SEERMAP

South-East Europe Electricity Roadmap

Winter package on RES

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REKK FOUNDATION

Overview

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- Background
- Policy options for RES-E
- Policy options for RES-H&C
- Policy options for RES-T
- Compliance provisions

Background: 2020 framework

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- 20% RES in gross energy consumption by 2020 in the EU
- Legally binding national targets
- NREAPs
- Biennial monitoring
- Currently on track for 2020 but steep trajectories at the end of the period and problem with the 10% transport target

2020 RES target compliance

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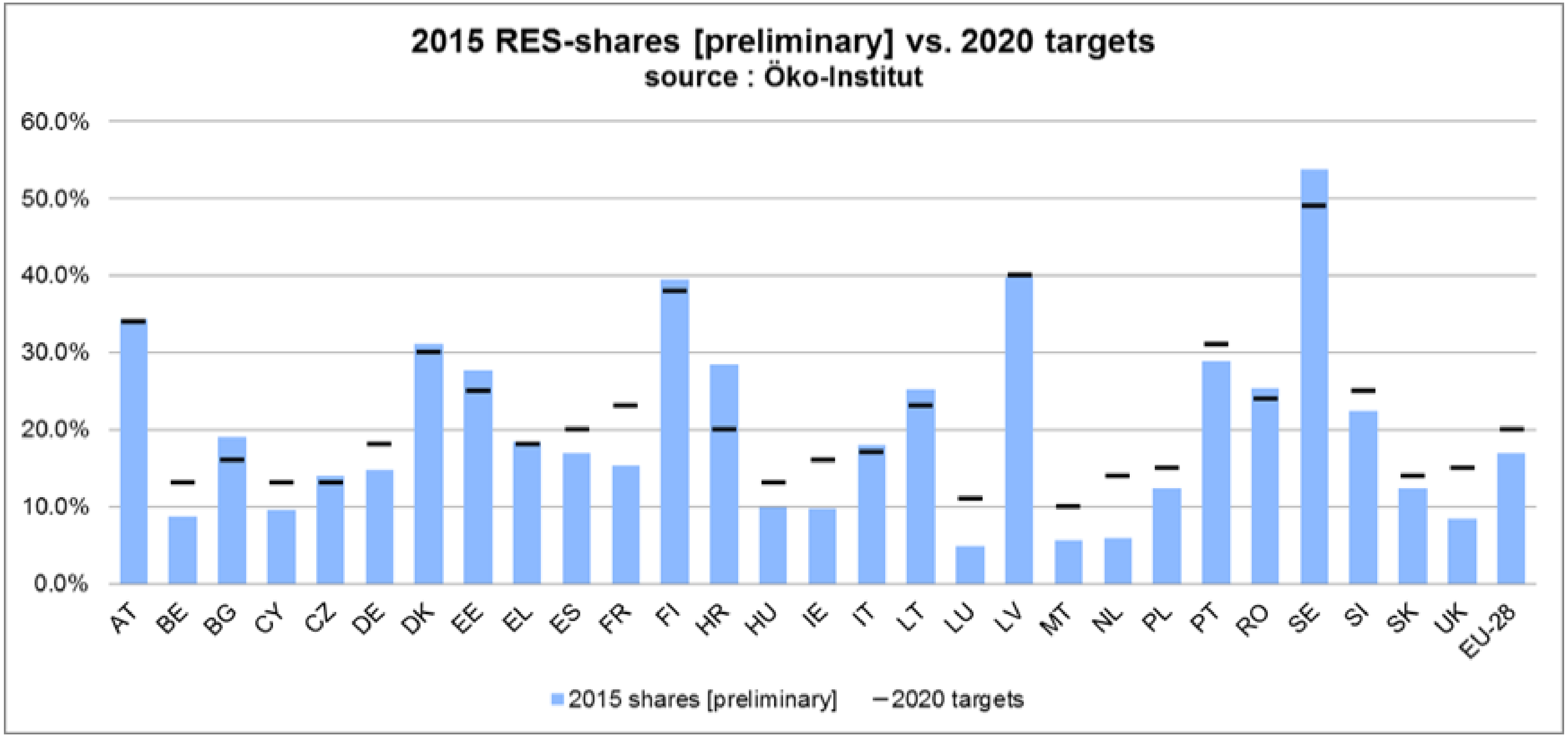

Source: RED IA, 2016

Background: 2030

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- Target: 27% RES in gross energy consumption by 2030
- Baseline: Current policies are estimated to result in 24.3% RES share by 2030
- Investment requires stable policy signals:
  - RES-E: 1 trillion USD from 2015 to 2030 (Bloomberg, 2014); 1.2 trillion USD between 2015 and 2035 (IEA, 2014)
  - RES investment is declining in Europe (60% reduction from 2011 to 2015) and not only due to shrinking technology cost
- Especially that the 2030 framework lacks binding national targets
- Even though the proposed governance regime can incentive MSs to some extent (planning, close monitoring of progress and gap filling measure mandate for COM)

Background: 2030

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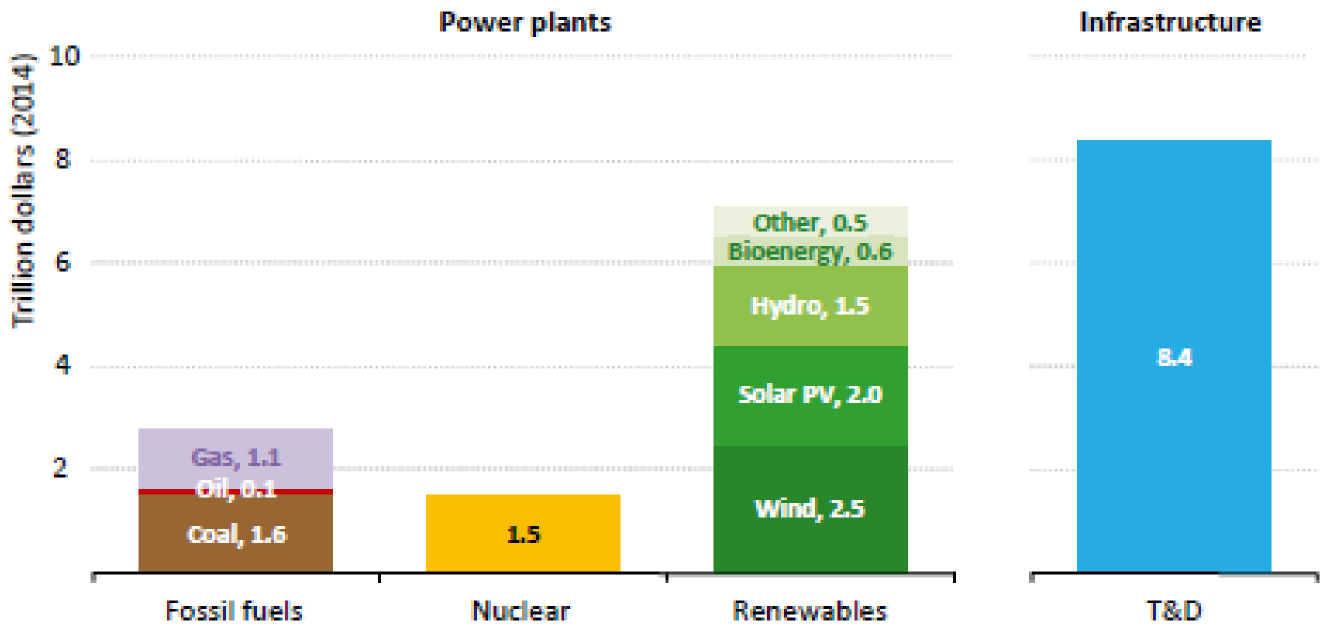
„At USD 288 billion in 2015, or over 40% of the total, renewables are firmly established as the largest source of power investment."

(IEA World Energy Investment, 2016)

Potential impact of INDCs on global cumulative investment in the power sector, 2015 – 2040



IEA WEO2015

Background: 2030

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Links with other elements of the WP:

- ETS and non-ETS policy: shrinking EUA supply and mandatory emissions ceilings for non-ETS sectors
- Market design: market integration of RES-E facilitated by the availability of short term energy and flexibility markets and the promotion of own RES generation to maximise market revenue of RES-E generators and reduce the need for public support
- EU Governance: coherent planning across GHG, RES and EE and monitoring the potential delivery gap

Impact Assessment

- Analysis of various policy options starting from BAU (Option 0) to gradual modifications
- The options are grouped according to the following areas:
  - electricity sector (RES-E);
  - heating and cooling sector (RES-H&C);
  - transport sector (RES-T);
  - empowering and informing consumers of renewable energy;
  - achievement of at least 27% renewable energy in 2030 (compliance provisions).

RES-E

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- Main findings of the RES and Market Design IAs:
  - improved electricity market, revised ETS could deliver investments in the most mature renewable technologies by 2030
  - less mature renewable electricity technologies will need some support
  - At the beginning of the period, over-capacity, the imbalance on the ETS market and low wholesale electricity market (partly due to increasing RES penetration) prices and high RES-E technology costs make market only driven investment difficult
  - support schemes will still be needed at least for a transitional period
- RES IA investigates options to ensure that if and where support is needed, it is **cost-effective**

Some technologies would be viable exclusively from market revenues but the 2030 target would not be reached:

Share of investment financed solely by the wholesale market revenues[188]	Biomass	Geothermal	Hydro reservoir	Hydro ROR	Offshore wind	Onshore wind	Solar PV	Tidal	TOTAL
2020	1%		12%	100%	0%	51%	64%	0%	41%
2025	100%		18%	100%	0%	100%	58%	0%	54%
2030	100%	100%	100%	100%	6%	100%	100%	0%	66%

Source: RED IA, 2016

RES-E 1: Let the market reveal the required support level!

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Option 0	Option 1	Option 2	Option 3
• Baseline - **No provisions** on support schemes in the Revised RES Directive	• **No support** for renewable electricity - investments only spurred by **market mechanisms**	• Clarifying the principles through **a toolkit for designing support schemes**	• Further market-orientation through **mandatory move towards investment aid**

- Introducing the main framework requirements of support schemes to legislation (e.g. tender design principles)
- Leaving implementation issues to the State Aid Guidelines (e.g. actual thresholds, exemptions) and case reviews by DG COMP
- RED would explicitly require that support schemes cannot be revised in a way that retroactively impact acquired rights
- Promote the emergence of community-owned schemes: Art 22
- MSs assess RES-E support scheme at least every 4 years: Art4(4)
- MSs shall publish schedule on expected allocation for support for the following 3 years (timing, capacity, budget): Art 15

RES-E 2: Align with the potentials!

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Option 0	Option 1	Option 2
• Baseline - Continuation of current EU policies	• Mandatory partial opening of support schemes to cross-border participation	• Mandatory regional support schemes

- Cross-border cooperation: better sites means less capacity for the same generation (but grid expansion requirement!)
    - joint quota system of Scandinavia: EUR 680 million reduction in capital expenditure over 2015-2020
    - CEE: EUR 325 million over 2015-2020
- at least 10% of the newly-supported capacity in each year between 2021 and 2025 and at least 15% of the newly-supported capacity in each year between 2026 and 2030 is open to installations located in other MSs: Art 5
- Commission assess by 2025 the effect of this provision and may propose increase in %

RES-E 3: Lower the cost of capital!

Option 0	Option 1	Option 2
• Baseline	• EU-financial instrument with **wide eligibility criteria**	• EU-financial instrument in support of **higher-risk RES projects**

- Cost of capital has significant effect of total project cost in case of capital intensive RES technologies
- Investment goes to mature technologies in low WACC countries: UK and DE
- Option 1 is not assessed: e.g. extension of EFSI
- Option 2 – financial guarantee:
  - Focus on high WACC countries but technology neutral
  - Focus on non-mature technologies: offshore wind

WACC for onshore wind

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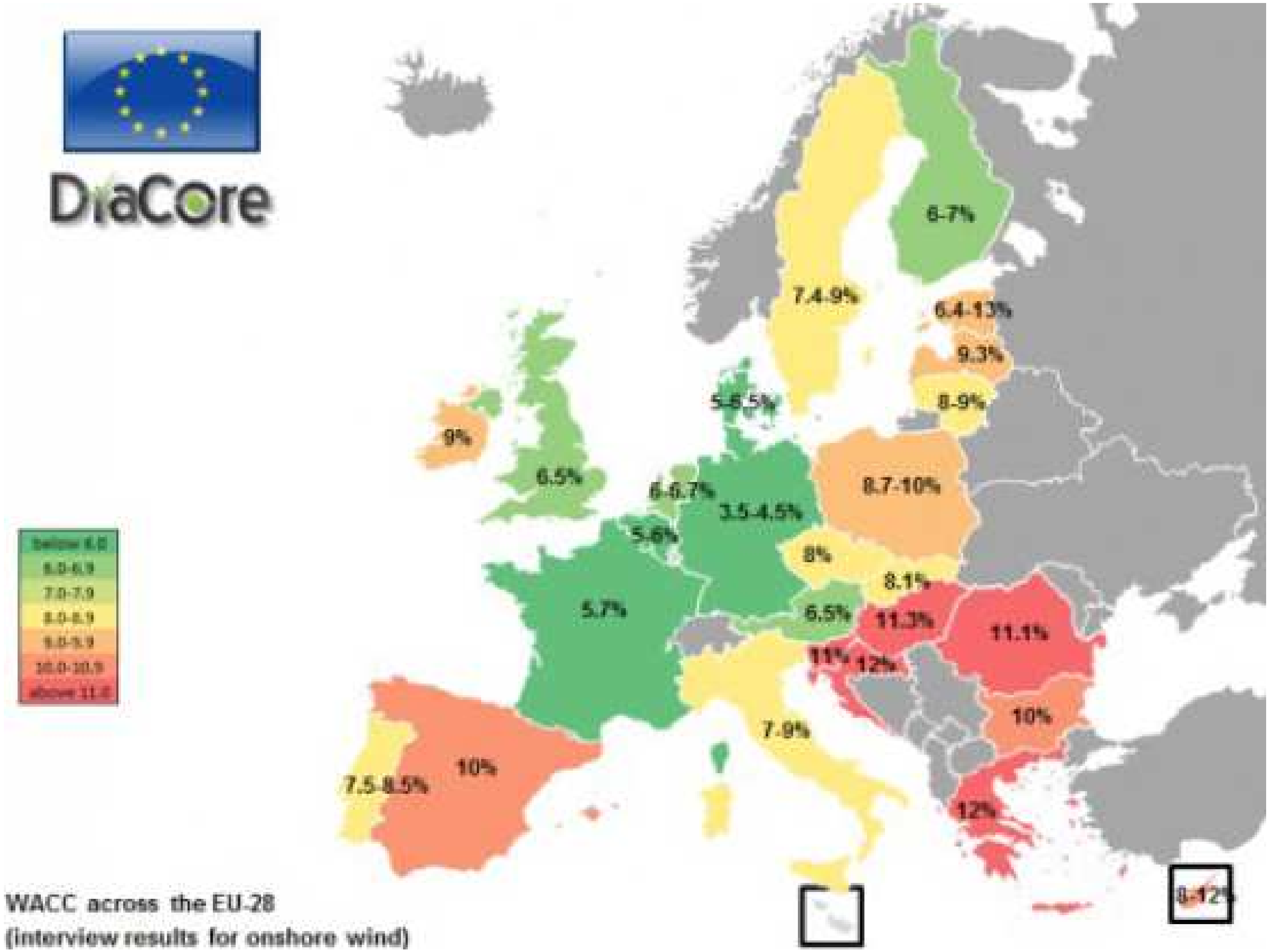
DiaCore



WACC across the EU-28
(interview results for onshore wind)

New RES investment in the EU

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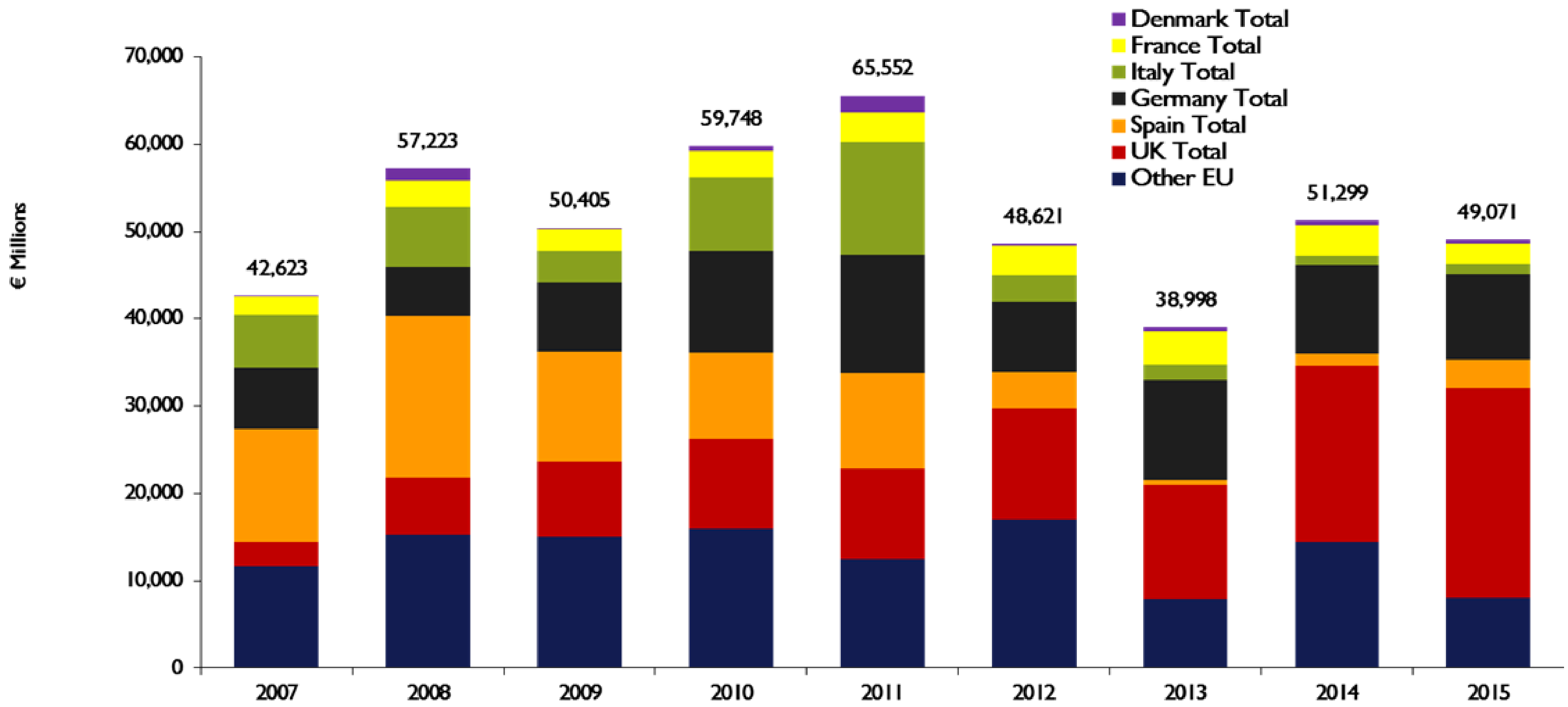
EU RENEWABLE PROJECT INVESTMENT BY COUNTRY– NEW BUILD, M&A, REFINANCING (2007-2015)



Source: Bloomberg / New Energy Finance

HgCapital } Sector expert investors supporting management to grow industry champions

Financial guarantee for high WACC countries

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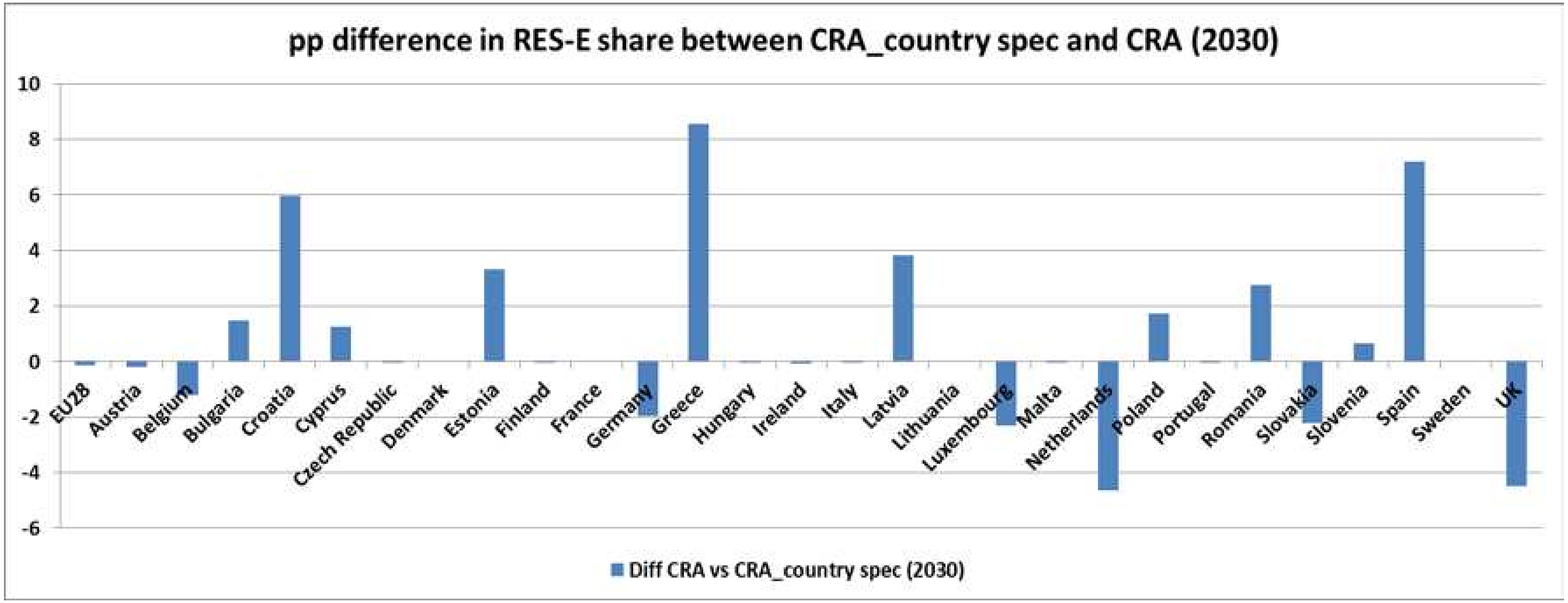

RES-E share increases in the countries benefitting from the support, to the detriment of other Member States with better initial financing conditions but lower renewables potential.

RES-E 4: Make it quick and easy with papers!

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Option 0	Option 1	Option 2
• Baseline - current provisions (Article 13 (1)) apply until 2030	• Reinforced provisions with "one-stop-shop" • Introduction of time limits with a range of possible duration of permitting process • Facilitated procedures for repowering	• All of Option 2 + • Maximum time limits for permitting with automatic approval after deadline • Publication of project developer manuals • Compulsory simple notification procedures for small household-size projects • Facilitated procedures for medium-sized projects

- One or more single administration point by 2012 for generation plant and needed grid infrastructure: Art 16-17
- Single administration point
    - guides through the process
    - involve other authorities
    - issue the permit within 3 years
    - under 50 kW within 6 months with automatic approval past the deadline
    - In case of repowering: 1 year

RES-H: increasing the share

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Option 0	Option 1	Option 2
• Baseline - Continuation of current EU including indirect RES measures in the EPBD and EED	• RES heating and cooling obligation on fossil fuel suppliers	• RES heating and cooling obligation on all energy suppliers

- RES-H is underutilised compared to potential and demand for heat
- Co-generation alone is not enough as district heating covers only 8% of H&C demand in the EU
- RES-H is viewed by the COM as „gap-filler”
- Option 0:
    - New RES-H generation in buildings (for own use) can be accounted for in the proposed Art 7 of EED (under the 25% cap)
    - Nearly Zero Energy Buildings requirements
- Option 2: Increase RES share in H&H by 1 pp annually (SME exemption): Art. 23
    - By physical incorporation (inject biogas to gas supply)
    - Direct measures (RES heating equipment installation)
    - Purchase of obligation on the market from third parties

RES-H: district heating

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Option 0	Option 1	Option 2	Option 3
• BASELINE - Continuation of current EU policies	• Continuation of current requirements, with best practice sharing	• Energy performance certificates and creating access rights to local H&C systems	• Option 2 + further reinforced consumer rights

Option 3:

- Energy performance certificate: efficiency, RES, CO2 emissions (CEN standard)
- Non-discriminatory access of RES and waste heat to the DH network
- Consumers right to disconnect from DH if the system's energy performance is lower than what a consumer could achieve by alternative means *e.g.* renewables on-site or through energy communities
- Goal: flexible DH network infrastructure using multiple fuels and integrated to electricity systems as well

RES-T

Option 0	Option 1	Option 2	Option 3	Option 4
• *Baseline- No additional EU action (business as usual)*	• *EU incorporation obligation for renewable fuels*	• *EU incorporation obligation for renewable fuels, plus phase-out of food-based biofuels* • Three sub-options for the phase out food based biofuels	• *Option 2 plus a specific incorporation obligation for renewable fuels in aviation and maritime*	• GHG emission reduction obligation (FQD) • Three suboptions besides baseline: • 4B) Excludsion of upstream emissions reductions and non-waste fossil fuels • 4C) Focus on advanced fuels and electricity • 4D) Focus on advanced biofuels, electricity, and lower GHG conventional fuels

- 10% target expires in 2020, 7% cap on food-based biofuel remains: old Art 3
- Gradual substitution of first generation to advanced biofuels
- Minimum share of advanced biofuels and RES-E of 1.5 % in 2021 and 6.8% in 2030: Art 25

Compliance provisions

- 2020 national targets the basis for further increases in RES through to 2030: Art 3
- Linear trajectory towards the 2030 target
- Mechanisms to avoid „ambition gap”: review of NREAPs and potential EU level delivery mechanisms, if needed (no binding national targets)
- Mechanisms to avoid „delivery gap”: increasing the ambition of EU wide measures

Thank you for your attention!

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