

再生可能エネルギー

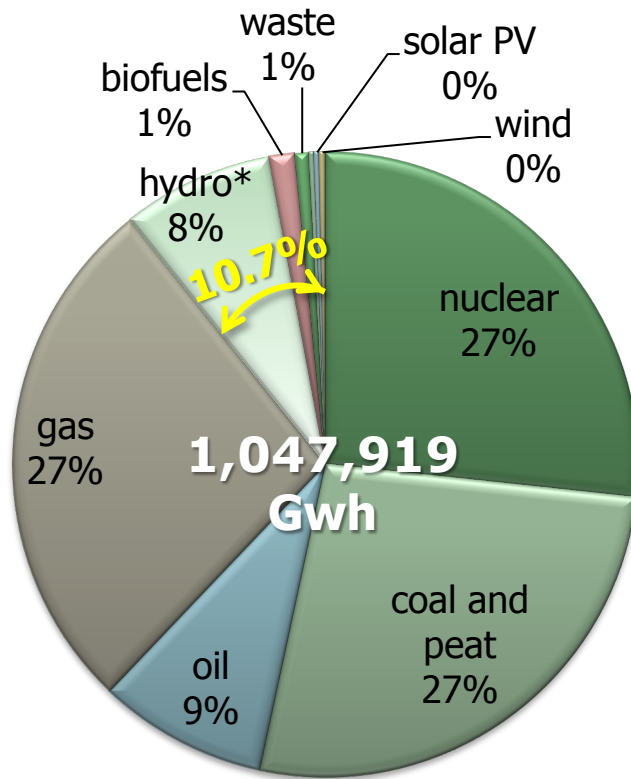
日本とドイツの比較

2012/04/03

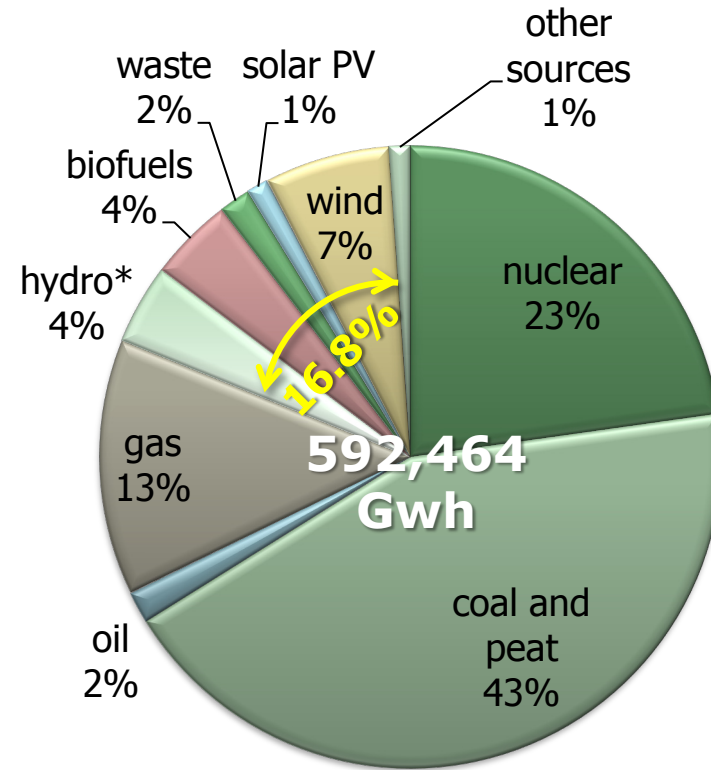


(株)エコロジア 代表 林 彰一

日・独 電力供給 電源構成の比較グラフ (2009 IEA)

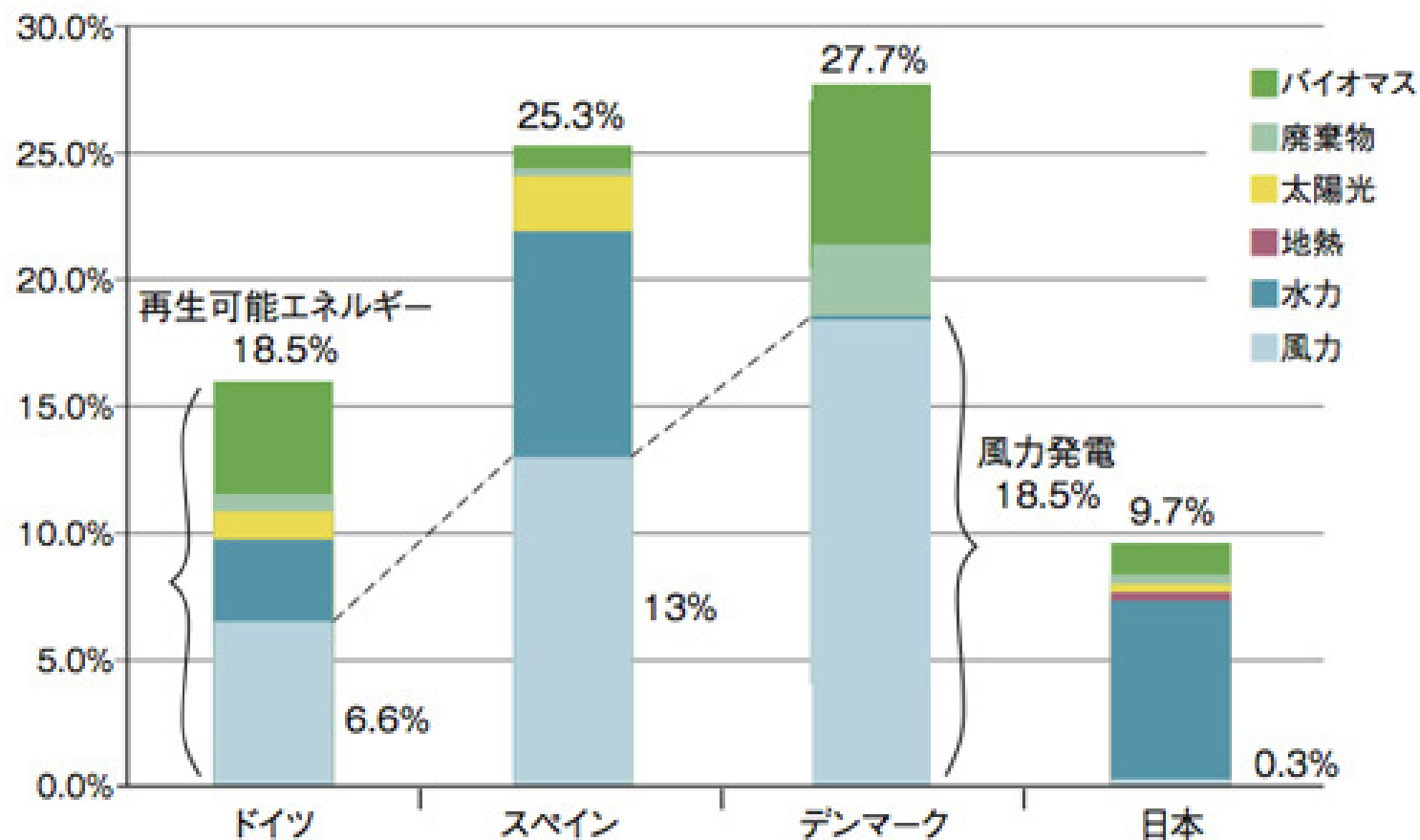


日本



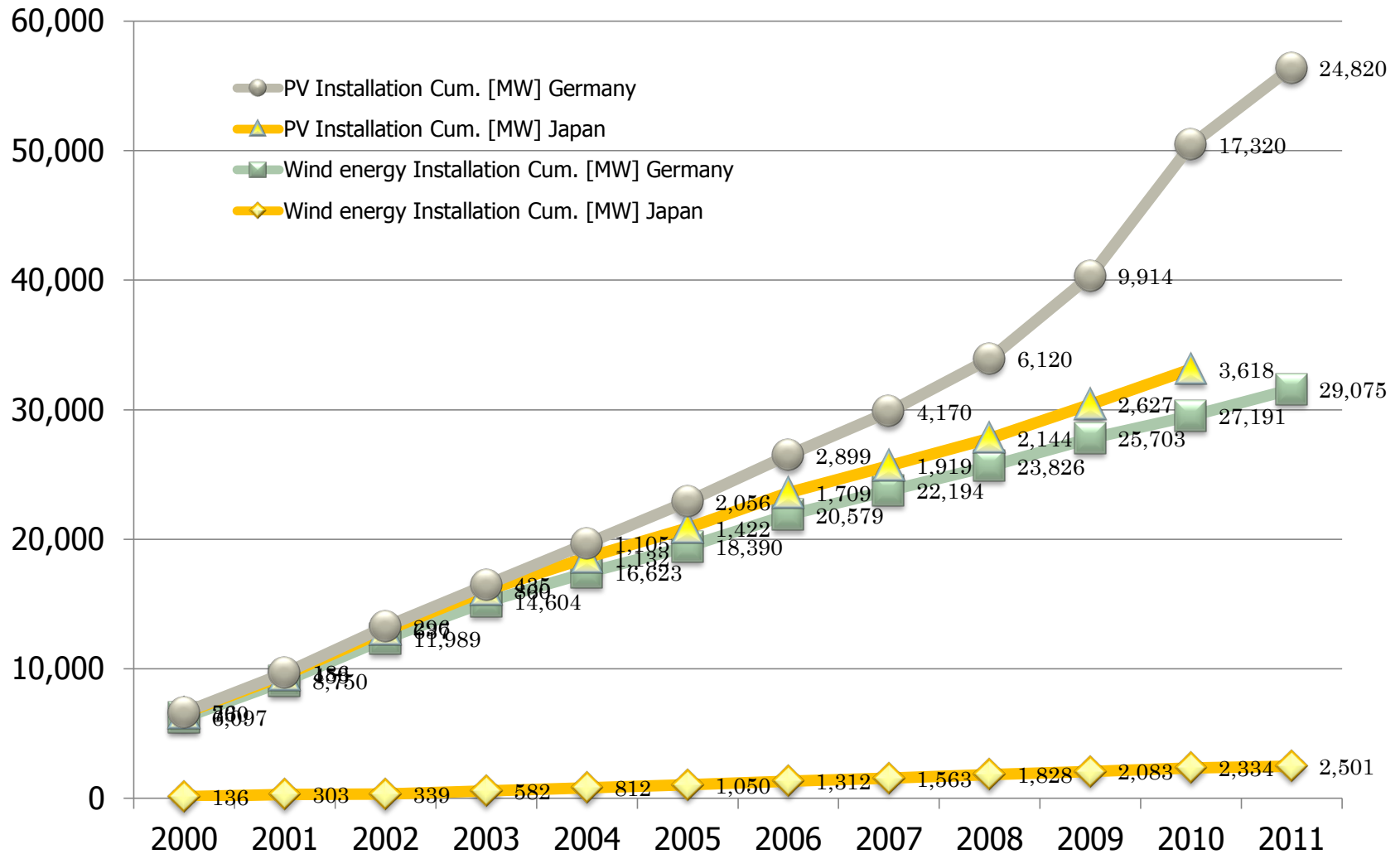
ドイツ

日・独・スペイン・デンマークの再生可能エネルギー導入比較



出所：資源エネルギー庁、IEA Energy Balance 2011よりエネルギー経済研究所作成

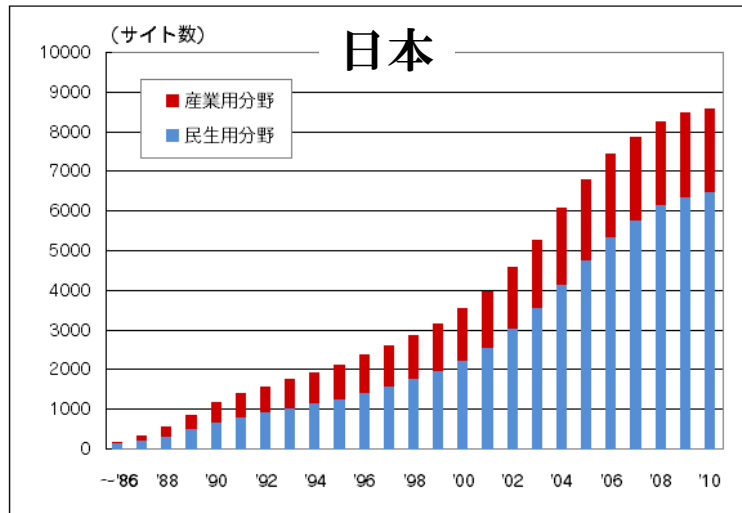
日・独 太陽光／風力発電 累計設置容量



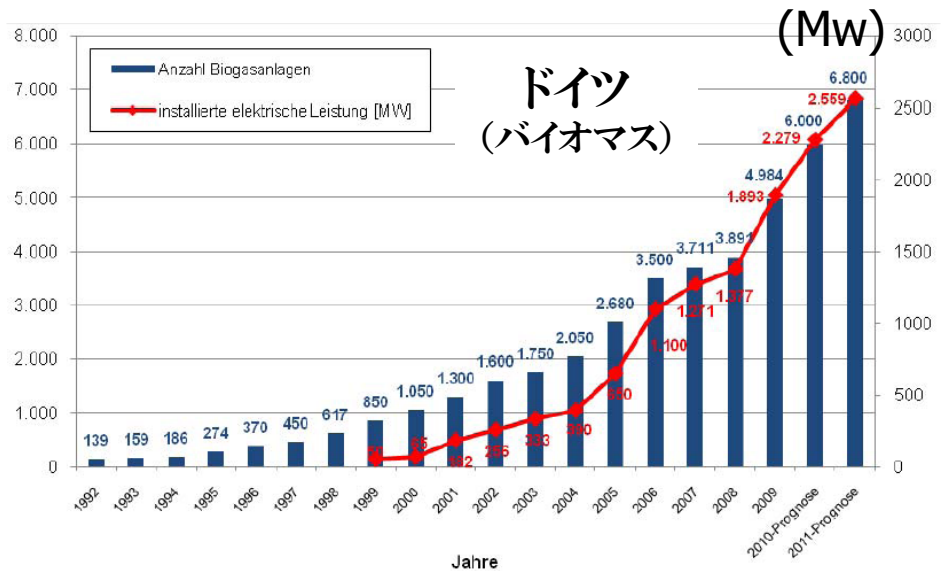
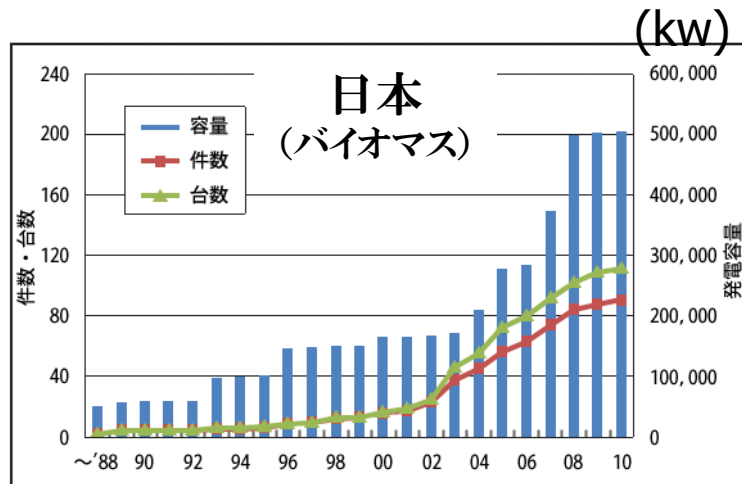
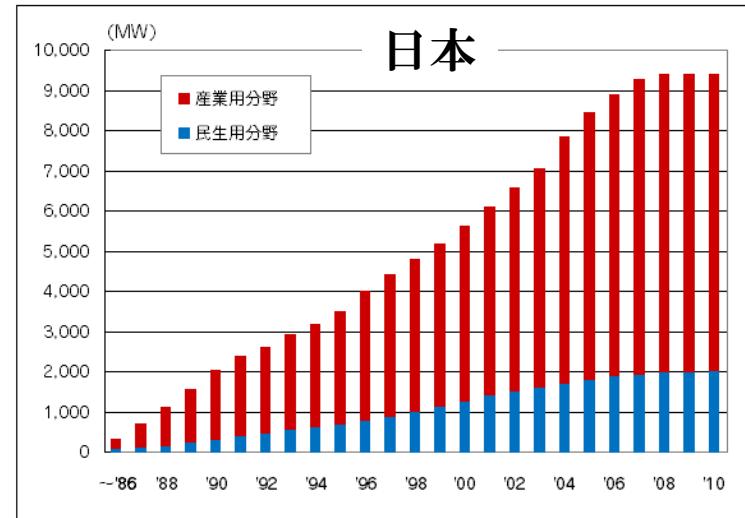
JWPA 2011年末の風力発電導入量と2012年3月末推定導入量
Trends in Photovoltaik Applications 2010 (IEA)

日・独 コ・ジェネレーション累計設置

累積導入サイト数 (2011年3月末)



累積導入容量 (2011年3月末)



補足資料

電力・熱供給 比較表 (2009 IEA)

Electricity/Heat in **Japan** in 2009

	Electricity	Heat
	<i>Unit: GWh</i>	<i>Unit: TJ</i>
Production from:		
nuclear	279,750	0
coal and peat	279,450	0
oil	91,616	286
gas	284,949	14,542
hydro*	82,129	
biofuels	13,990	5,202
waste	7,439	71
geothermal	2,889	0
solar PV	2,758	
solar thermal	0	0
wind	2,949	0
tide	0	0
other sources	0	3,485
Total Production	1,047,919	23,586
Imports	0	0
Exports	0	0
Domestic Supply	1,047,919	23,586

Electricity/Heat in **Germany** in 2009

	Electricity	Heat
	<i>Unit: GWh</i>	<i>Unit: TJ</i>
Production from:		
nuclear	134,932	0
coal and peat	257,137	149,746
oil	9,639	7,123
gas	78,884	232,818
hydro*	24,710	
biofuels	25,928	15,779
waste	9,634	50,191
geothermal	19	1,048
solar PV	6,579	
solar thermal	0	0
wind	38,639	0
tide	0	0
other sources	6,363	13,842
Total Production	592,464	470,547
Imports	41,859	0
Exports	-54,132	-239
Domestic Supply	580,191	470,308

<http://www.iea.org/stats/prodresult.asp?PRODUCT=Electricity/Heat>

日・独 主要指標の比較 (2009 IEA)

Key Indicators		
	Japan	Germany
Population (million)	127.33	81.88
GDP (billion 2000 USD)	4,872	1,999
GDP (PPP) (billion 2000 USD)	3,393	2,243
Energy Production (Mtoe)	93.79	127.09
Net Imports (Mtoe)	384.46	202.94
TPES (Mtoe)	471.99	318.53
Electricity Consumption* (TWh)	997.4	555.19
CO₂ Emissions ** (Mt of CO ₂)	1,092.86	750.19

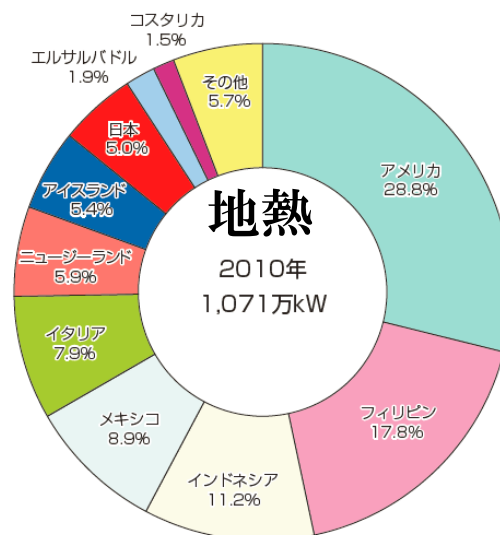
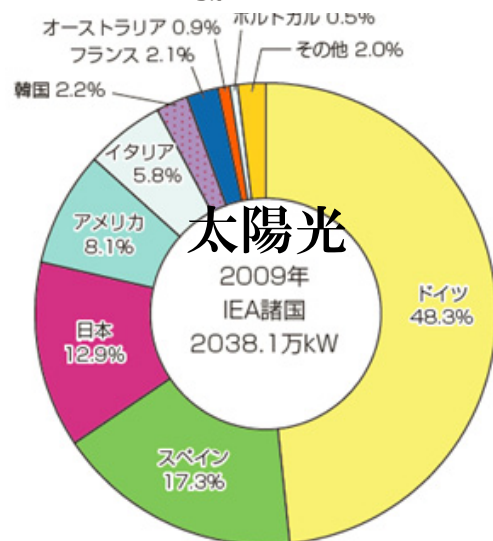
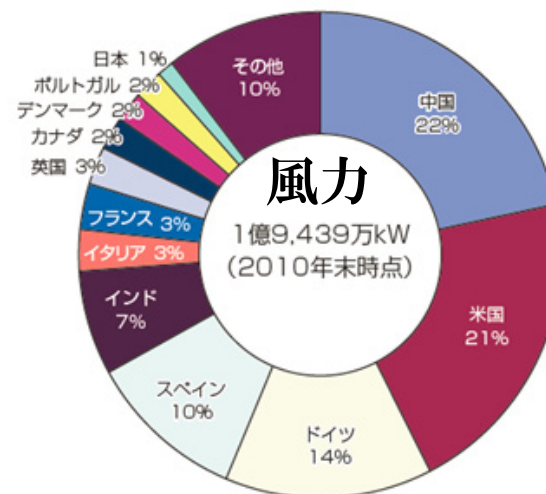
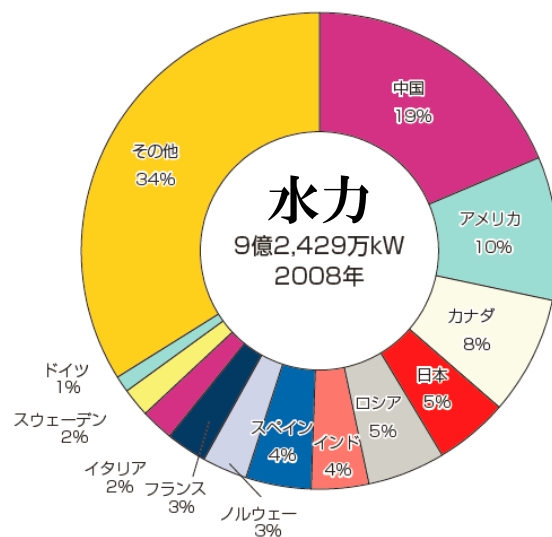
Compound Indicators		
	Japan	Germany
TPES/Population (toe/capita)	3.71	3.89
TPES/GDP (toe/thousand 2000 USD)	0.1	0.16
TPES/GDP (PPP) (toe/thousand 2000 USD)	0.14	0.14
Electricity Consumption / Population (kWh/capita)	7,833	6,781
CO₂/TPES (t CO ₂ /toe)	2.32	2.36
CO₂/Population (t CO ₂ /capita)	8.58	9.16
CO₂/GDP (kg CO ₂ /2000 USD)	0.22	0.38
CO₂/GDP (PPP) (kg CO ₂ /2000 USD)	0.3	0.33

*Gross production + imports - exports - losses

**CO₂ Emissions from fuel combustion only. Emissions are calculated using IEA's energy balances and the Revised 1996 IPCC Guidelines.

<http://www.iea.org/stats/prodresult.asp?PRODUCT=Indicators>

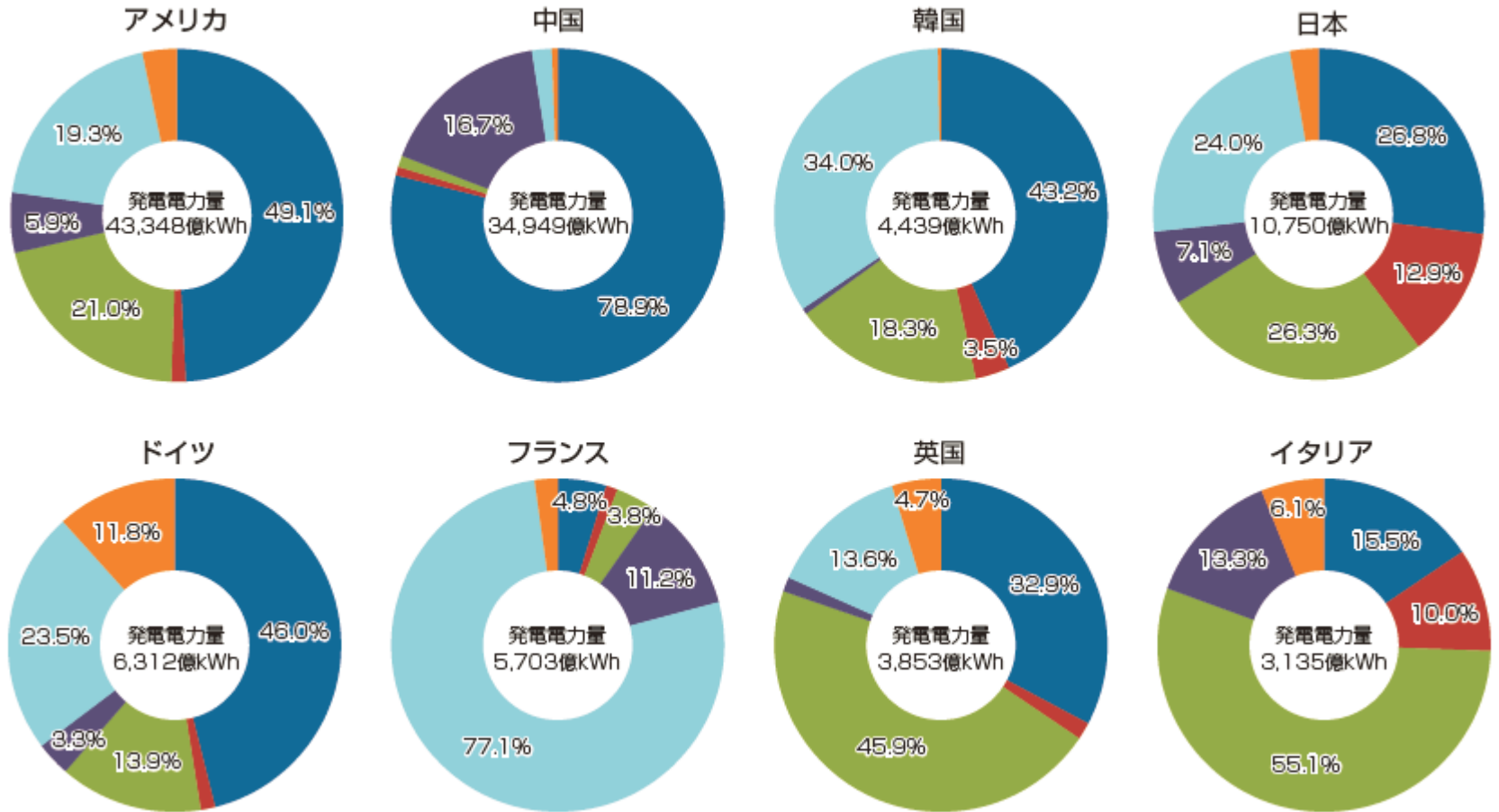
水力／風力／太陽光／地熱 設備容量 世界シェア



世界の電源構成

【第 223-1-5】 主要国の発電電力量と発電電力量に占める各電源の割合（2008 年）

■ 石炭 ■ 石油 ■ ガス ■ 水力 ■ 原子力 ■ その他



(出所) IEA, Energy Balances 2010 をもとに作成

ドイツ電力供給 電源構成グラフ

The Electricity Mix in Germany in 2009

Renewable Energies ensuring
16% of gross power consumption.

Nuclear Energy
23 %

Natural Gas
13 %

Lignite
24 %

Hard Coal
18 %

Others
6 %
(Mineraloil, Storage etc.)

Renewable
Energies
94 bn. kWh
16,1 %

Photovoltaics
1,1 %
(6 bn. kWh)

Hydropower
3,3 %
(19 bn. kWh)

Biomass
5,2 %
(31 bn. kWh)

Wind power
6,5 %
(38 bn. kWh)

Total
597 bn. kWh

Sources: Statistisches Bundesamt, BMWi, BDEW,
AGEB, AGEE-Stat, own calculations; Status: 04/2010

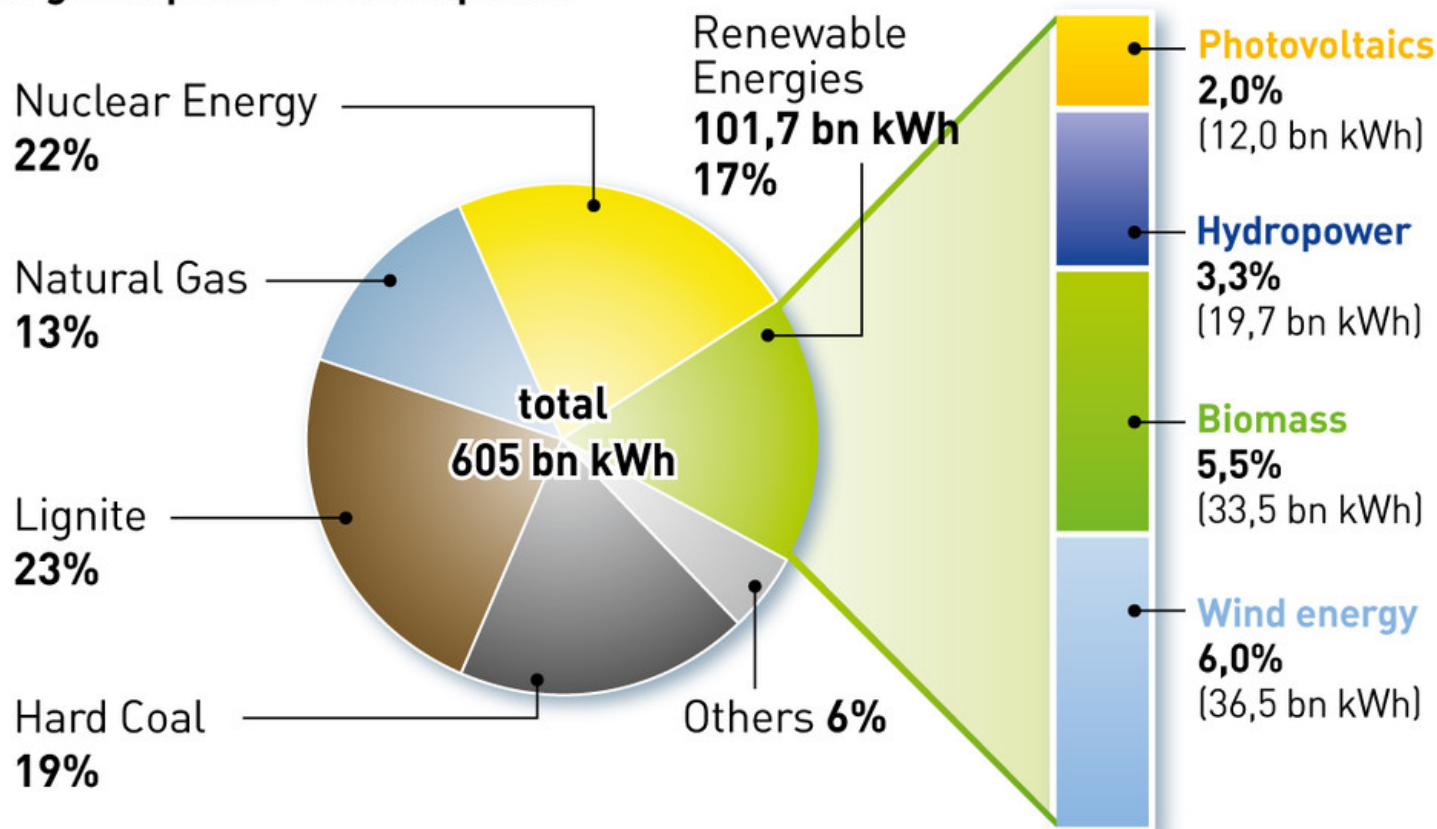
www.unendlich-viel-energie.de/en



ドイツ電力供給 電源構成グラフ

The Electricity Mix in Germany in 2010

Renewable Energies ensuring 16,8%
of gross power consumption.



Sources: AGEb, AGEE-Stat
Status: 08/2011

www.renewables-in-germany.de





The German Energy Concept - Goals

	Climate	Renewable energies		Efficiency		
	Greenhouse gases (vs. 1990)	Share of elec.	Overall share (Gross final energy cons.)	Primary energy cons.	Energy productivity	Building modernisation
2020	- 40%	35%	18%	- 20%	Increase to 2.1%/a	Double the rate 1% -> 2%
2030	- 55%	50%	30%			
2040	- 70%	65%	45%			
2050	- 80-95%	80%	60%			