Agreed headline targets
2030 Framework for Climate and Energy

-20% Greenhouse Gas Emissions

20% Renewable Energy

20% Energy Efficiency

10% Interconnection

≤ - 40% Greenhouse Gas Emissions

≥ 27% Renewable Energy

≥ 30% Energy Efficiency

15% Interconnection

* To be reviewed by 2020, having in mind an EU level of 30%
The 2020 RES Framework

• **National binding targets** for 2020

• *Member States may apply national measures to achieve national targets*

• **Cooperation Mechanisms** introduced for flexibility of target achievement and to jointly deploy RES cost-effectively
  
  • *Statistical transfers*
  
  • *Joint project between Member States*
  
  • **Joint projects with third countries**
  
  • *Joint support schemes*
Focus on joint projects with third countries

• Article 9 of Renewable Energy Directive

• Allows for one or several Member States to cooperate with a third country, supporting a renewable energy project outside of EU Member States' territory, resulting in (part of) the energy produced accounted towards Member States' 2020 targets

• Only electricity projects are eligible

• Physical import of the electricity into the EU is mandatory
  • Firmly nominated to interconnection capacity
  • Firmly registered in the schedule of balance

• Electricity is consumed in the EU (any EU country)

• Ex-ante + ex-post notification
Implementation of the Cooperation Mechanisms

In the past limited use of the Cooperation Mechanisms...

- Joint certificate scheme between Norway and Sweden (since 2012)
- Discussion on different projects (Helios, Desertec, UK-IE), but projects did not materialize

However, cross-border cooperation is currently gaining more dynamics...

- Mutually opened PV tender in Denmark and Germany (2016)
- Other Member States to partially open support schemes
- Statistical transfers Luxembourg / Estonia and Luxembourg / Lithuania
- Increase use of Cooperation Mechanisms likely to occur towards 2020 (trajectory becomes steeper)
Cross border opening of support through State aid decisions

Why?

- State aid decisions: option to remedy a discrimination under Articles 30/110 of the Treaty (discriminatory charges on goods)
- Cost-efficiency

Who?

- Germany, Luxembourg, Denmark, Estonia, Romania, Greece, Italy, Portugal, Belgium

Conditions?

- Partial volume
- Reciprocity
- Physical import
- Cooperation agreement
First Cross-Border Auctions in Denmark and Germany in 2016

• **Volume**
  - DK: 20 MW PV auction - 2.4 MW opened to DE
  - DE: 50 MW PV auction - fully opened to DK

• **National support schemes applicable to foreign installations**
  - DE: sliding premium
  - DK: fixed premium

• **Location specific aspects apply**
  - Planning and construction rules, taxes and levies, site restrictions, grid connection and curtailment rules etc.
Reviewing the Renewable Energy Directive

2020:
- 20% RES share at EU level
- National binding targets
- Transport specific target

2030:
- At least 27% at EU level
- No national targets
- No sectoral target
Cooperation Mechanisms in the revised RES Directive?

- All cooperation mechanisms are fully maintained post-2020

- But incentive to enter into cooperation will depend on national obligations of Member States!

- Joint projects with third countries: additional criteria of "compliance with international law"?
Mandatory opening of support schemes?

Article 5 of the proposed recast **Renewables Directive**

1. **Member States shall open support for electricity generated from renewable sources to generators located in other Member States** under the conditions laid down in this Article.

2. **Member States shall ensure that support for 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 Member States.

3. [...] **The allocation of renewable electricity benefiting from support [...] shall be subject to a cooperation agreement setting out rules for the cross-border disbursement of funding, following the principle that energy should be counted towards the Member State funding the installation.**

[...]
Mandatory opening of support schemes?

Discussions ongoing in Council and EP:

- Why 10%/15%?
- Link to actual interconnection levels?
- Limit to direct neighbours?
- Voluntary vs mandatory?
- Subject to cost-benefit analysis?

Mandatory opening does not cover third countries, only EU.

BUT nothing preventing EU countries from opening further if they see benefits!
A "financing platform" for filling gaps?

*Article 27 of the proposed Governance Regulation*

**If a Member State does not maintain the baseline** share of energy from renewable sources in its gross final consumption of energy set out in Article 3(3) of [Renewables Directive] from 2021 onwards, the Member State concerned shall ensure that any gap to the baseline share is covered by **making a financial contribution to the financing platform** referred to in point (c) of the first subparagraph.

[...]

**The Commission is empowered** to adopt delegated acts in accordance with Article 36 to **set out any necessary provisions** for the establishment and functioning of the financing platform referred to in point (c).
Overview of renewables-related EU-level policies

"Policy"
- Sectoral legislation
- Competition policy
- Trade policy

"Budget"
- R&D programmes
- EIB, structural funds

Development of renewables

- National binding targets for RES & specific target for RES-T
- Requires national renewable energy action (NREAPs)
- Requires reduction of administrative and regulatory barriers & improved grid access
- Flexibility by facilitating "joint projects" and "statistical transfers"
- Creates a sustainability regime for biofuels
Figure 1: Renewable energy shares in the EU vs. Renewable Energy Directive (RED) and National Renewable Energy Action Plan (NREAP) trajectories (based on EUROSTAT, Öko-Institut)
Renewables deployment in the EU in 2015

Final Energy Consumption in the EU28 in 2015
based on Öko-Institute proxies, statistical transfers and mult. counting excluded in Mtoe

- **non-renewables 83.6%**
- **renewables 16.4%**

- **heating and cooling 92 Mtoe**
  - o/w **18.1%** RES

- **electricity 78 Mtoe**
  - o/w **28.3%** RES

- **transport 15 Mtoe**
  - o/w **6.0%** RES

*Figure 2: final energy consumption in the EU28 in 2015 (source: Öko-Institut)*
Heating and cooling = 18.1% RES share in 2015

Figure 3: EU-28 renewable heating and cooling production by source (source: EUROSTAT, Öko-Institut)
Electricity = 28.3% RES share in 2015

Figure 4: EU-28 renewable electricity production by source (source: EUROSTAT, Öko-Institut)
Transport = 6.0% RES share in 2015

Figure 5: EU-28 renewable energy in transport, by source (source: EUROSTAT, Öko-Institut)
Reviewing the Renewable Energy Directive

- Reaching >27% RES in 2030
- Increasing Renewable Electricity
- Decarbonising Heating & Cooling and Transport
- Empowering consumers
- Strengthening EU Sustainability
- Target Achievement
- Removing administrative barriers
RES-E: Where are we and where do we need to go?

RES-E share of total electricity
A stable framework for support schemes

- Support to be **market-responsive** and **cost effective**
  - Article 4
- **Visibility** for investors (3-year cycle)
  - Art 15(3)
- Gradual and partial **opening to cross-border participation**
  - Article 5
- **Stability** of financial support (**no retroactive changes**)
  - Article 6
Principles for market-based, cost-effective support schemes

**Problem / challenge**
- RES penetration = Increased **cost** of support
- RES penetration = increased impact on **market functioning**
- Investors lack **visibility** over post-2020 framework
- But rapidly changing markets and technologies require dynamic **state aid** rules

**Proposal (Article 4)**
- MS may apply support schemes
- Support schemes should expose producers to market signals
- Support should be granted in an open, competitive and cost effective manner

**Expected impact**
- Increased visibility for Member States and investors
- Further convergence towards market-compatible forms of support (FIPs, certificate schemes)
- Further move towards the use of tenders for allocating support

**Post-2020 EEAG**

= reduced deployment costs!
A gradual and partial opening of support schemes

**Problem / challenge**
- Different support schemes create distortions in the functioning of the internal energy market (investment decisions and dispatch decisions)
- A purely national approach does not allow cost-optimal deployment at EU level – 2030 target may not be reached cost effectively
- National approaches do not allow direct comparison of schemes and framework conditions

**Proposal (Article 5)**
- MS shall open part of newly-supported capacity to installations located in other MS
- Installations in other MS shall be allowed to *participate* or be *eligible* – not necessarily be granted support
- At least 10% opened over 2021-2025, 15% over 2026-2030
- Figures reflect the interconnection targets

**Expected impact**
- Lower system costs of reaching the target (over EUR 1.0 bn / year savings)
- Lower cost for consumers / taxpayers (-4% over 2021-2030)
- Gradual alignment of support schemes, based on best practices (at discretion of MS)
- Reduced distortions in the internal energy market

= better functioning IEM
= reduced deployment costs
A MORE EVEN DEPLOYMENT ACROSS MEMBER STATES IS CRUCIAL

Investments are increasingly concentrated in a few Member States with low cost of capital and policy frameworks perceived as more stable

UK and Germany alone represented over 2/3 of all investments over 2013-2015

Various measures can ensure a more even and more cost-effective deployment of RES across the EU

e.g. Financial instruments tackling cost of capital, no retroactive changes, open up support schemes...

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>EUCO27</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES share in 2030</td>
<td>27%</td>
<td>27%</td>
</tr>
<tr>
<td>Assumptions</td>
<td>National support; diverging cost of capital</td>
<td>EU-wide support; same cost of capital</td>
</tr>
<tr>
<td>RES investments required (2021-2030)</td>
<td>€ 404 bn</td>
<td>€ 240 bn</td>
</tr>
<tr>
<td>Share of top 3 MS in total investments</td>
<td>67%</td>
<td>47%</td>
</tr>
</tbody>
</table>
No retroactive changes

Problem / challenge
- Retroactive / retrospective changes have harmed investors' confidence in several MS
- EC lacked the legal base to act
- High differences in cost of capital jeopardise cost-effective achievement of 2030 target

Proposal (Article 6)
- Level of, and conditions attached to support may not be revised in a way that negatively impacts the rights and economics of projects

Expected impact
- Greater investor's confidence in European support schemes
- More homogenous cost of capital across the EU
- More homogenous RES deployment across the EU

= reduced deployment costs
3-year schedules for investors

Problem / challenge
- Fragmented information available on planned support
- Non-optimised timing of tenders between MS
- Industrial players unclear over medium-long-term supply chain strategy in Europe

Proposal (Article 15(3))
- MS shall ensure that investors have sufficient predictability of the planned support
- MS required to define and publish long term schedules
- At least 3 years, indicative timing, capacity, budget, stakeholders' consultation

Expected impact
- Coordination of support between MS
- Industries building long term RES supply chains for EU projects
- More local investments, jobs and economic activity
- Lower bids / LCOEs

= more jobs and growth
= reduced deployment costs
Streamlined administrative procedures

- One-stop shops
  - Article 16
- Time limits
  - Art 16, 17
- Simple notification for small-scale
  - Article 17
- Simple notification for repowering
  - Article 16
Priority dispatch

Priority Dispatch current law:
Pd for all RES, CHP, some indigenous resources, no definition

Problem: increasing share of PD, no room for market, loss of flexibility incentives

Solution: merit order dispatch, unless...

| Administrative effort | Demonstration project | Grandfathering |
Priority access / curtailment

Priority access current law:
PA for all RES & CHP, no definition

Problem: balancing economic efficiency, secure system operation, and achieving decarbonisation objectives; legal certainty

Solution: clear curtailment rules

| Voluntary & Market-based where possible | Clear curtailment order | Clear compensation | Reporting & Planning, Countermeasures |
### Priority access / curtailment

#### Market-based where possible
- Voluntary offers for being curtailed come first
- Market-based compensation
- But not always possible/sufficient

#### Clear curtailment order
- When non-market based
- First conventional, then CHP, then RES, then self-consumption (no export to the grid)
- Deviation if disproportionate costs or security issues

#### Compensation
- At least 90% of lost net revenues (including subsidies) or additional costs, whatever higher

#### Reporting & planning & countermeasures
- Yearly report by TSO on RES & CHP curtailment & redispatch
- Obligation to aim for minimum curtailment & redispatch
- Right to integrate 5% curtailment in network planning where more efficient
Balancing responsibility

No principle in 3rd package. EEAG requires "standard balancing responsibility" with exceptions

Problem: balancing responsibility is fundamental for flexibility (e.g. aggregation), stable network & liquid short-term markets

Solution: BR for all with possible national exemptions

Administrative effort  Demonstration project  Grandfathering
Impact for investors

What does that mean for investors?

- Full protection of legitimate expectations / grandfathering
- Priority dispatch has little impact on solar and wind running hours due to their position in the merit order (but can have impact on high marginal cost RES)
- Curtailment rules provide clarity and legal certainty, strongly protecting RES and CHP
- Balancing responsibility provides incentives for aggregation and liquid short-term markets
- Stronger intraday & day-ahead markets help renewables to hedge
- RES can capture higher prices when the system is tight, can participate in system services and will be curtailed as a last resort
- Level playing field and strict rules on capacity mechanisms reduce risk for new distortions in favour of conventional generation