

Overview on the National Renewable Energy Actions plans of the EU Member States - Policy Recommendations

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Efficiency

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About us

- Founded in 1970
- Offices in Berlin, Brussels, Cologne, Munich, Stuttgart, Vienna
- More than 140 lawyers, auditors, tax accountants and engineers
- Leading provider of consulting services in the areas of energy and infrastructure law with an interdisciplinary approach
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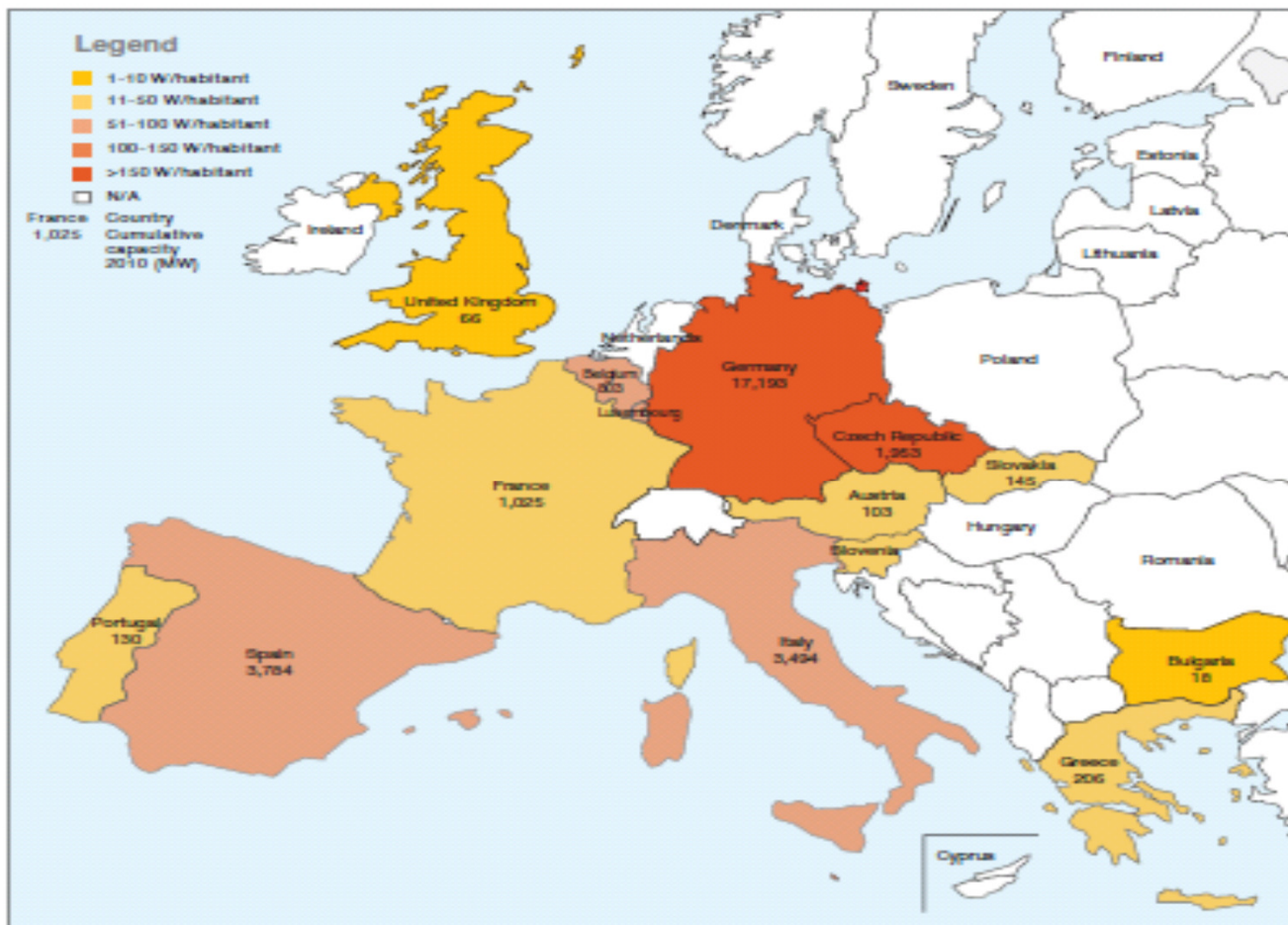
- Born in Recklinghausen in 1957
- Married, 1 child
- Studies of Law at the Universities of Marburg and Hamburg
- 1982 Academic and Research Associate, Junior Lecturer at the University of Hamburg, Law Faculty
- 1988 Civil servant of the State of Hamburg, Ministry for the Environment and Energy
- 1991 Civil servant in liaison office of Hamburg and Schleswig-Holstein to the European Commission in Brussels,
- 1993-2010
 - Partner in law firm Kuhbier, Brussels, specialising in European and International law and consulting on European affairs in the fields of competition, energy, transport, environment
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- Memberships
 - Admittance to the German Bar of Berlin and to the Brussels Bar
 - Green Budget Europe, FÖS
 - Eurosolar
 - BWE (German Wind Energy Association)
 - Deutscher Juristinnenbund (German Female Lawyer's Association)
- Practice areas:
 - Energy, environmental and competition law

- The Background

RES triggers financial transactions

- In the 2000-2010 decade, financial transactions - thus investments - in renewable energy rose strongly, amounting to €55 billion and €62 billion in 2008 and 2009 respectively.
- BUT: Economic crisis e.g. in Greece blocks new investment and financing deals and endangers stable and predictable environment for the RES financing.
- RES investments are vital to meeting the 2020 target
- Forecast: RES investments of about €60 to €70 billion annually, on average and for EU 27. (Ecofys)

Differences in installed capacity among the Member States - Example PV



Germany
17.500 MW
installed
capacity
vs.
UK 26 MW

Source: EPIA

European legislation

- Directive 2009/28/EC on the Promotion of Renewable Energies in the internal market
- Article 4 requires Member States to submit national renewable energy action plans. Plans needed to be prepared based on a specific template published by the Commission,
- Plans should be detailed roadmaps of how each Member State expects to reach its legally binding 2020 target
- Member States must set out
 - the sectoral targets,
 - the technology mix they expect to use,
 - the trajectory they will follow and
 - the measures and reforms they will undertake to overcome the barriers to developing renewable energy.

The path towards 2020

Table 15: *Renewable energy shares from Annex I of the Directive [%]*

	Reference	Indicative trajectory				Target
	2005 [%]	2011-2012 [%]	2013-2014 [%]	2015-2016 [%]	2017-2018 [%]	2020 [%]
Belgium	2.2	4.4	5.4	7.1	9.2	13
Bulgaria	9.4	10.7	11.4	12.4	13.7	16
Czech Republic	6.1	7.5	8.2	9.2	10.6	13
Denmark	17.0	19.6	20.9	22.9	25.5	30
Germany	5.8	8.2	9.5	11.3	13.7	18
Estonia	18.0	19.4	20.1	21.2	22.6	25
Ireland	3.1	5.7	7.0	8.9	11.5	16
Greece	6.9	9.1	10.2	11.9	14.1	18
Spain	8.7	11.0	12.1	13.8	16.0	20
France	10.3	12.8	14.1	16.0	18.6	23
Italy	5.2	7.6	8.7	10.5	12.9	17
Cyprus	2.9	4.9	5.9	7.4	9.5	13
Latvia	32.6	34.1	34.8	35.9	37.4	40
Lithuania	15.0	16.6	17.4	18.6	20.2	23
Luxembourg	0.9	2.9	3.9	5.4	7.5	11
Hungary	4.3	6.0	6.9	8.2	10.0	13
Malta	0.0	2.0	3.0	4.5	6.5	10
Netherlands	2.4	4.7	5.9	7.6	9.9	14
Austria	23.3	25.4	26.5	28.1	30.3	34
Poland	7.2	8.8	9.5	10.7	12.3	15
Portugal	20.5	22.6	23.7	25.2	27.3	31
Romania	17.8	19.0	19.7	20.6	21.8	24
Slovenia	16.0	17.8	18.7	20.1	21.9	25
Slovakia	6.7	8.2	8.9	10.0	11.4	14
Finland	28.5	30.4	31.4	32.8	34.7	38
Sweden	39.8	41.6	42.6	43.9	45.8	49
United Kingdom	1.3	4.0	5.4	7.5	10.2	15

All percentages originate from Annex I of Directive 2009/28/EC. The indicative trajectory has been calculated from Part B of the Annex

Source ECN

What is needed for RES ?

- In a Nutshell:
- Ensuring Constant Growth Rates for RE in all sectors
- Stable RES Support schemes
- Priority Grid access - Priority dispatch -when it comes to Electricity
- Technology Spread
- Efficient administrative procedures and spatial planning rules and practice
- Effective Electricity Infrastructure , development and operation
- Clarity on costs for grid enforcement
- Reliable data and statistics
- Strong binding efficiency targets
- Strong binding targets for 2020

- REPAP Review and recommendation

First recommendation overview from NREAP and comments from industry

- Despite some strong signals and policies in some MSs - There are still the old bottlenecks:
- Lack of Ambition
- Lack of administrative knowledge and trust in RES
- Administrative barriers
- Tax regime discrimination
- Grid constraints
- Low support in some MSs
- Technology basket restricted
- Lack of information and knowledge
- Access to data weak and unreliable
- Stop and Go policies

Commission on 2010 (indicative) targets

RES-E 2010 target: 21% still significant additional effort needed; growth driven by a small number of Member States and of technologies (2008: 16,6%; 2010: ~18-19%)

RES-H neglected as a sector for renewable energy growth in most Member States (2008: 11,9%; 2010: ~13%)

RES-T 2010 target 5,75% still additional effort needed (2007: 2,6%; 2010: ~5%)

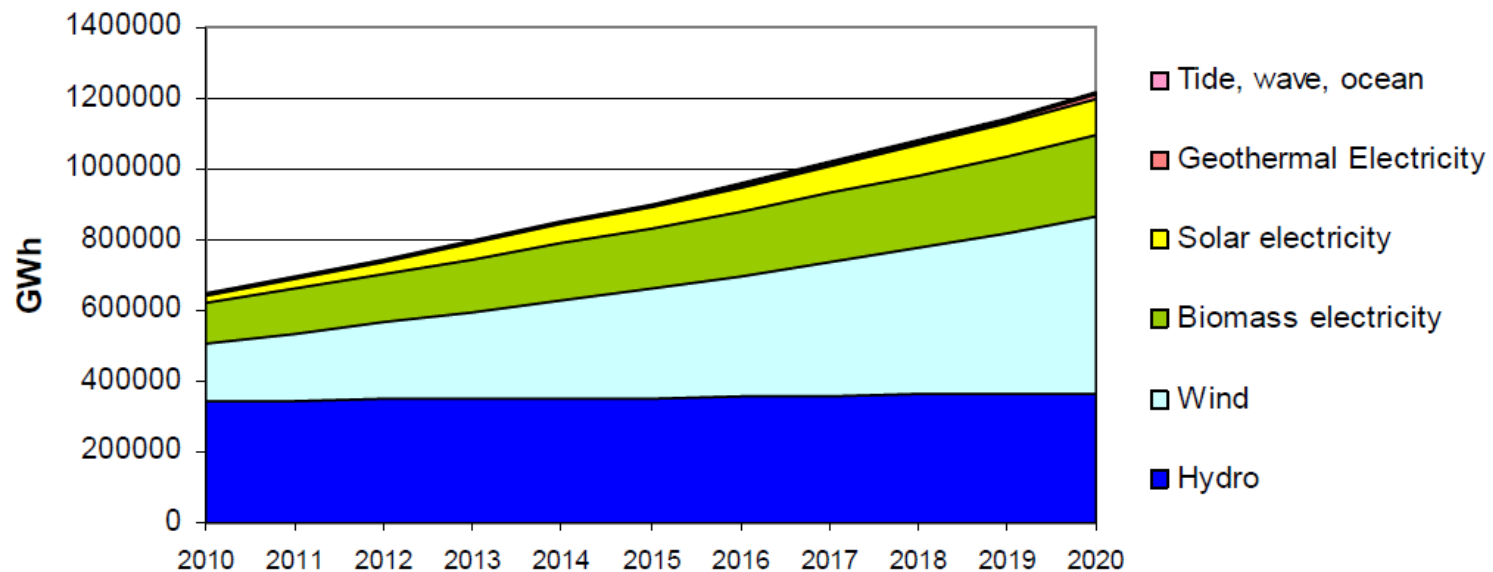
Bottlenecks:

- » **Administrative barriers**
- » **Grid constraints**
- » **Low support in certain MSs**
- » **Lack of information and knowledge**



Estimation of Electricity Sector RES increase by 2020

Development of renewable energy in electricity in EU 27



Source European Commission, 2011

Policy Recommendation

- What policy conclusions and recommendations can be drawn for a revision of the RAPs and for the related policy processes on the European and the national levels?
- What are good practice recommendations and a list of promising instruments of your sector on how to best implement your RES-sector via the RAPs? (Policy instrument perspective).
- What else could have been integrated into the RAPs compared to a more ambitious plan? (Comparison of RAPs with the RAPs-template, the industry roadmaps and other scenarios)

Be Growth Rate Vigilant

- Phenomenon that NREAPs seem to loose steam towards the time after 2016
- In RES electricity the EU 27 average growth rate “declines over time” (ECN) average annual growth rate is higher for 2010 to 2015 that from 2015 to 2020
- Example electric capacity:
 - Denmark: NREAP foresees under electric capacity 2929 MW Onshore Wind for 2015 (2923 MW in 2010) and 2621 MW Onshore in 2020
 - A doubling almost of Danish Offshore Wind between 2010 and 2015 (from 661 MW to 1251 but only a further increase of 88 MW until 2020 (to 1339 MW)
 - Spain: Biomass FiT/premiums far too low to trigger investment
- Example: Solid Biomass heat energy:
 - Finland decreased substantially amount in relation to reference year 2005 and will not reach the reference year amount in 2020 (5450 ktoe in 2005 - 3940 ktoe in 2020)
- Example RES in Heating and Cooling :
 - Portugal - NREAP foresees drop in share between 2005 and 2020 from 31.9 % to 30.6 %
- Example: Bioethanol:
 - Germany will reduce total bioethanol ktoe in 2020 from 996 projected for 2015 down to 857 in 2020

Be Technology neglecting vigilant

- Some countries almost draw a blank in some technologies
- Examples from Solar thermal Energy projections (ktoe):
 - Finland chooses Zero ktoe Growth
 - Sweden voted for no growth beyond installed 6 ktoe
 - United Kingdom stops at installed 34 ktoe (In comparison: Germany aims for 1245 ktoe by 2020, Poland 506 ktoe)
 - Portugal aims for un-ambitious 160 ktoe in 2020
 - 15 MS will have 0 % penetration of solar thermal energy in 2020 (two of them- Romania and Estonia did not mention even a single word on it);
 - Malta and UK will have 1 % ; Belgium and Portugal 3 %)

Technology vigilance

- Example
- Bulgaria: Major focus in RES policy is on use of forest biomass for electricity and somewhat very high share of biofuels- Plan needs drastic review on missed potentials and consistency
- Czech Republic - NREAP foresees high use of wood biomass (from 64 PJ to 114 PJ) which could lead to ecosystem constraint

Technology Vigilance - Transport fuels(II)

- Weak support for biogas and too few biogas stations planned (e.g. Sweden)
- Lack of clear rules and incentives (e.g. Italy has only some limited tax reduction for some amount of biodiesel, with high bureaucracy costs and effort attached to scheme)
- Lack of rules to apply Directive's sustainability criteria (e.g Italy)

Technology vigilance (III) Geothermal /Marine energy Sector

- Example: Spain - problem with individual approach for premiums/FiT for each geothermal and marine energy project under Royal Decree 661/2007) - leads to investment and planning insecurity

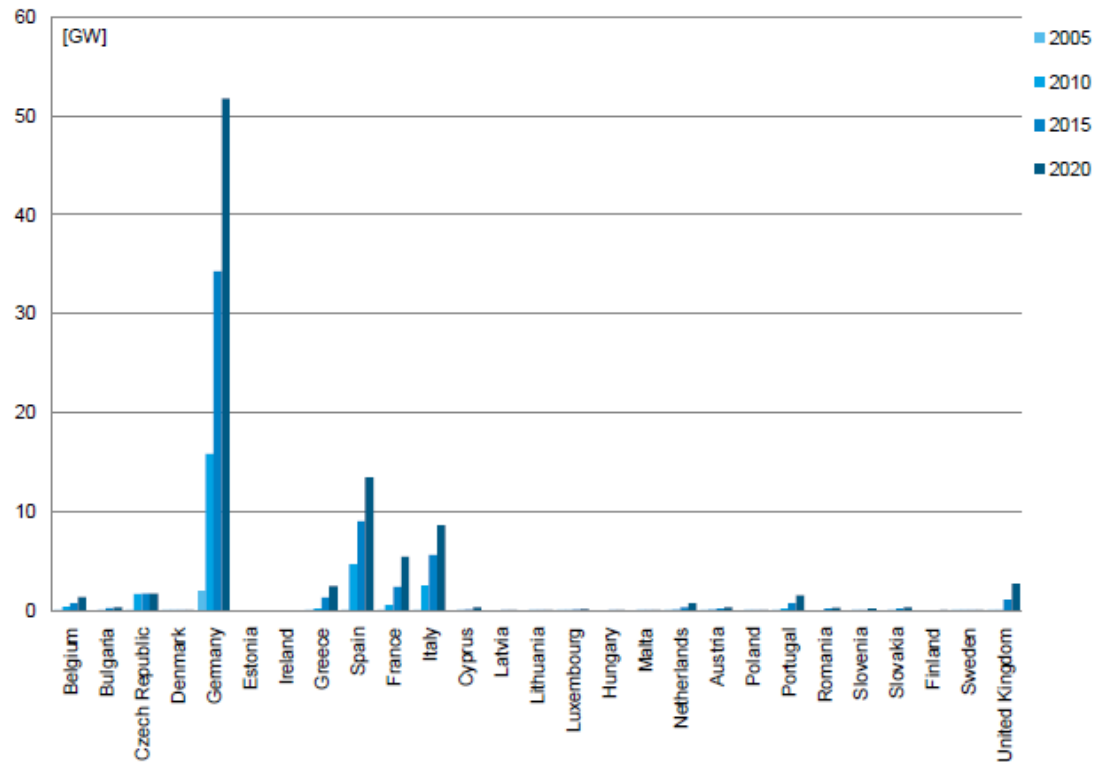
Be technology vigilant - NREAP and PV

- **Germany and Greece are the only two countries which are exceeding the industry's (EPIA) baseline target**
- **Example France:**
 - **Announced objective has been officially 5,400 MW PV by 2020, now new figure 4,860 MW in the NREAP, the rest would be done by CSP.**
 - **Behind the identified potential. According to EPIA's Baseline scenario published in the study "SET for 2020", France could potentially install minimum 24,000 MW of PV systems by 2020.**

EU 27 - not overwhelmingly PV oriented for 2020

Solar electric capacity (cumulative) [MW]

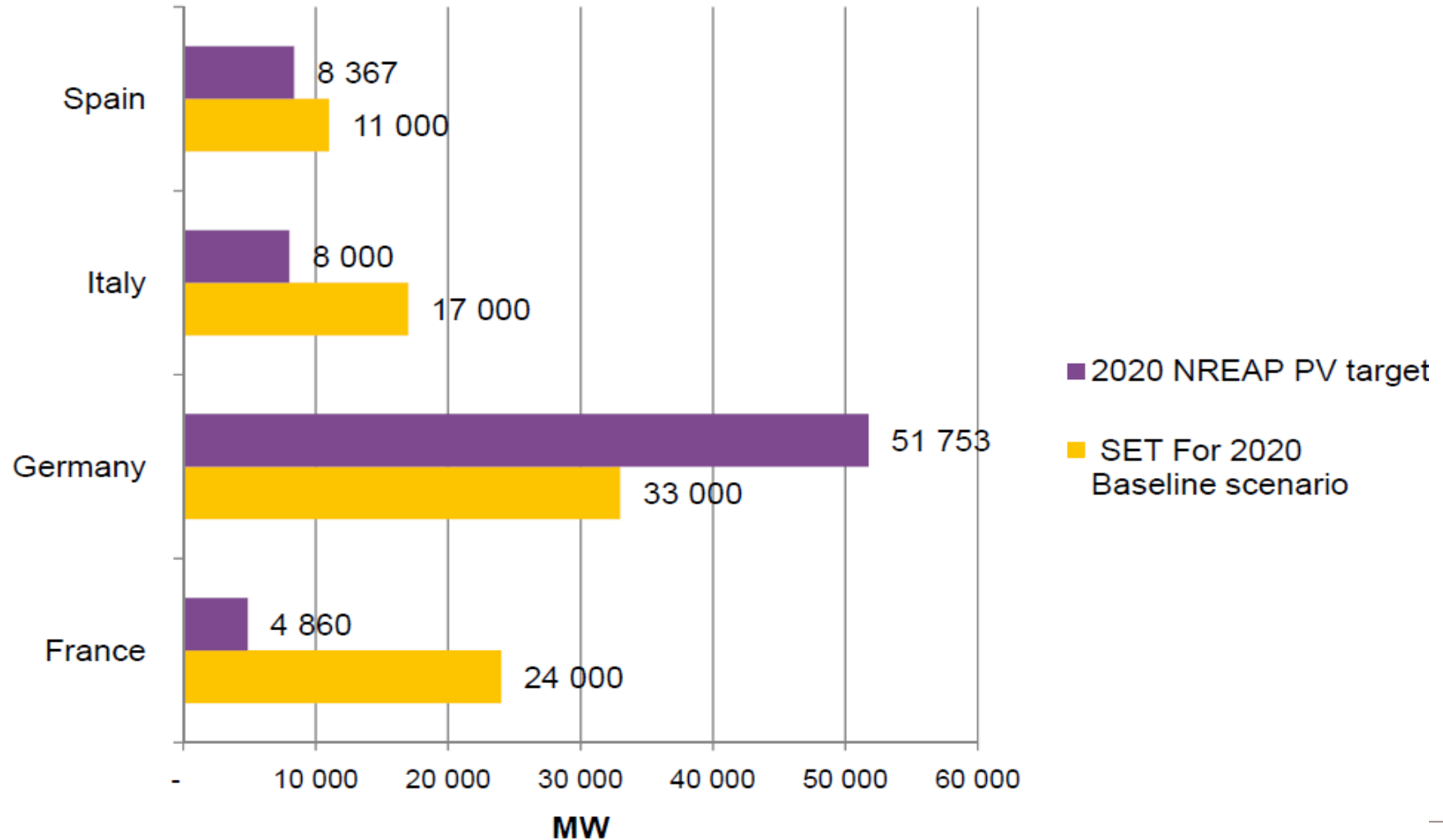
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Source: ECN

Figure 17: Projected total solar electric capacity [GW] for the period 2005 - 2020, including photovoltaic (PV) and concentrated solar power (CSP)

NREAP vs. EPIA estimates



NREAP and PV (II)

- □ **Italy: behind its potential, even the more so knowing that Italy is not expected to reach its RES target with indigenous production only in the year 2020.**
- □ **Spain: the baseline scenario of EPIA proposes a target of 11,000 MW in 2020. The target foreseen is 8,367 MW, 24% below EPIA's baseline scenario.**
- □ **Bulgaria, Portugal, Romania and the United Kingdom - behind the identified potential. Awareness on the capacity for PV to meet the 2020 targets and in particular the potential for cost reduction of the technology is lacking.**

Be aware of PV bashing -

- Example France : publication of new tariffs is disastrous for PV : „appels d'offres“- above 100 kW installations , even concerning BIPV and a base tariff of just 0,12 €/kWh...
- Critical remark to PV industry and Government in France: Overheating “home-made” - imbalanced tariff structuring: Since 2006 : Tariffs especially for small systems BIPV <3kW were high + crédit d'impôt de 50% of VAT at 5,5 - this lead to return of investment times below 5 years, and in some cases of free field - able to go beyond 20 % IRR (Source: Hespul)

German Industry Associations' view on German NREAP and PV

- In the electricity sector, there is no indication to be found that future amendments to the Renewable energy law (EEG) might re-establish investment security for the major part of renewable energy industry. The deep cuts in the PV tariffs, which have just entered into force, together with proposals to phase out technology specific support by 2020, have led to increasing concerns about long-term stability and reliability of support policies. Source : BEE , early 2011- within REPAP context
- The good news since: Joint effort between Government, Parliament and the Industry association lead to a realistic new regulation without cap (but range for flexibility in relation to FiT digression) or retroactivity

United Kingdom - in and out of pV?

- It seems that the FiT mechanism, which was introduced in the UK last year - was especially used for applications for PV up to 5 MW during 2010 which lead to the harsh reaction of Energy Secretary of State.
- UK FiT mechanism has a cap of 5 Mw size for eligibility.
- The Secretary for Energy points out as follows concerning PV: “Large scale solar installations weren’t anticipated under the FITs scheme we inherited and I’m concerned this could mean that money meant for people who want to produce their own green electricity has the potential to be directed towards large scale commercial solar projects.”

Be aware of “much ado about (almost) nothing”

- Transport fuel- Examples for missing out:
 - Greece only repeats status quo in its NREAP, which results in current no growth. No policies in place to revitalize sustainable domestic biofuel uptake. No incentives for electric vehicles (RES based). No increased blending shares.
 - Germany: No indication in NREAP on plans to revitalize policies for sustainable domestic biofuels. Quota in NREAP remains stable until 2016 and only then abrupt increase after 2017 and in 2020 to fulfill 10 % target; too much import dependent
 - Poland: Complete lack of annual goals and adequate support mechanisms
 - Italy : complete lack of clear rules and incentives

Be aware of “much ado about (almost) nothing”

- Heat from RES- examples:
- United Kingdom: NREAP foresees increase of RES-Heat share from 1% (2005) to approx. 12 % by 2020 without any policy and support modeling attached to it, RES industry and public in general still waiting for those details.

Be clear on room for improvement -

■ Example Heat from RES:

- Germany: NREAP denies lack of reliable instrument to trigger ambitious growth rates for existing building stock
- Greece: Existing subsidy and support scheme for natural gas, unclear energy pricing, low VAT for electricity and nat.gas hamper deployment of RES alternatives; lack of stable measures to promote RES in heating
- Sweden: Lack of national goals for passive house standards
- Italy: Lack of specific RES heating support scheme . Incentives only from the area of white certificates with fairly low level of price per certificate; lack of official data and statistics of heat sector
- Poland: Stop and Go policy, most support mechanism e.g. for CHP electricity end in 2012 : Long term support security needed, current annual certificate price setting for biogas creates instability.

Be clear on room for improvement

- Example Heat from RES (II):
- Portugal: Need for re-assessment of targets and existing measures to promote RES for H&C, plus additional measures in order to ensure that RES contribution will not decrease in real terms by 2020; e.g. need for support mechanisms for District heating and Co-Gen; maintenance and development of support for solar and geothermal heating
- Malta: no adequate support for solar thermal/heat pumps

Be clear on Grid Development needs for RES

- Example in a nutshell: Bulgaria - the weak(est) member of the RES chain concerning infrastructure alone
- NREAP: p. 127: “The implementation of Directive 2009/28/EC and in particular its provisions relating to electricity and the real-time management of the electricity system without disrupting the intersystem interchange schedules is possible if no more than 1 800 MW of WPP installed capacity and 600 MW of PVPP installed capacity are allowed, while the construction of hydropower plants and biomass-fired power plants is encouraged.” - This is not enough for being a policy

Give guidance on Grid and Demand Side Management principles

- Policies for a non-discriminatory integration of RES into the grid system and increased storage capacity planning are the crucial task for MSs head.
- Ensure Priority access/dispatch in all countries -beyond “propaganda”
- Examples of problems, lack of policies and ambition:
- Bulgaria seems to acknowledge RES more as nuisance than potential - financial penalties for RES producers who are in “imbalances”- no measures how to enforce priority grid access for RES apart from mentioning it in the RES law
- Malta seems to lack trust in grid improvement before or in parallel to better interconnection with Europe
- Italy - too long procedures for grid connection and too low enforcement rate of grid by TSO
- United Kingdom - Net charges high, generators pay over a quarter to the net transmission use of system charges
- Portugal and Spain clearly need better interconnection to France

Give guidance on planning principles

- The European Commission should create an exchange forum with industry and MSs on biannual bases in order to tackle and overcome planning and grid /Demand Side Management problems. (RES-Plan) - constant “E-learning chapters” on Webpage
- Typical bottlenecks: Unclear use of Environmental licensing procedures , barring of the project developer from attending EIA committee meetings(e.g. Portugal)
- EIA needs to be friend- not foe
- Power granting and licensing procedure
- Involvement of municipal sector needs clear rules, e.g. on RES zoning (e.g. United Kingdom) and on repartition of tasks between the various levels (local, regional, national)
- Show positive examples for benefit for municipal sector
- Lack of “quality One Stop Shopping” in many MSs
- Acceleration tools especially on low voltage grid level

- **Stop - and - Go Renaissance during and after NREAP submissions**

Be aware of abrupt support system changes

- **Examples:**
 - **Spain-** Caps for PV and other RES-E (mainly wind) - with Register of Pre-Assignment of Remunerations PV market in Spain nearly collapsed (form 2.5 GW of new installations to 188 MW in 2009; wind market facing a similar register since May '09 and a cap sees capacity drop from 2,460 MW in 2009 to 1,516 MW in 2010
 - **Portugal:** NREAP is silent about future support scheme for new power - no clarity for time after existing FiT scheme expires
 - **Malta:** FiT system announced with 8 years lifetime, but what happens after 8 years
 - **Czech Republic:**
 - plans to let regulatory office decide on which RES source will be subject to support
 - Current: Exclusions of major PV systems from support scheme and of all off-grid RES from FiT system
 - Since 2011 Czech Republic ended five years tax holiday for income tax on sale of new RES electricity

Example France

- NREAP
 - overall renewable energy target of 23% in 2020
 - Overall support system: obligation to purchase renewable energy (rule for all RES)
 - regulated prices (no cap; prices per technology)

Sector	Orders regulating the purchase of electricity	Duration of contracts	Example of prices for facilities in service at the date of publication of the orders
Photovoltaic	12 January 2010 and modification of 15 January 2010	20 years	- facilities integrated into constructions: 58 euro cents/kWh or 50 euro cents/kWh according to the use of the building - simplified facilities integrated into constructions: 42 euro cents/kWh. - other facilities Overseas Departments, Mayotte: 40 euro cents/kWh; Metropolitan France: 31.4 euro cents/kWh adjusted by +0% to +20% according to the average sunshine of the area of establishment.
	10 July 2006	20 years	- Metropolitan France: 30 euro cents/kWh , + bonus for integration into the construction of 25 euro cents/kWh - Corsica, Overseas Departments, Mayotte: 40 euro cents/kWh , + bonus for integration into the construction of 15 euro cents/kWh
	13 March 2002	20 years	15.25 euro cents/kWh in continental France and 30.5 in Corsica and Overseas Departments (1euro/kWh and 2 euros/kWh)

France

- However - New Regulatory Framework 2011:
 - for medium and large installations no fixed feed-in tariff but auctioning
 - for small installations, still feed-in tariff but 20% cut
 - „soft“ cap - limit new installations to 500MW capacity a year
 - possibly specific „soft“ caps per sort of installation (e.g. residential, smaller than 36 MW)
 - when the cap is reached, remuneration will „significantly“ decline

Example Spain (following overview -courtesy of APPA)

- NREAP
 - target: 22.7% RES-E in 2020
 - two support mechanisms for RES-E to chose either
 - Regulated tariff sale, different for each technology; or
 - Sale on the open electrical energy market (remuneration is the price on the organised market or freely negotiated price, supplemented by a specific premium for each renewable technology area)
 - For PV
 - capacity quota of 500MW per year
 - authorisation required
 - priority for installations in buildings

Spain

- **Changes in PV support:**
 - **PV targets as fixed in the Spanish NREAP reduced in the new RES Plan 2011-2020**
 - by 13.7% in terms of electricity production
 - by 13.35% for overall installed PV capacity
 - **PV tariffs reduced 45% for ground mounted systems, 25% for bigger rooftop installations (> 20 kW) and 5% (< 20 kW)**
 - ground-mounted installations 13.0324 €/ct/kWh in 2011
 - **Limitation (retroactive) of operating hours for all PV installations**

PV Technology	Equivalent reference hours per year				
	Zone I	Zone II	Zone III	Zone IV	Zone V
Fixed installation	1,232	1,362	1,492	1,632	1,753
Installation with 1-axis tracking	1,602	1,770	1,940	2,122	2,279
Installation with 2-axis tracking	1,664	1,838	2,015	2,204	2,367

Source: APPA

- **Access fee for transmission and distribution grids (0.5 EUR/MWH)**

Spain

- Also reduction of overall RE target for 2020:

	Mix Zurbano (March 2010)	Draft NREAP (June 2010)	NREAP final version (efficiency scenario) (July 2010)	NREAP final version (reference scenario) (July 2010)	Energy mix Subcom. Spanish Parliament (July 2010)	Latest draft PER 2011-2020 (26.7.2011) (efficiency scenario)
% of RES in primary energy consumption	20.2%	20.1%	20.0%	17.9%	18.2%	19.5%
% of RES in final energy consumption	22.7%	22.7%	22.7%	19.6%	20.8%	20.8%
% of RES in transport (thereof electricity for electric vehicles)	s/n	13.6% (0.4%)	13.6% (0.4%)	11.0% (0.3%)	11.6% (1.0%)	11.3%
% of RES in gross electricity production	42.7%	38.2%	38.2%	36.0%	35.5%	38.1%
% of RES in gross electricity consumption	n/a	n/a	40.0%	n/a	n/a	39.0%
PV target in GWh	n/a	14,316	14,316	14,316	11,524	12,356
PV target in MW	n/a	8,367	8,367	8,367	6,735	7,250

Source: APPA

Example Germany: positive crisis management

Germany

Roof Installations	
Power share	EEG 2009 compensation ct/kWh
up to 30 kW	43.0 ¹⁾
30 kW to 100 kW	40.91
100 kW to 1 000 kW	39.58
1 000 kW	33.00
1) For own use of electricity produced, compensation of 25.01 ct/ kWh	
Open space Installations	
Regardless of power share	EEG 2009 compensation ct/kWh
	31.94
Scale for solar radiation energy EEG 2009 ¹⁾	
Roof Installation	
On base compensation and bonuses	
Installations up to 100 kW	2010: 8.0%
	From 2011: 9.0%
Installations over 100 kW	2010: 10.0%
	from 2011: 9.0%
Open space Installations	
On base compensation and bonuses	
	2010: 10.0%
	from 2011: 9.0%

Source: NREAP
Germany

■ Changes EEG 2010 (for PV):

- Tariff for roof installations lowered by 13 % on 1 July 2010 and by 3 % on 1 October 2010
- One time additional reduction on 1 June 2010 of compensations for open space installations on conversion areas of 8 % and, for other areas, 12 %;
- Further reduction of 3 % on 1 October 2010
- Adjustment of degression rate: If the 3500 MW target is exceeded, compensation rates fall by 1 % at the end of 2010 and by 3 % end of year 2011 for each additional 1000 MW (in addition to over the degression rate provided by EEG 2009 = 9%)
- Degression may increase to maximum 13 % end 2010
- If market growth below the lower limit of 2500 megawatts, compensation rates fall by merely 1 % in 2010 and 2.5 % in 2011, per 500 MW below the limit.
- Degression may decrease by maximum 3 %.

Germany

- EEG 2011:
 - increased degression rates (9% for PV)
 - more than 3500MW installed, +3%
 - more than 4500MW installed, +6%
 - more than 5500MW installed, +9%
 - more than 6500MW installed, +12%
 - more than 7500MW installed, +15%
 - but:
 - if less than 2500MW installed, -2,5%
 - if less than 2000MW installed, -5%
 - if less than 1500MW installed, -7,5%
 - maximum decrease thus 7,5%

■ Future Milestones

Call for cost and price clarity

- Most Member States have legacy and current advantageous treatment for coal and nuclear plants
- CCS- public budget support will further decrease level playing field for RES investment
- Clarity needed
- Windfall profit to be clearly evaluated
- Windfall profit taxation for incumbent , written- off energy use to be introduced in all EU MS (including old, large hydro plants)
- At least: Non introduction to be evaluated in its costs for society when screening RES support

The Future

- Europe's energy system must **undergo radical change**:
 - EU's commitment to reducing greenhouse gas emissions by 80-95% by 2050 and the need to go negative in emissions after 2050. The other quest is to change for sustainable supply security in energy.
- With today's policies, EU is set to fail meeting its long-term climate ambition!
 - European Commission: continuation of current trends and policies would result in only a 40% reduction in greenhouse gas (GHG) emissions by 2050. EU energy policy, building upon its 2020 targets, needs to be geared up to reach significant greenhouse gas emissions reductions by 2050, while increasing energy security and competitiveness for the benefit of European citizens.
- Renewable energy sources and energy savings are the most straightforward means to both reduce emissions and improve supply security.
 - Energy related CO₂ emissions have already been reduced by more than 20% against 1990 levels - thanks to the deployment of renewable energy technologies.
- **Now it is time to take the next step and lift up our ambitions for the post-2020 decade:**
 - **Call for a legally binding EU target of at least 45% renewable energy by 2030.**

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