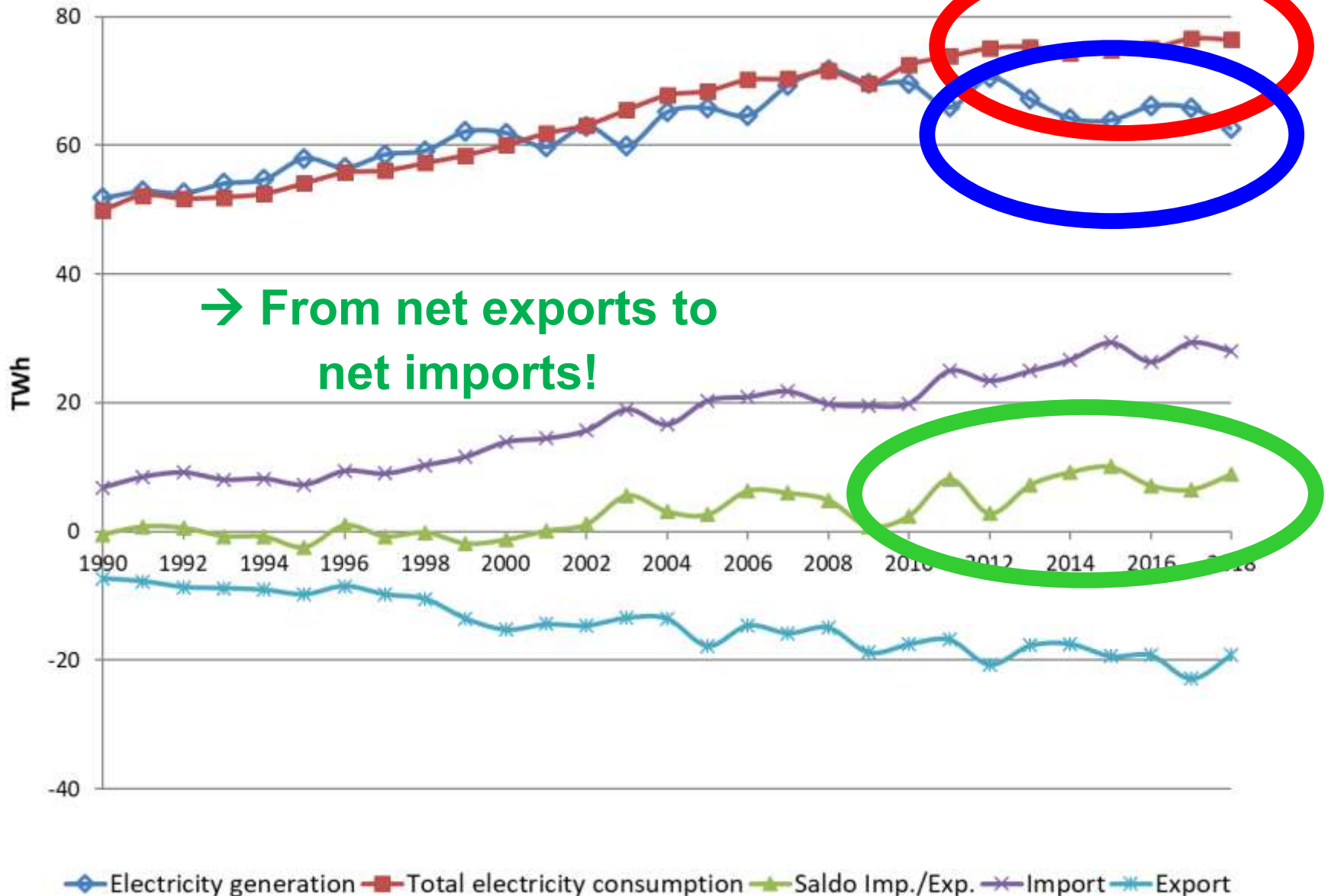


Electricity generation and demand



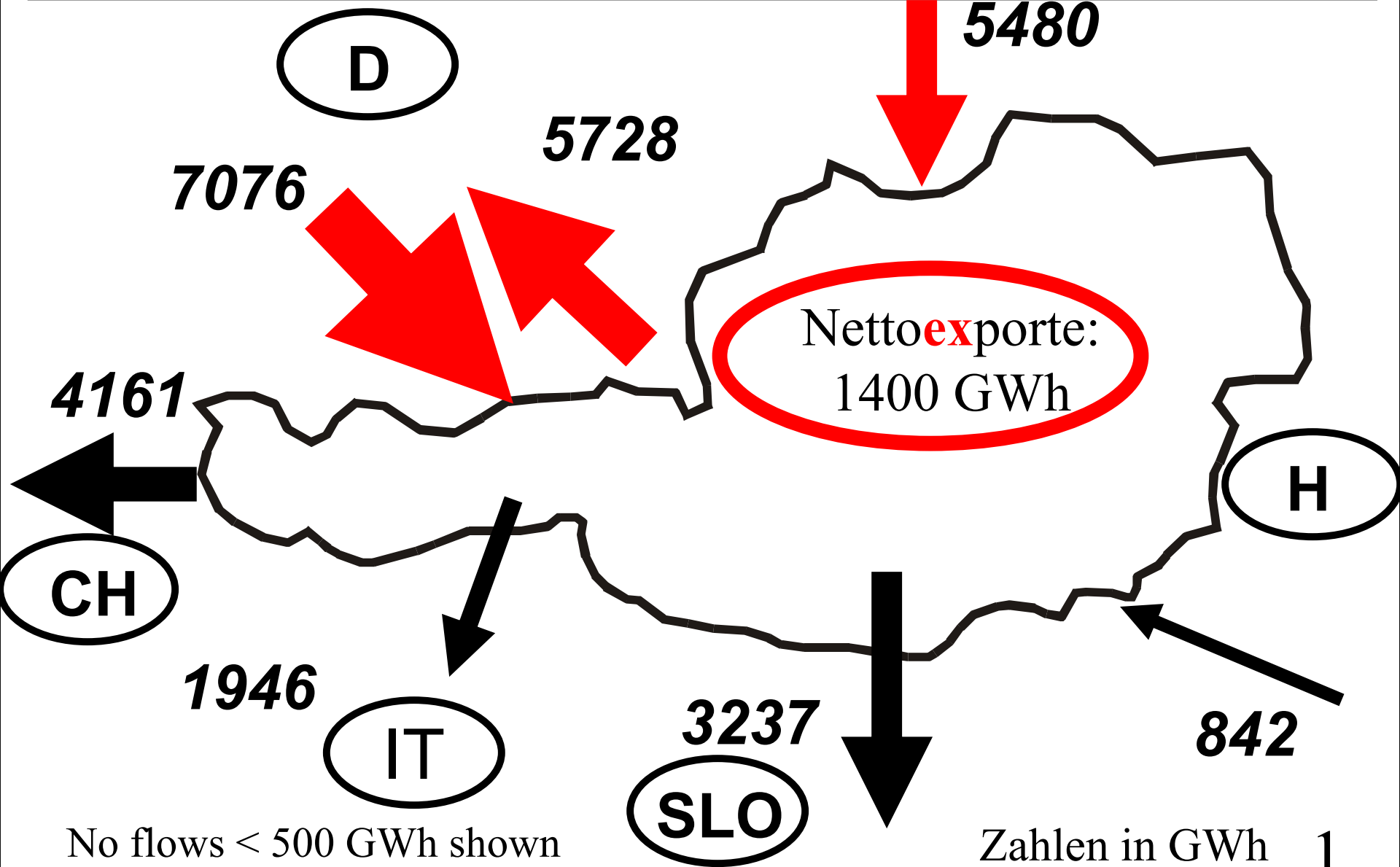


Electricity generation, consumption and Saldo





Jahr 2000



No flows < 500 GWh shown

Zahlen in GWh



Year: 2016

CZ



D

4131

12066

9882

Net imports:
2803 GWh

8005

2428

CH

1146

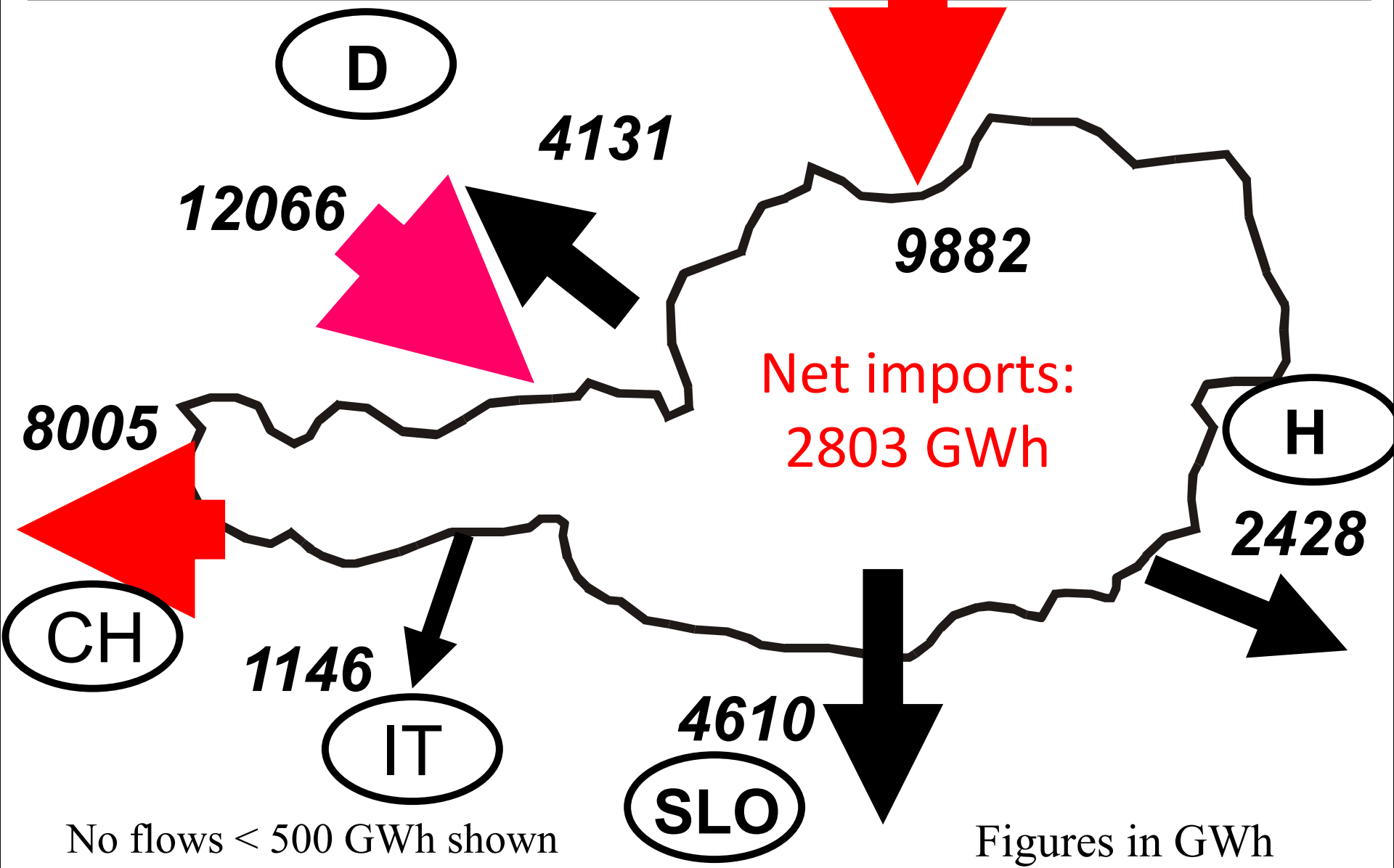
IT

4610

SLO

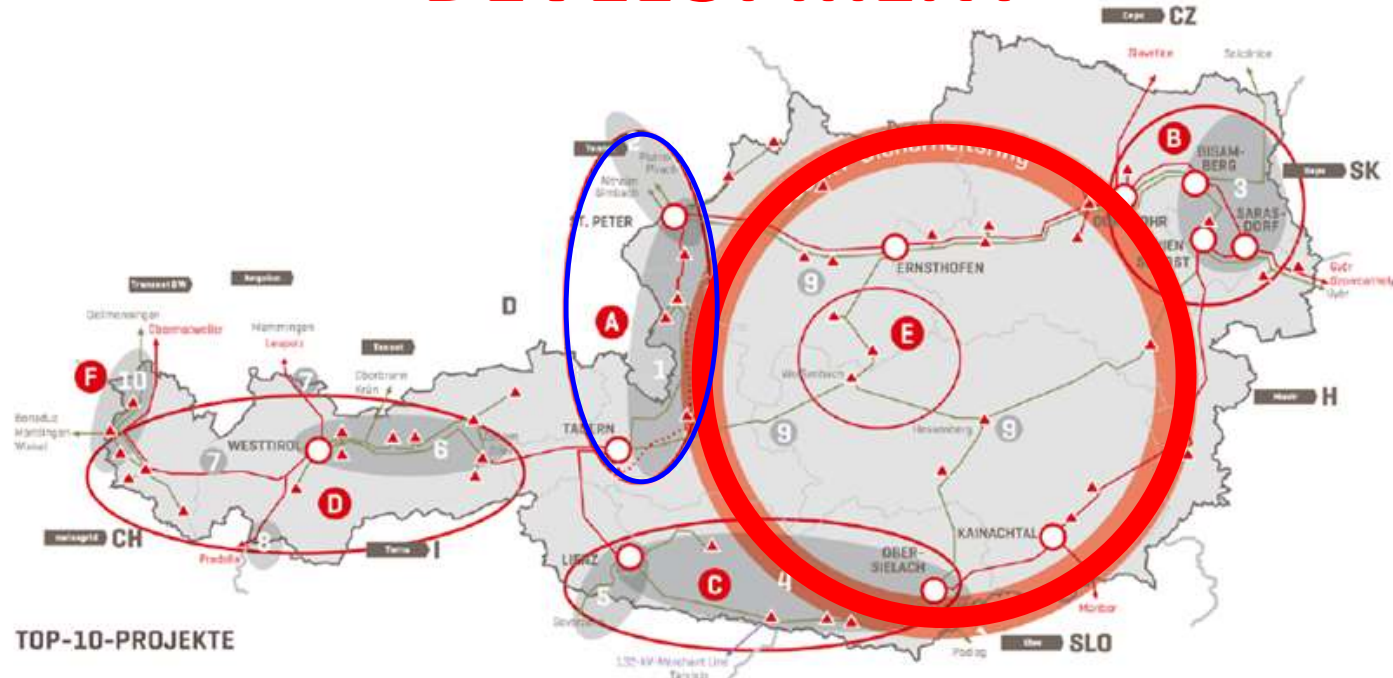
No flows < 500 GWh shown

Figures in GWh





AUSTRIAN POWER GRID DEVELOPMENT



TOP-10-Projekte

A Salzburgleitung und Deutschlandleitung, 380-kV-Ring, EE-Integration und Marktkopplung

- 1 Salzburgleitung
- 2 Deutschlandleitung [Kuppelleitung St. Peter - Deutschland]

B Netzintegration EE (v.a. Windkraft) im Netzraum Ost

- 3 Netzraum Ost Windintegration

C 380-kV-Ringschluss Österreich Süd, EE-Integration und Marktkopplung

- 4 Netzraum Kärnten [380-kV-Ringschluss]
- 5 Italienleitung [Kuppelleitung Lienz - Veneto Region]

D West Österreich, Netzintegration EE und Pumpspeicher, Marktkopplung

- 6 Netzraum Tirol [Netzverstärkung Westtirol - Zell/Ziller]
- 7 Umstellung auf 380-kV-Betrieb [Systeme Westtirol - Memmingen/Bürs]
- 8 Reschenpass [Kuppelleitung Italien]

E Innerösterreichische 220-kV-Leitungen, [General-] Erneuerungen

- 9 Generalerneuerungen 220-kV-Leitungen

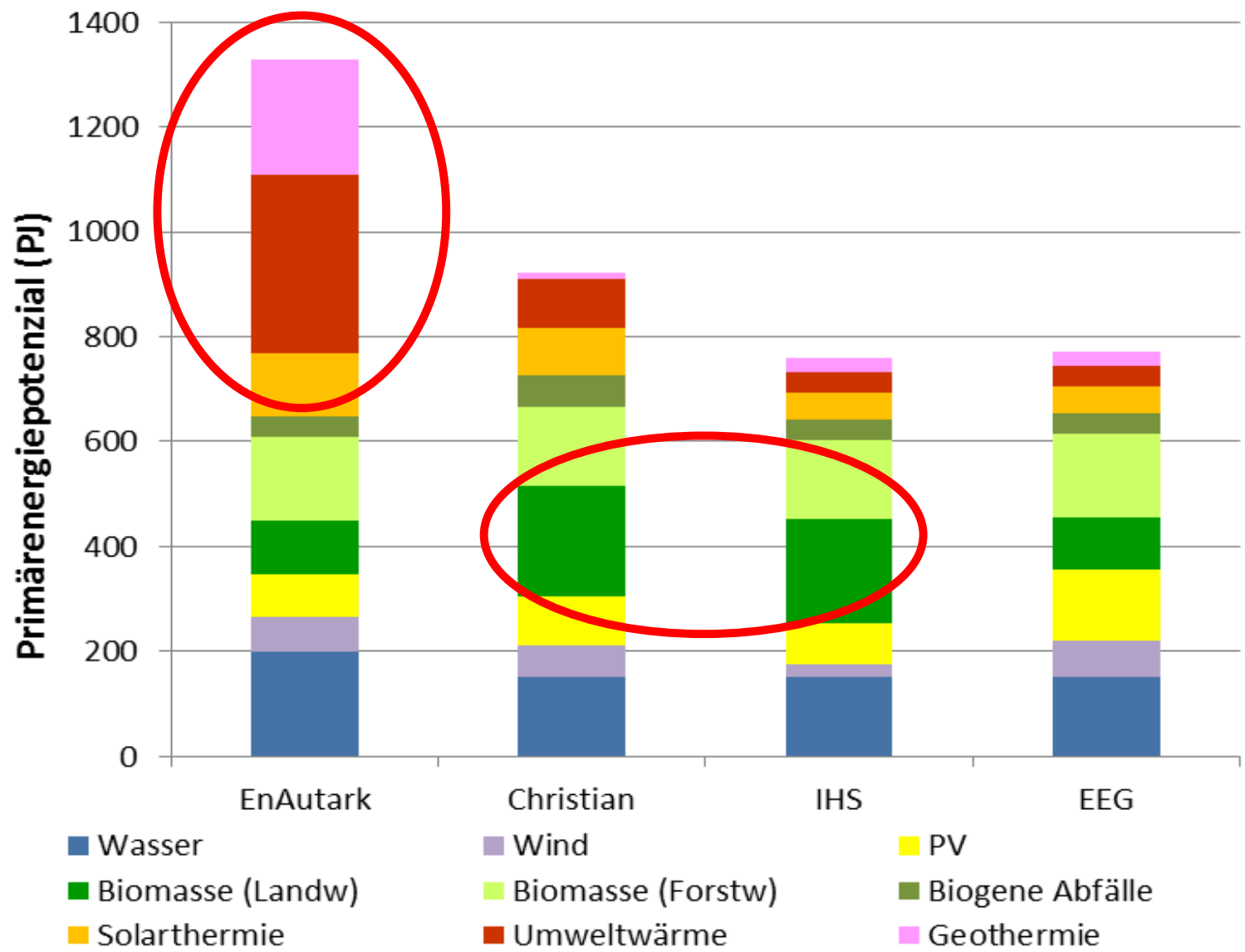
F EE-Integration, Marktkopplung Bodensee-Raum

- 10 Netzverstärkung Bodensee-Raum



The primary energy potential

Primary energy demand Austria 2018



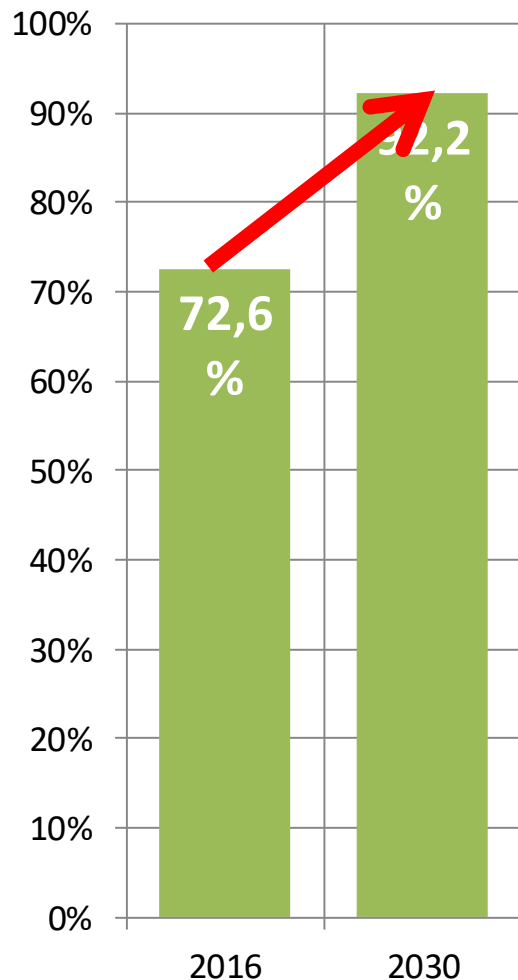


The potential for hydro power



Already achieved:
40.1 TWh

Remaining:
10 + 1 TWh



◀ Building on previous works, a comprehensive economic reassessment of the expansion of RES-e supply in Austria by 2030 and the corresponding **investment & support expenditures** has been made in the study

“Mission#Impact -
Ökonomische Neubewertung des Ausbaus und des resultierenden Investitions- und Förderbedarfs erneuerbarer Energien in Österreich”
 (Resch et al., 2019)



TECHNISCHE
UNIVERSITÄT
WIEN



Mission#Impact

- Ökonomische Neubewertung des Ausbaus und des resultierenden Investitions- und Förderbedarfs erneuerbarer Energien in Österreich

Autoren:

Gustav Resch, Lukas Liebmann,
 Franziska Schöniger, TU Wien

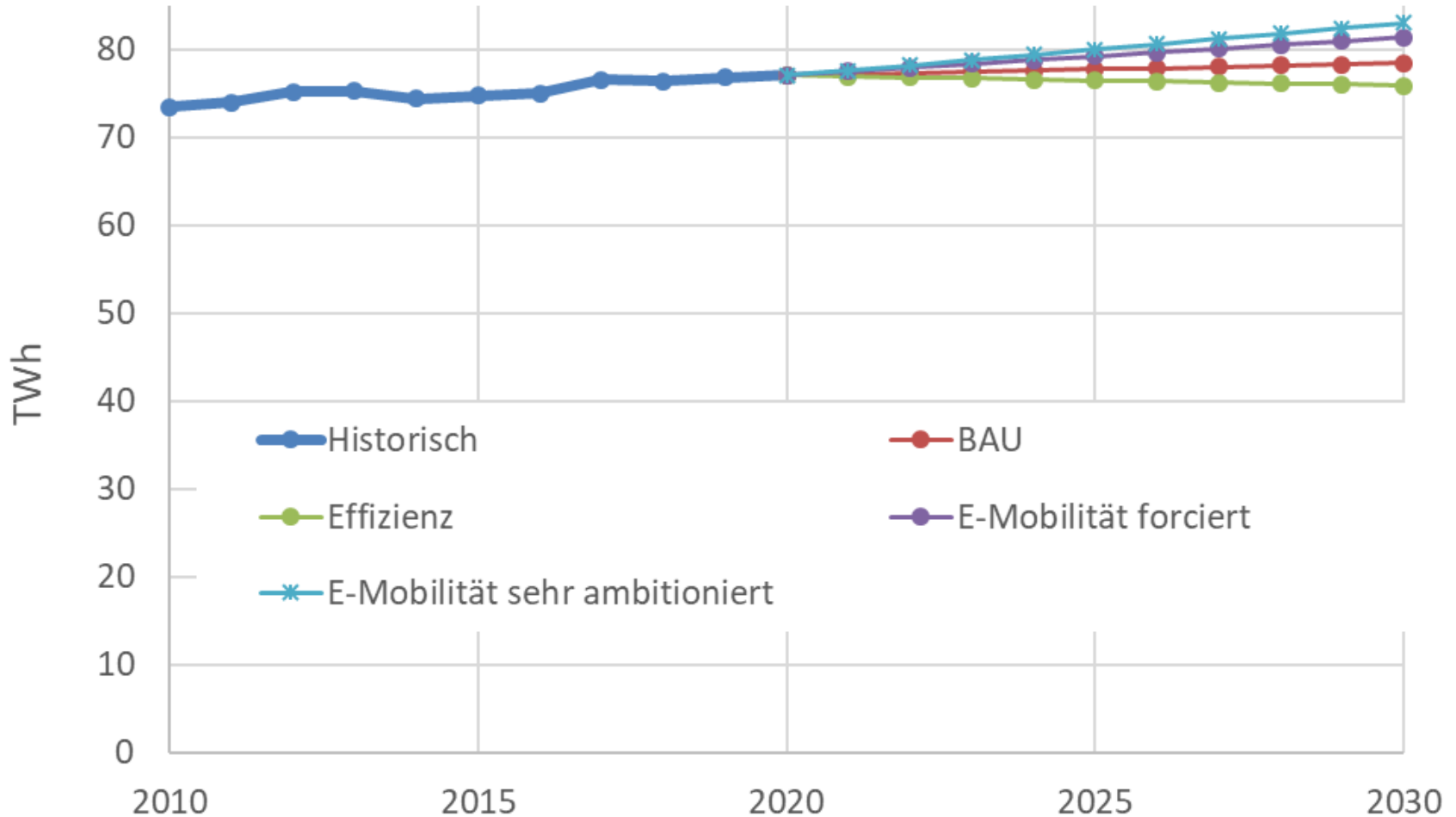
17 Jänner 2019

Abschlussbericht der gleichnamigen Studie
 (Endfassung)

Auftraggeber:

Oesterreichs Energie

Electricity demand incl. pumped hydro

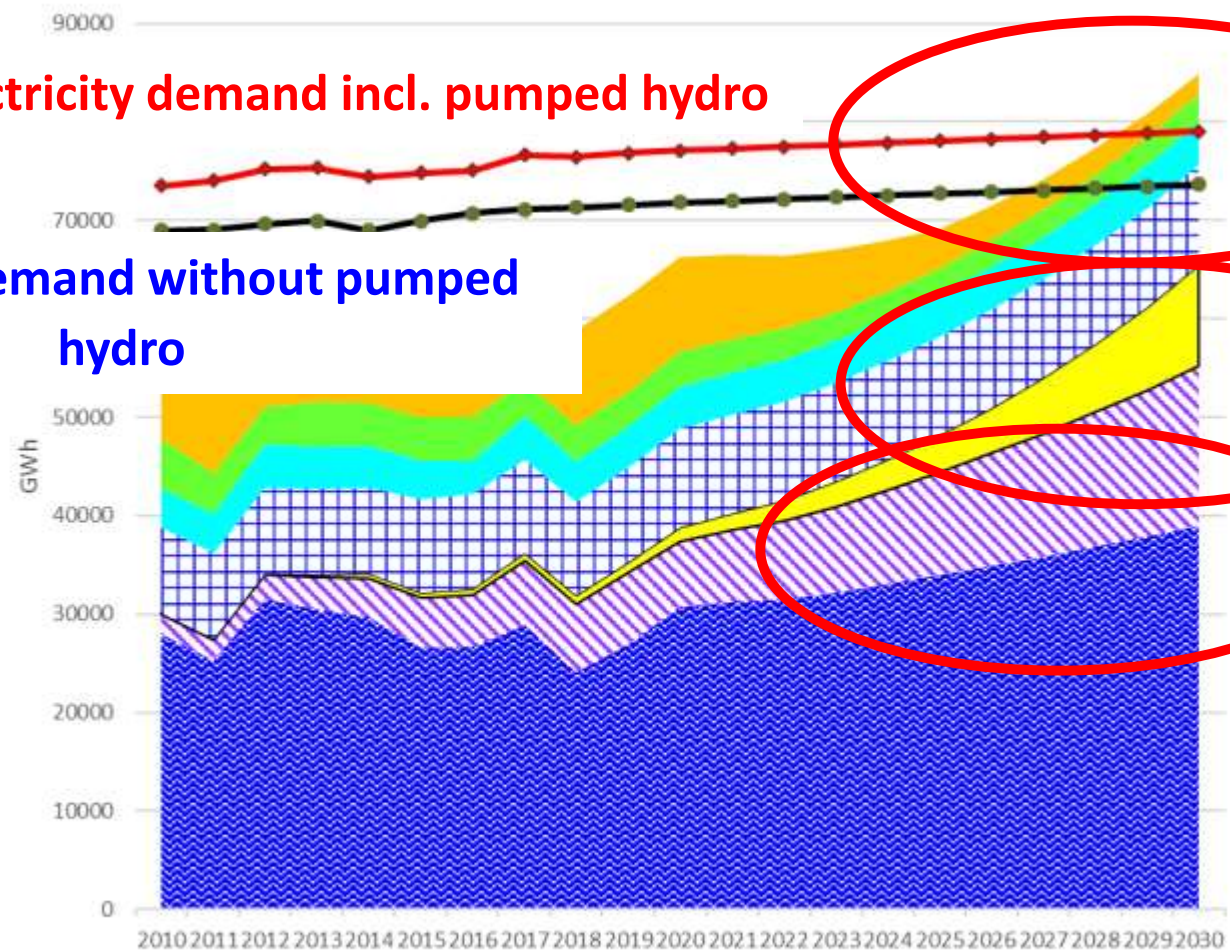


Scenario BAU electricity 2030

Erzeugung BAU bis 2030

Electricity demand incl. pumped hydro

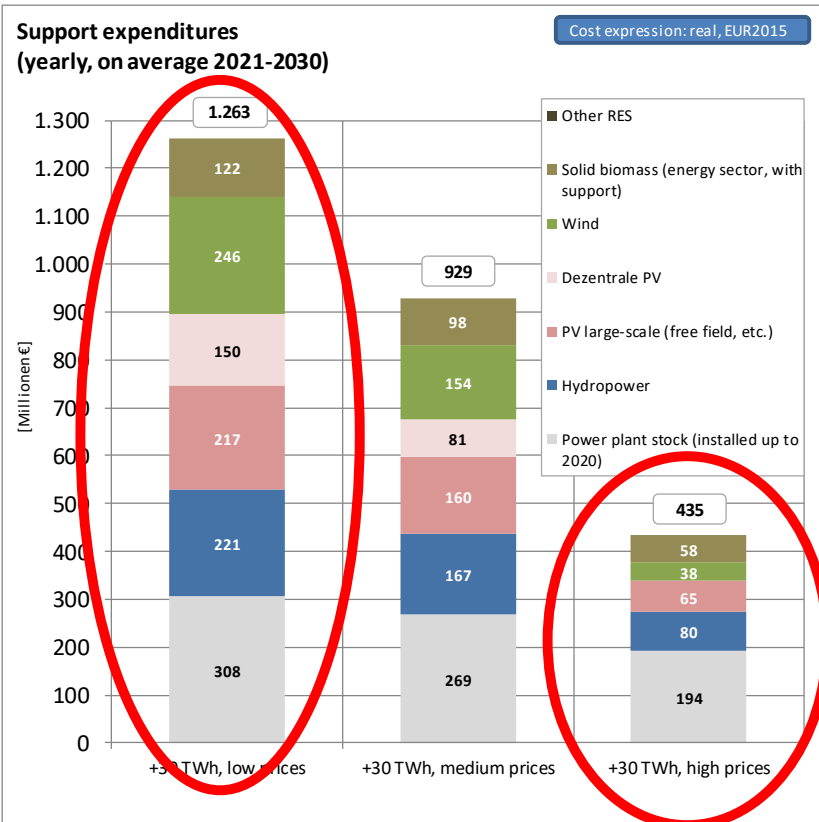
Electricity demand without pumped hydro



- Laufwasser
- Wind
- Solar
- NSP
- PSp
- Biomasse
- Erdgas
- Verbr. mit PSp
- Verbr. ohne PSp



Investments and Support (2)



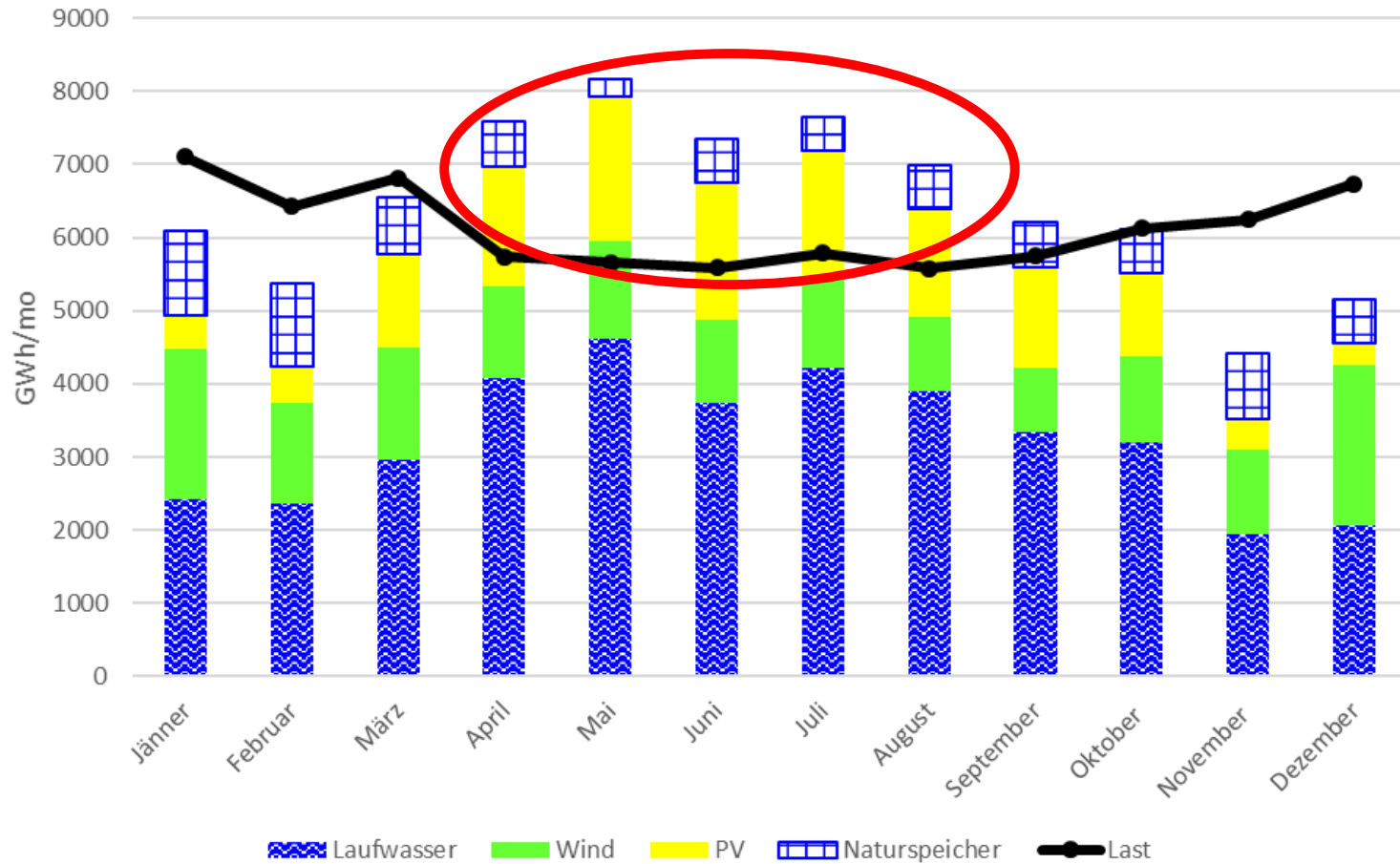
OE core scenarios

In focus: Wholesale price trends

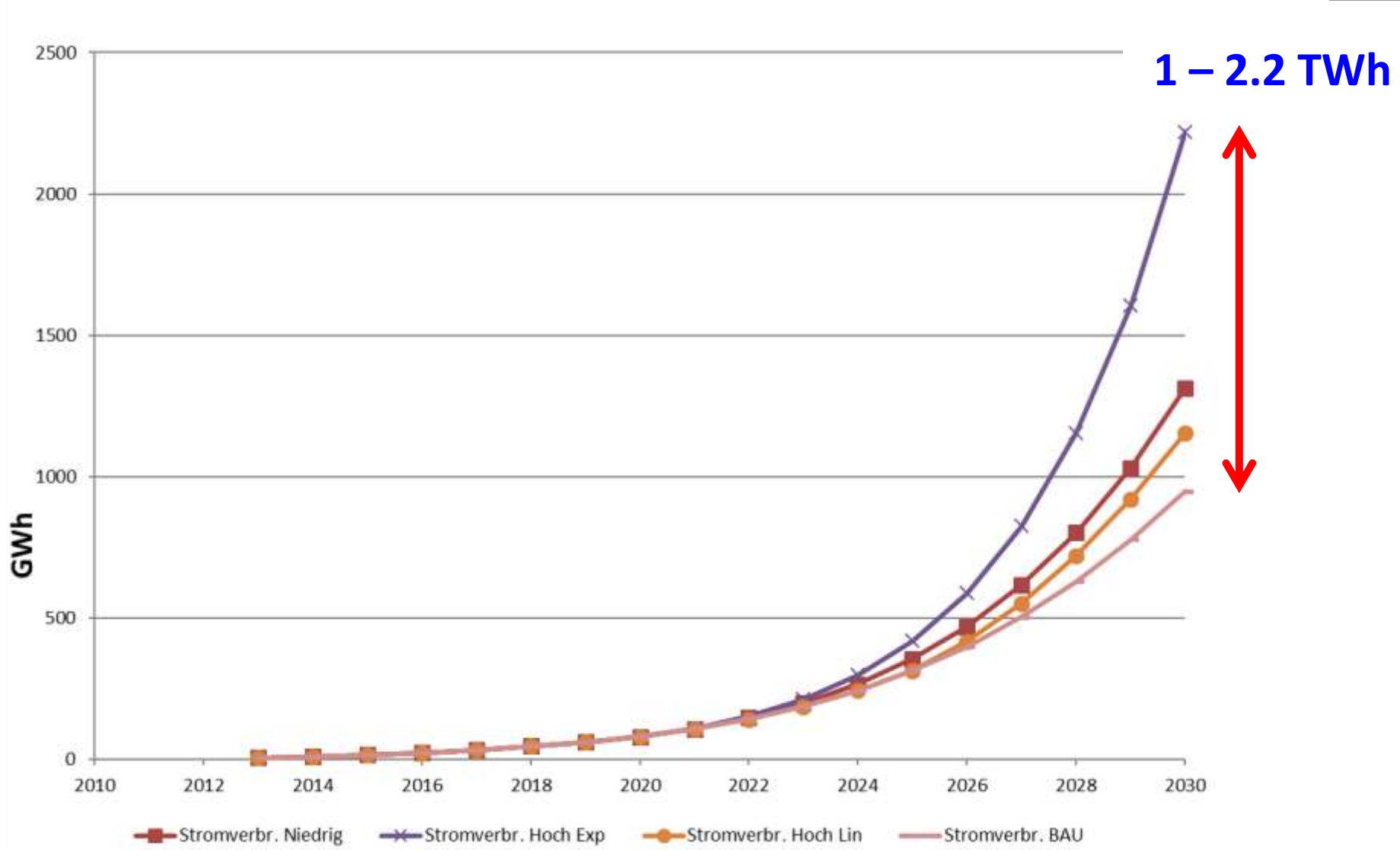
- According to the **middle trend scenario**, where a moderate rise in electricity prices is postulated, to around € 50/MWh by 2030, the **annual average support requirement for the coming decade is around € 929 million** (see Figure on the left).
- (Significantly) lower electricity prices, as postulated in the low-price scenario, would require a substantial increase (about 36%) in support expenditures.
- The same applies to the high-price scenario - if electricity markets follow this trend, this would result in a reduction of support costs by a considerable 53% compared to the core scenario of medium prices.

Monthly electricity generation in 2030

Monatliche Erzeugung und Verbrauch



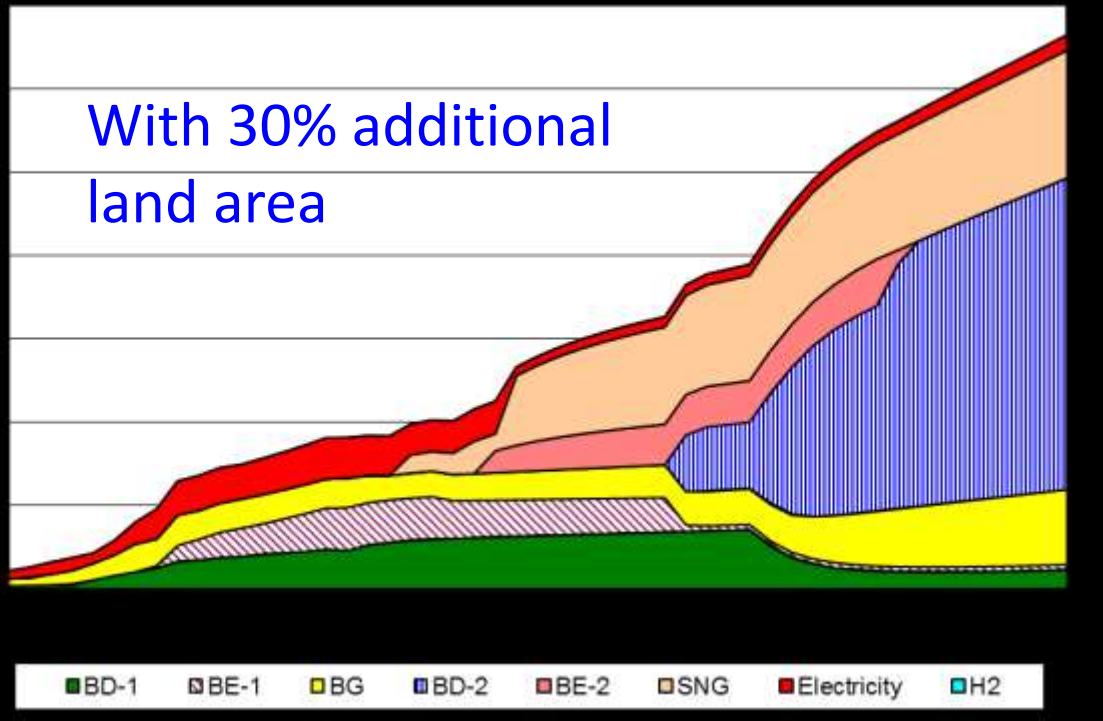
Scenarios for E-mobility



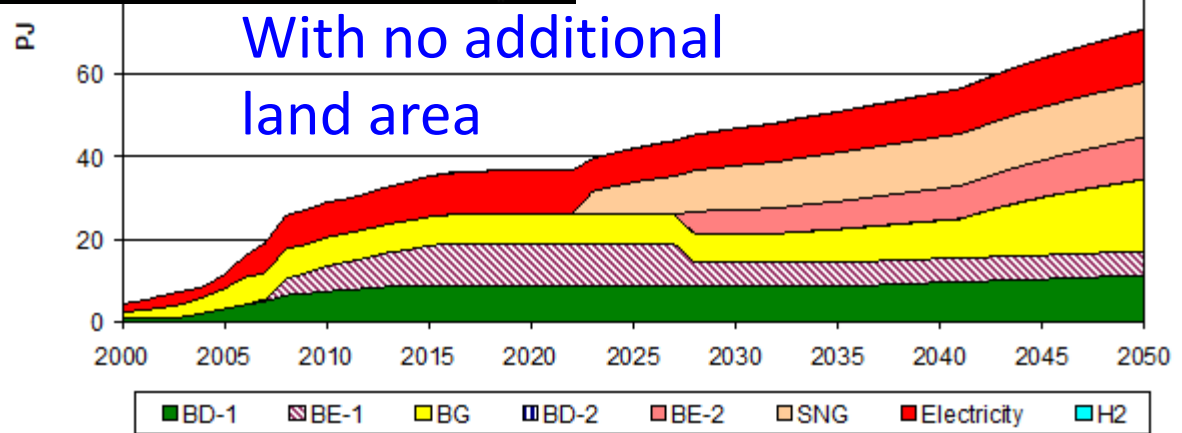


PROSPECTS FOR BIOFUELS (Study ALTETRÄ (2015))

With 30% additional
land area

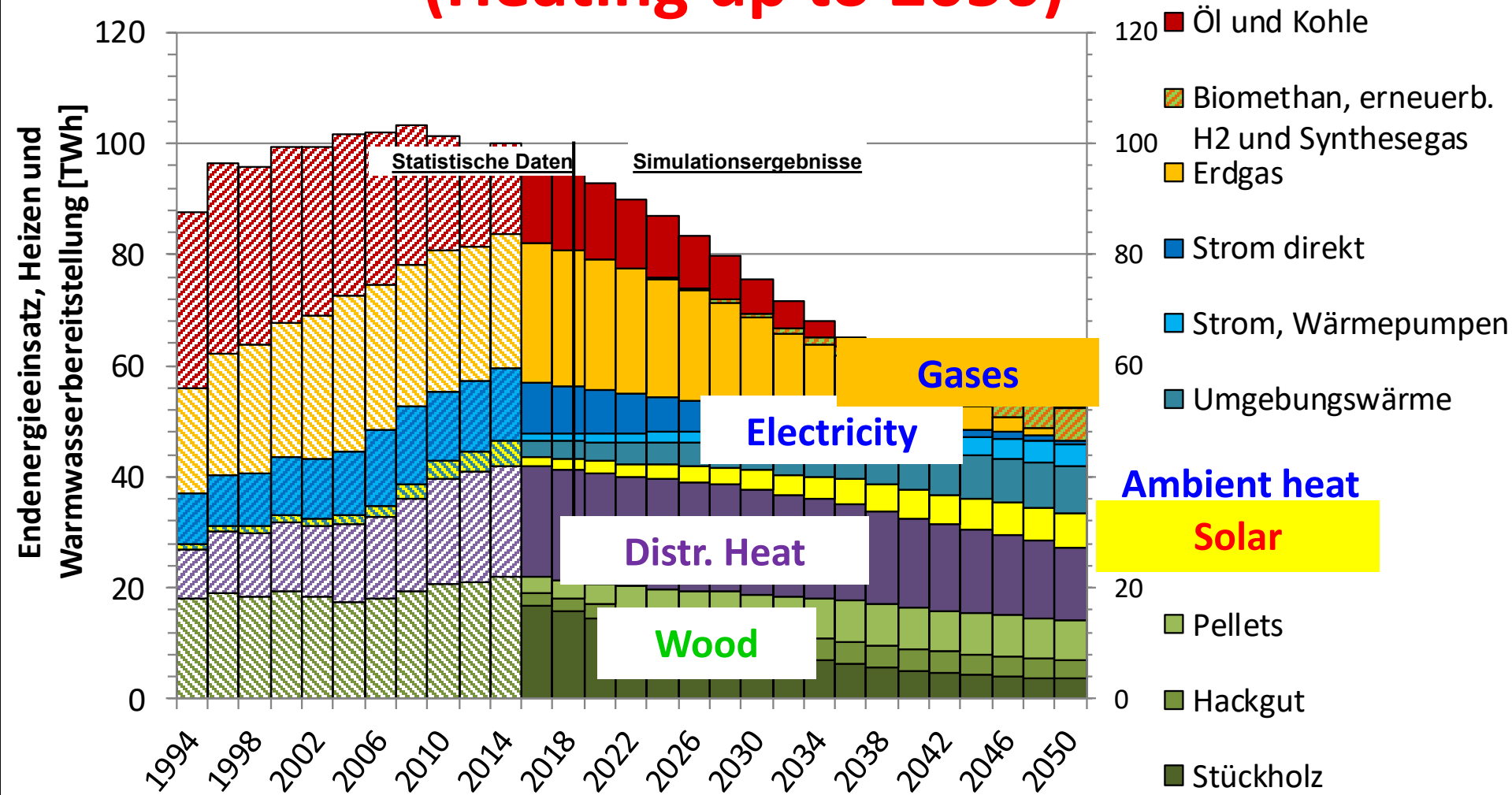


With no additional
land area





„Wärmewende 2050“ (Heating up to 2050)



Most important: building retrofit!



PRIORITIES AND CRITICISM



- **Carbon tax policy is of highest relevance**
- **Building retrofit enforcement**
- **Ban of oil heating and diesel cars in cities**
- **Current NECP is “teethless”**



CONCLUSIONS

- 1. 34%-RES-target will be met by 2020**
- 2. Current transport policy will not be successful**
- 3. Potentials exist, but needs efforts to be harvested**
- 4. Important to strive for a balanced portfolio of various sources of renewables harvested**
- 5. Currently on federal level: stale-mate, no political action at all**
- 6. However, many decentralized initiatives on provincial and local level**