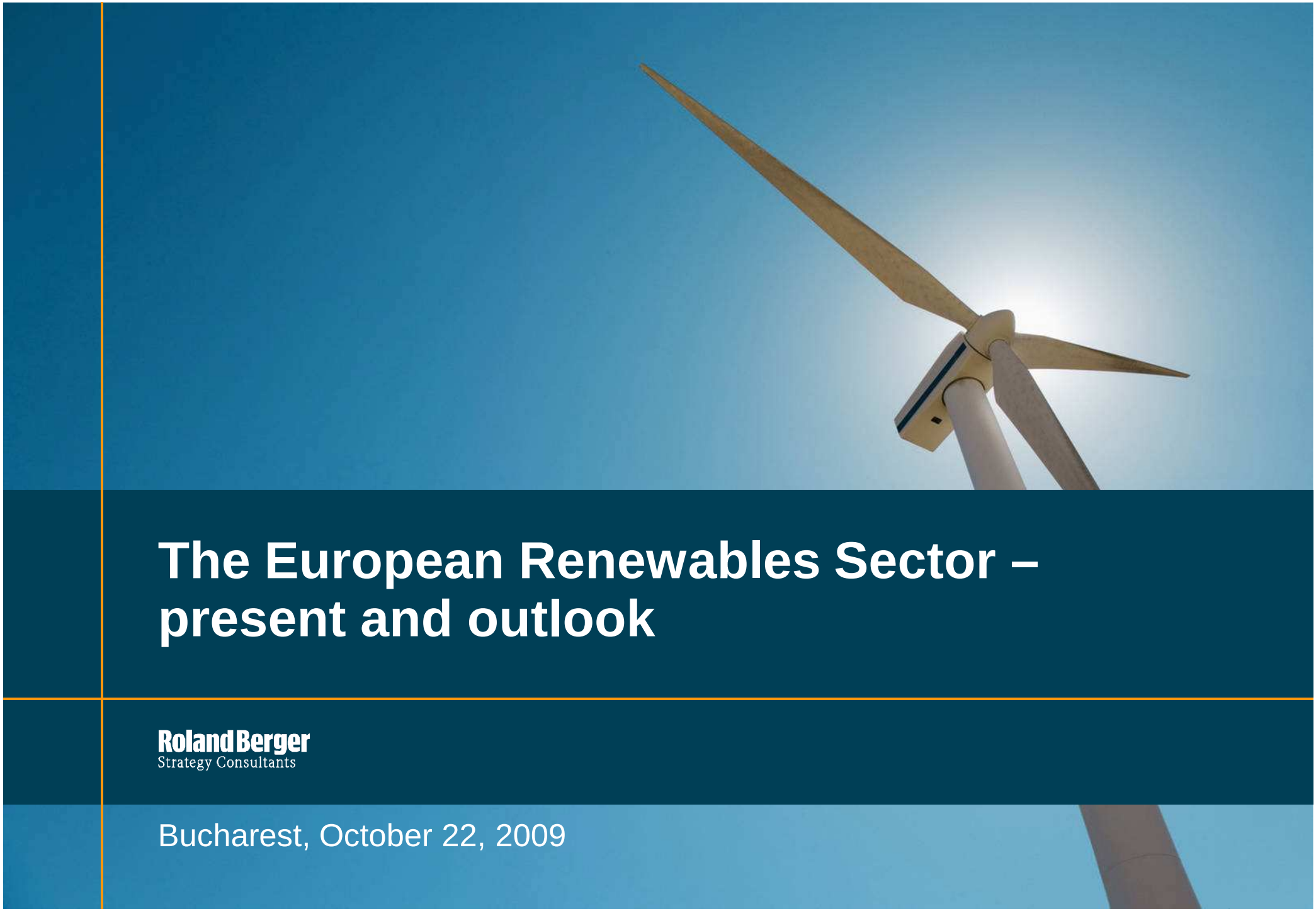


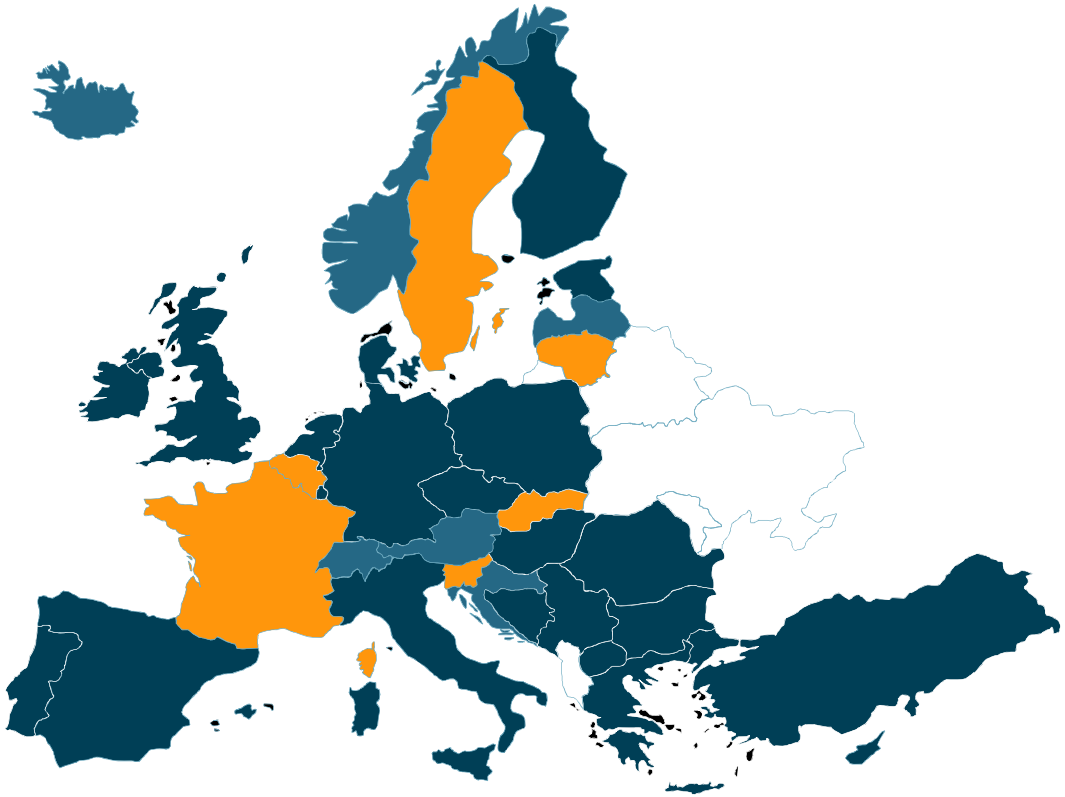
The European Renewables Sector – present and outlook

Roland Berger
Strategy Consultants

Bucharest, October 22, 2009

Fossil and nuclear fuels are the primary energy sources in power generation in Europe today

Dominant fuels across Europe, 2008



Fossil fuels (coal, lignite, gas, etc.) | Nuclear | Hydro power | N.A.

1) EU 27 + Croatia, FYROM, Iceland, Norway, Switzerland and Turkey, 2008

EUROPE[1] [%]		
1	Fossil	53%
2	Nuclear	25%
3	Hydro	16%
4	Other RES	6%

Fossil fuel dominance [%]		
1	Malta	100.0
2	Poland	98.1
3	Ireland	90.4

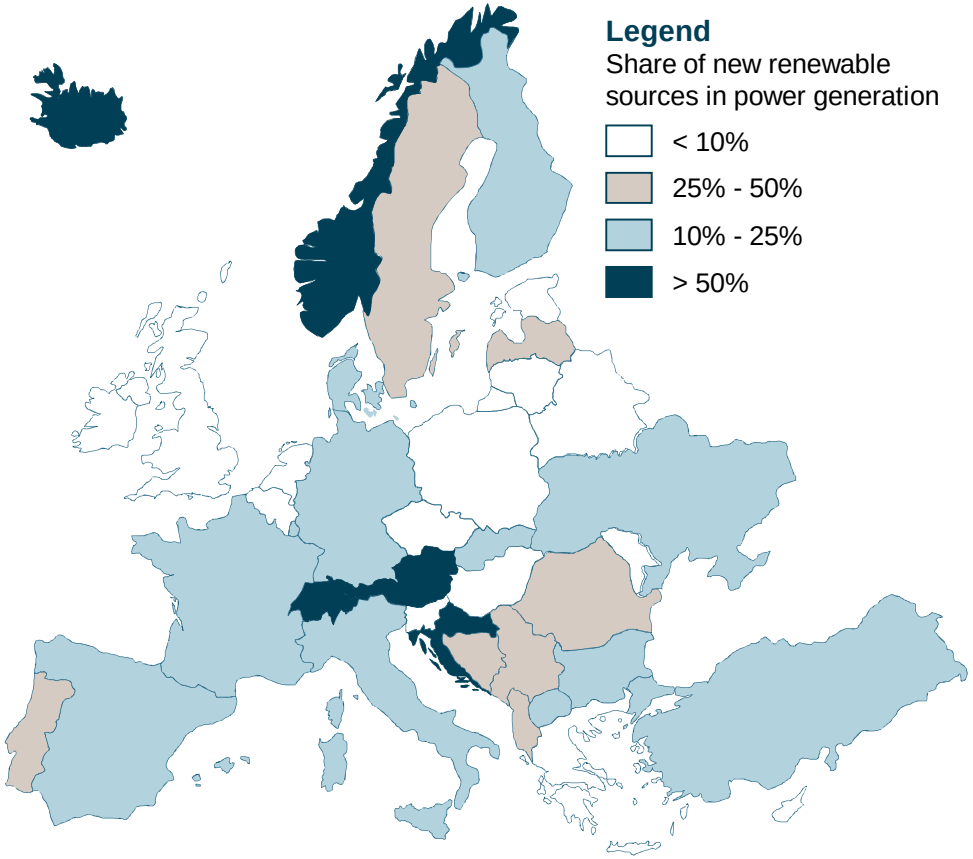
Nuclear fuel dominance [%]		
1	France	78.3
2	Slovakia	56.2
3	Belgium	53.9

Hydro fuel dominance [%]		
1	Norway	99.1
2	Iceland	80.5
3	Austria	58.7

Source: Eurelectric

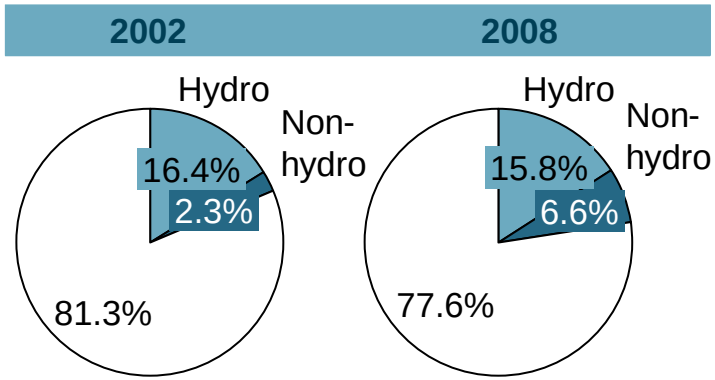
Renewables already provide an important share in power generation – focus today on hydro power

Power generation from renewable sources in 2008



Renewable electricity total [TWh]

1	Norway	140.7
2	France	73.8
3	Germany	70.5
4	Sweden	70.3
5	Italy	59.6
Σ	**Europe[1)]**	**800.2**

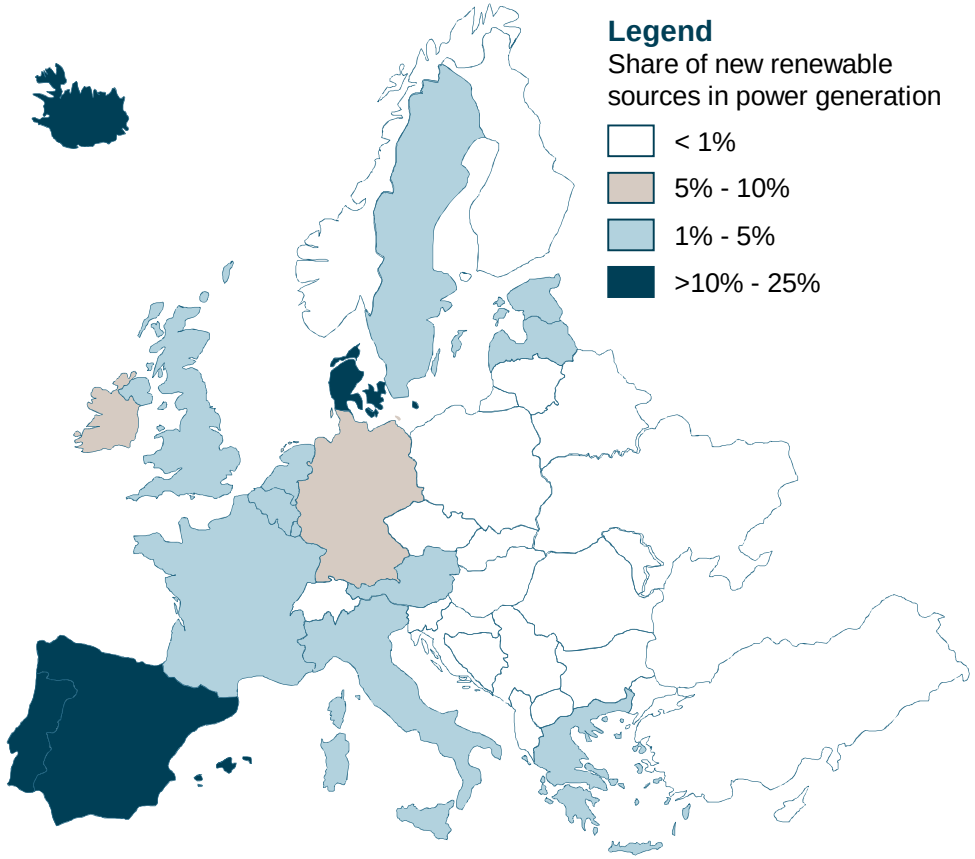


1) EU 27 + Norway, Switzerland, Croatia, FYROM, Iceland and Turkey

Source: Eurelectric, IEA

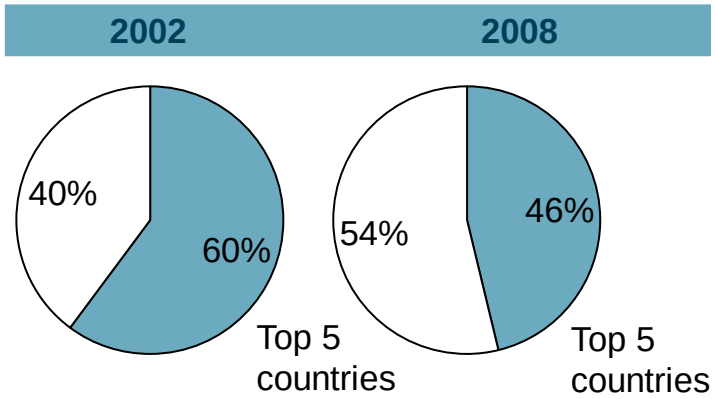
The European non-hydro renewable power generation is concentrated mostly in Western Europe

Power generation from "new" renewable sources in 2008



Non-hydro renewables total [TWh]

1	Germany	44.4
2	Spain	34.0
3	Italy	12.7
4	UK	7.1
5	Denmark	6.9
∑	**Europe1)**	**227.8**



1) EU 27 + Norway, Switzerland, Croatia, FYROM, Iceland and Turkey

Source: Eurelectric, IEA

Iberian and German utilities lead the Renewables market today

Player	Installed capacity[1] [MW; Q1 09]	Technologies
IBERDROLA	9,624	**96% wind**; rest in small hydro
e·on	7,993	**75% large hydro; 23% wind**; rest in biomass/gas, solar, small hydro
Verbund	> 6,000	**Almost 100% hydro**; rest in wind and solar
edp	5,165	**94% wind**; rest in biomass, hydro, and solar
acciona Energy	4,897	**100% wind at present**; hydro to follow
Enel L'ENERGIA CHE TI ASCOLTA.	4,464	**57% hydro; 28% wind**; rest in geothermal and solar
EDF	1,564	**89% wind**; rest in hydro, biomass, and solar
RWE	1,310	**54% wind** and **38% hydro**; rest in biomass, solar

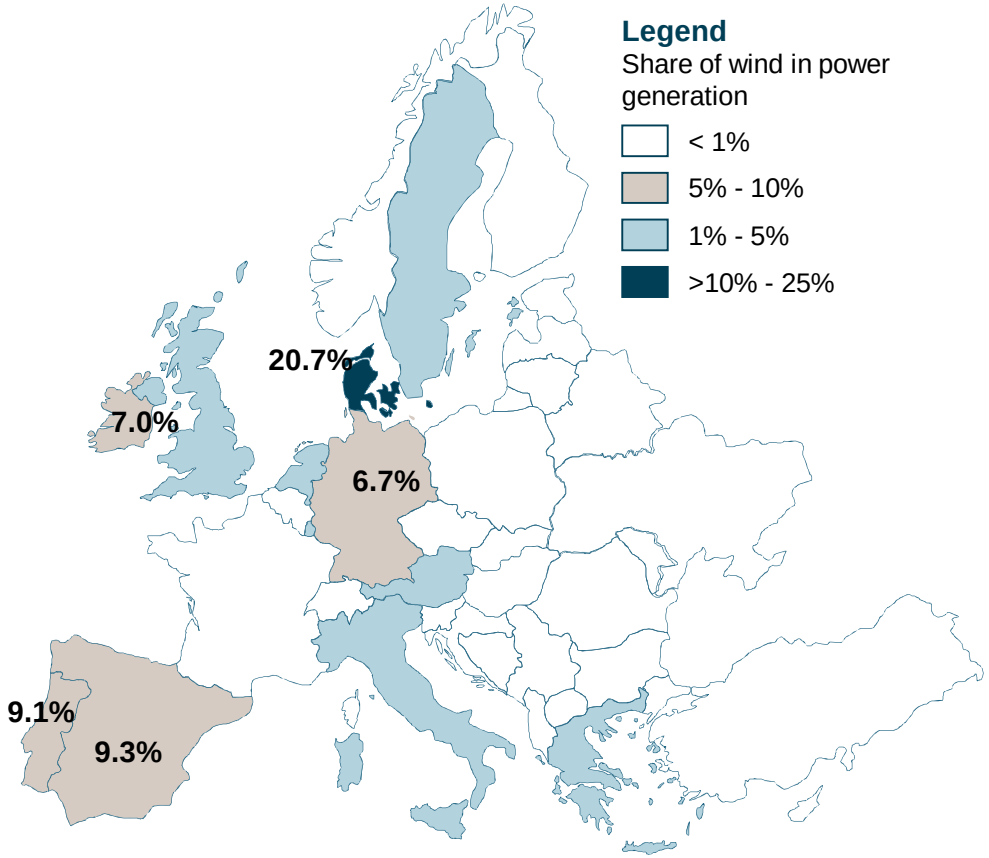
Wind Hydro Geothermal

1) Including large hydro

Source: Company websites

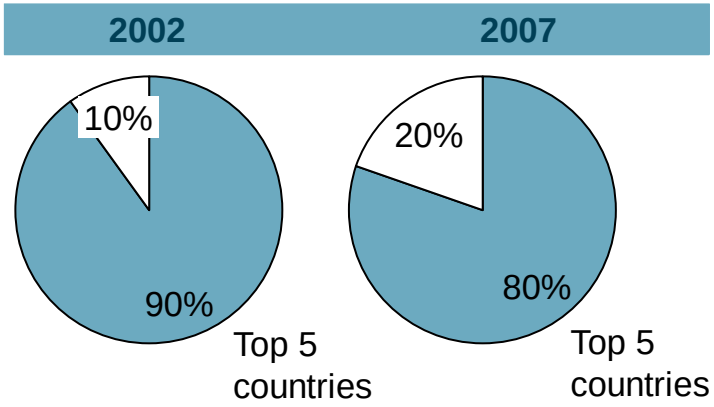
Germany is the wind power generation leader in absolute terms, Iberia leads in relative terms

Power generation from wind in 2007



Top countries, by wind power gen. [TWh]

1	Germany	39.7
2	Spain	27.5
3	Denmark	7.2
4	UK	5.3
5	France	4.1
∑	**EU 27**	**104.3**



Source: Eurelectric, IEA

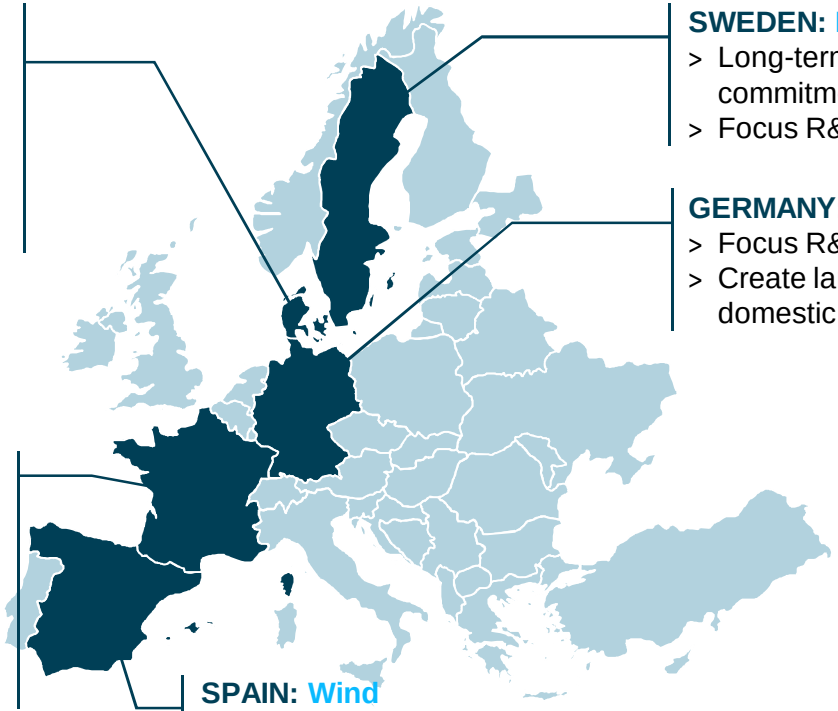
Governments played a key role in the development, as shown by best-in-class international examples

Selected examples of successful government stimulation of energy industry

DENMARK: Wind
> Long-term commitment
> Focus R&D
> Create domestic market
> Remove barriers

SWEDEN: Biomass
> Long-term commitment
> Focus R&D

GERMANY: Solar
> Focus R&D
> Create large domestic market



FRANCE: Nuclear
> Long-term commitment
> Focus R&D
> Create domestic market
> Remove barriers

SPAIN: Wind
> Long-term commitment
> Create large domestic market
> Remove barriers

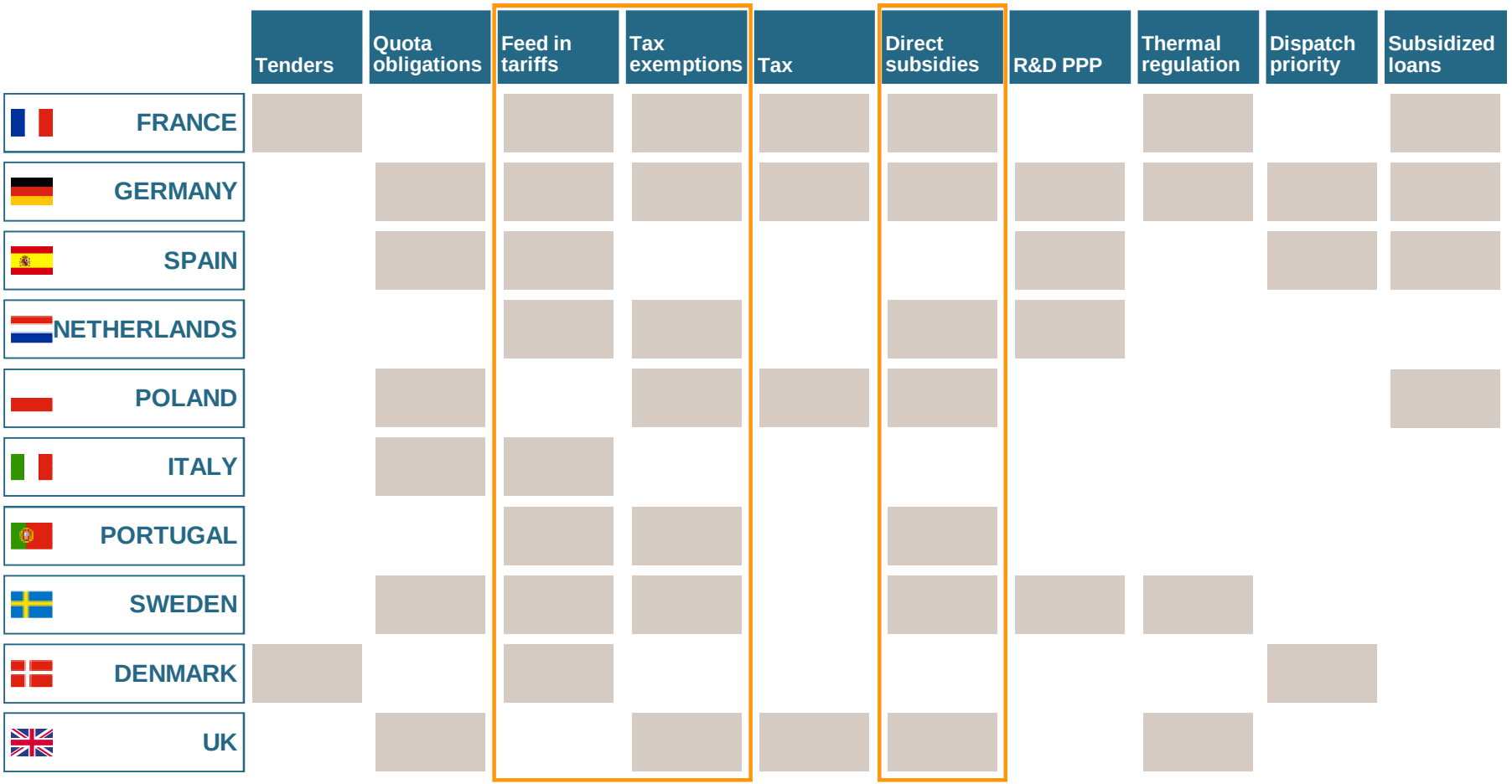
> Long-term commitment offers continuity and predictability necessary for mobilizing investments

> Focus R&D resources to create critical mass

> Strong market pull instead of technology push

> Remove barriers

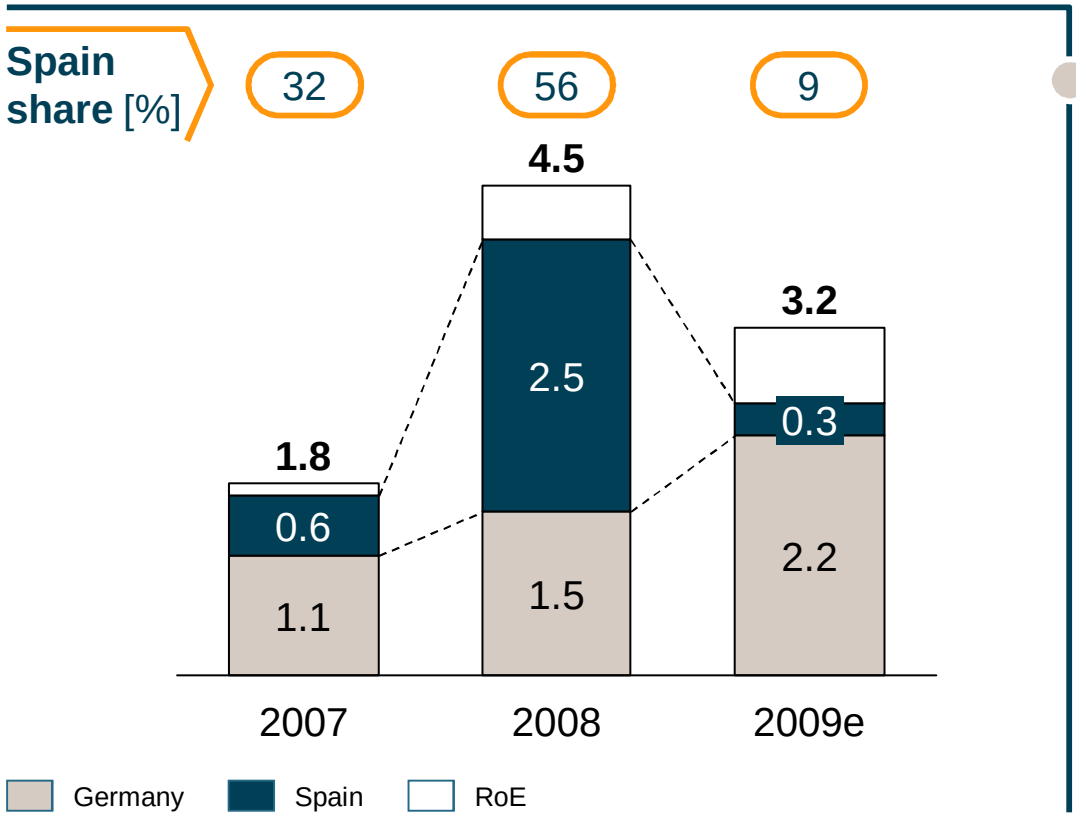
Feed-in tariffs, tax exemptions and direct subsidies dominate European national policies



Source: Roland Berger analysis

The regulatory environment can massively impact growth rates: example Solar in Spain 2009e vs. 2008

Annual installed PV capacity Europe [GWp]



COMMENTS

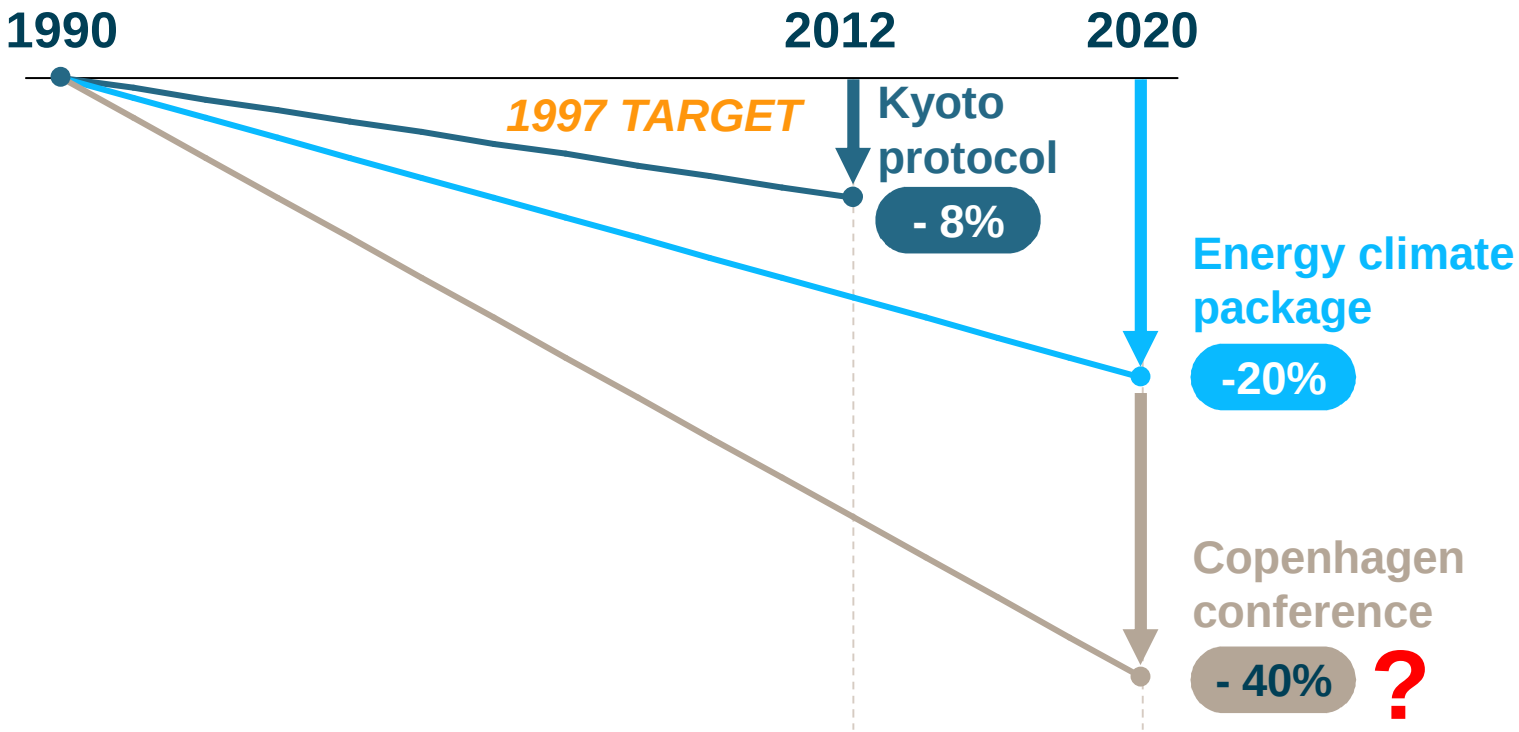
> The maximum total capacity of installations that are eligible for subsidies in Spain has been limited to 500 MW

> Compensation for feed-in in Spain has been changed as well

Source: Unicredit; LBBW; Solarbuzz 2009 – Moderate scenario, EEG, Royal Decree 1578/2008; Roland Berger

Climate change pressure – EU is constantly setting ambitious goals towards GHG[1)] reduction targets

Target GHG emission levels of the Kyoto protocol set by EU authorities
[% change over 1990 level]



1) Greenhouse gases

The Energy-climate package sets very ambitious targets

Energy-climate package targets for 2020

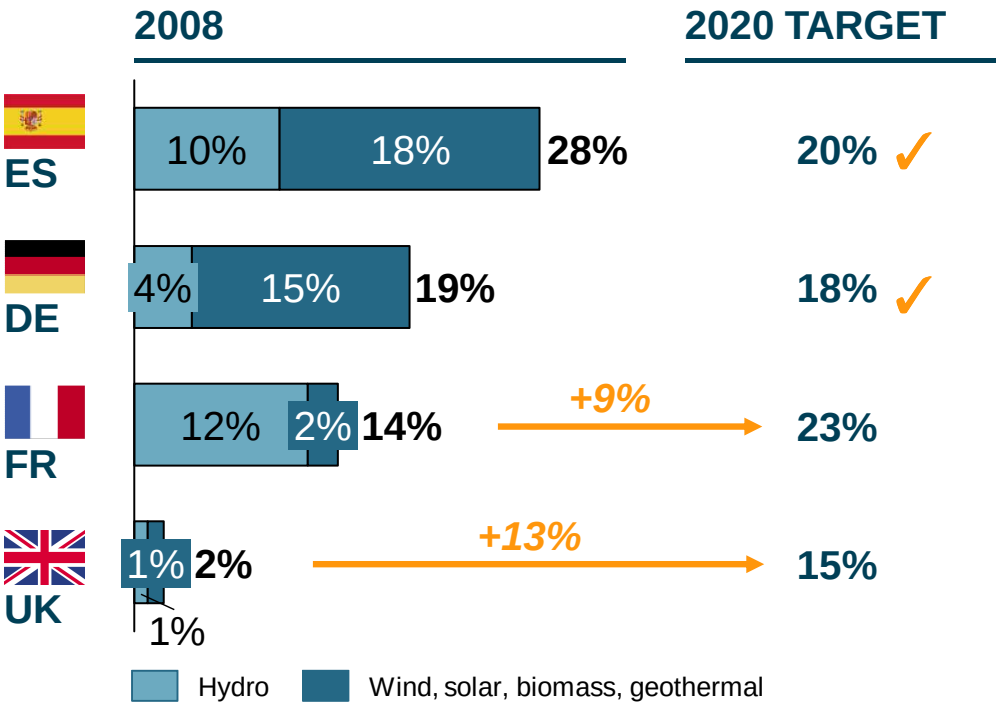
20% reduction of greenhouse gas emissions vs. 1990

20% binding target of renewables in the "energy" mix

20% energy efficiency improvements vs. total consumption

Implications on countries

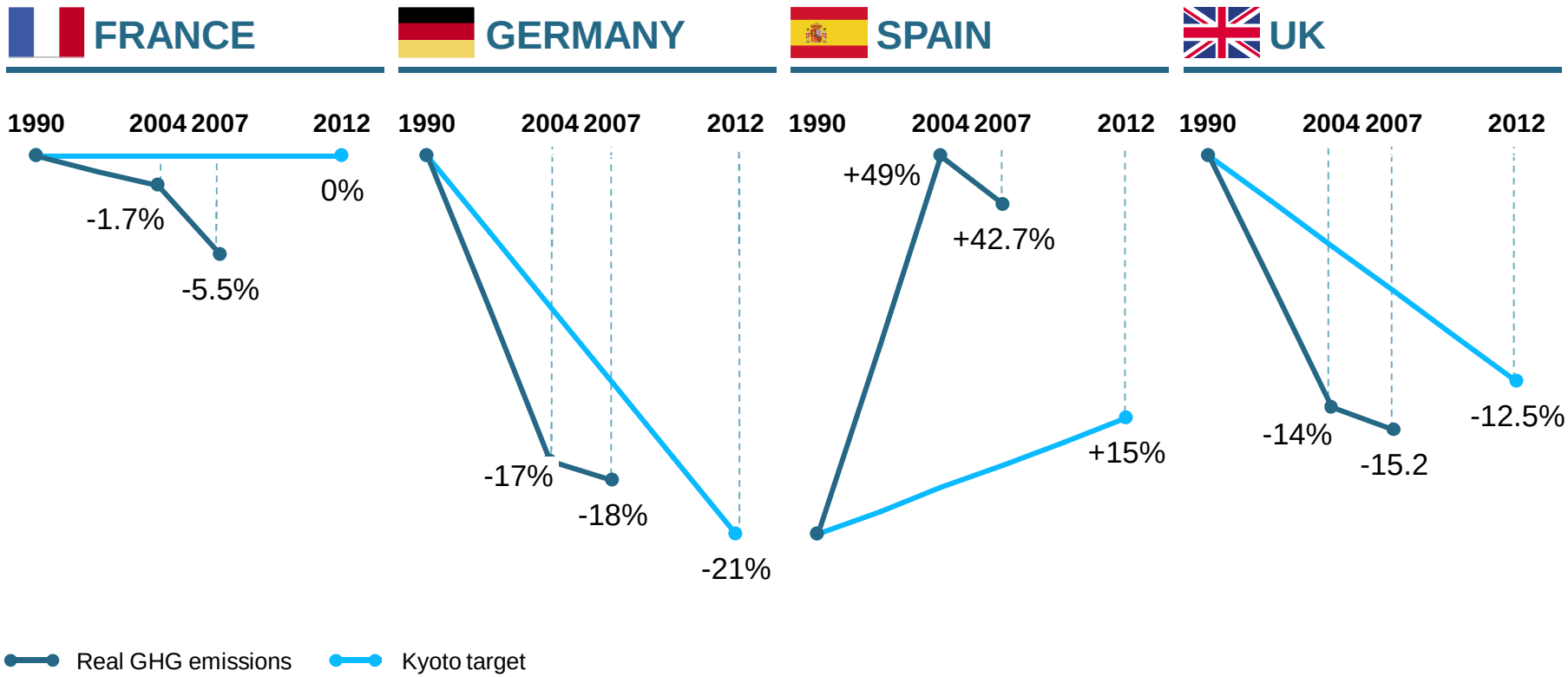
[renewable share in energy generation output, %]



Source: European Commission – Directorate General for Energy and Transport; Climate Action

Many European countries still have a gap to close with their Kyoto objectives

Reduction objectives versus actual reductions achieved by country [% change over 1990 levels]

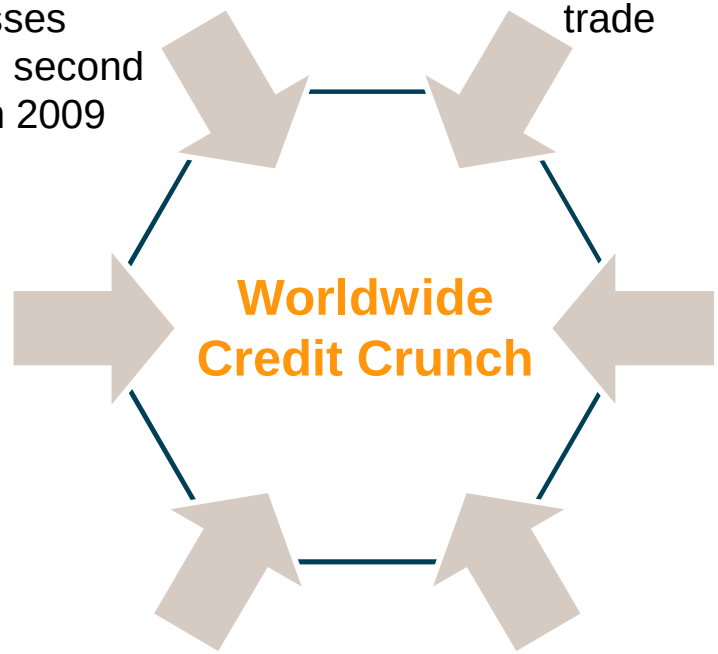


Source: INSEE, French Ecology Ministry

Currently worldwide credit crunch presents new challenges to Renewables players

Financial crisis cost
Estimated at USD 1,400 billion. Not all losses consolidated yet, second wave probable in 2009

Credit constraints
For firms in industry and trade



Unemployment
Rising unemployment rate from 5.9% to 6.9% in OECD in 2009

National bankruptcies
Of emerging countries but also in the EU (e.g. Hungary, Iceland,...)

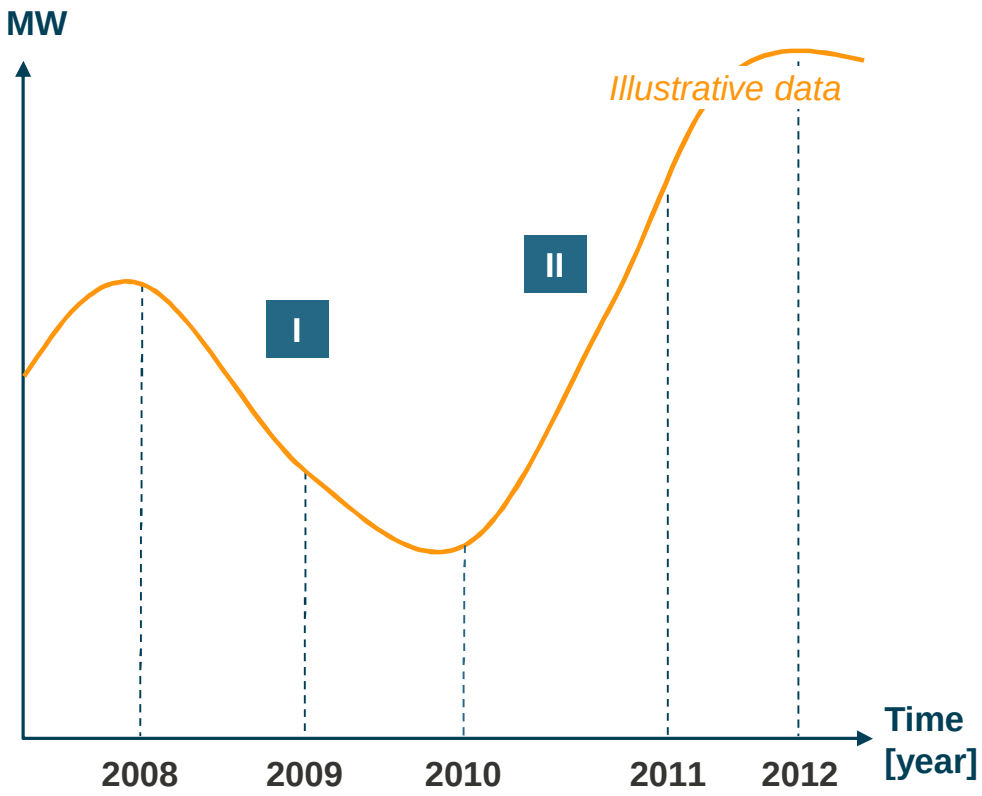
Private consumption
Mistrust remains

Slowdown of major economies
Significant slowdown and currency problems

Source: Press releases; Roland Berger

A temporary slowdown in RES growth is expected, with 2 years of decreased deliveries/new installations

Expected evolution of deliveries/new installation of WTGs – illustrative data



Consequences

I 2009 and 2010: downturn

- Overcapacity situation
  - Production adjustment to market demand
  - Cost reduction / avoidance programs
- Negative results for some companies and eventual consolidation

II 2011 and 2012: upswing

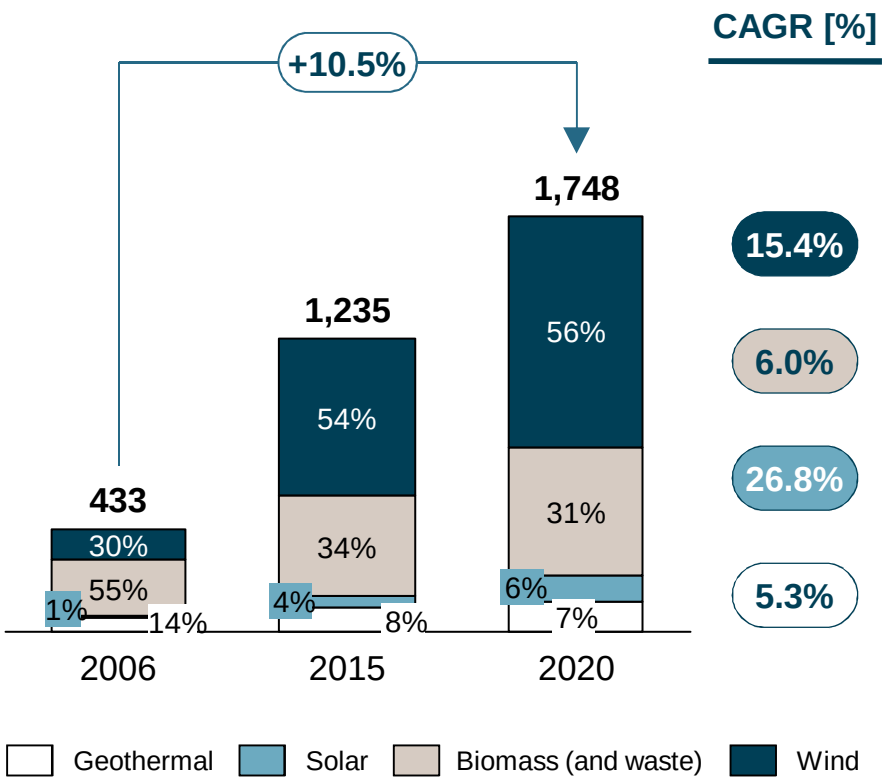
- Production volumes increase
  - Need to re-launch investments for capacity increase
  - Ensure capacity reserved for key components
- Advantage for the players that better prepared the re-launch

Source: Press releases; Roland Berger

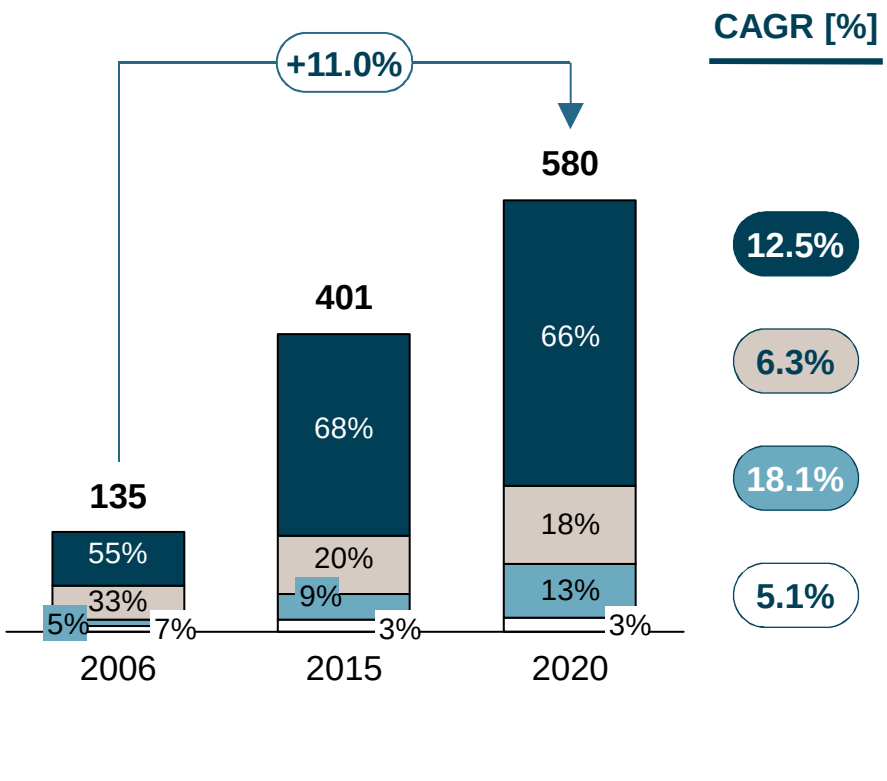
Longer term outlook: Wind energy will lead non-hydro RES till 2020 – Solar with highest growth rates

Growth forecast

Electricity generation mix [TWh; %]



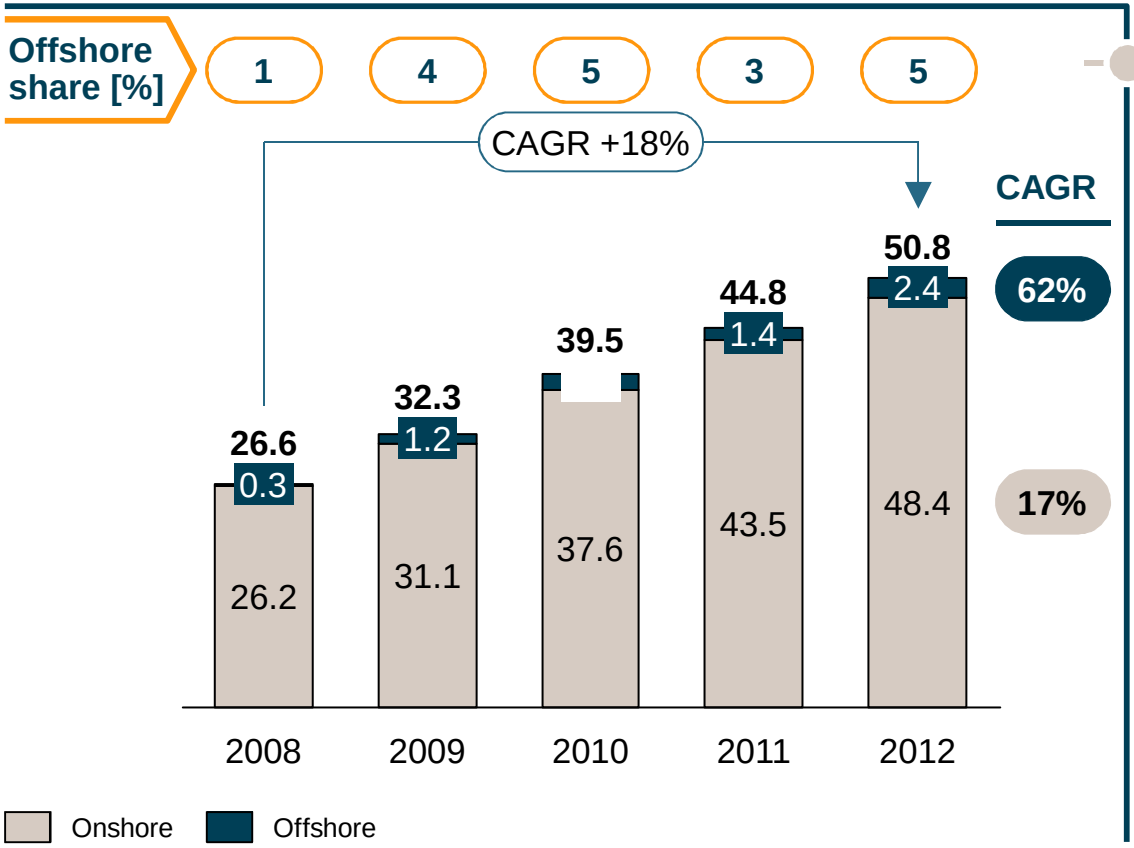
Installed capacity [GW; %]



Source: World Energy Outlook 2008; Roland Berger

Offshore wind will see even higher growth rates than onshore wind

Global new installations [GW]



COMMENTS

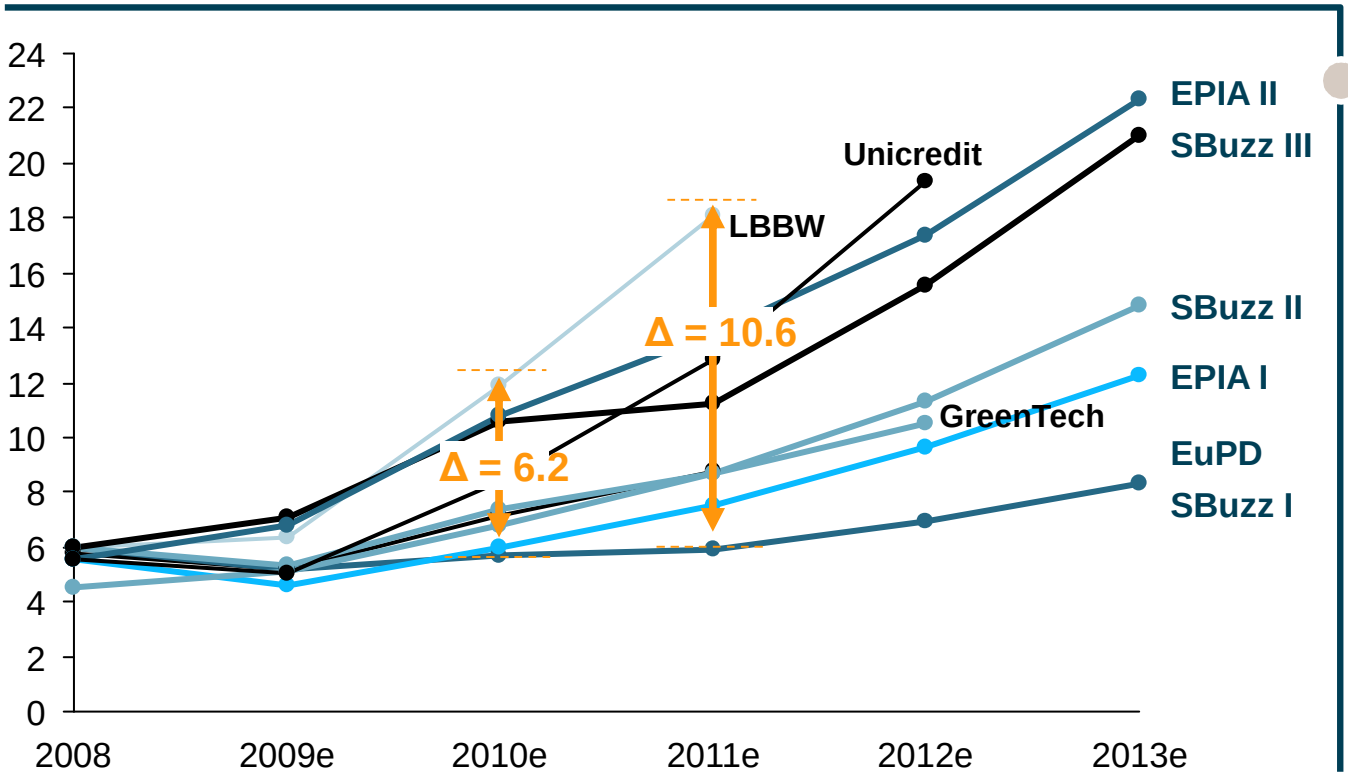
- Offshore wind power will rise from a 1% share of new installations in 2008 to 5% in 2012 – New offshore installations grow with a CAGR of 62% p.a.
- The majority of the announced and expected offshore projects will take place in Europe – Up to 2012 UK will be the most important country for offshore development
- Major offshore projects in North America and Asia will only start after 2010 – Current focus on onshore installations
- **However**
  Delay in installed capacities expected – Approval and financing take longer and the market is still waiting for proven designs of larger offshore turbines (>5 MW)

Source: BTM 2008; Roland Berger

Solar considered the next big wave – High degree of uncertainties regarding take-off speed

PV – Market studies overview

Annual (additionally) installed capacity [GWp]



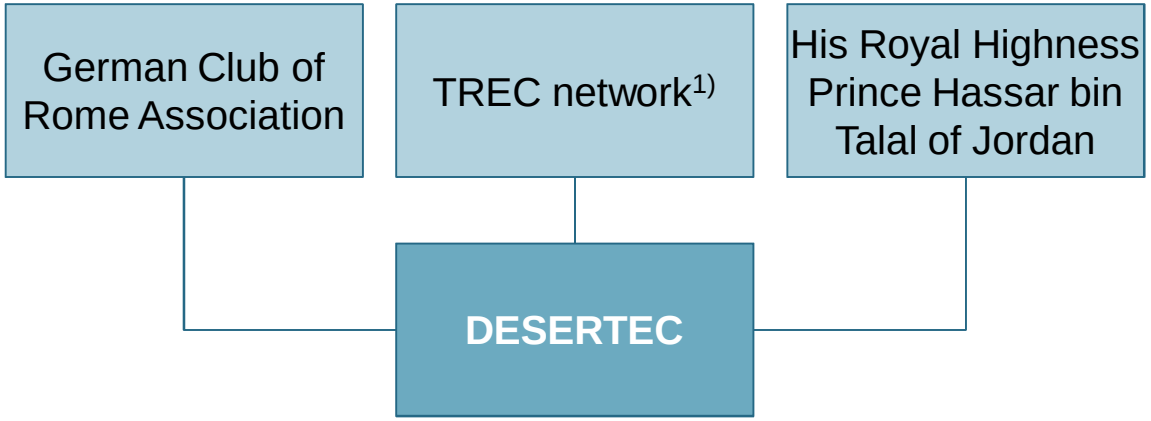
COMMENTS

- All recent studies foresee future growth of the PV market
- Big range regarding growth rates in the medium term

Source: EPIA 2009, Solarbuzz 2009, LBBW 2009, Greentech 2009, EuPD 2009; Unicredit 2009

Desertec as a bold new move by a consortium into the solar space with EUR 400 bn investment

Desertec Industrial Initiative



Technology Partners

- Cevital
- Man Solar Millennium
- M+W Zanders

Banks

Utilities

PLANNED TIMELINE

> MoU signed July 2009

> Overall investment of Eur 400 m until 2050 announced

> First power plant planned to be built in 2015

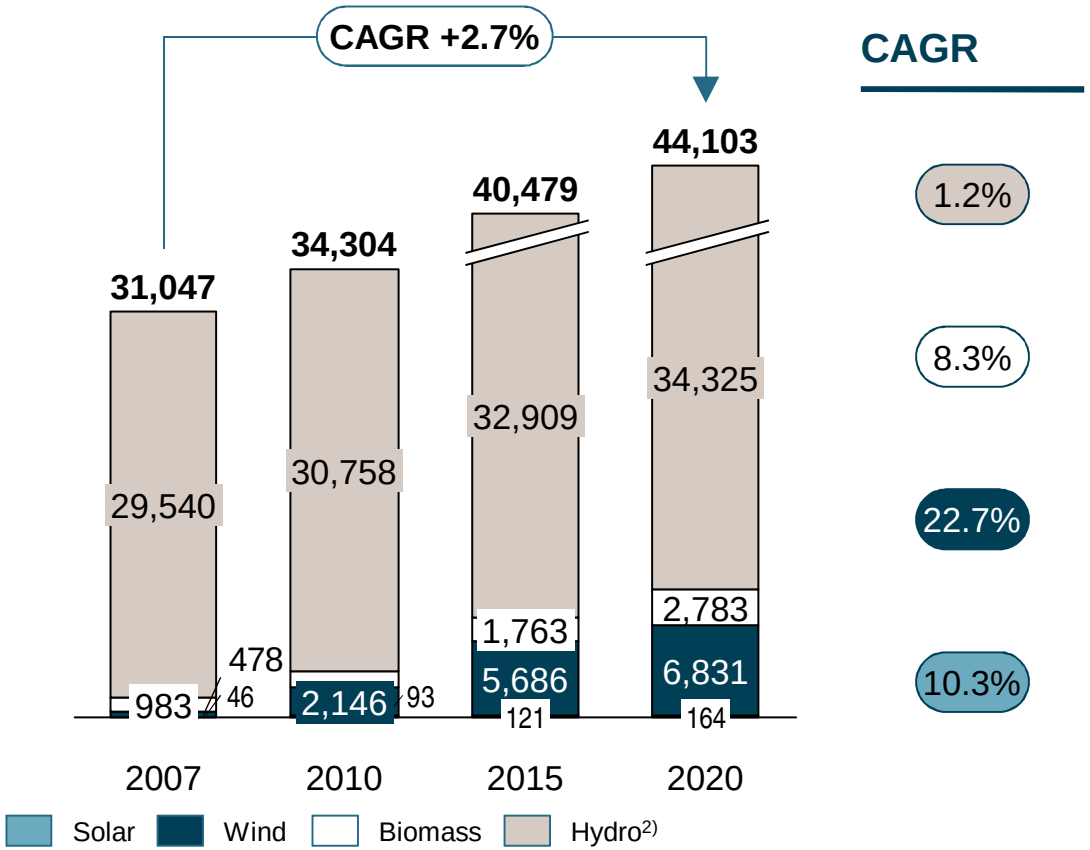
> New members can entry by majority vote

1) Trans-Mediterranean Renewable Energy Corporation

Source: Press clippings; Interviews

In CE/SEE growth wave in wind, solar and biomass expected

Net installed capacity in MW_{el} in CE/SEE[1)]



1) Central and South Eastern Europe (CR,SR,PL,HU,RO,CRO,SLO,BG,TU)

COMMENTS

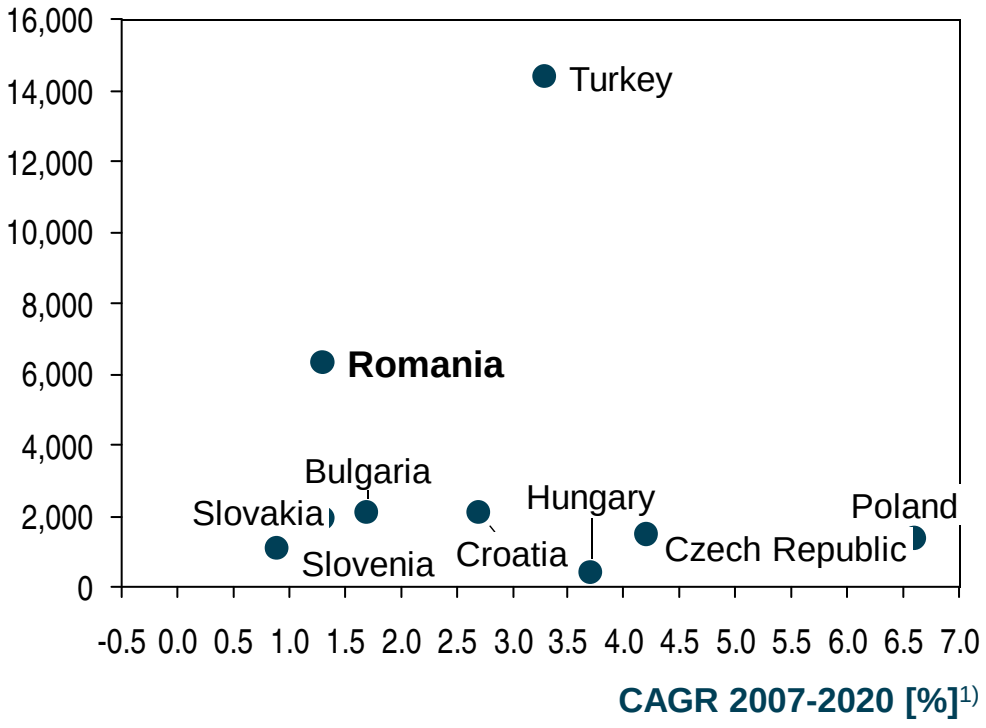
- Total net installed capacity expected to grow by CAGR 2.7%
- Hydro is currently the dominant technology, representing 95% of total installed capacity
- Wind and solar will show strong (double digit) growth – foreign investments as key driver
- Biomass also with high growth (>8% p.a.)

Source: European Energy and Transport – Trends to 2030; Roland Berger

Many country markets expected to grow a lot till 2020 – Romania with comparatively low rates

Renewables CE/SEE market comparison and development

Installed capacity [MWel]



COMMENTS

- Installed capacity in Poland is expected to grow over 6% per year offering investment opportunities in a variety of technologies
- Czech Republic and Hungary are also predicted to increase their generation from renewables with growth rates >3% p.a.

1) Growth of installed capacities

Source: European Energy and Transport – Trends to 2030; Roland Berger

Roland Berger
Strategy Consultants

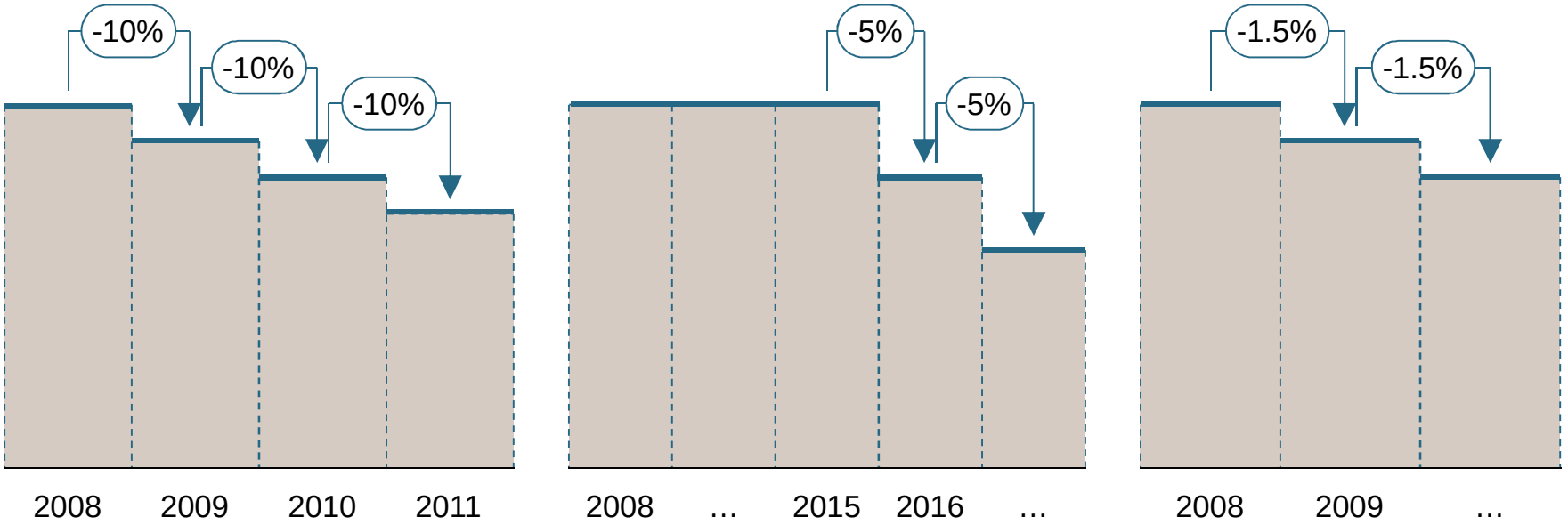
Feed in tariffs to be adapted to technical maturity – stability for investments / degression for productivity

Germany – Examples

Solar energy[1)]

Offshore wind energy

Geothermal, water & others



Mature technology maturity/productivity efforts needed

Technology in demonstration capacity investments needed

1) For equipments generating less than 1 MW of electricity or supplies for less than 2000 average European homes

Source: Bloomberg, June 2008

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Certain milestones have been reached regarding renewables – further development remains a must

Conclusions

- Renewables will experience strong growth in Europe in foreseeable future
- Credit crunch will only bring about temporary consequences
- Solar is widely perceived as the next big wave in Renewables after wind
- Strong regional differences can be identified in terms of technology priorities and incentive schemes
- SE/CEE is regarded as region with particular strong growth potential
- Grid parity should be the ultimate objective of public policy – till then incentive schemes remain crucial for promoting renewables

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Stuttgart
Tokyo
Vienna
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Zagreb
Zurich

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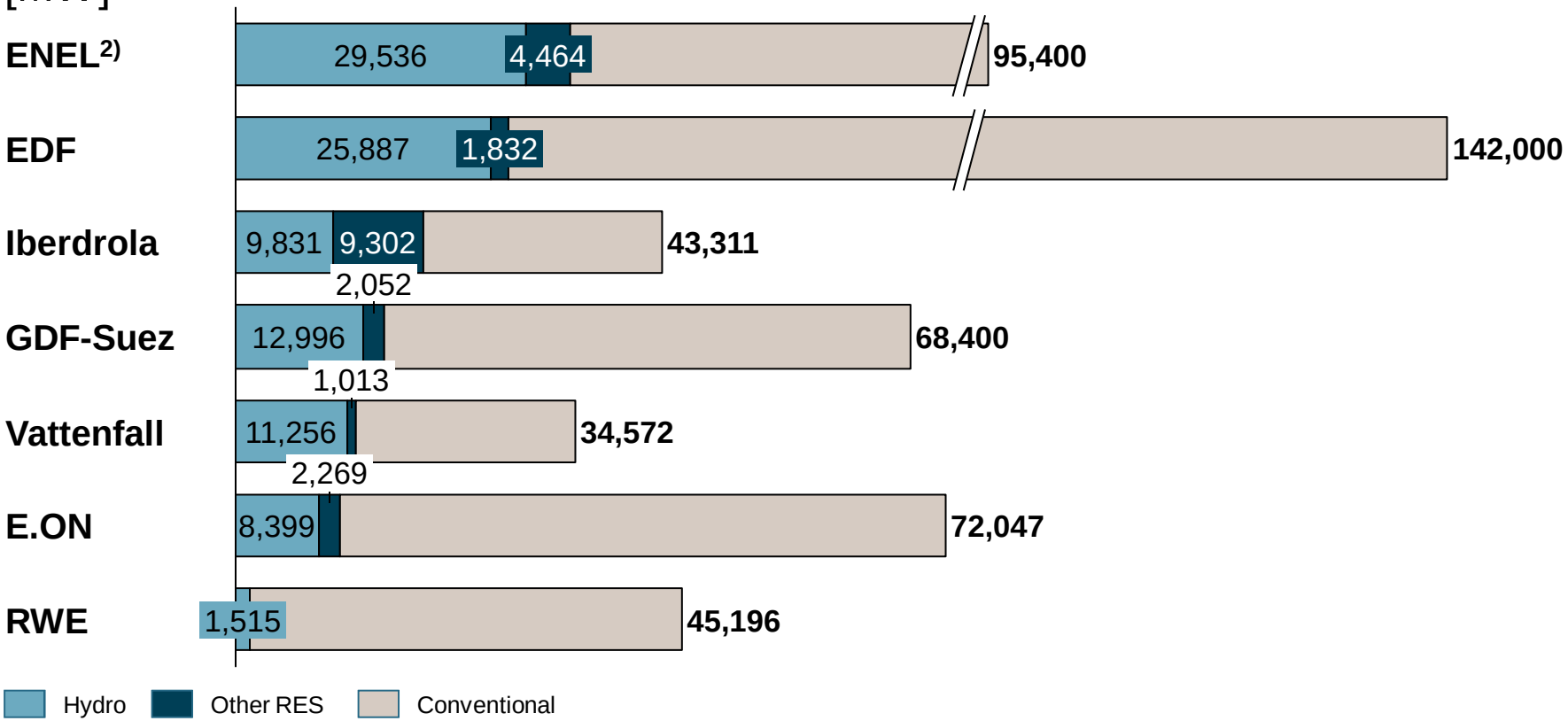
Naturally the production capacities of the major utilities reflect that

Ranking of power generation from renewables, including hydro[1)], EoY 2008 [MW]



1) Total worldwide generation capacity for each company 2) Figures for Q1 2009, including the newly acquired Endesa

Source: Annual reports 2008; Company presentations 2009