Canada and Europe: The Environmental Context and the Policy Environment

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What is the right comparison? Canada and Norway?

-high per capita/GDP

-“middle” states in global politics

-EFTA Member. Norway high degree of harmonization of environmental laws with EU

-NAFTA Member. Canada high degree of similarity with US on environmental laws

-strongly influenced by decisions of neighbor to the South, but limited in its ability to shape that policy

Norway and Canada

- Environmental tourism
- Renewable electricity leadership (hydro) (Norway electricity share in Norway above 100%, Canada 60%
- rich in natural resources, natural beauty
- sustainability leaders
- Challenged as to how to use, but protect natural resources
- extractive industries (oil, natural gas, timber, fisheries)
- low population density

What is the right comparison? Canada and the European Union?

- federal/supranational structure
- Power of provinces/EU member states remains very strong
- Large range of types of states in terms of their energy mixes (Poland-Alberta (fossil fuels), Quebec-Sweden (hydro and nuclear), Ontario-Germany…..coal, nuclear, new renewables…)

Canada-EU

- EU: 20,20,20 goals by 2020 (20% renewables in total energy mix, 20% ghg cut compared to 1990 levels, 20% energy efficiency improvements)

  -Fulfilled Kyoto Protocol targets. Member of Kyoto second phase.

- Canada 17% cut ghg by 2020 (2005 base)

  -Pulled out of Kyoto. Did not meet targets.

Canada-EU

- At the federal/supranational level EU is outperforming Canada

- On a state by state/province by province basis the picture is more nuanced

Environmental Performance Index 2012

(http://epi.yale.edu/epi2012/rankings)

- 1 Switzerland
- 2 Latvia
- 3 Norway
- 4 Luxembourg
- 5 Costa Rica
- 6 France
- 7 Austria
- 8 Italy
- 9 United Kingdom
- 9 Sweden
- 11 Germany
- 12 Slovakia
- 13 Iceland
- 14 New Zealand
- 15 Albania
- 16 Netherlands
- 17 Lithuania
- 18 Czech Republic
- 19 Finland
- 20 Croatia
- 21 Denmark
- 22 Poland
- 23 Japan
- 24 Belgium
- 25 Malaysia

- 37 Canada
- 49 USA

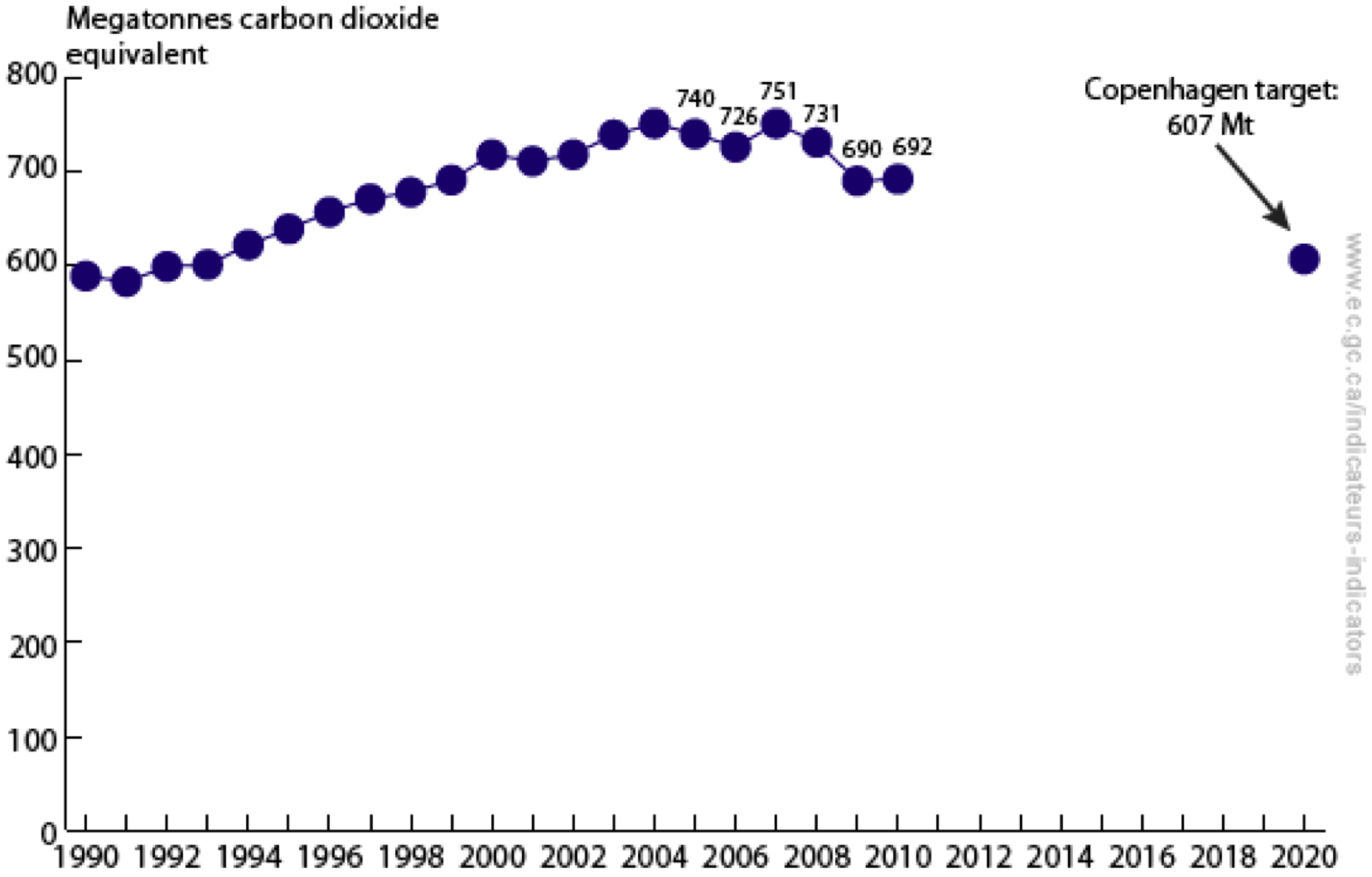
Climate Change Performance Index 2013

http://germanwatch.org/en/download/7158.pdf

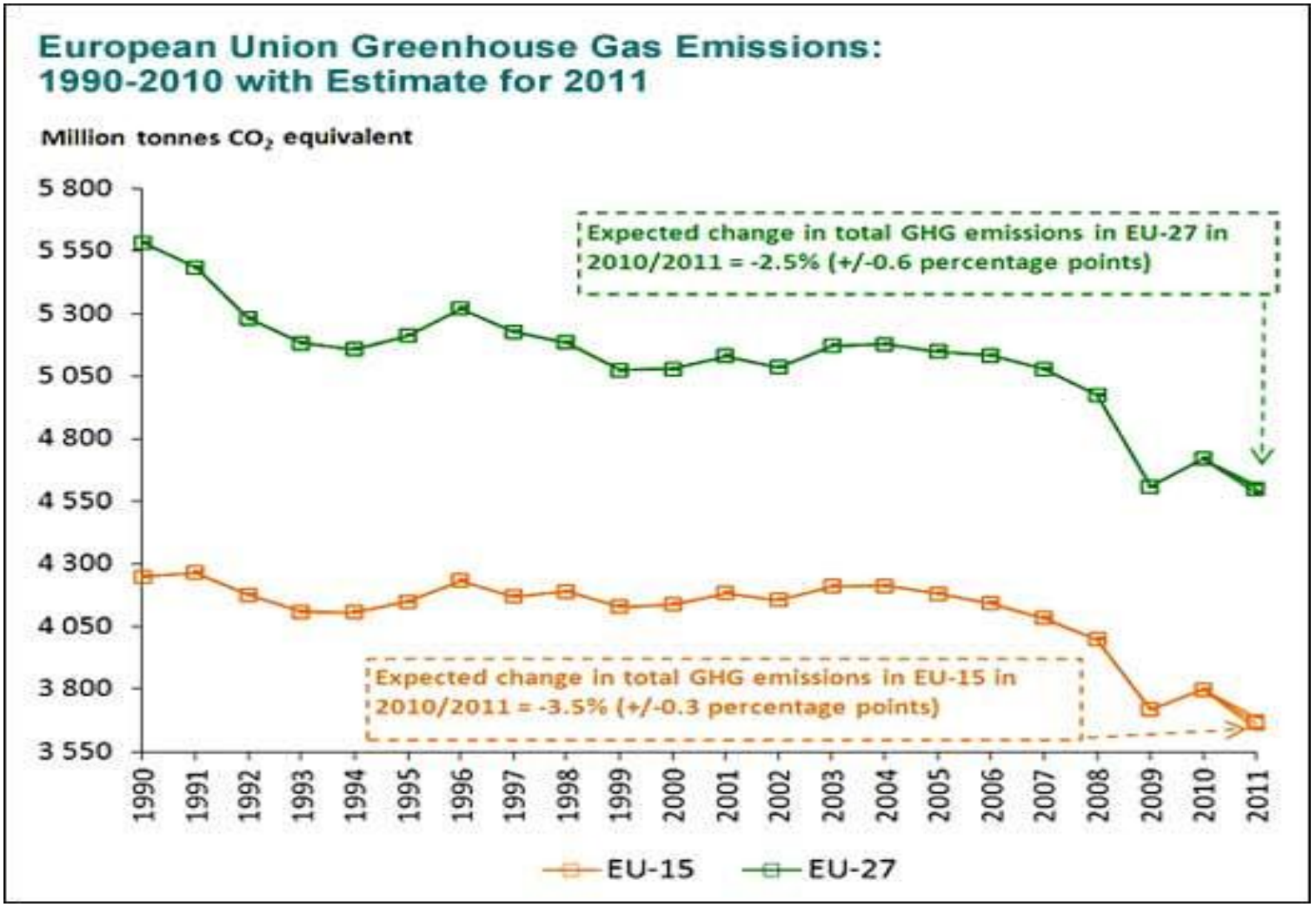
1.
2.
3.
4. Denmark
5. Sweden
6. Portugal
7. Switzerland
8 .Germany
9. Ireland
10. United Kingdom
31. Norway
43. United States
58. Canada

CO2 Emissions in Canada

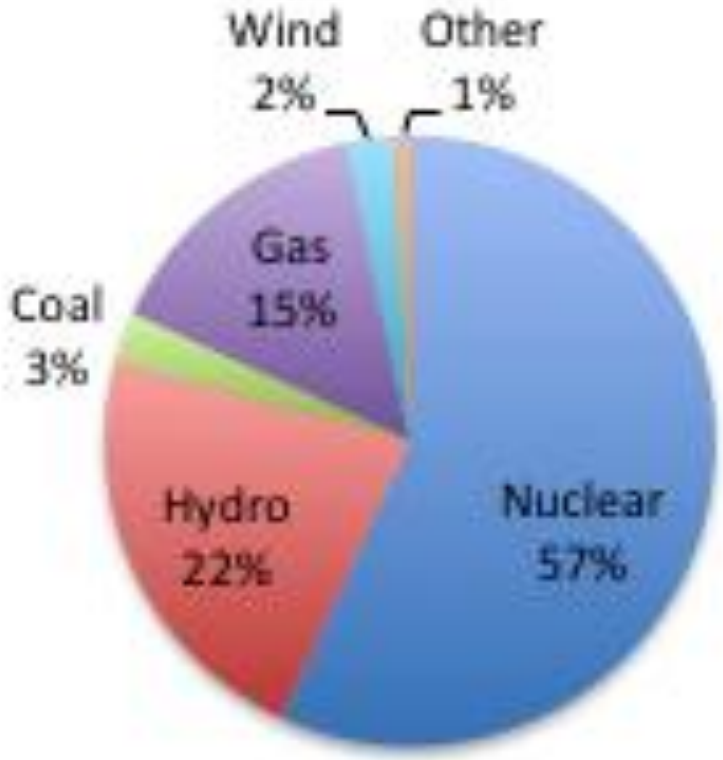
http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=FBF8455E-1

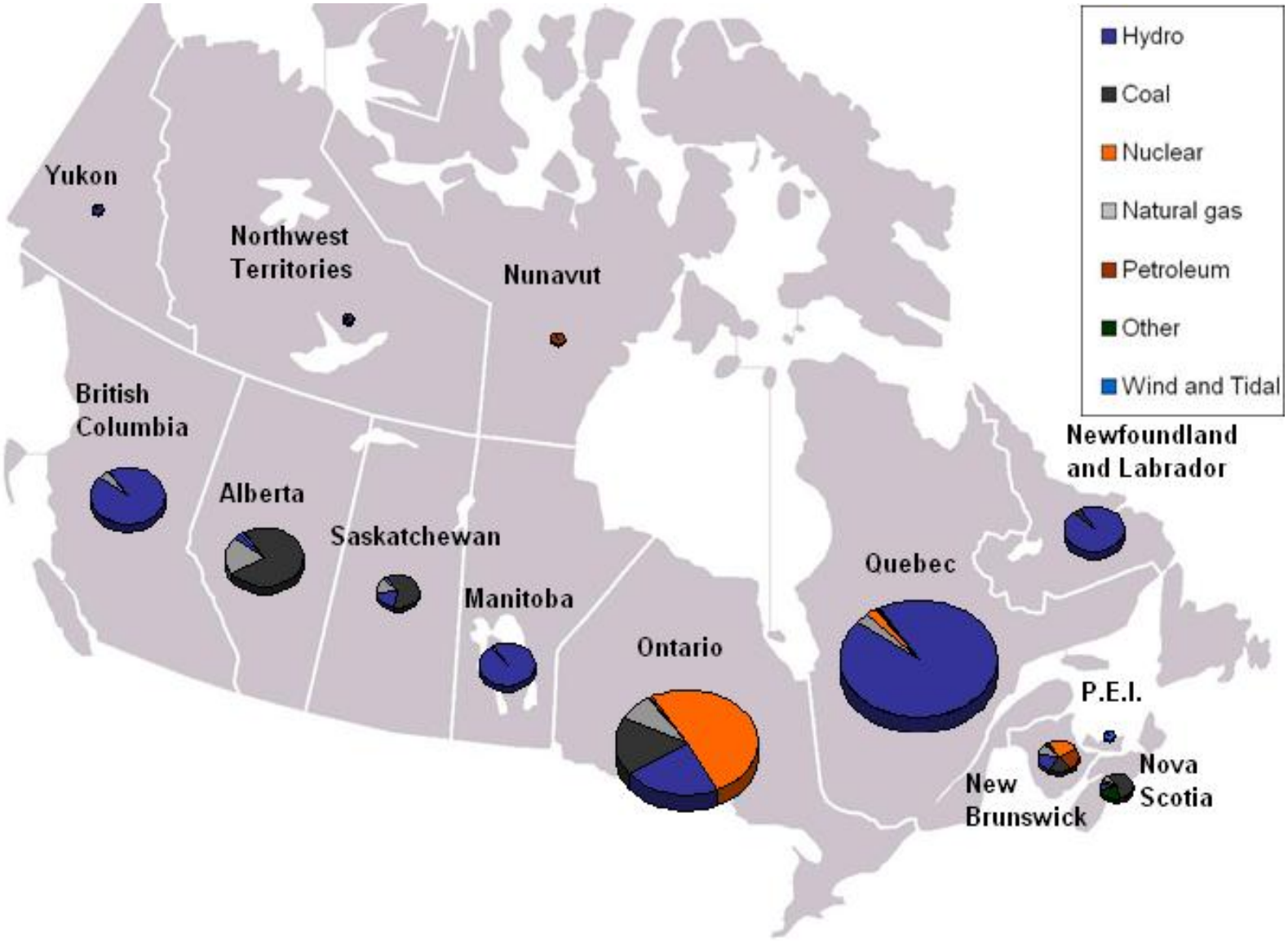


European Greenhouse Gas Emissions



Electricity Mix in Ontrario in 2011





http://www.ieahev.org/by-country/canada-charging-infrastructure/

Energy in the EU

CLIMATE CHANGE: EU third largest emitter of CO_2 in the world

ENERGY DEPENDENCY: close to 55% dependent on energy imports

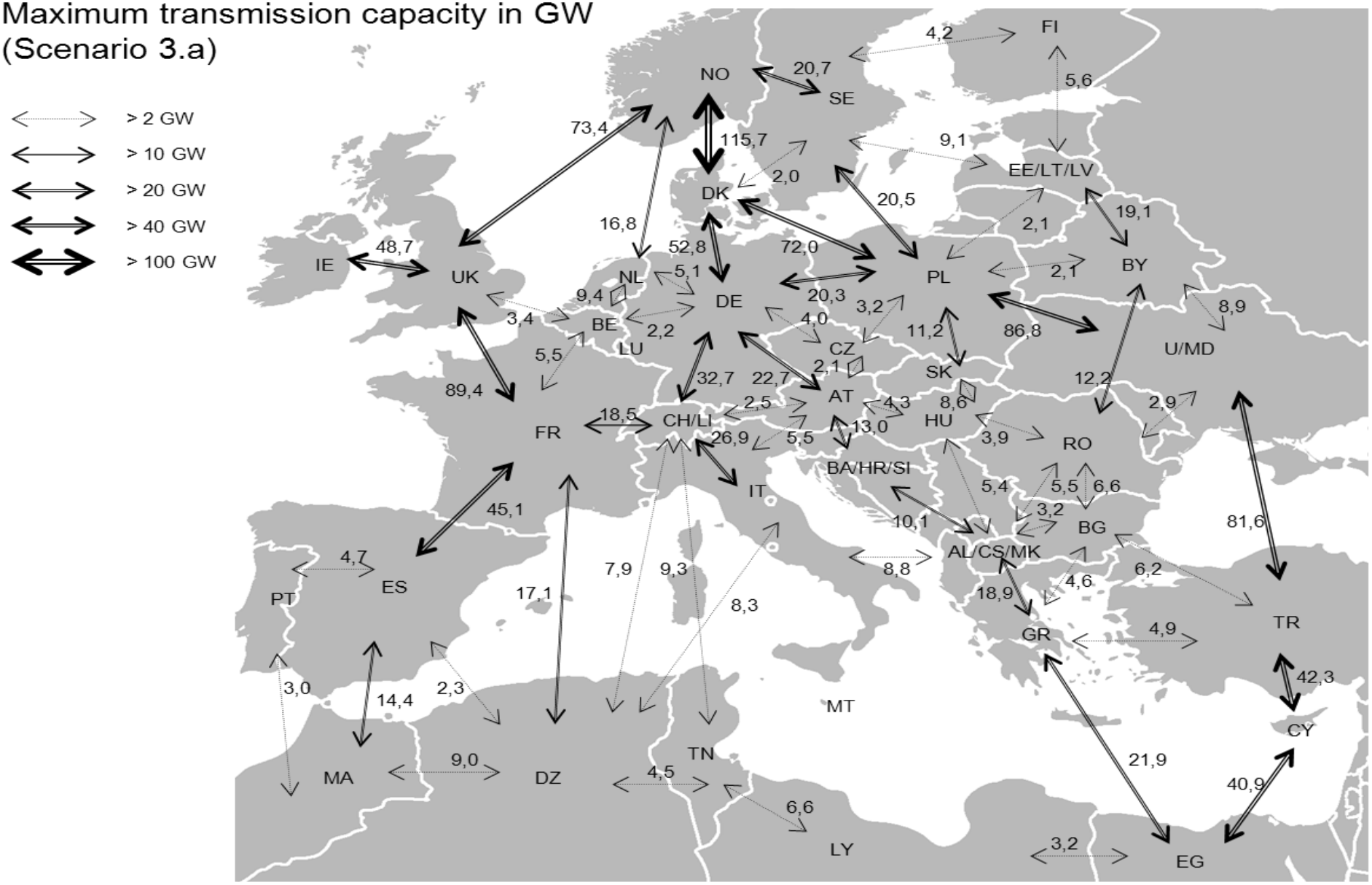
ECONOMIC COMPETITIVENESS: Can Europe become a model of technological, political, and societal innovation working towards a low carbon future?

The European Energy Council of March 2011

Goal for 2050:

80-95 % emission reduction target for 2050 relative to 1990 emission levels.

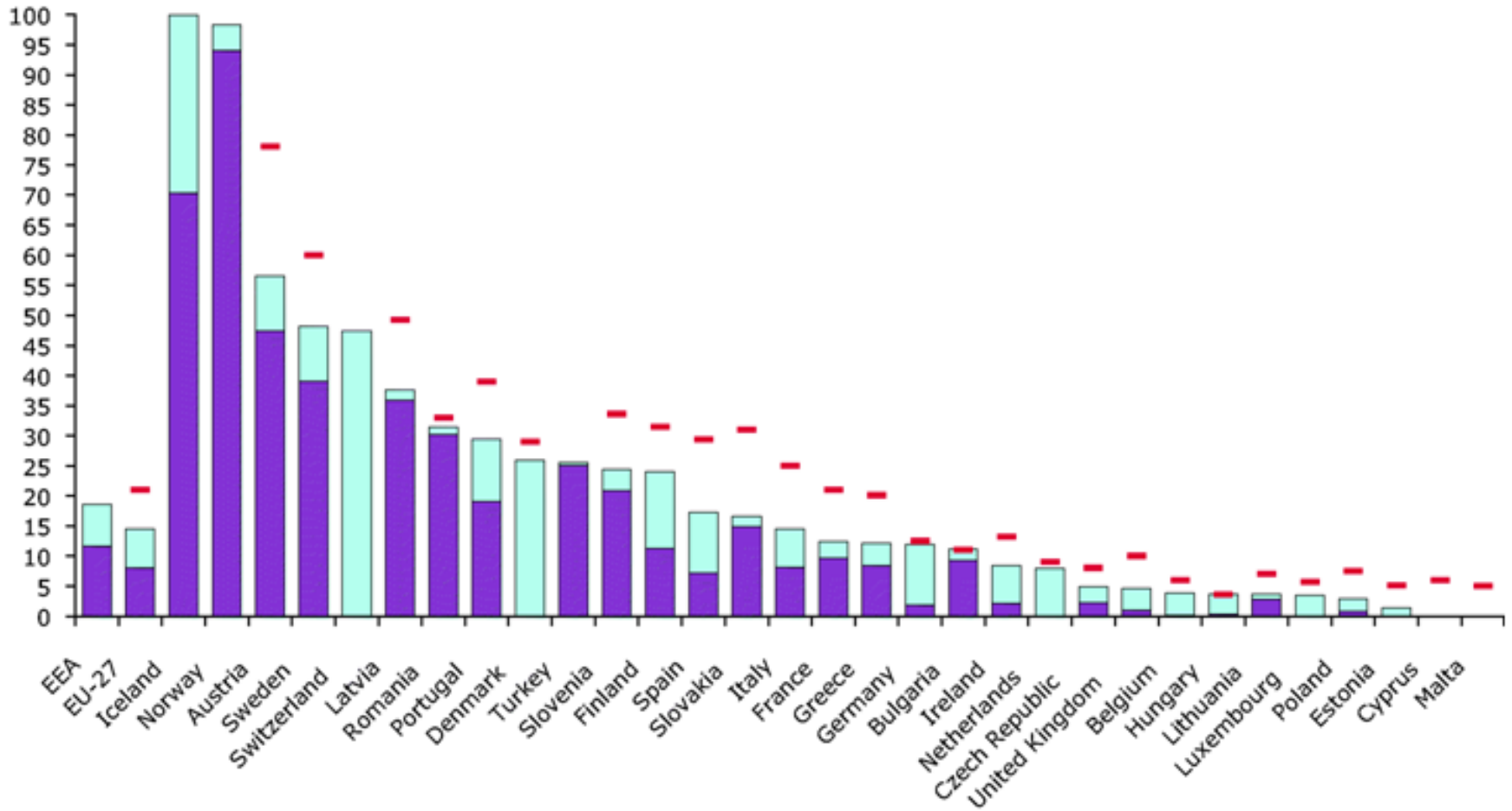
Maximum transmission capacity in GW (Scenario 3.a)



National Renewable Targets for 2020 increase in renewables of 5.5 % above existing levels & additional increase based on per cap GDP):

- Belgium 13%
- Bulgaria 16%
- Czech Republic 13%
- Denmark 30%
- Germany 18%
- Estonia 25%
- Ireland 16%
- Greece 18%
- Spain 20%
- France 23%
- Italy 17%
- Cyprus 13%
- Latvia 40%
- Lithuania 23%
- Luxembourg 11%
- Hungary 13%
- Malta 10%
- Netherlands 14%
- Austria 34%
- Poland 15%
- Portugal 31%
- Romania 24%
- Slovenia 25%
- Slovak Respublic 14%
- Finland 38%
- Sweden 49%
- United Kingdom 15%

Share of Renewable Electricity



European Green Cities Award

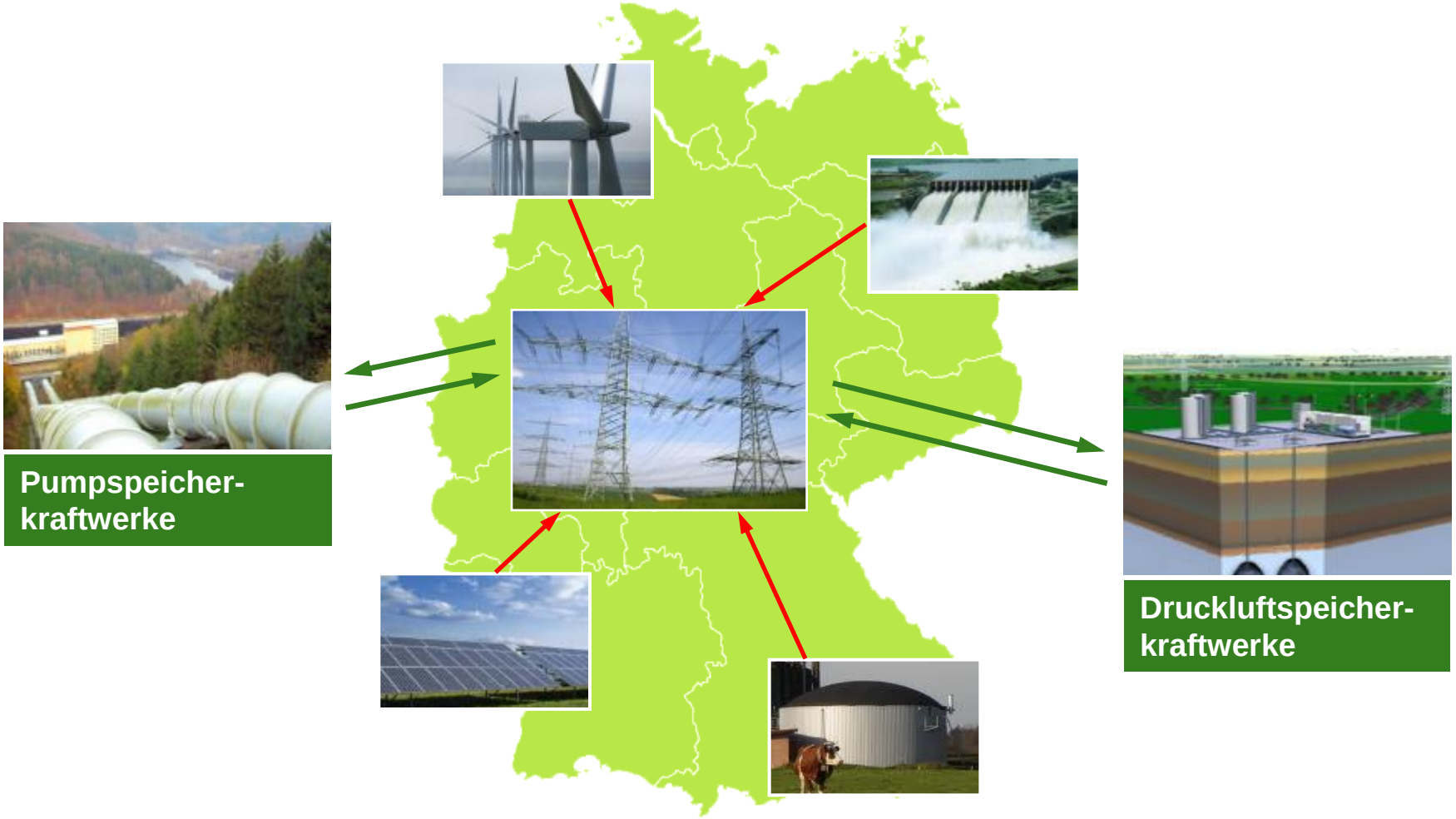
2010 Stockholm
2011 Hamburg
2012 Vitoria-Gasteiz
2013 Nantes

2014 Copenhagen

-goal 50 % of people cycling to work by 2015 (compared to 35 % in 2010),

-CO2 neutral by 2025)

The Energy Transition



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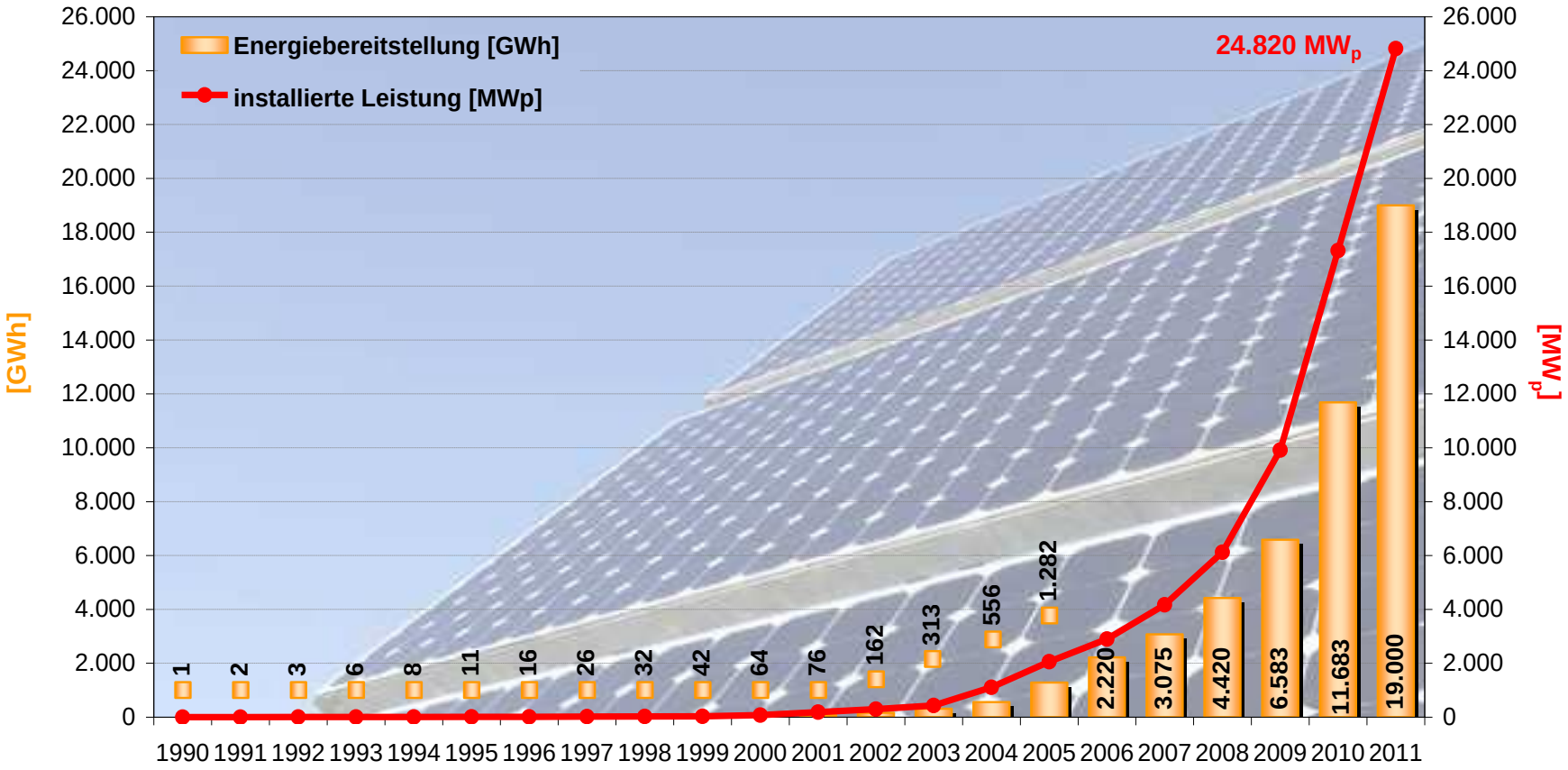
Climate and Renewable Energy Targets 2010

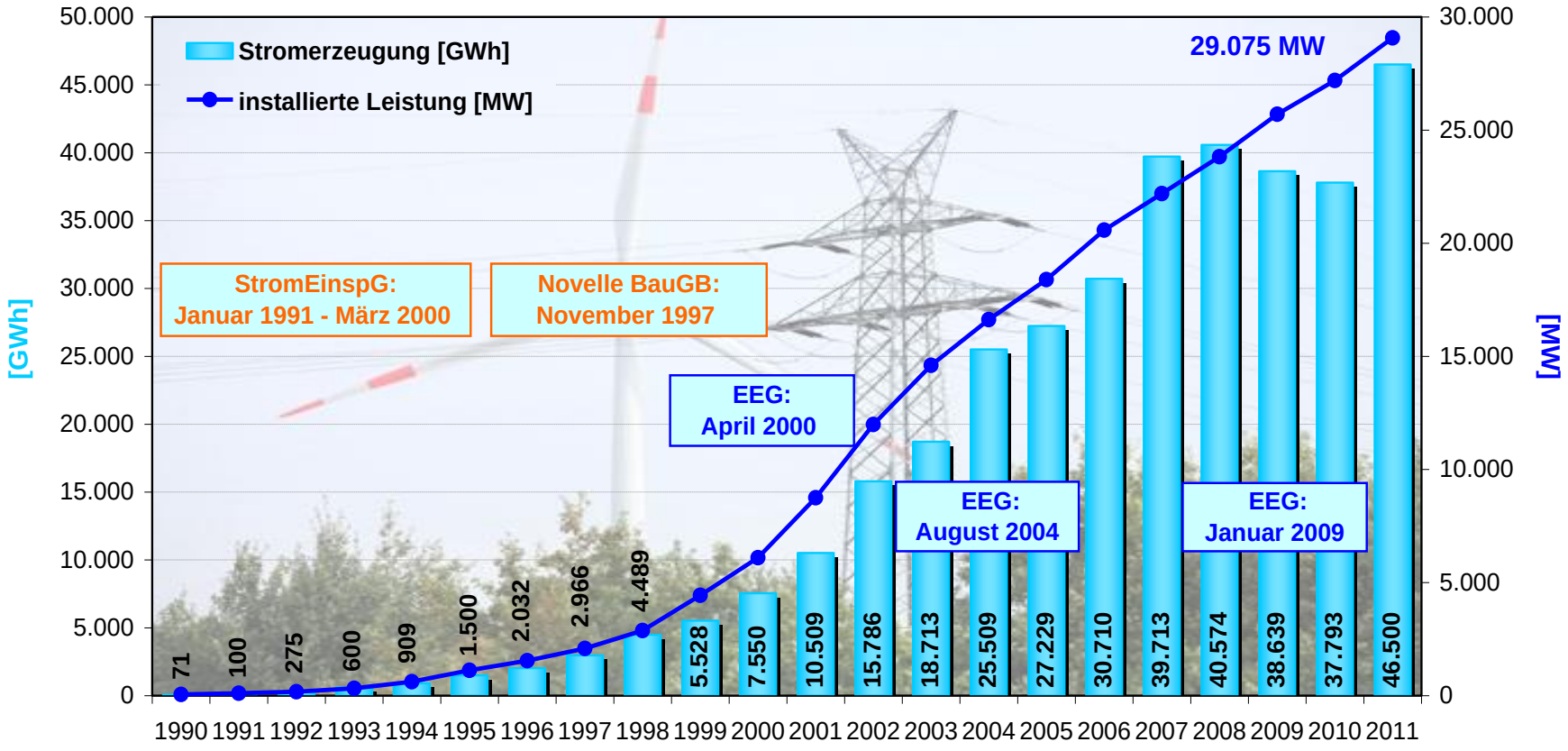
	Climate Change	Renewables		Efficiency				
	GHG (vs. 1990)	power	Primary energy balance	Primary energy	power	Energy productivity	Transport	upgrading of buildings
2020	- 40 %	35%	18%	- 20%	-10%	+ 2,1%/a	-10 %	Upgrating the energy performance 1% -> 2%
2030	- 55 %	50%	30%	⋮ ▼	⋮ ▼			by 2020 reduction of heat requirements by 20%
2040	- 70 %	65%	45%					
2050	- 80-95 %	80%	60%	- 50%	-25%		- 40 %	by 2050 reduction of primary energy demands by 80%

Entwicklung der Strombereitstellung und installierten Leistung von Photovoltaikanlagen in Deutschland



Quelle: BMU-KI III 1 nach Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat); 1 GWh = 1 Mio. kWh; 1 MW = 1 Mio. Watt;
Hintergrundbild: BMU / Bernd Müller; Stand: März 2012; Angaben vorläufig

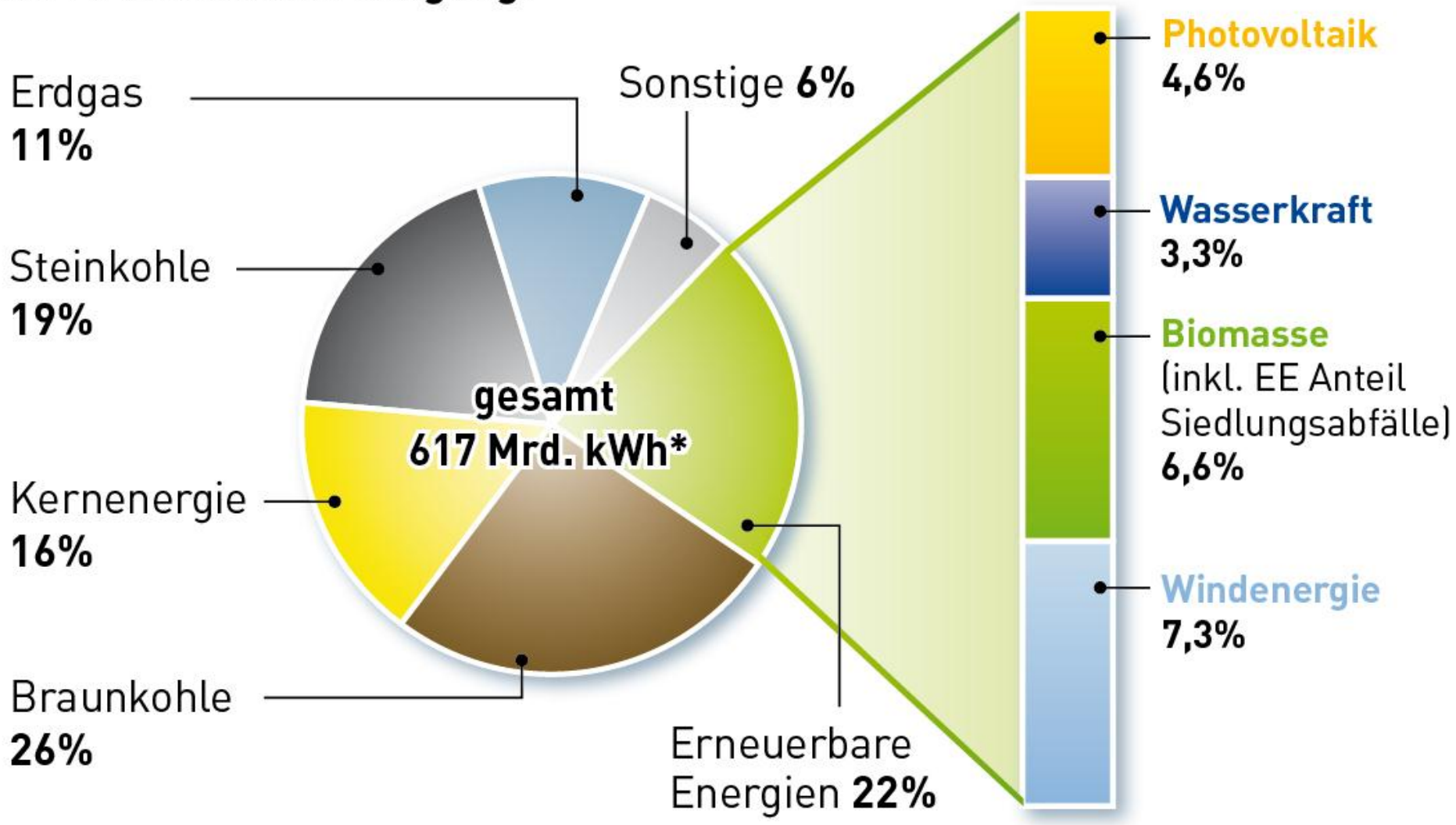
Entwicklung der Strombereitstellung und installierten Leistung von Windenergieanlagen in Deutschland



Quellen: J.P. Molly: "Status der Windenergienutzung in Deutschland, Stand: 31.12.2011"; Deutsches Windenergie-Institut (DEWI) und Bundesverband WindEnergie (BWE); Stromerzeugung 2011 auf Grundlage 50Hertz Transmission, Amprion, TenneT TSO, EnBW Transportnetze; StromEinspG: Stromeinspeisungsgesetz; EEG: Erneuerbare-Energien-Gesetz; BauGB: Baugesetzbuch; 1 MW = 1 Mio. Watt; 1 GWh = 1 Mio. kWh; BMU-KI III 1 nach Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat); Hintergrundbild: BMU / Christoph Edelhoff; Stand: März 2012; Angaben vorläufig

Der Strommix in Deutschland im Jahr 2012

Erneuerbare Energien lieferten 22% der Bruttostromerzeugung.



Quelle: BDEW
Stand: 12/2012

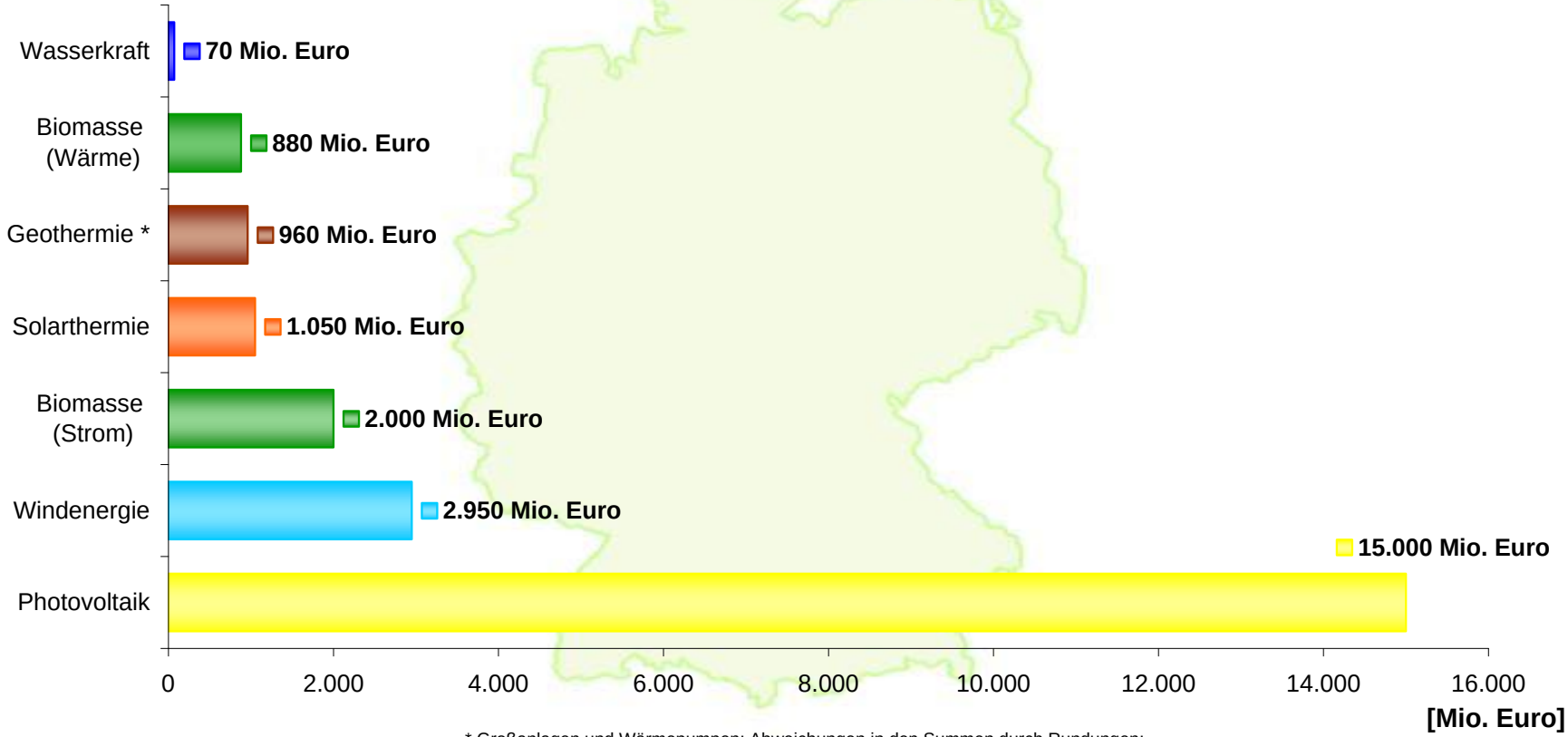
*vorläufig, teilweise geschätzt

www.unendlich-viel-energie.de

Agentur für Erneuerbare Energien

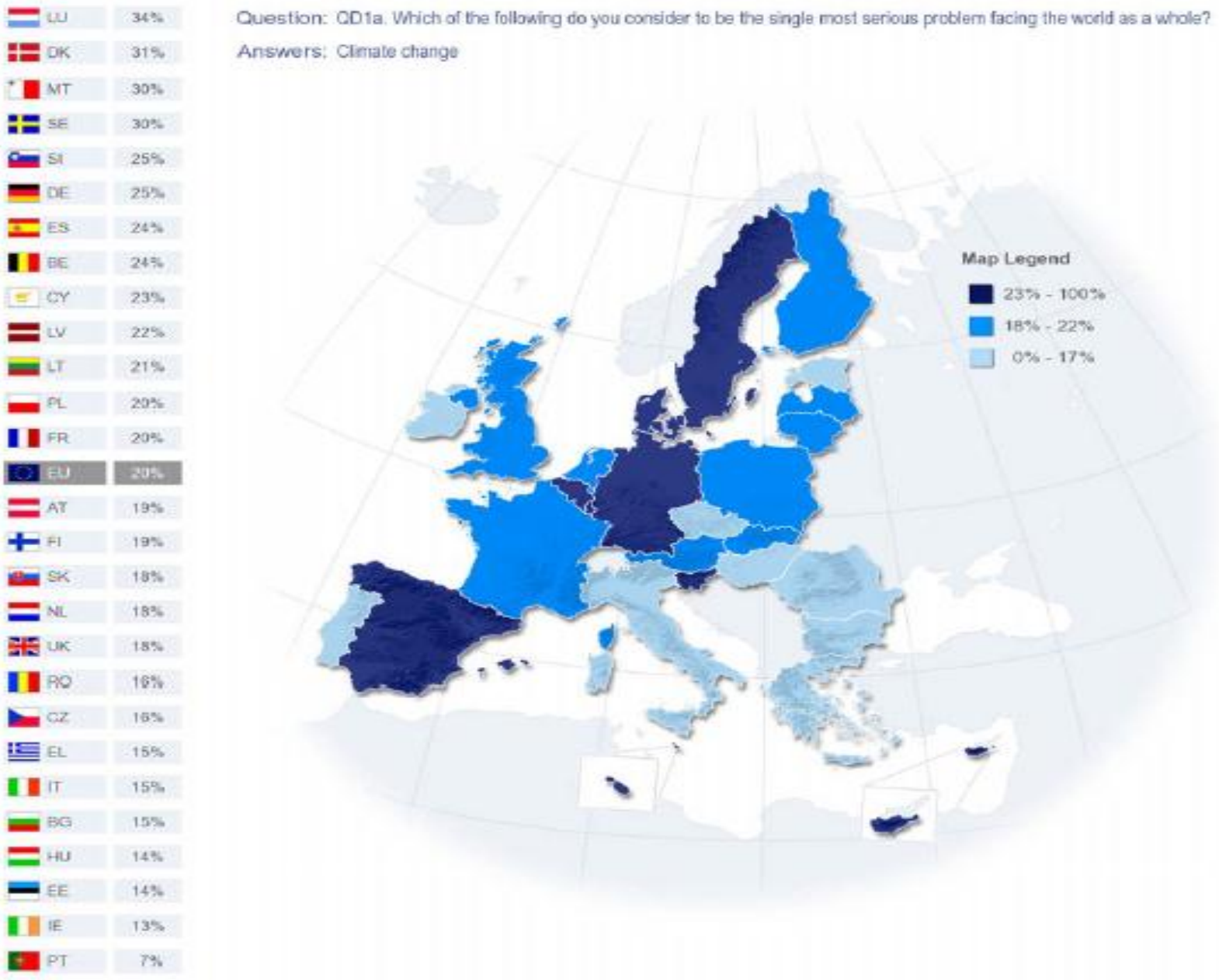
Investitionen in die Errichtung von Erneuerbare-Energien-Anlagen in Deutschland im Jahr 2011

Investitionen in EE-Anlagen: 22,9 Mrd. Euro



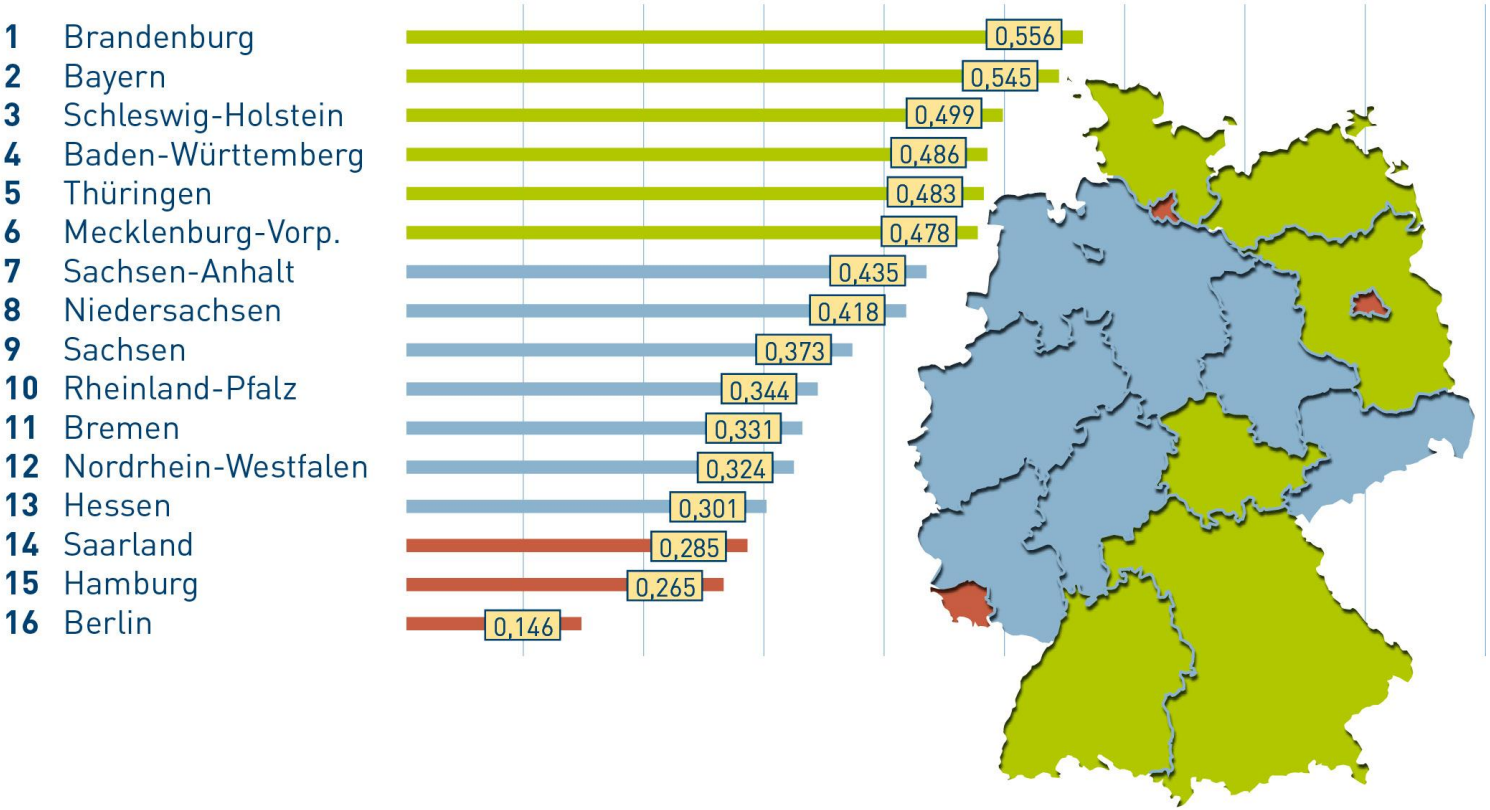
* Großanlagen und Wärmepumpen; Abweichungen in den Summen durch Rundungen;
Quelle: BMU-KI III 1 nach Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW); Stand: März 2012; Angaben vorläufig

http://climateinsight.files.wordpress.com/2011/10/euclimatechange.png



Bundesländervergleich Erneuerbare Energien 2012 – Gesamtwertung

Punktewertung 0-1



Quelle: Bundesländervergleich Erneuerbare Energien 2012 DIW/ZSW

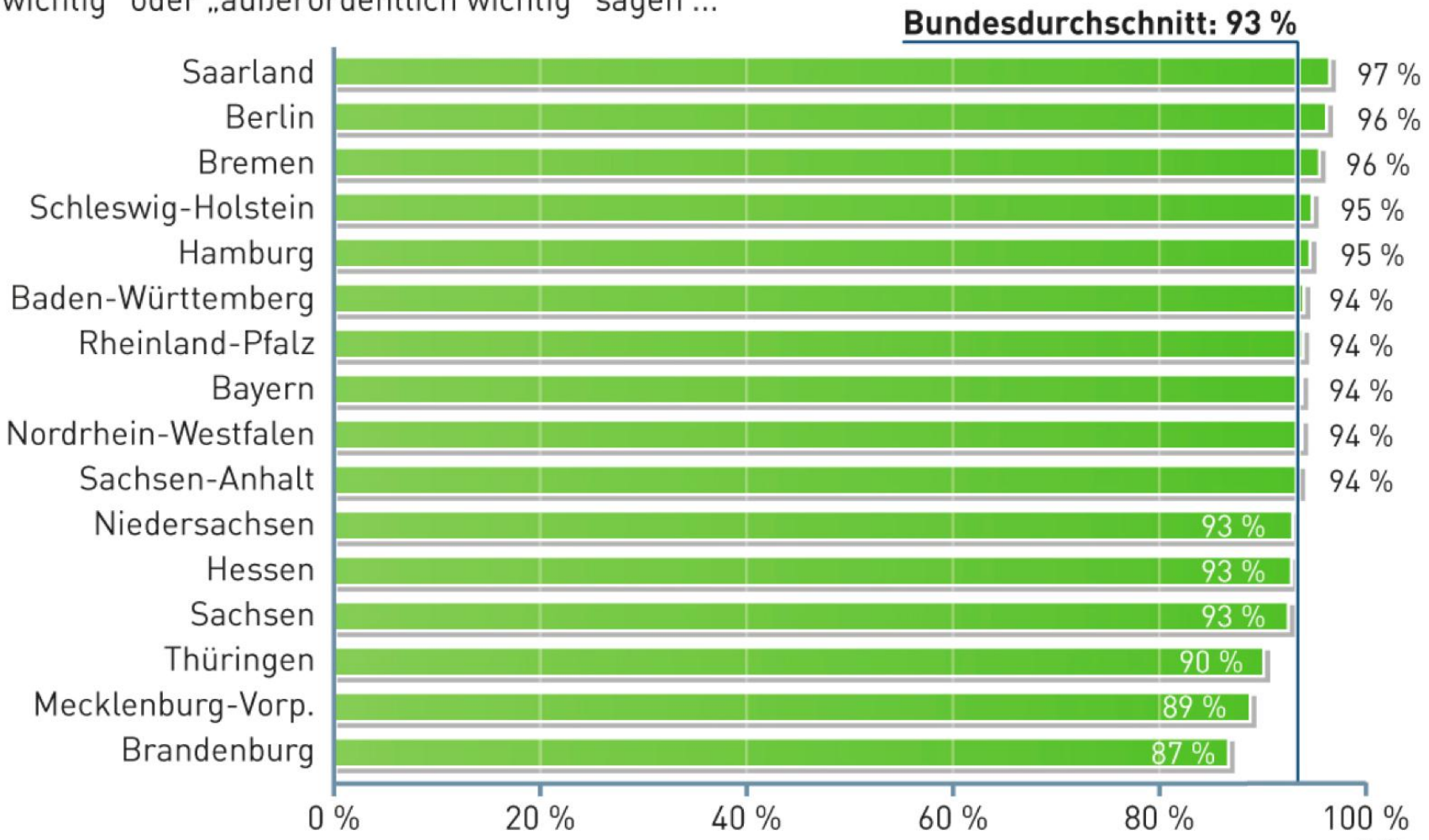
Agentur für Erneuerbare Energien

www.unendlich-viel-energie.de

Energy Transition Must also have Public Acceptance

Bundesländervergleich: Große Mehrheit für den verstärkten Ausbau Erneuerbarer Energien

Der Ausbau und die verstärkte Nutzung Erneuerbarer Energien sind „wichtig", „sehr wichtig" oder „außerordentlich wichtig" sagen ...



Quelle: Umfrage von TNS Infratest, 4.060 Befragte,
im Auftrag der Agentur für Erneuerbare Energien. Stand: 11/2012

www.unendlich-viel-energie.de

Agentur für Erneuerbare Energien