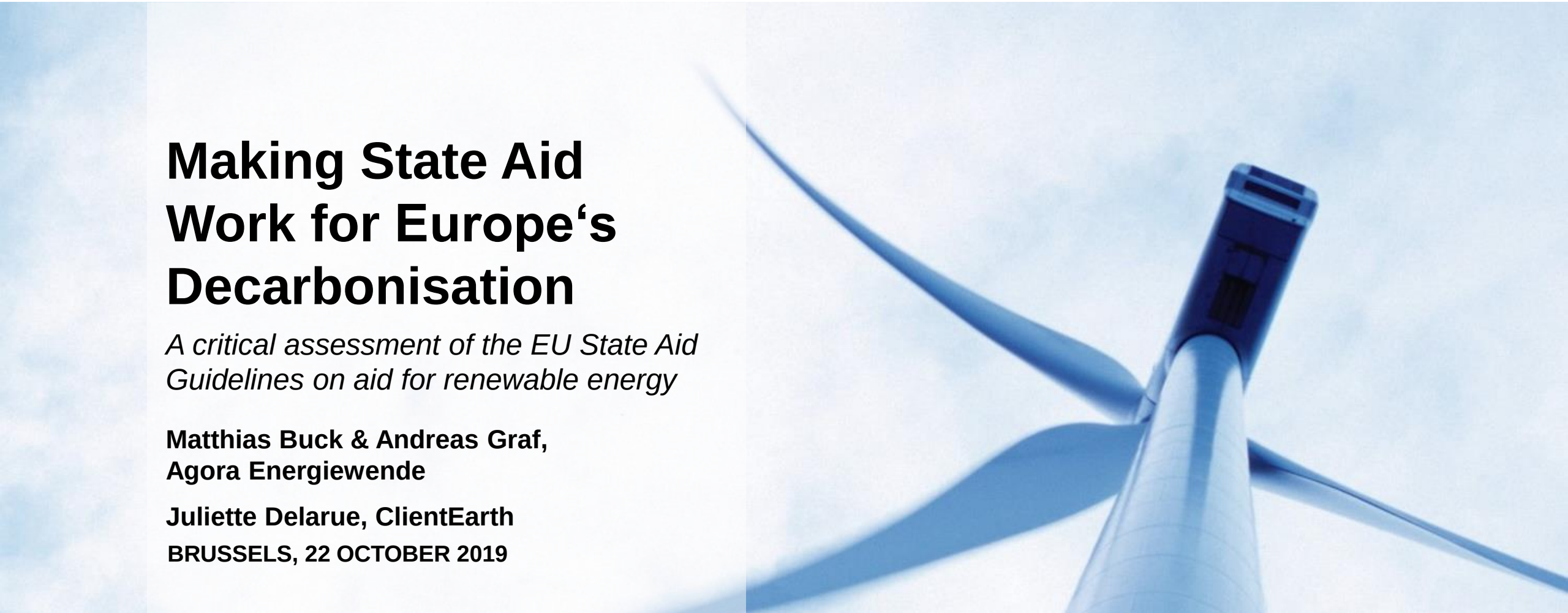


# Making State Aid Work for Europe‘s Decarbonisation

*A critical assessment of the EU State Aid Guidelines on aid for renewable energy*

**Matthias Buck & Andreas Graf, Agora Energiewende**

**Juliette Delarue, ClientEarth**

**BRUSSELS, 22 OCTOBER 2019**

# Objectives of the Project

Supported by:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

European
Climate Initiative
EUKI

based on a decision of the German Bundestag

# Objectives of the project

- **Analyse** the Commission's decision-making practice on State aid cases relating to decarbonisation and the clean energy transition
- Confront the decision-making practice with **realities** of the energy market and the necessary transition to a decarbonised European power system in line with **EU climate and energy targets**
- Raise awareness of the **importance of State aid decisions for decarbonisation** and the need for **consistency**
- Engage with **decision-makers** and **stakeholders** on how to provide that state aid decisions and market-forces work in support of decarbonisation and the clean energy transition

# Project events in Brussels

- Workshop #1 – Capacity Mechanisms (May 2019)
- Workshop #2 – Renewable Energy (October 2019)
- Conference – State Aid Perspectives on the ‚Coal to Clean Transition' in Europe (November 2019)
- Workshop #3 – Industry Decarbonization (December 2019)
- Workshop #4 – Energy Efficiency & District Heating (December 2019)

# Project website

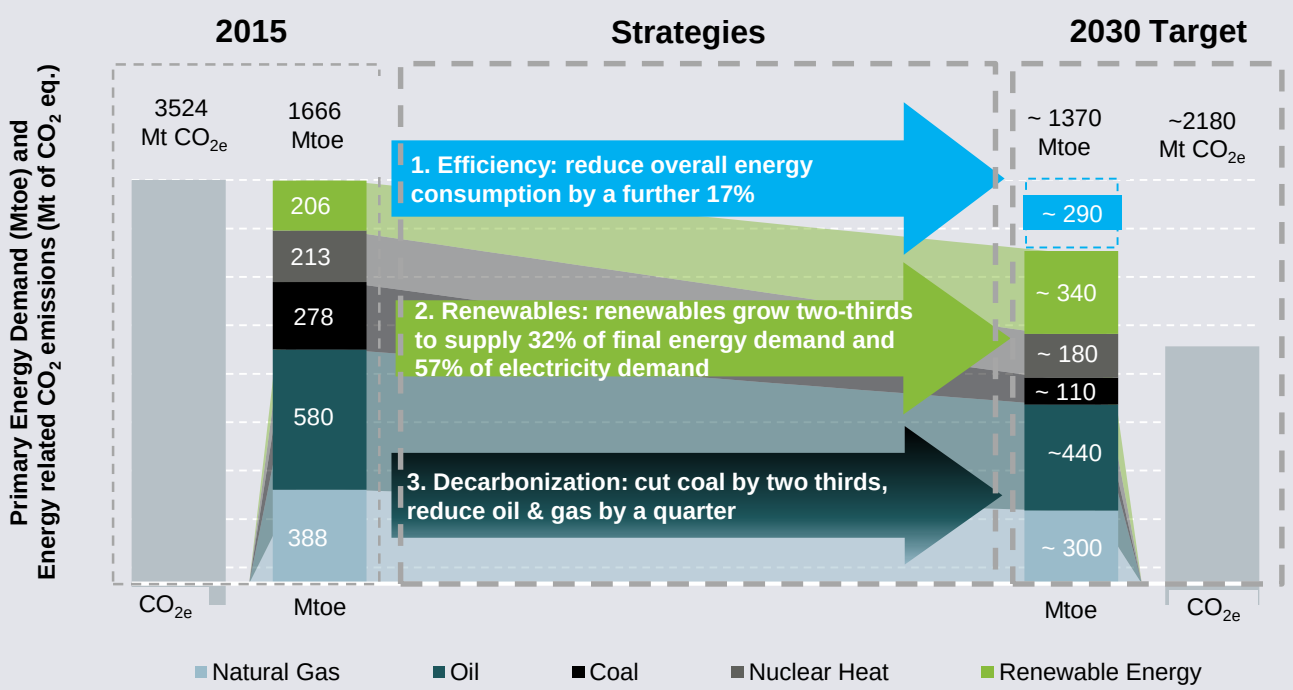

- We have just launched a project website, which will serve as an online repository with communication material on EU state aid decisions relevant for climate protection and the EU's energy transition.
- The website will provide transparent, reliable and well-documented case studies analyzing the track-record of past state aid decisions and guidelines in driving the energy transition and identify the critical steps and elements in state aid decisions that should be improved to align EU state aid decision-making with Europe's climate and energy targets.

# Relevance of support for renewable energy in the context of decarbonisation

# The EU has committed to an EU-wide energy transition from fossil fuels to clean energy sources and stands to benefit from the a thriving clean energy sector.

Agora Energiewende

Strategies for a cost-efficient transformation of the energy sectors by 2030

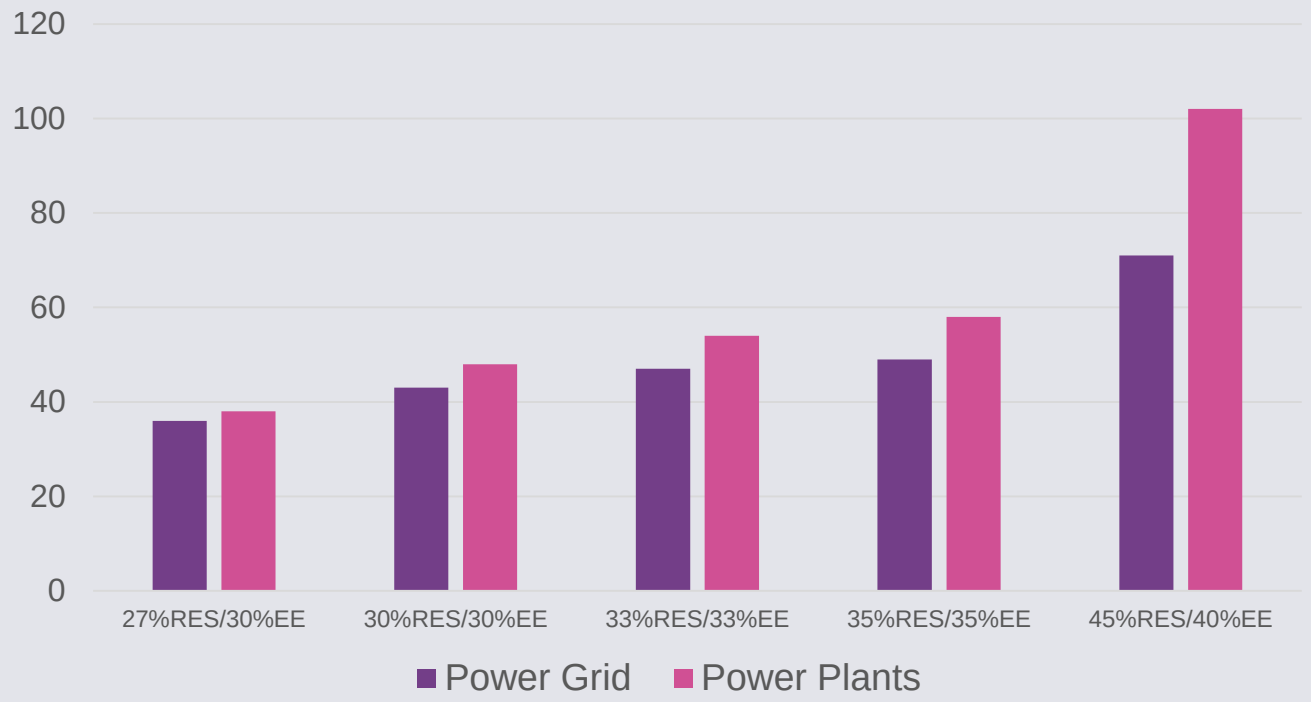



Own calculations based on COM modelling for the Clean Energy Package and EU Long Term Strategy, and taking into account the coal phase outs announced by member states.

- The European Union has made gaining world leadership in the deployment of renewable energy one of the core pillars of the Energy Union and one of its key industrial and climate policy missions.
- The EU's 2020 climate and energy target framework includes an EU-wide target to achieve a 20% share of renewable energy in gross final energy consumption by 2020.
- The EU's new 2030 climate and energy framework raises ambition to 32% by 2030.
- The EU Long Term Strategy for achieving climate neutrality by mid-century foresees a significant role for renewables by 2050 across all of its scenarios.

# Investment into low carbon power generation will need to increase significantly under higher climate & energy targets

**Average annual investment needs 2021-2030**

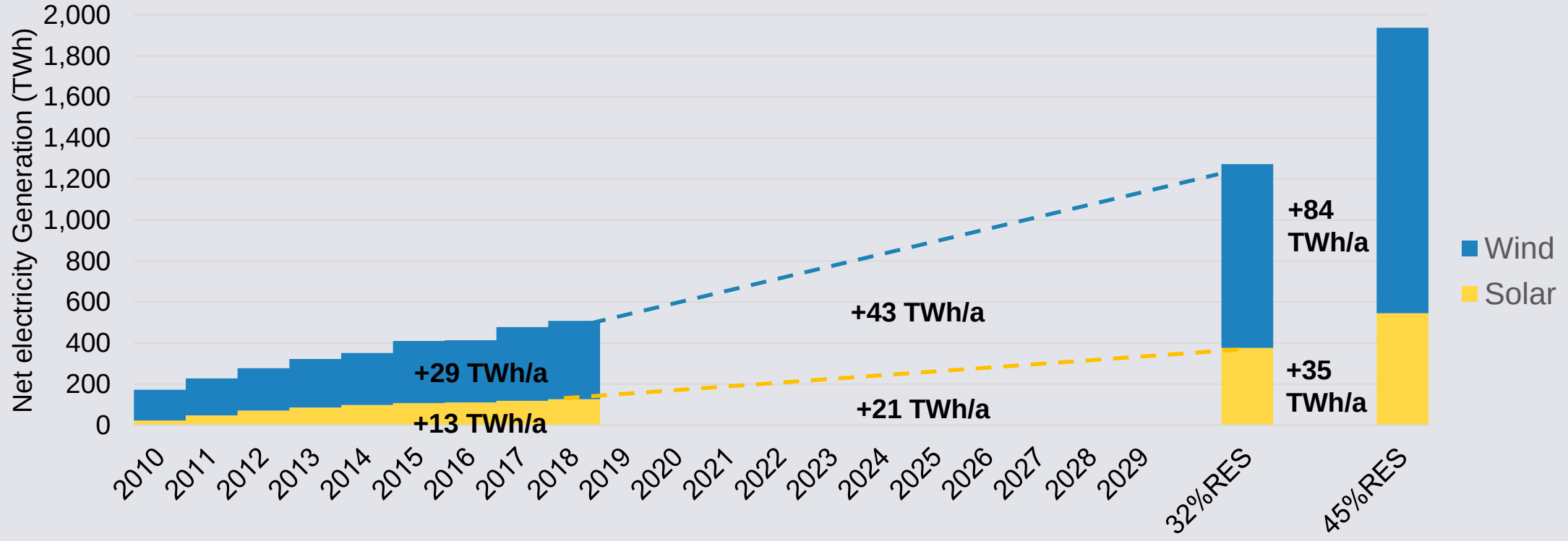



Source: European Commission (2019)

- In 2014, the discussion surrounding the EU's 2030 Climate & Energy target framework started at a 27% renewable energy target.
- The recently agreed Clean Energy Package increases this ambition significantly to 32%.
- The Commission will propose a higher 2030 climate target, in line with 2050 greenhouse gas neutrality of the European continent. This implies a further acceleration of investment into renewable energy sources.

# Cost-efficiently meeting the current renewables target and accelerating towards 2030 both mean significantly increasing the rate of wind and solar deployment compared to 2010-2018.

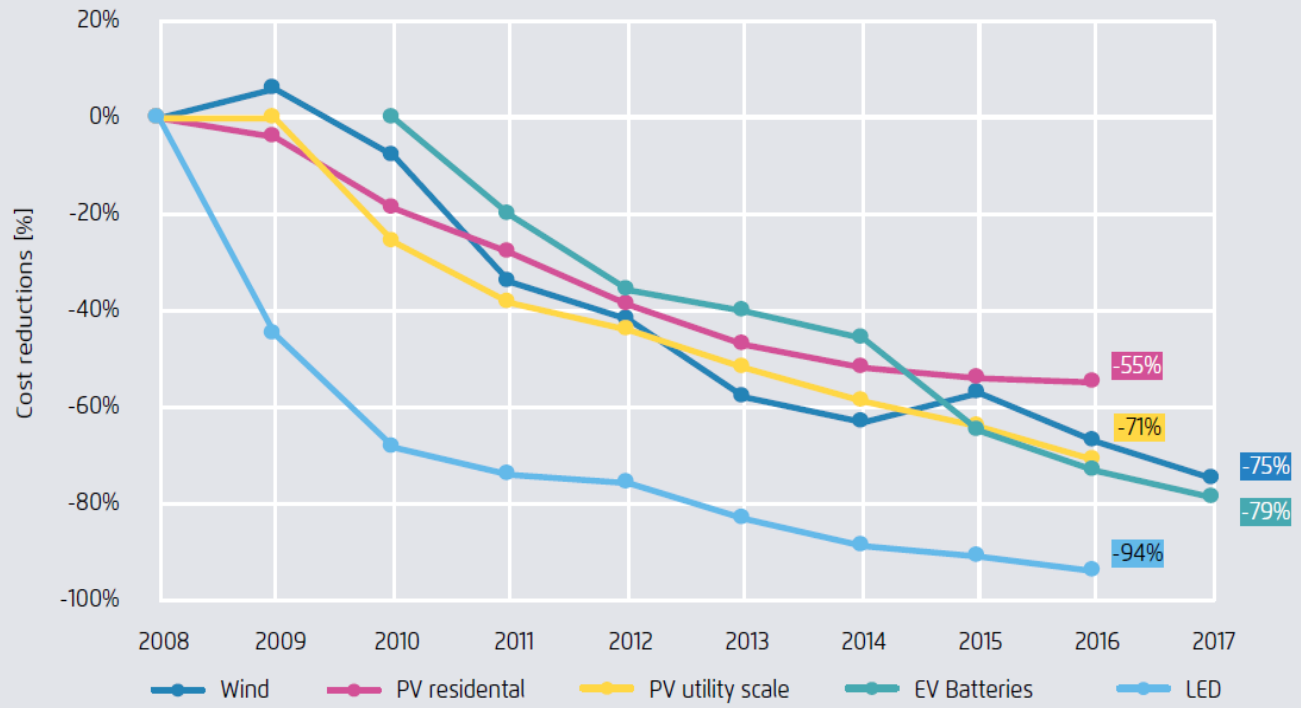
Net electricity generation from wind and solar (in TWh) from 2010-2018 and in select Commission scenarios




Agora Energiewende & Sandbag (2019); European Commission (2018); European Commission (2019)

# **Clean energy solutions have seen significant cost declines**
Wind and solar are now cheaper than conventional and fossil technologies

Cost reductions in major clean-energy technologies from 2008–2017 Figure 3

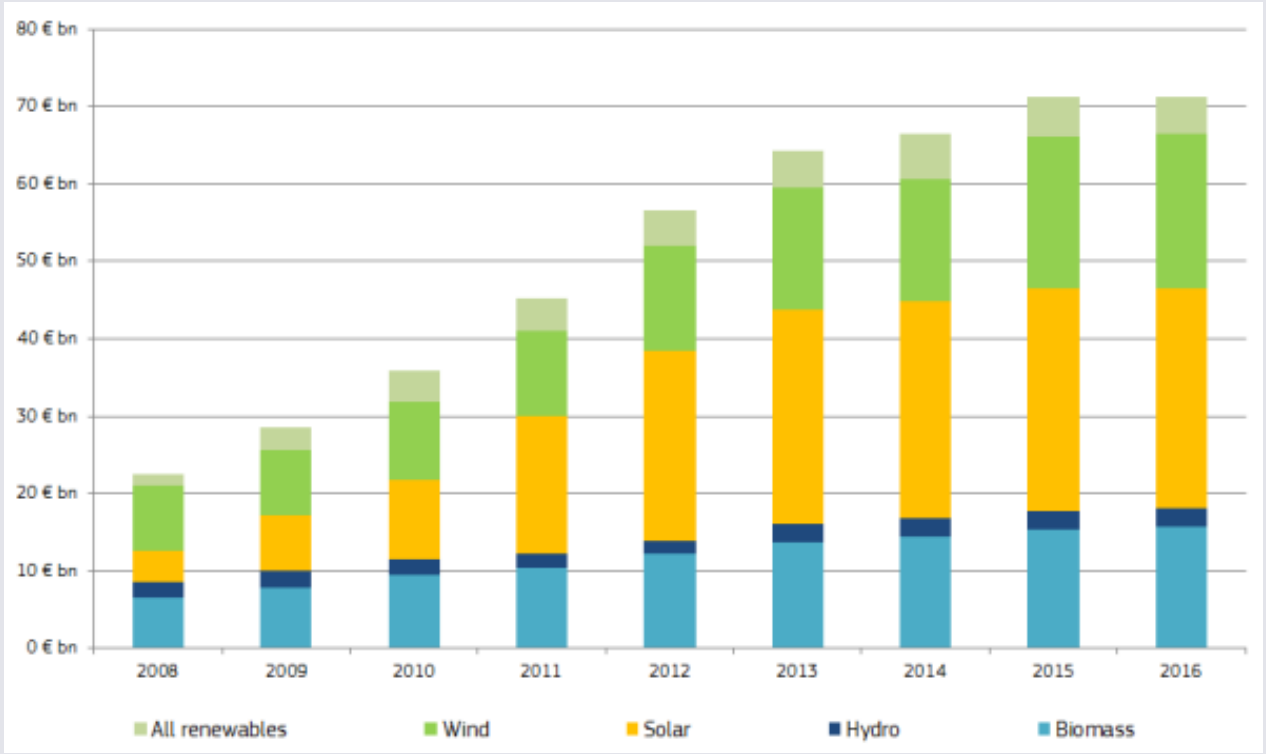



NRDC (2018) Revolution now

- The cost for wind and solar power has fallen dramatically over the last decade: new wind and solar plants are now cheaper than any other new built power technology
- Over the next decade, *new* wind and solar plants will become cheaper than operating *existing* coal and gas plants

# Despite or because of these cost declines, RES support is still treated as costly, inefficient or standing in conflict with other objectives

Support to renewable energy sources in the EU Member States

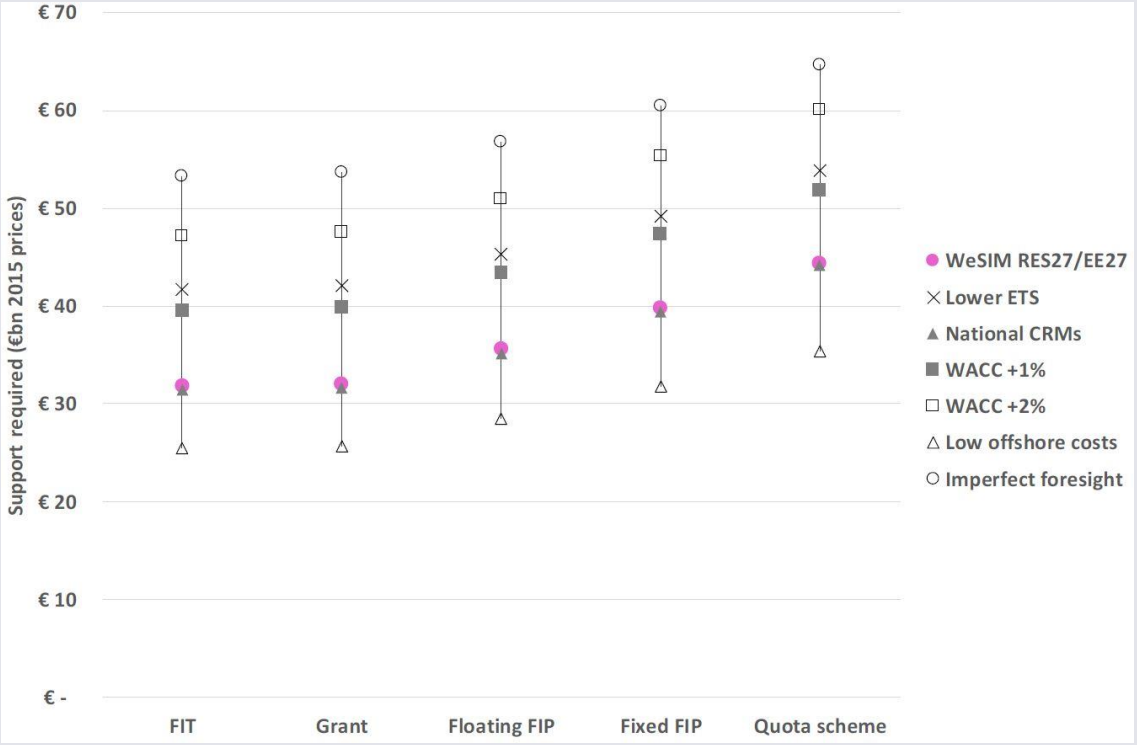



DG ENER, data from Trinomics et altri study (2018)

- According to the State Aid Scoreboard, in 2018, Member States spent €97 billion on State aid. About 58% of total spending was attributed to State aid to environmental and energy savings, largely due to support for renewable energy sources (including energy tax reductions for energy-intensive users)
- According to CEER, in 2016, total supported renewable electricity reached 538 TWh, accounting for 16,7% of gross electricity production and costing €56.8 billion in support expenditure.
- A study for DG ENER estimates support for RES at €71 Billion in 2016.

# The Commission‘s Impact Assessment on the CE4All-Package lists preconditions for a market–based financing of renewables

**Funding gap between 2020-2030 for RES investments in €bn (2015 prices) by sensitivity under a 27% RES target**




Source: CEPA (2017) Supporting investments into renewable electricity in the context of deep market integration of RES-e after 2020

1) continued decrease in technology costs,

2) the availability of (reasonably cheap) capital,

3) social acceptance,

4) sufficiently high and stable fossil fuel prices,

5) addressing the current surplus of carbon allowances,

6) reducing the occurrence of negative market prices,

7) reducing balancing costs for renewables producers,

8) bringing additional revenues to RES producers in balancing and ancillary services markets,

9) ensuring a timely and sufficient deployment of all sources of flexibility to limit the renewables “cannibalization effect”,

10) and electricity overcapacity effectively exiting the market

*Source: RED Re-Cast IA*

# Targeted support to develop renewable energy sources remains important to meet EU climate & energy targets; unless there is a fundamental change in the market environment

- To achieve the EU climate and energy targets governments must create enabling conditions that address key market failures and challenges to low-cost renewable energy investments, including:
  - The lack of an appropriate **carbon price**
  - The need to bring **immature renewable energy technologies** to the market
  - The need for **revenue stabilization** in electricity markets designed for fossil-fuel plants
  - **Financing risks** linked to the capital intensity of renewable energy investments
  - The need to more than double annual **renewables deployment** towards 2030
- This will require a combination of both **regulatory reforms** (eg. permitting, grid connections) and, where appropriate, **state aid** in the form of **support schemes for renewable energy sources**.

# Assessing the EU State Aid Guidelines on aid for renewable energy sources

# Background: The 2014 EU State Aid Guidelines

- While the Guidelines enable Member States to use renewable energy support schemes to meet their renewable energy targets, they also introduce substantial restrictions aimed at better integrating renewables into the internal electricity market by making them more responsive to competition and market price signals.
- While reforms associated with these changes have partially helped to address concerns that poorly designed support for renewables may lead to overcompensation and inefficiently functioning energy markets, they have also been criticized for being overly restrictive, potentially limiting deployment and reducing the involvement of small-scale actors and citizen energy.
- In view of the upcoming revision of the State Aid Guidelines for the period post-2020 it is important to reflect on whether and how the Guidelines on support for renewable energy sources have contributed to or complicated EU efforts at decarbonisation.

# Topics selected for discussion - Overview

- **Competitive bidding procedures**
- **Technology neutral auctions**
- **Cross-border opening of support schemes**
- **Small-scale installations and energy communities**
- **Other**: negative prices; repowering; storage; measures to deal with unsubscribed auctions

- Reductions from support charges for energy intensive users will be discussed during the workshop on Industry Decarbonisation (December 2019)

# Competitive bidding procedures

# Description of compatibility rules in the Guidelines

- **Feed-in tariffs must be progressively replaced by premiums** granted pursuant to competitive bidding processes with the aim of increasing the cost-effectiveness of renewable support schemes and limiting their perceived distortions of competition.
- After 2017, these procedures became, **in principle, the compulsory** approach to granting support for all installations unless a Member State demonstrates that an auction would lead to sub-optimal outcomes (e.g. low competition leading to underbidding, risk of overcompensation leading to higher support levels, a risk of low project realization rates).
- Competitive bidding processes must be based on **clear, transparent and non-discriminatory criteria** and be open to all generators producing electricity from renewable energy sources.
- **Exemptions exist** for demonstration projects and small-scale generators.

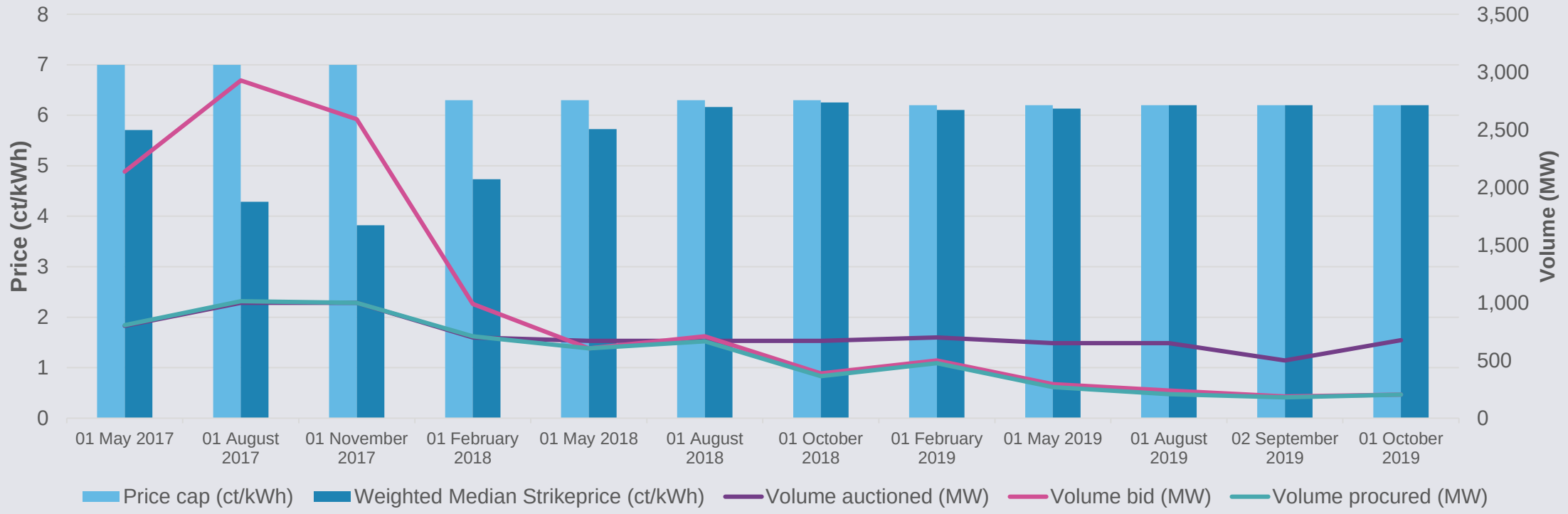
# Relevance of competitive bidding procedures in context of renewable energy

- In the past, administratively set Feed-in-Tariffs were the standard mechanism for allocating support. These **administratively set support schemes** were crucial to developing the wind and Solar PV industries, but were at times slow to react to technological and market developments, in particular in the case of Solar PV, leading to windfall profits and an overallocation of support given.
- **Competitive bidding procedures** in the form of renewables auctions are a market-based allocation mechanism for identifying the most appropriate projects to be constructed within a certain time frame and geographical area and to allocate appropriate support payments to these projects.
- In principle, RES auctions allow for: 1) a competitive and **efficient allocation of support** and 2) **volume control** of RES deployment in order to better control total support expenditure.
- However, RES auctions are **not a 'silver bullet'**: 1) Certain market conditions are necessary for competitive bidding procedures to work efficiently, including sufficient resource and market potential – i.e. **supply must exceed demand**; 2) Least cost may not be the only policy goal of policy-makers and RES auctions are not always suited to deliver **secondary objectives** (eg. actor diversity); 3) **auction design** must address specific characteristics of technology and market.

# Empirical relevance of the compatibility criteria

- Competitive bidding procedures have become the **main tool for allocating support** to RES
- Early experience with auctions in Europe shows they are **able to increase competition and reduce support costs** for renewable energy, including some cases of ‘zero bids’.
- **The transition to competitive bidding procedures has not been straightforward**. RES auction design was regularly adapted to national circumstances or secondary policy objectives, leading to a stop-and-go investment environment. Governments and industry are still in a **learning process.**
- A **robust framework for RES investment** that enables planning and the deployment of supply chains and infrastructure will require greater visibility on the project pipeline and more stable auction conditions. The new **National Energy and Climate Plans (NECPs)** and **Article 15 of the RED II** could strengthen this visibility.
- Some recent wind auctions have been **undersubscribed** and seen rising prices. This is largely due to **regulatory barriers** and **local acceptance issues**, demonstrating the limits of RES auctions and highlighting that **issues beyond price allocation are key to effective renewables deployment**.

## German Onshore Wind Auction Results 2017-2019




Bundesnetzagentur (2019)

# State Aid Case Studies / Examples

- An overview of cases shows **smooth and systematic authorisation** by the Commission
- Member States appear **consistent in their schemes** while being **distinct from each other**
- Member States do not seem to have tried derogating from section 3.3 EEAG…
- …but **make use of all options**: technology specific auctions, exemptions for small-scale & demonstration projects
- Schemes were **regularly amended**, often to move from tariffs to premiums and include other technologies in auctions (not necessarily tending to technology neutrality though)

# Reflections

- **Competitive bidding procedures have demonstrated their ability to efficiently allocate support** under budget and volume limitations to achieve cost reduction.
- The preferable grant of premiums in addition to the market price, instead of feed-in tariffs have helped to better integrate renewables into the internal electricity market in a gradual way by making them **more responsive to market price signals**.
- The State Aid Guidelines have made RES auctions the **standard form of support allocation**, but empirical case studies show that **DG COMP provides flexibility**.
- Experience with the implementation of auctions highlight that they are **not a replacement for a robust enabling framework for renewable energy investments** and, if poorly designed, can lead to inefficient outcomes, reduce investor confidence and undermine renewable energy deployment.
- The **new State Aid Guidelines will need to permit alternatives** (including administratively set support schemes) in situations where reasonable competition cannot be expected, project costs are especially uncertain or policy goals other than lowest cost are being pursued.

# Technology neutral auctions

# Description of compatibility rules

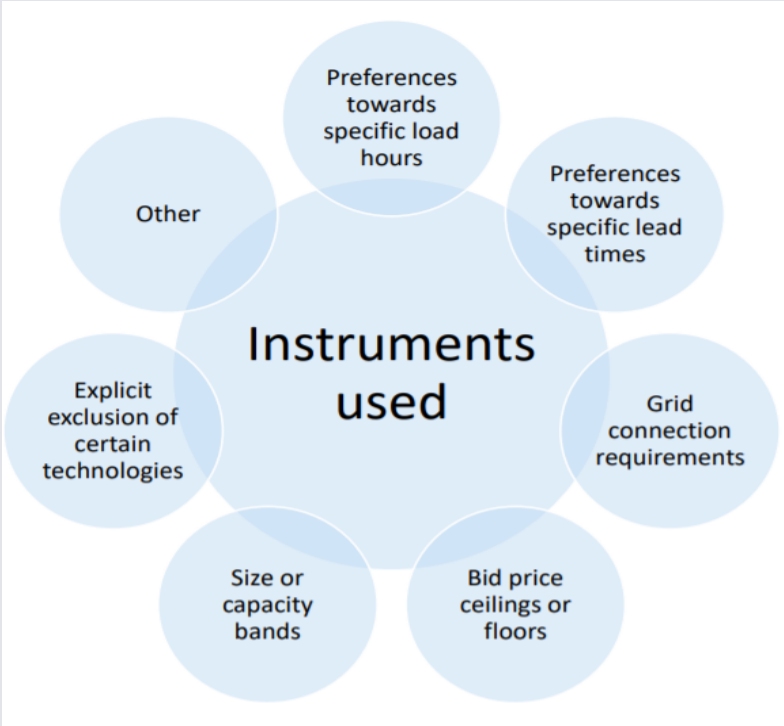
- Competitive bidding processes are to be on the basis of **clear, transparent and non-discriminatory** criteria and open to all generators producing electricity from renewable energy sources on a non-discriminatory basis – i.e. '**technology-neutral**'.
- In a notable exception, the EEAG (para. 126) allow for '**technology specific**' auctions if a 'technology-neutral' approach would lead to sub-optimal outcomes.
- The explicitly named reasons for delimiting auctions to certain technologies are: 1) the **long-term potential** of a new and innovative technology, 2) the need to achieve a **diversification** of sources, 3) **network constraints and grid stability**, 4) **system (integration) costs**, and 5) the need to avoid **market distortions** in the raw materials market for biomass support.
- In order for these exceptions to apply, Member States must carry out a detailed assessment of the applicability of these conditions and submit it to the Commission for approval.
- The principle of technology neutrality and the permissible exceptions have been reaffirmed under Article 4 of the recast Renewable Energy Directive.

# Relevance of technology neutral auctions in context of decarbonisation

- Renewable energy auctions can be **technology-specific**, **technology-neutral** or run as **multi-technology** auctions (also called grouped auction). In general, the basis for this categorization is the resource type (e.g. wind onshore, wind offshore, solar PV) used for electricity generation.
- Technology-neutral auctions are often considered ‘cost-efficient’ because: 1) the **contracted volume per technology is set by the market** and 2) the **liquidity** of the market should be higher.
- By contrast, many Member States have implemented **technology-specific support schemes**.
- Technology-specific support schemes can ensure that a **balanced mix of renewables** with complementary generation profiles (diversification) are deployed in order to achieve **system benefits**. For example, the output of wind and solar power is complementary to each other in many regions of Europe in the short-term (non-correlated generation profiles) and seasonally.
- Therefore, a balanced deployment of renewables may actually **reduce the overall system cost** of variable renewable energy deployment. However, the value provided by this deployment strategy is generally provided at the **system level** and not fully transferred to renewable energy investors.

# Empirical relevance of the compatibility criteria

Deviations from technology neutrality found in existing auctions




Source: ICIS 2019

- Overall, **the number of auctions open to more than one technology has risen** from one in 2015 to 13 across seven countries in 2018 and 18 multi-technology auctions across 11 countries are expected in 2019.
- However, the neutrality of these ostensibly technology-neutral auctions can be questioned.
- Experience with multi-technology auctions thus far shows that a Member States are using **various types of intervention** into auction designs or their functioning.

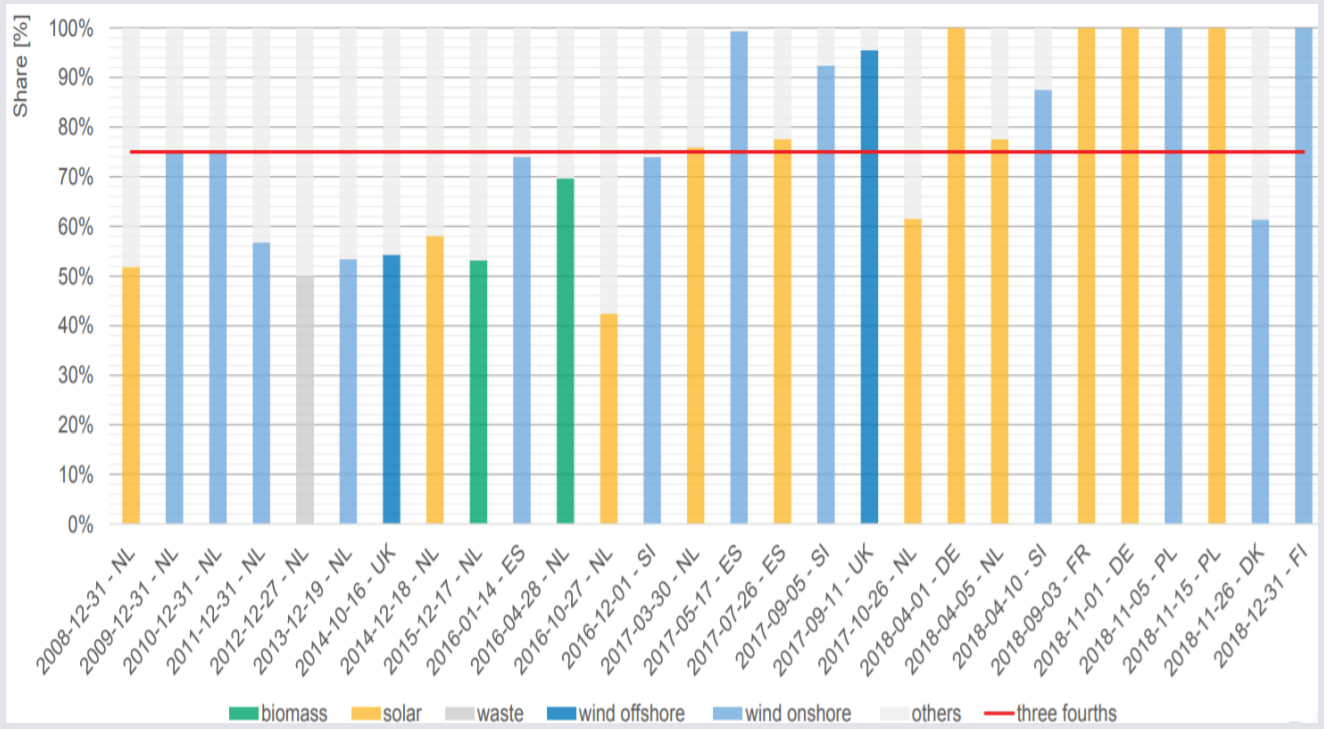
# State Aid Case Studies / Examples

- France (Decision of 27 November 2018):
  - Technology specific for innovative solar PV (Innovation level > 12/20).
  - Justification by diversification and higher costs for solar; costs of PV on buildings is also higher
  - 2 baskets: Innovative ground-based PV of 500 kW-5 MWp / Innovative PV on buildings, greenhouses and agricultural sheds and parking shades of 100 kW-3 MW. All receive a premium.

- Italy (2019-2021):
  - Mature technologies with stable, lower costs (onshore wind, hydropower, sewage gas and solar PV) are separate from other technologies that have higher costs.
  - Justifications: Diversification (NECP); differences of cost structure; different level of deployment and of maturity

# Auction design elements in multi-technology auctions can significantly shape auction results.

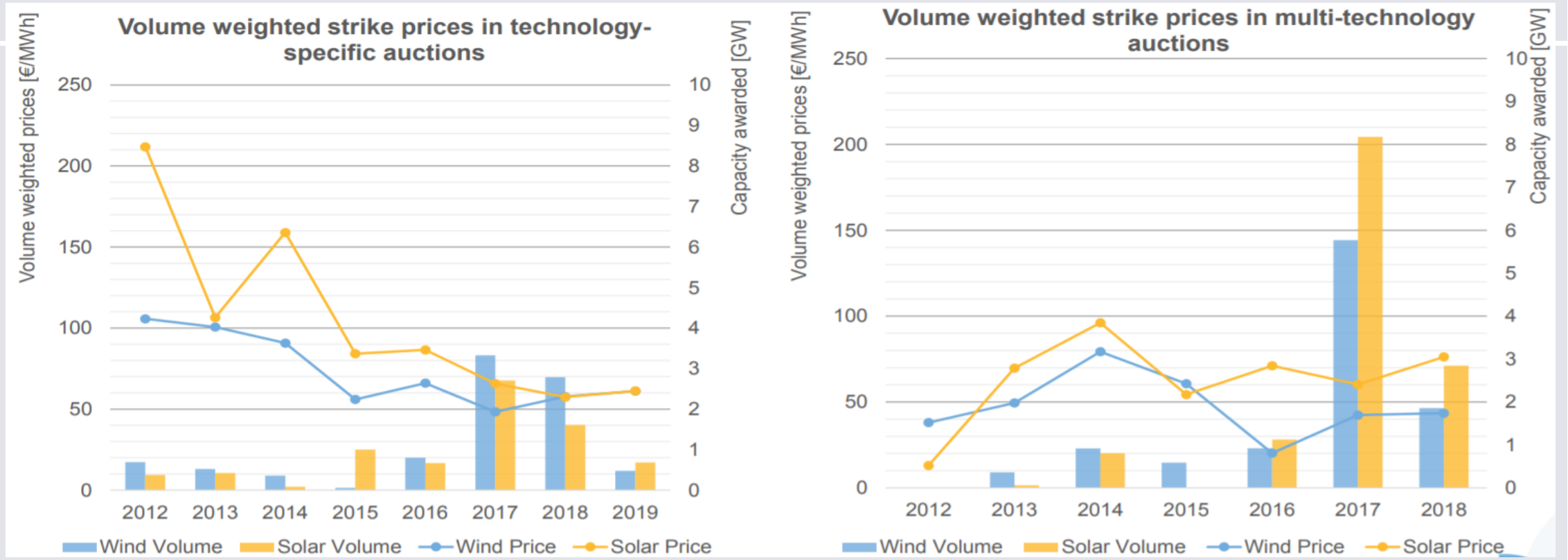
Share of capacity awarded to dominant technology in multi-technology auctions




Source: ICIS 2019

- In roughly half of the past multi-technology auctions, one technology has dominated the auction results by achieving 75% or more of the total awarded capacity. In roughly a third of these auctions one technology was selected for more than 90% of the awarded capacity.
- In some countries these **interventions may be motivated by the need to comply with the State aid rules**, while favoring a technology-specific approach for system efficiency reasons.
- In some cases, **intervention may also be politically motivated**; for example, to protect state-owned energy companies or disfavor certain technologies due to acceptance issues, especially in the case of onshore wind.

# Early results do not support the expectation that technology-neutral auctions are inherently more cost-efficient.




Source: ICIS 2019

## Reflections

- The number of technology-specific auctions show the **relative ease of using the derogations**.
- Member States are currently **experimenting with multi-technology auctions** across the EU.
- Empirical evidence with technology-neutral auctions in Member States suggests **this category of auction may not be inherently more cost-efficient, even from a project specific perspective**. In fact, technology-specific may be more easily adapted to the costs of the different technologies,
- In many cases **technology-specific auctions may actually be more suitable for achieving both static and dynamic economic efficiency**, reducing support expenditures.
- **Should technology neutrality remain the default option?**
- One question for future state-aid decision-making is how the Commission will use national planning for sector-specific decarbonisation set out in the National Energy and Climate Plans. **Will the Commission look to NECPs when assessing justifications of a Member State for technology-specific auctions?**

# Cross-border opening of support schemes

# Description of compatibility rules

- Under Paragraphs 109 and 122 of the EEAG, **the Commission encourages the Member States to open their support schemes** to renewable energy installations located anywhere in the EEA and Contracting Parties of the Energy Community.
- Both the current and the recast **Renewable Energy Directive** include **cooperation mechanisms** to "facilitate" cross border support for achieving national targets – but "without affecting national support schemes in a disproportionate manner".
- At the same time, Member States may choose to **restrict participation** in their auctions to domestic production for so long as there is no cooperation mechanism in place that would allow production from installations in other countries to count toward their national target under the Renewable Energy Directive (para. 122 EEAG).

# Description of compatibility rules (2)

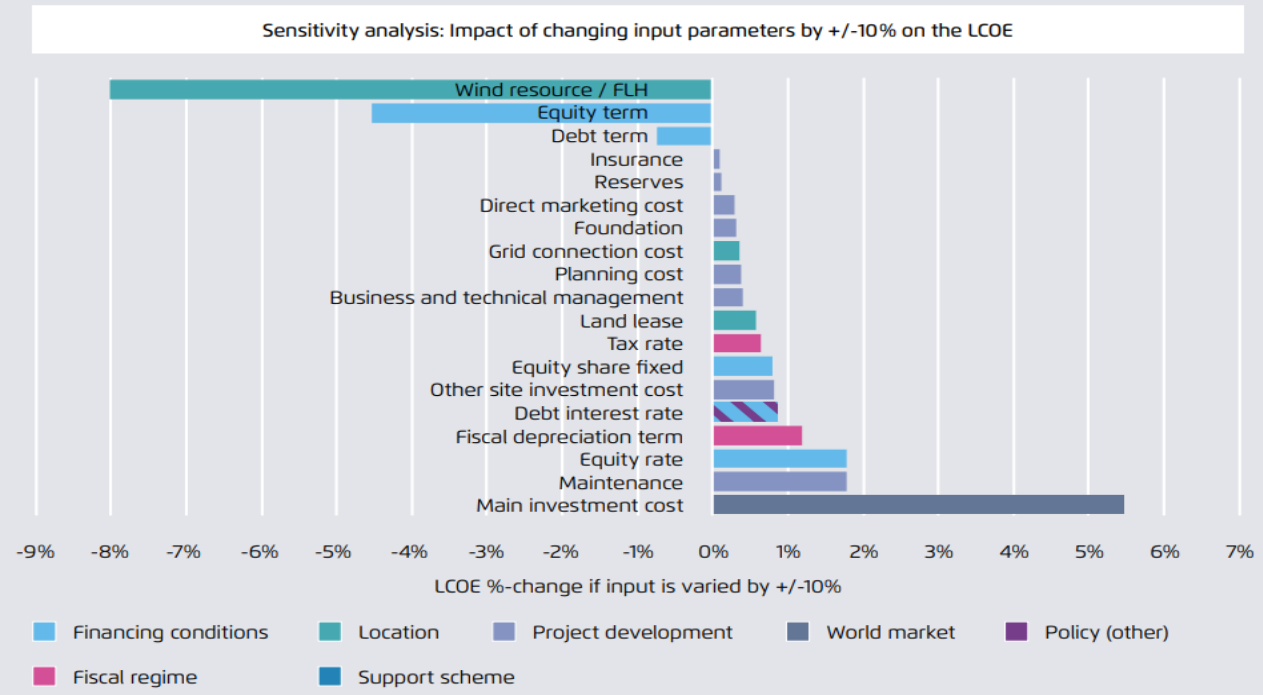
- The **recast Renewable Energy Directive** for the period 2021-2030 codified the existing framework under **Article 5** on 'Opening of support schemes for electricity from renewable sources'. This Article indicates that Member States have **the right** to open their support schemes to producers located in other Member States and provides indicative shares of at least 5% from 2023-2026 and 10% from 2027-2030, but also:
  - explicitly formulates this right as a **voluntary measure ('may')** as opposed to an obligation;
  - allows Member States to prove **physical import of electricity** from renewable sources;
  - allows Member States to restrict participation to producers in Member State with which there is a **direct connection via interconnectors**; and
  - **requires cooperating Member States to agree on the principles** of such participation that covers at least the principles of allocation of renewable electricity.

# Relevance of cross-border opening of support schemes in context of decarbonisation

- In theory, a cross-border approach to developing renewables should allow Member States to better harness renewable resources, and thus reduce RES support costs by 1) **reducing fragmentation** of the internal market, 2) **minimizing overall costs** of achieving national renewable energy targets and 3) providing Member States with an **additional incentive** to exceed their targets.
- R**esource availability is what has traditionally fuelled arguments** for a regional or even EU-wide allocation of renewables, i.e. building wind plants where wind speeds are highest and PV plants where solar irradiation is most intense. These resource related factors critically affect the project cost (Levelised Cost of Electricity, LCOE) of RES projects.
- However, this view **neglects the economic effects of different policy and regulatory environments** on RES deployment costs.
- To ensure least cost renewables deployment, policymakers should strive to make the best use of existing resource and market conditions, while also calibrating their national and local policy, regulatory, and contract designs to **reduce investment risks.**

# Taken together, the national policy and regulatory environment can have a greater effect on the cost of renewables than natural resource availability (Study on Pentalateral Forum)

Correlation of input parameters with LCOE when applying a +/-10% sensitivity*

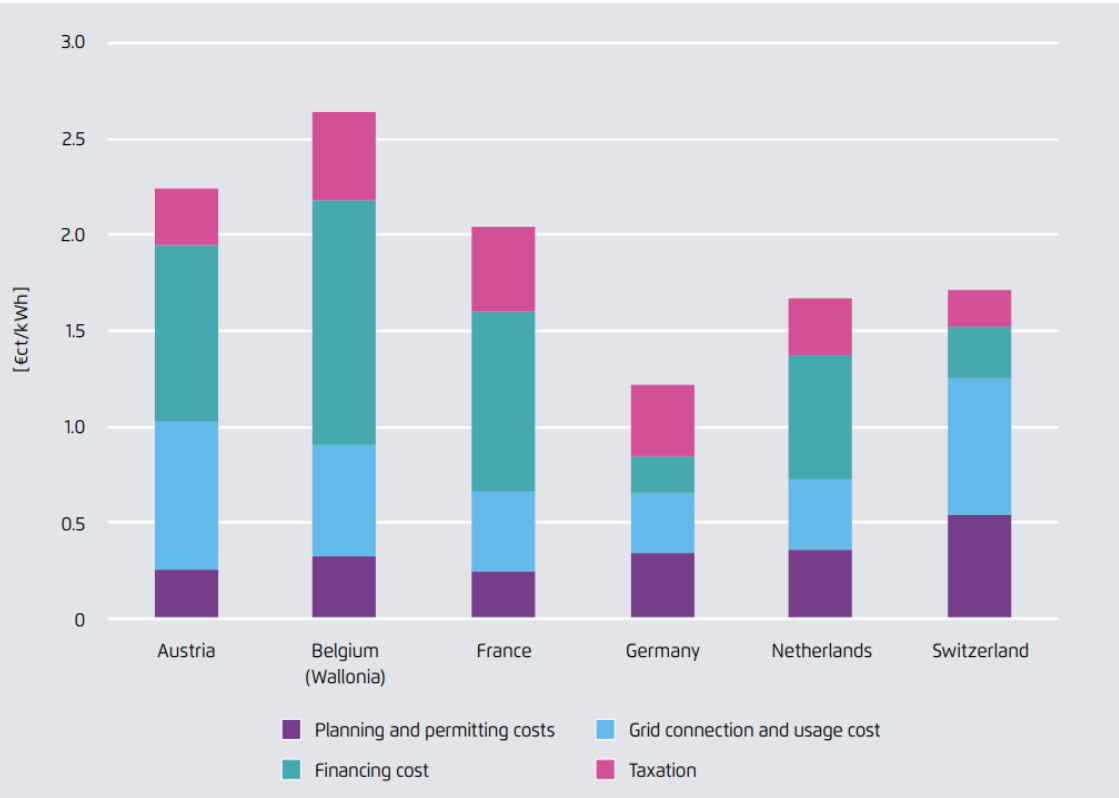



Ecofys (2019) *in reality the variation in input parameters deviates more

- A 10% increase in wind resource availability, represented by the annual full load hours, decreases the LCOE of onshore wind by 8%.
- Cumulated cost effects from national regimes on planning, permitting, grid connection and usage, taxation and financing range from 12 EUR/MWh in Germany to 26 EUR/MWh in Belgium. A wind park in Belgium would need to have 20% more full load hours than a German wind park to equalise these effects.
- These calculations are based on a reference project that consists of of six 3 MW wind turbines, each with a generation potential of 3,000 full load hours per year and a main investment cost of 1,200 EUR/kW. Taking into account all relevant capital and operational expenditures, fiscal regimes and financing costs, the LCOE is 79.60 EUR/MWh."

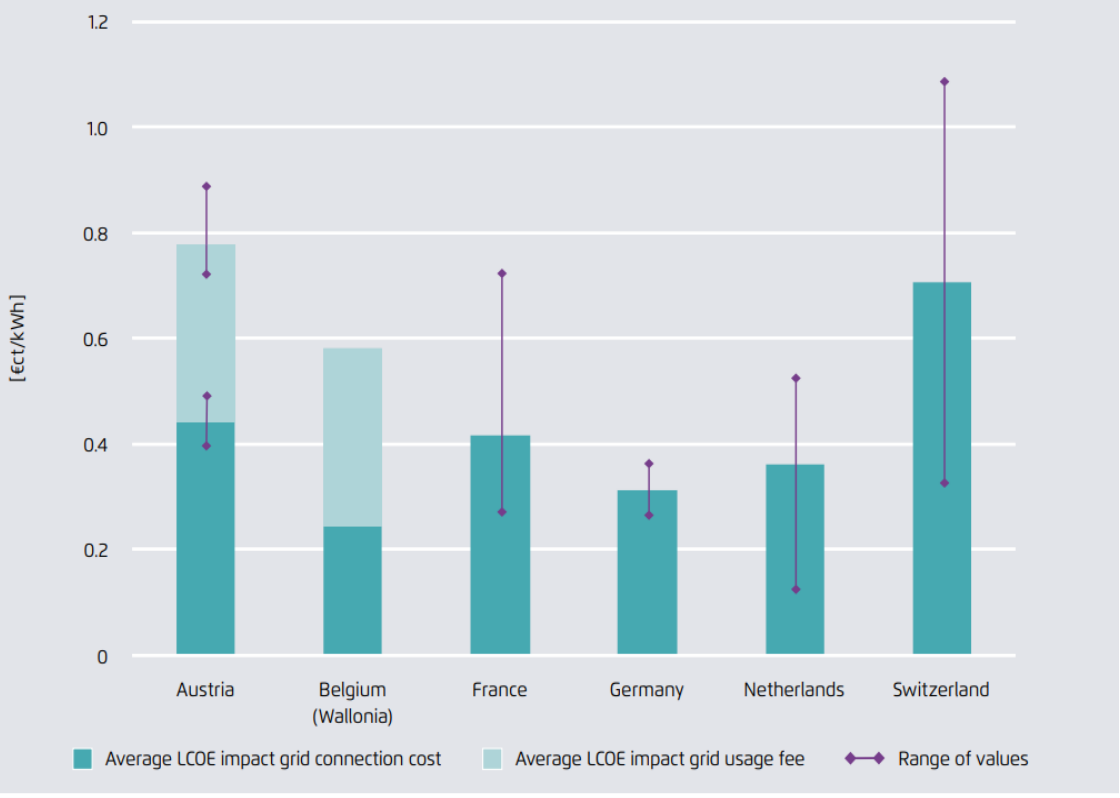
# Broader regulatory conditions impacting on cross-border cooperation require much more attention in political and legislative debates

Combined effects of analysed factors on the LCOE. Figure ES2




Ecofys

Average costs of grid connection and grid usage. Figure ES3




Ecofys

# State aid case studies / Examples

- Cases
  - DK (Tenders 2015-2016): Open up 6% of the tendered capacity or up to 2.4 MW, for EEA countries; subject to a cooperation agreement and possibility of physical imports.
  - DE (EEG 2017): Open up tender for at least 5% of the installed new capacity for operators established in other Member States: subject to a cooperation agreement, reciprocity and possibility of physical imports.

- Assessment under Articles 30 and 110 TFEU
  - “If domestic electricity production is supported by aid that is financed through a charge on all electricity consumption (including consumption of imported electricity), then the method of financing, which imposes a burden on imported electricity not benefitting from this financing, risks having a discriminatory effect on imported electricity from renewable energy sources and thereby violate Articles 30 and/or 110 of the Treaty.” (DK case)

# Empirical relevance of compatibility criteria

- So far, the cooperation mechanisms introduced by the Renewable Energy Directive 2009/28/EC, and the opening of support schemes specifically, have only been used in **very few cases** due to their **technical complexity, related transaction costs** and a **lack of political will** by the Member States. These cases are the Swedish-Norwegian Joint Support Scheme, the German-Danish cross-border PV auction and statistical transfers between Luxembourg and Lithuania/Estonia.
- The joint cross-border auction between Denmark and Germany in the fall of 2016 represents the only recent empirical case of the opening of a renewable energy support scheme, and the only one with regards to the opening of an auction scheme. **The cross-border auction for solar PV resulted in all winning bids being located in Denmark.**
- Better resource potential was only one of many local advantages for solar PV projects in Denmark. Other reasons were related to **differences in regulatory conditions**, which lead to lower land lease costs in Denmark (in Denmark solar PV projects can be developed on agricultural lands whereas German site restrictions forbid such development) and a **slightly lower tax burden**. Competition in Denmark was also stronger due to a **lack of alternatives for project support**.

## Reflections

- Cross-border renewables cooperation should include dialogue addressing cost impacts resulting from different regulatory conditions. An **assessment of the effects of regulatory conditions** on RES project costs and cross-border cooperation should inform the revision of the EEAG.
- For some regulatory conditions, governments and regulators may agree on a gradual convergence towards recognised best practice. For others, convergence may not be feasible or desirable, particularly where these reflect broader political priorities outside renewable energy.
- Here the focus should be instead on **how to account for such differences** or for the resulting competitive effects in auction design, eg. through a **bonus-malus system**, adjusting the bid levels to reflect differences in national regulation could be considered to level the playing field. The permissibility of these option may need to be reflected in the revised EEAG.
- How will these issues be dealt with under the **EU financing mechanism (‚Gap Filler')**?
- Do/will Member States need to extensively **justify** *not to open* schemes to foreign installations?
- Will they be allowed to **cherry-pick** (EEA countries, other Member States, neighbours…)?

# Small-scale installations and energy communities

## Description of Measure

- Paragraph 125 EEAG provides that **installations that have an installed electricity capacity of less than 500 kW** – the threshold being a capacity of **3 MW or 3 generation units for wind** – remain **eligible to receive feed-in tariffs instead of premiums**;
- Paragraph 127 EEAG provides that installations with an installed capacity of less than **1 MW (or 6 MW or 6 generation units for wind) may be exempted from participating to competitive bidding processes**. For the purposes of calculating the maximum capacities, installations with a common connection point to the electricity grid are considered as one installation (GBER Article 42).
- While most of the support schemes have made use of the maximum thresholds defining small-scale generation, some **Member States have not used the derogations to their full potential**.
- The revised Renewables Directive maintains that exemptions from direct marketing and participation in tenders should be allowed for small-scale operators "*in order to take into account their limited capabilities*" (Preamble/Article 4). However, the Directive does not propose a threshold nor recommends an increase or decrease of the current ones; it leaves it to the Commission on the basis of its exclusive competence to assess the compatibility of support schemes with State aid law.

# The Clean Energy Package grants new recognition and legal rights to self-consumers and energy communities

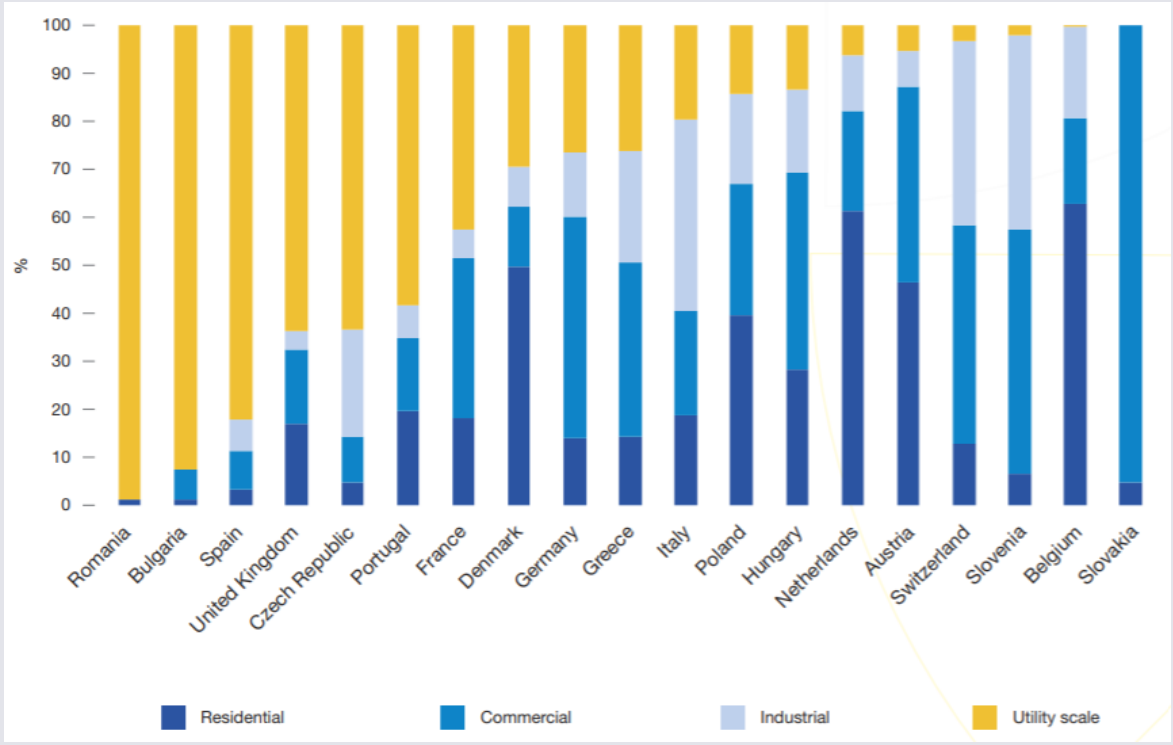
- Under **Article 2** (‘Definitions’), **Article 21** (‘Renewables self-consumers’) and **Article 22** (‘Renewable Energy Communities’) of the newly recast Renewable Energy Directive, as well as **Article 2** (‘Definitions’), **Article 15** (‘Active Customers’) and **Article 16** (‘Citizen Energy Communities’) of the Electricity Market Directive, the EU has taken an important step in codifying legal rights with regards to the role of local actors.
- The **RED foresees that Member States provide an enabling framework to promote and facilitate the development of Renewable Energy Communities**, including by taking “into account specificities of renewable energy communities when designing support schemes in order to allow them to compete for support on an equal footing with other market participants.”
- Under the RED Member State must also put in place an **enabling framework for RES self-consumers**, who (**below 30kW**) are also entitled to generate renewable energy without discriminatory procedures and charges, to receive remuneration (including, where applicable, through support schemes) and operate electricity storage systems without double charges. The installation may be owned or managed by a third party according to the consumer's instructions.

# Relevance of small-scale installations and energy communities in context of decarbonisation

- Wind and solar projects often face significant **local opposition and state regulatory action**. The result has been a significant slowdown or even stagnation of RES development (esp. onshore wind) at a time when the speed of deployment must increase significantly.
- Some of the common legal arguments raised against the installation of wind or solar power premises relate to noise and/or visual nuisances, damages to protected areas (e.g. Natura 2000 sites), use of cultivable lands, affect on wildlife, biodiversity, flora and fauna, or interferences with networks.
- **Social acceptance is a major investment risk** for renewable energy investments, especially during the planning and development phase of a project and with regards to local populations directly impacted by renewable energy projects (aka. the NIMBY effect).
- Small-scale installations also tend to result in a better geographical dispersion of projects, greater proximity to loads and fewer concerns regarding environmental impacts.
- Project ownership by local stakeholders can also increase the social acceptance of RES. This can take the form of **financial participation** or **full citizen participation in and ownership of renewable energy projects** (eg. individual or collective ownership of RES installations).

# Empirical relevance of the compatibility criteria – Small-scale renewables

EU Solar PV capacity until 2017 for selected countries




SolarPower Europe (2018)

- The picture for small-scale installations is heterogeneous in Europe. Less than half of the solar capacity in 2017 was residential (26%) or commercial (18%) rooftop solar.
- Small commercial & community projects tend to be naturally disadvantaged in auctions, since many of the associated transaction costs are independent of the project size and a tender process creates an inherent remuneration uncertainty that small actors cannot bear at reasonable costs.
- **Residential rooftop PV projects comfortably fall under the EEAG thresholds** and new rights to self-consumption could move forward the tipping point at which **grid-parity** for self-consumption is reached in different markets.

# Small-scale projects – cases and reflections

- Member States do not always make use of the full potential of thresholds for small-scale installations
  - IT (2019-2021): small-scale below **250kW** can choose to receive a tariff.
  - DE (EEG 2017): installations below **100kW** receive a tariff and installations up to **750 kW** (**150 kW** in the case of biomass installations) are exempt from the auction scheme.

- What about the thresholds:
  - Are they still necessary?
  - Are they still adequate?

# Empirical relevance of the criteria - Renewable Energy Communities

- **RECs often experience distinct difficulties compered to other actors** due to their characteristics, including the inability to hedge risk across multiple projects in a portfolio, the reliance largely on finance from risk-averse local members (households and small businesses), less efficient democratic decision-making structures, and the frequent use of non-professional project developers.
- As a result, the **transition from FiT to competitive bidding has led to a significant decrease in the participation of genuine RECs** by making it harder for them to obtain finance and pushing them out of the market. The existing EEAG also prevents Member States from providing FiTs to medium-sized projects due to the EEAG thresholds, while the scale of installations owned and run is increasing. Thus, **the thresholds for small-scale installations may not be adequate**.
- So far, member state **legislation on energy communities is heterogeneous and not very advanced**. This should change with the implementation of the Clean Energy Package.

# Energy communities – cases and reflections

- DE (EEG 2017): “Special arrangements” made for citizen energy cooperatives (take part in auctions at an earlier date; pay-as-clear). Commission: “The effect of this design and the concrete size of the advantage is, however, at this stage unknown.”
- The 2017 German EEG established a definition and special rules for citizens’ energy companies **(‘Bürgerenergiegenossenschaften’)** for onshore wind tenders, which won 97% of successful bids in the first three rounds of bids. However, assessments have shown that only 8 of these projects could be considered a real citizen energy project and the system has been suspended. For solar PV there were no preferential conditions for community projects and RECs are largely not participating.
- GR (2018): the energy community projects that fall under the thresholds (0.5-1 MW for PV and 3-6 MW for wind) will receive their operating aid in the form of a sliding premium. Greece’s objectives: “**maintaining diversity of players** in the PV and wind sectors and significantly **improve local acceptance** of RES.

# Reflections

- **The exemption rules laid down under para. 125 and 127 EEAG remain necessary** for the encouragement of small-scale installations and energy communities.
- At the same time, **existing schemes using the exemptions have not properly addressed the particular situation of energy communities** to ensure their fair treatment, as now required under the new Renewable Energy Directive.
- **Are Renewable Energy Communities sufficiently different** from other commercial energy companies as regards non-commercial purpose, unique ownership and governance principles to merit being subject to different rules in the Internal Energy Market?
- **The future EEAG must ensure that Renewable Energy Communities can participate in support schemes** through, inter alia, reduced participation criteria, separate tender processes, or exemptions from tenders, instead providing direct access to feed-in tariffs/premiums; 2) ensure local socio-economic benefits, public acceptance are incorporated into tenders/auctions; and/or 3) allow Member States to set proportionately higher thresholds allowing Renewable Energy Communities to receive fixed Feed-in-Tariffs and to be exempted from competitive bidding.

# Other topics of relevance

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- **Support at negative prices:** Paragraph 124 EEAG provides that "*measures are put in place* [in RES support schemes] *to ensure that generators have no incentive to generate electricity under negative prices*". Are the undesired outcomes (eg. Wind Eclipse phenomenon) worth it, given the EEAG rules don't address the root cause of negative pricing? Is there best-practice approach?
- **Repowering:** Are special provisions under the EEAG needed to incentivize repowering? How can repowered projects best compete on par with new installations in competitive bidding processes or other state aid-compatible systems.
- **Storage:** Hybrid power plants of co-located renewable and storage projects are increasingly feasible from an economic perspective and being discussed in the context of future auction design. This raises the question as to whether owners of existing RES assets should need to reapply to support schemes when adding energy storage and whether rules on competitive bidding processes will need to be tailored to these types of projects to provide a level playing field. Are new rules needed to clarify these issues?
- **Measures to deal with undersubscribed auctions:** Are new EEAG rules needed?

## Thank you for your attention

## Do you have further questions or comments? Please contact us at:

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