eurelectric
powering people

Guide on EU Financing and Funding Instruments for DSO projects

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:
- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

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WG Business Models & Network Customers

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Introduction – Purposes of the guide

Distribution System Operators (DSOs) will face in the coming decade significant amounts of investment to cope with the energy transition, connect electric vehicles and integrate renewables. EU funding can be seen as a potential tool that would decrease the cost of capital for distribution companies to further trigger investments in projects and alleviate the potential increase of tariffs resulting from enhanced investments. It may also bring needed funding in some countries where return on capital is not remunerative enough to attract new investments and speed up the realization of investments where regulatory and financing gaps exist. EU funding could also serve as catalysts to attract further funding from the private sector and other national public sectors stakeholders (public investment banks etc.). Many funds exist today under different forms but analysis is lacking whether funds are adequately used by DSOs and whether they are sufficient.

The EU power sector is now entering a new infrastructure investment cycle with the aim to reach climate neutrality, before 2050. Decisions taken in energy infrastructure investment in the next years will impact the shape of the future energy system for the next two decade. In parallel, the EU institutions are discussing on renewed spending priorities and tools to accelerate the transition to climate neutrality. European financing and funding instruments (Cohesion and regional funds, Connecting Europe Facility, InvestEU, Horizon Europe) are currently under revision as part of the negotiations on the next European budget for 2021-2027. The EIB has also revised its energy lending policy in November 2019 to increase its climate ambition and strengthen support to infrastructures projects. Under the EU Green Deal, the Commission announced in January a Sustainable Investment Plan, aiming at mobilizing 1 trillion of public and private investment capacities toward climate-related projects. A revision of the Trans-European Energy Network Regulation is also underway to align the identification of priority infrastructures projects with the transformation of the energy system.

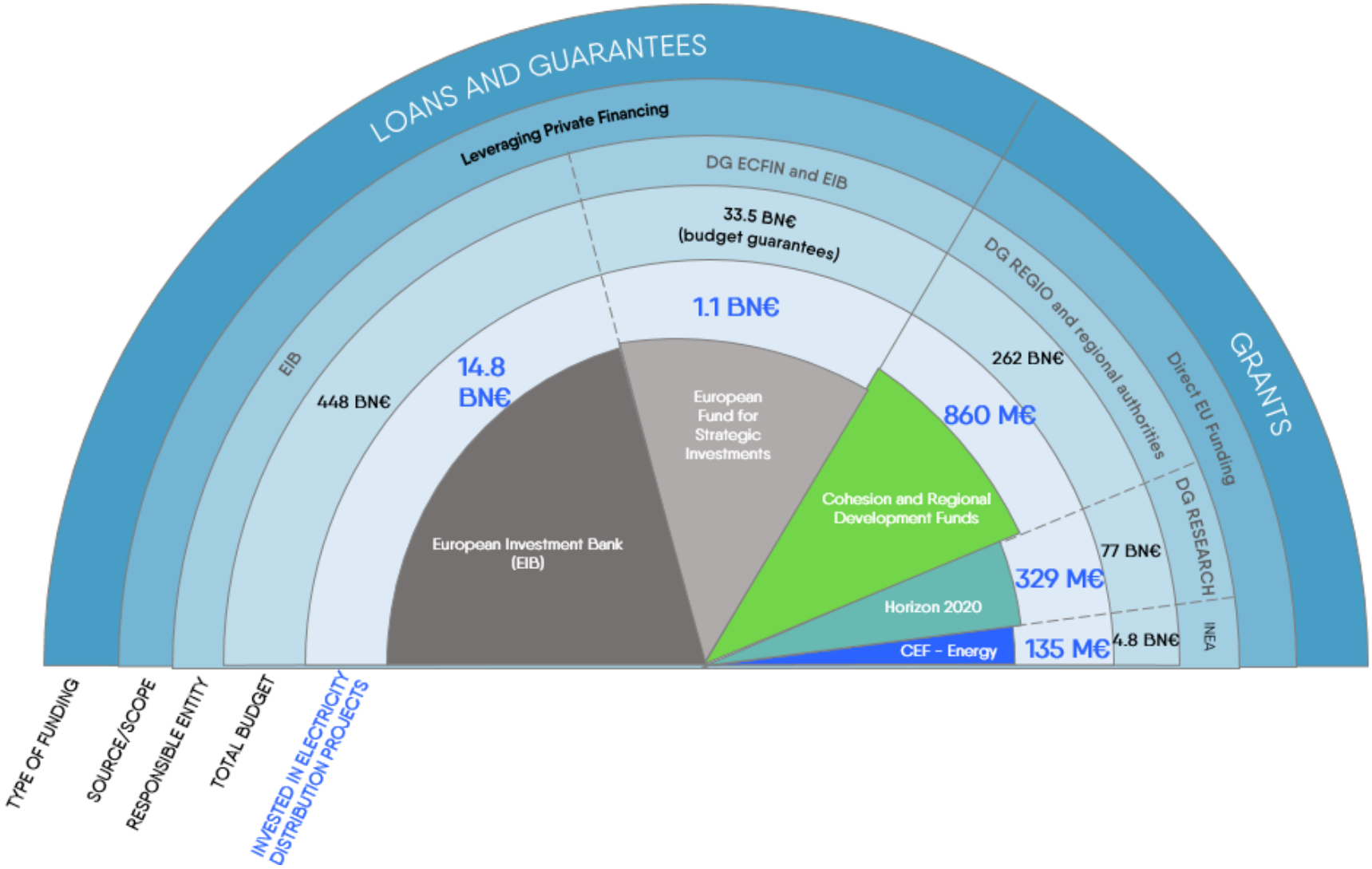
It is therefore a crucial moment to analyze the state of play of European DSO funding and identify the gaps compared to the investments needed for the next decade to achieve the decarbonisation of the power sector and the economy via electrification. Political recommendations could be drawn in order to achieve the full transformation potential of EU funds and prioritize spending to boost the modernization and deployment of grid infrastructure.

This guide aims first to inform Eurelectric members on the EU available funding for their projects, to identify the type of financing tools and the conditions of eligibility (grants, loans or guarantees). The objective is also to raise awareness on the need for better funding of smart distribution grids to achieve the transition towards a net-zero economy.

Summary of accessible instruments for distribution grid projects

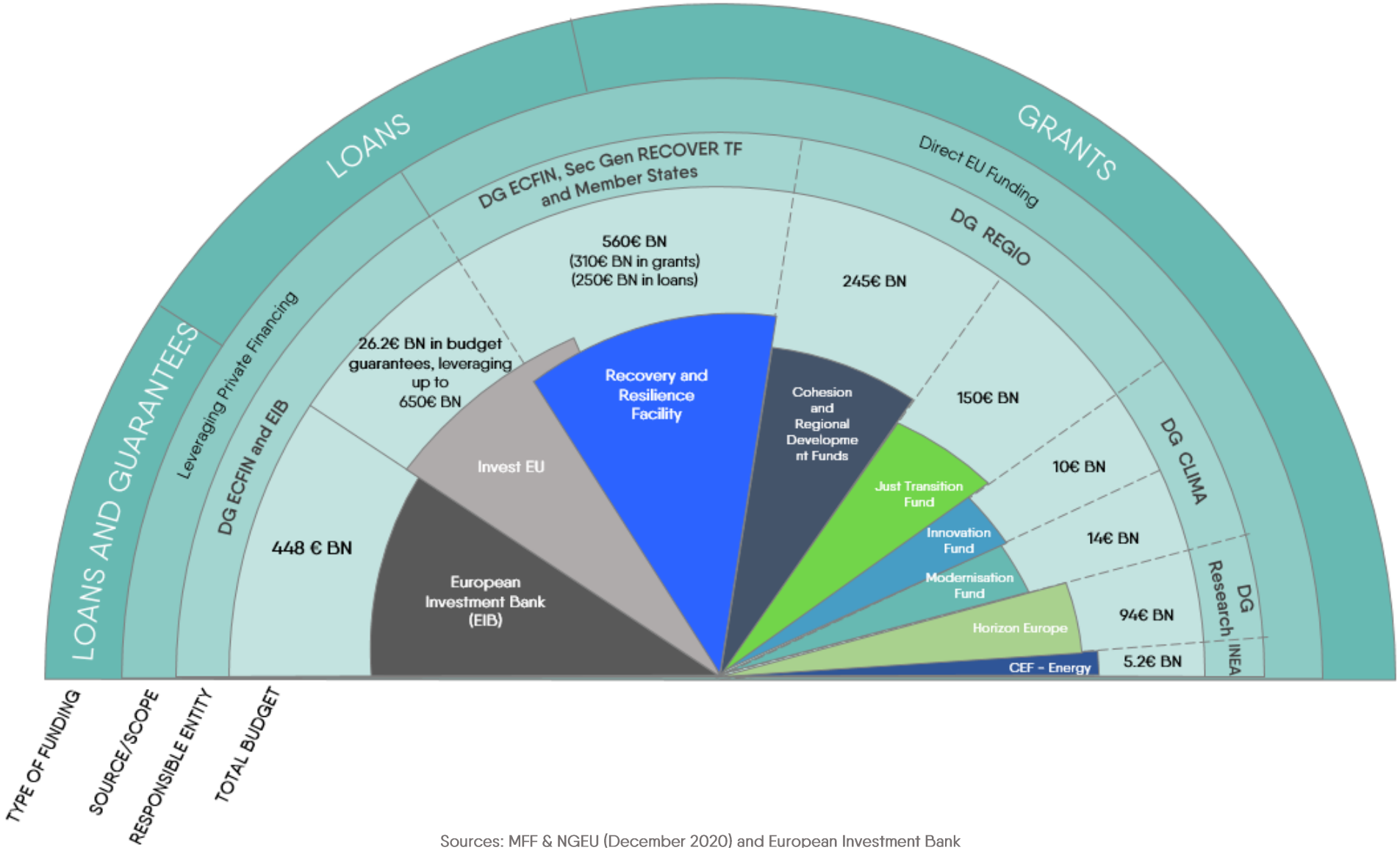
Connecting Europe Facility	Connecting Europe Facility provides **grants** to develop trans-European networks for transport, energy and digital and finance non-viable projects that provide positive externalities. CEF-Energy is mainly financing electricity and gas interconnections. Current criteria for smart grids are very restrictive and funding levels are low: SG projects were granted **135 M€ in 2014-2019, 4% of CEF-Energy budget** (3.7 B€). Examples of projects: studies/ works to build reactive power control, MV interconnections. Rules on the selection criteria are expected to be revised within the upcoming revision of the TEN-E Regulation announced for end of 2020.
Cohesion and Regional Funds	Cohesion and Regional Funds provide **grants** to close the economic and social gaps between member states and between regions. Total budget for 2014-2020 is 262 B€. Funding for energy production and networks represent less than 4% of the budget, and distribution grids were granted **860 M€ (0.3% of the total budget 2014-2020)**. Examples of projects : smart meters, transformers, substations, line upgrades. Allocations to energy sector expected to increase in 2021-2027, following the increased climate ambition (32% of minimal climate-related investments for Cohesion Funds).
European Fund for Strategic Investments / InvestEU	The European Fund for Strategic Investments is a **guarantee** system to attract private investments in activities where the costs or risks are too high. It is usually financing large-scale projects, including for the distribution grid. Energy is an important sector for EFSI (21% of its guarantees). **Electricity distribution networks were granted 1.1 Bn€ of guarantees, 2.3% of the total guarantees**, but it is lower than gas networks funding (2.1 B€). Examples of projects : modernization and extension of networks, roll-out of smart meters, renewables integration in grid. InvestEU will replace EFSI in 2021-2027, with an increased budget and therefore more opportunities for distribution grids.
European Investment Bank	The European Investment Bank provides **loans** to finance large-scale projects, typically more than 25 M€. The EIB is a good instrument for lending to DSOs: **14.8 Bn€ (3.3% of total EIB loans) went to distribution grids since 2012**, more than for transmission grids or gas networks. Examples of projects : refurbish and extend MV and LV networks, EV charging infrastructure, automation and tele-control. The transformation of the EIB into a "Climate Bank", with the end of fossil funding and 50% of climate-related loans, would give more possibilities for loans in distribution grid projects.
Horizon 2020 / Horizon Europe	Horizon 2020 provided **grants** to finance research and innovation projects, mostly at demonstrator level. **DSOs are the first recipient of funding among** the energy network sector. DSO received **327 M€ (61%)** of grants from Horizon 2020 since 2014. H2020 is a good instrument to discover new technologies needed for the new challenges faced by DSOs (renewable integration, flexibility, EV charging optimization). Horizon Europe (which will replace Horizon 2020) will have the same climate spending target (35%) as H2020.

Overview of funding instruments for electricity grids (2014-2020)



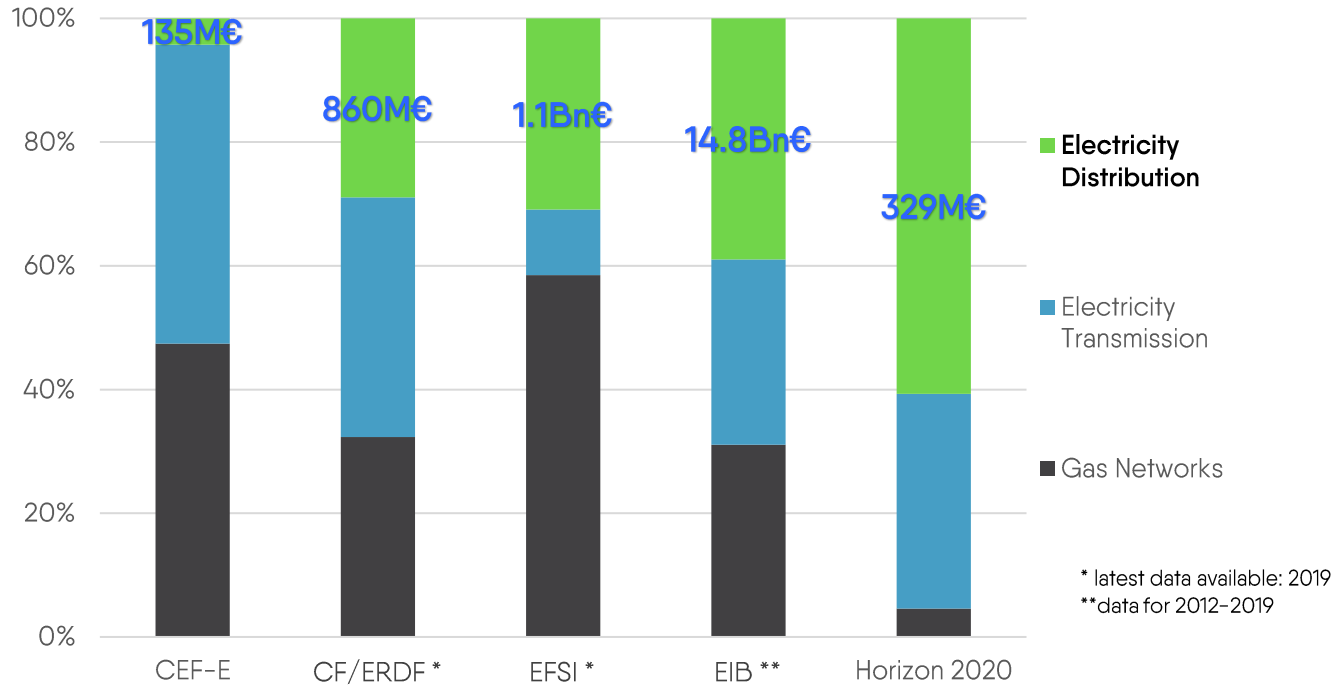
Sources: European Commission and European Investment Bank

Overview of EU funding instruments for electricity projects, including grids (2021-2027)

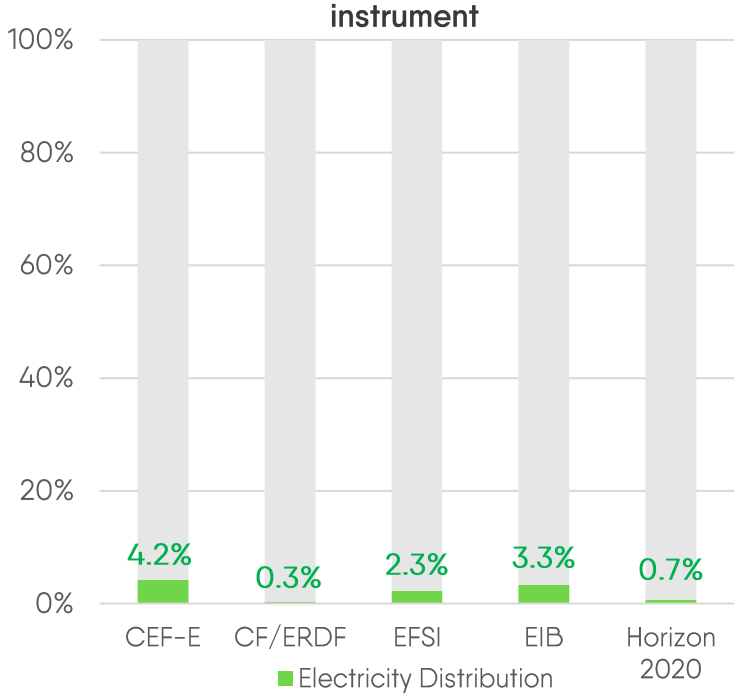


Sources: MFF & NGEU (December 2020) and European Investment Bank

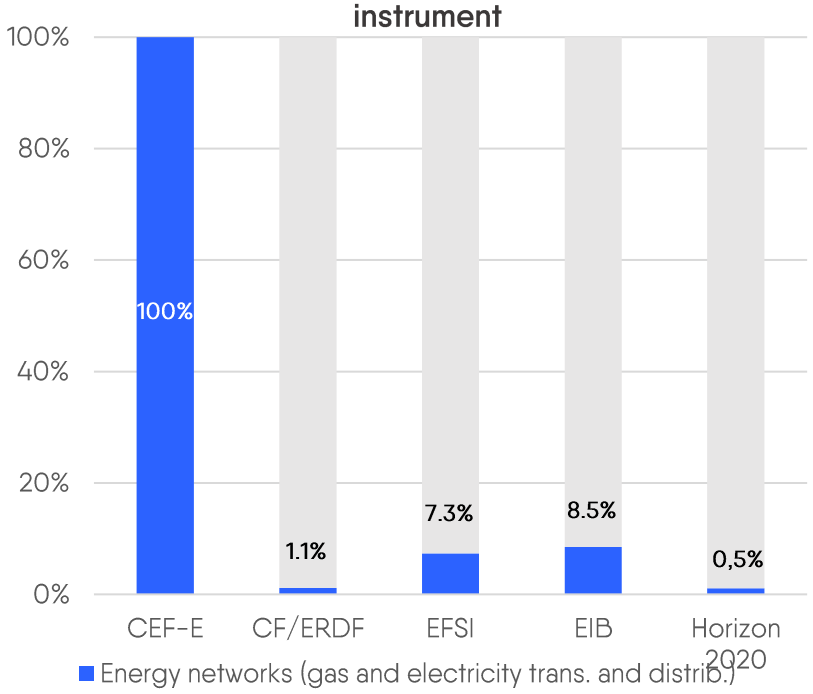
Overview of EU funding instruments for electricity distribution projects (2014-2020)



Share of distribution grid funding per instrument



Share of energy networks funding per instrument



1. Connecting Europe Facility

Connecting Europe Facility provides grants to develop trans-European networks for transport, energy and digital and finance non-viable projects that provide positive externalities. In the energy field, CEF-Energy is mainly financing electricity and gas interconnections. Smart grid projects can also apply but the criteria are very restrictive for the moment and the funding is still low: SG projects were granted **135 M€** in 2014-2019, **4% of CEF-Energy budget** (3.7 B€). Type of projects financed: studies or works to build smart grids (devices for reactive power control, MV interconnections)

i) What is the Connecting Europe Facility?

Connecting Europe Facility (**CEF**) is one of the main EU funding instruments for infrastructure. It **grants** funds to develop **trans-European networks** in the fields of **transport, energy and digital.** CEF was established in 2014 and is in place until the end of 2020[1].

In the **energy** sector CEF-Energy aims at funding infrastructure projects that support interoperability of EU transmission infrastructure, boost the internal energy market and competition, enhance security of supply of the EU and boost integration of renewables and smart grids.

It supports the development of key infrastructure projects which are defined by the Trans-European Networks – Energy (**TEN-E**) **Regulation** (See Annex 1).

- Budget is allocated annually through **annual call for proposals**. Actions and objectives for the year are defined by the Commission in an annual work programme[2].
- The Innovation and Networks Executive Agency (INEA) publishes the call and do the eligibility check and the technical evaluation of the projects. The Commission evaluates the projects and makes the selection, and finally grants are managed by the INEA (See the process in Annex 2).
- On March 18 2020, the Commission has launched the 2020 CEF Energy call for proposals, with a budget of 980 M€.

ii) Overview of the current CEF Energy (2014-2020)

What type of project can be financed? Eligibility criteria

CEF Energy is engineered to finance projects having positive externalities (such as security of supply, innovation and solidarity) but lacking of commercial viability.

Since 2014, CEF-Energy has funded:

- **Electricity transmission networks** (for example, electric interconnection between Nouvelle Aquitaine (FR) and the Basque country (ES), 580 M€, expected in 2024) , the Baltic states synchronization and **storage**
- **Gas networks** (gas interconnection Poland-Lithuania, 265 M€, expected in 2021)

[1] See Regulation No 1316/2013 establishing the Connecting Europe Facility.
[2] See Commission implementing decision No C(2020) 1544 as regards CEF 2020 Work programme and the annex.

- **CO_2 networks**
- **Smart grids**

Key criteria are the complementarity and **EU added value**: only energy projects that are not commercially viable and would therefore not be implemented despite the fact that they provide important socio-economic benefits at macro-regional level.

Eligible energy projects are defined by the TEN-E Regulation [3]: only smart grid projects granted with the PCI label (see eligibility criteria to be a smart grid PCI in Annex 1) can further benefit from:

- Grants for studies (preparatory mapping, feasibility, evaluation and testing studies, site reconnaissance etc.)
- Grants for works (purchase, **supply**, deployment of software, systems, construction, installation services etc. if the following conditions are fulfilled as well:
    - The project generates significant **positive externalities** (security of supply, solidarity or innovation)
    - **Lack of commercial viability**, according to the business plan or other assessments made by investors or the national regulatory authority.

CEF provides also financial instruments – blending instruments combining grants, loans and guarantees in cooperation with the EIB (loans) and the European Fund for Strategic Investment. It provides for instance Debt Instrument or Equity Instrument where private finance is lacking. See more here.

How to apply?

- Information on the CEF Energy 2020 call
- General information

Examples of smart grids projects funded by CEF-Energy

SINCRO.GRID (2016 – 2022): • Between Slovenia and Croatia: two TSOs and two DSOs (SODO and HED ODS) • It received **40.5 M€** from the CEF • **Work** featuring compensation devices for reactive power control, two 5 MW batteries close to substations for electricity storage, a dynamic thermal rating system and a virtual cross-border control center.
Smart Border Initiative (2018 – 2020): • Between France and Germany: two DSOs (Enedis and energis) • It received **1.2 M€** from the CEF • **Study** on a **MV interconnector between FR and DE**, development of a smart grid with a plan for electric vehicles charging infrastructure and flexibility services implementation.

[3] See Regulation No 347/2013 on guidelines for trans-European energy infrastructures, Article 14.

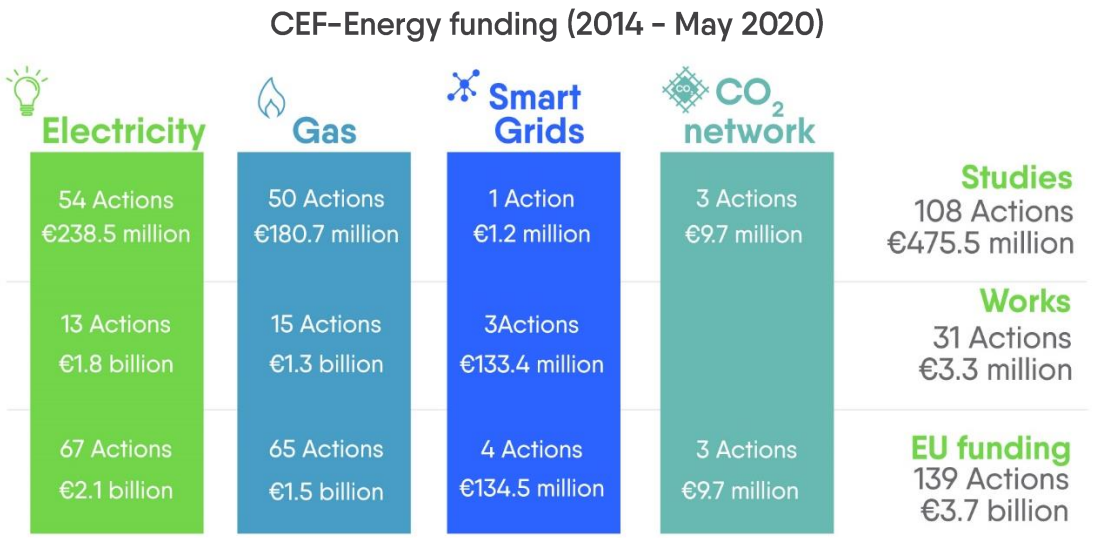
ACON – Smart Grids (2018 – 2024):

- Between Czechia and Slovakia: DSOs (E.ON Distribuce and Západoslovenská Distribučná)
- It received **91.2 M€** from the CEF
- **Work** to modernize and build MV interconnections, improve existing distribution grid and implement smart grid communication technologies such as GPRS (LTE) and BPL.

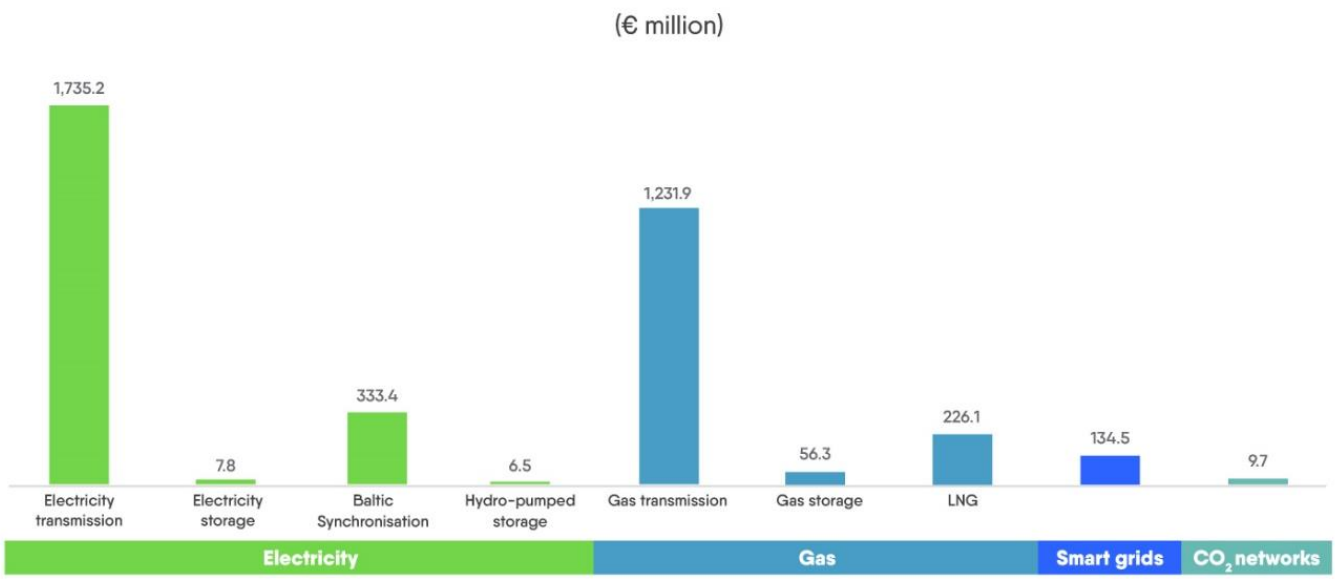
How did the current CEF benefit to distribution grids?

Between 2014 and May 2020, only 3 smart grid projects have benefited from CEF-Energy funding. It funded 1 study and 3 works, compared to 65 gas actions and 67 electricity transmission actions.

Smart grid projects were granted 134.5 M€, i.e. 3.6 % of the CEF-Energy budget (3.7 B€ until May 2020 on a total budget for 2014-2020 of 4.8 B€).



Repartition of CEF-Energy funding by technology (2014 - May 2020)



Source: European Commission

Smart grids have received 10 times less funds from the Connecting Europe Facility - Energy than gas networks or than electricity transmission networks.

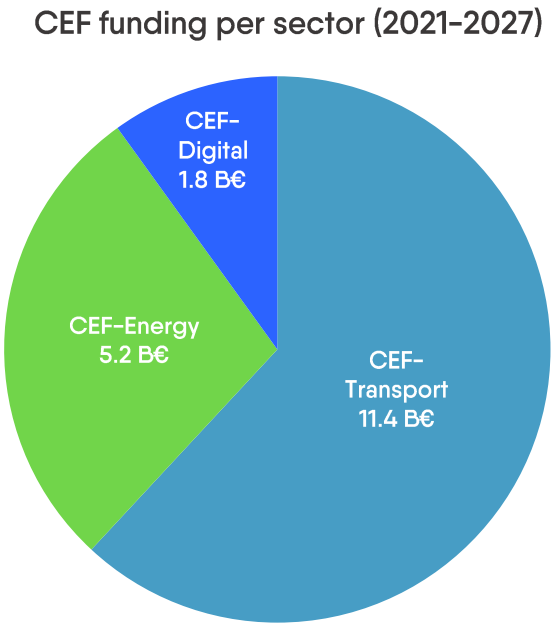
➔ CEF-Energy is underfinancing electricity distribution grids mainly due to restrictive eligibility criteria (as defined by TEN-E Regulation).

iii) Outlook on the future CEF Energy (2021-2027)

In March 2019, the Council and the Parliament reached a provisional agreement on the revision of the CEF instrument[4]. This revision will enter into force after an agreement is reached on the 2021-2027 budget.

- CEF Energy will continue to support the developments of PCIs
- **Cross-border renewable energy** projects[5] are now eligible
- The new CEF will seek to increase **synergies** between CEF Energy, CEF transport and CEF Digital (by creating specific cross-sectoral work programmes. **For instance, a part of the CEF Transport funding (67% of the next CEF funding according to the Commission) will be available for synergies.**

[4] See Proposal for a Regulation No 2018/0228 establishing the new Connecting Europe Facility.
[5] The criteria for cross-border renewable energy projects are defined in the Proposal No 2018/0228, Annex IV.



Source: Multiannual Financial Framework proposal, November 2020, European Commission

One could expect that priority will be given to following areas:

- Smart energy grids and Electricity transmission facilitating the integration of electro mobility
- Energy storage
- Joint use of facilities for compressed natural gas (CNG), liquefied natural gas (LNG) for energy purposes and for the use of alternative fuels in mobility
- Connected and autonomous mobility

Budgetary projections

The overall CEF Energy budget will depend on the result of the negotiations, here are the positions of the European institutions:

		2014-2020	2021-2027 [6]
CEF Energy budget (change vs 2014-2020)		4.8 B€	5.2 B€ (+8%)
Projections for Smart grids	Conservative scenario (4.2% of the budget as in 2014-2020)	200 M€	220 M€
	Ambitious scenario (25% of the budget for smart grids)		1.3 B€

[6] According to the Multiannual Financial Framework Budget Agreement of the European Council (July 2020)

Source: Eurelectric projections

- **As regards smart grids, the eligible projects are defined by the TEN-E Regulation.** Therefore, if the TEN-E Regulation is not be **revised to focus** on electricity PCIs and specifically **on distribution networks**, the CEF budget increase may not benefit to distribution grids. This is why **the TEN-E regulation should be revised accordingly**.

- Eurelectric has recently published recommendations for the new TEN-E **and is working toward new eligibility criteria to enhance access for distribution grids.** The revision process will take at least one year and the impact on CEF will not be **noticeable before two years**.
- The European Commission is expected to publish a proposal for the revision of the TEN-E Regulation by the end of 2020.

2. Cohesion and Regional Funds

Cohesion and Regional Funds provide grants to close the economic and social gaps between member states and between regions. Total budget for 2014-2020 is **262 B€.**

Funding for energy production and networks represent less than 4% of the budget, and distribution grids were granted **860 M€** (0.3% of the total budget 2014-2020).

Type of projects financed: smart meters, transformers, substations, line upgrades.

However, it is an important source of financing and it should increase in 2021-2027, following the increased climate ambition (32% of climate-related investments).

i) What are the Cohesion Fund and the European Regional Development Fund?

The **European Regional Development Fund (ERDF)** aims at strengthening economic and social cohesion in the European Union by correcting imbalances between its regions. The 2014-2020 budget is **199 B€**.

The **Cohesion Fund (CF)** is financing projects to reduce economic and social disparities and to promote sustainable development in less developed Member States (member states with a gross national income per inhabitant < 90% are eligible). It has a special focus on environment and transports. The budget for 2014-2020 is **63 B€.**

Both funds are financing projects in the energy sector, including distribution grid projects.

- Most of this funding is grants but the projects can also have access to financial products (loans, guarantees, equity).
- Funding are directly **managed by member states**. They build partnerships (for every region or on specific themes) with the competent regional and local authorities (public authorities, economic and social partners and civil society) to manage regional programmes. Distribution grid projects are usually funded via **Competitiveness, Enterprises, Environment or Infrastructure Programmes.**

Applications to ERDF and CF are assessed by managing authorities (usually regional councils or ministries). The project application must meet the selection criteria and investment priorities set out in the regional programme. The procedure is established by the relevant managing authorities.

Cohesion and Development Fund represent an important share of the total EU budget (24 %) and an important potential source of funding for DSOs. 860 M€ were granted to 50 distribution grid projects between 2014 and 2019.

ii) Overview of the current Cohesion/Regional Funds (2014/2020)

What type of project can be funded by the Cohesion/Regional Funds? Eligibility criteria

1. The regulation provides general investment priorities for CF and ERDF: both aim at shifting towards a low-carbon economy[7], with two priorities as regards DSOs: "developing and

[7] See Regulation No 1303/2013 laying down common provisions for the cohesion policy.

implementing **smart distribution systems** that operate at **LV and MV levels**" and "promoting the **distribution of energy derived from renewable sources**" [8].
ERDF has an additional priority: "improving energy efficiency and security of supply through the development of **smart energy distribution systems**".
There is no minimum amount for projects.

2. The selection criteria of each thematic or regional Programme are set by the Member States and the Commission in Partnership Agreements. Each project that applies to the Programme funding should fulfill specific ex ante conditionalities, set in the partnership agreement and aligned with the Union strategy.

3. After the funding, the success of distribution grid projects is monitored by two indicators:
   - Additional **energy users connected to smart grids** (The ERDF/CF energy guidance gives the same definition of smart grids as the TEN-E Regulation (*See Annex 1. iv*))
   - **Annual decrease of GHG**

How to apply?

- Apply to regional policy funding by the European Commission
- Guidance on smart grids investments

Examples of DSO projects funded by the Cohesion/Regional Funds

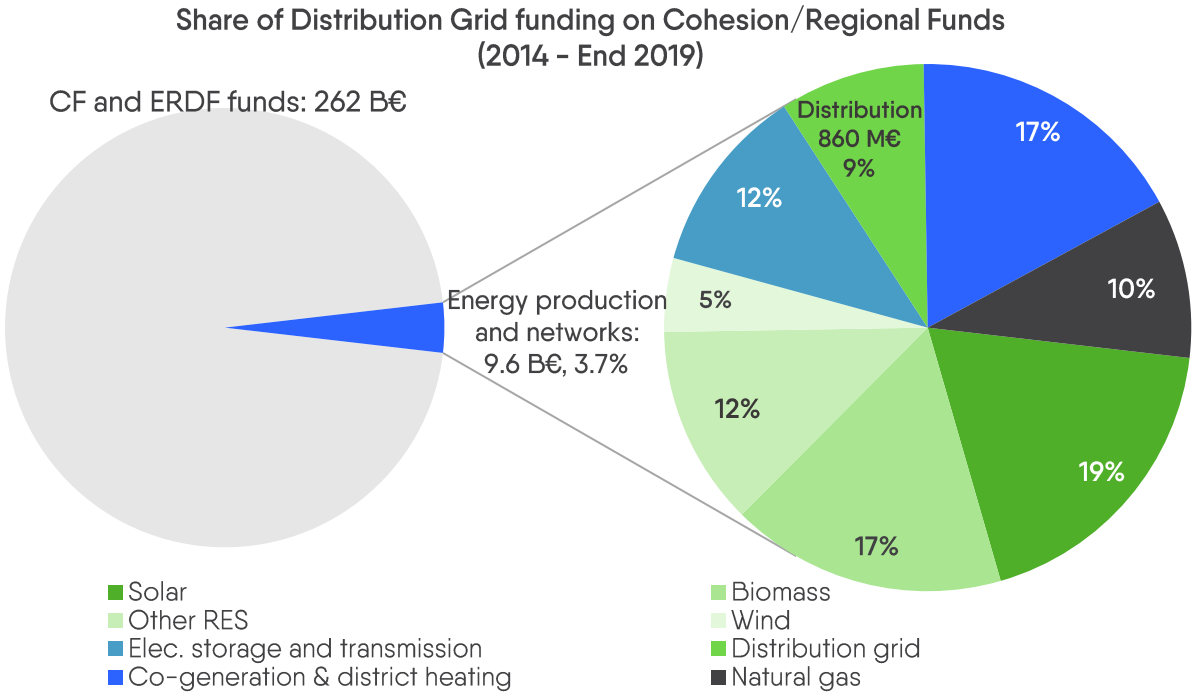
Under the Infrastructure and Environment programme in Poland, Energa received **38 M€ for smart distribution** systems in the period 2014-2020 to reconstruct the distribution network to Smart Grid standards by installing **intelligent metering and network**, in various Polish regions such as Kuyavian-Pomeranian and Łódź Voivodeship. The whole national Programme aims at connecting 3.3 M additional users to smart grids.

Under the Enterprises and competitiveness programme in Italy, e-distribuzione received **138 M€ in 2019 for the implementation of smart grids in the less developed Italian regions.** It has financed 35 projects (upgrading of **MV lines** with better conductor, replacing the **transformers in substations**, installation of transformers) in Sicily, Campania, Basilicata and Calabria.

[8] See Regulation No 1301/2013 on the ERDF, Art. 5 and Regulation No 1300/2013 on the CF, Art. 4.

How did it benefit to distribution grids?

CF and ERDF funded **860 M€** in **50 distribution grid projects** between 2014 and 2019.



Source: Eurelectric, retrieved from EU public data (cohesion data portal)

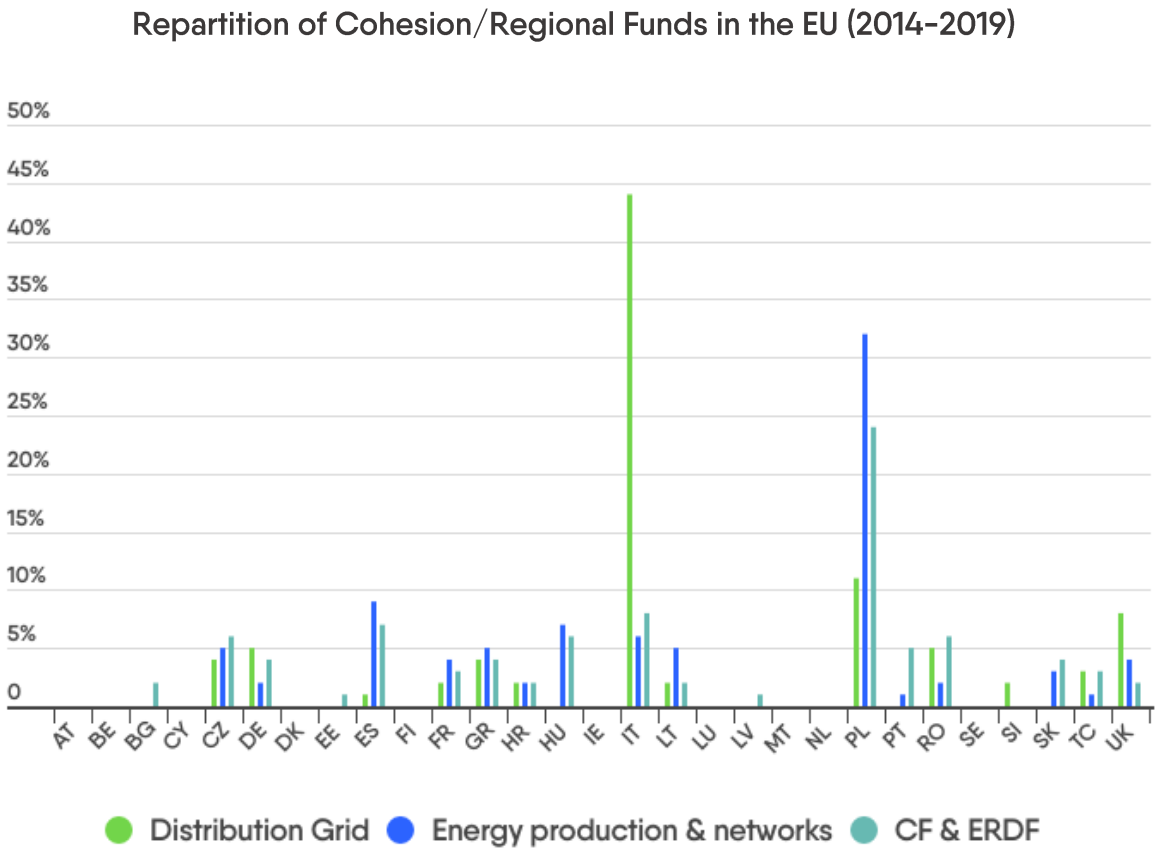
DSO grid investment represent:

- 0.3% of the total CF & ERDF funding
- 9% of the total "Energy production and networks" funding
- Less than Gas (10%) and Electricity Transmission Networks (12%)

➔ Cohesion/Regional funding of energy production and networks is marginal (3.7% of total available funding).

➔ Even in mechanisms supposed to be more tailored made for small infrastructure projects, funding in distribution networks represents a small share (0.3% of total available funding).

Geographical breakdown of Cohesion/Regional Funds



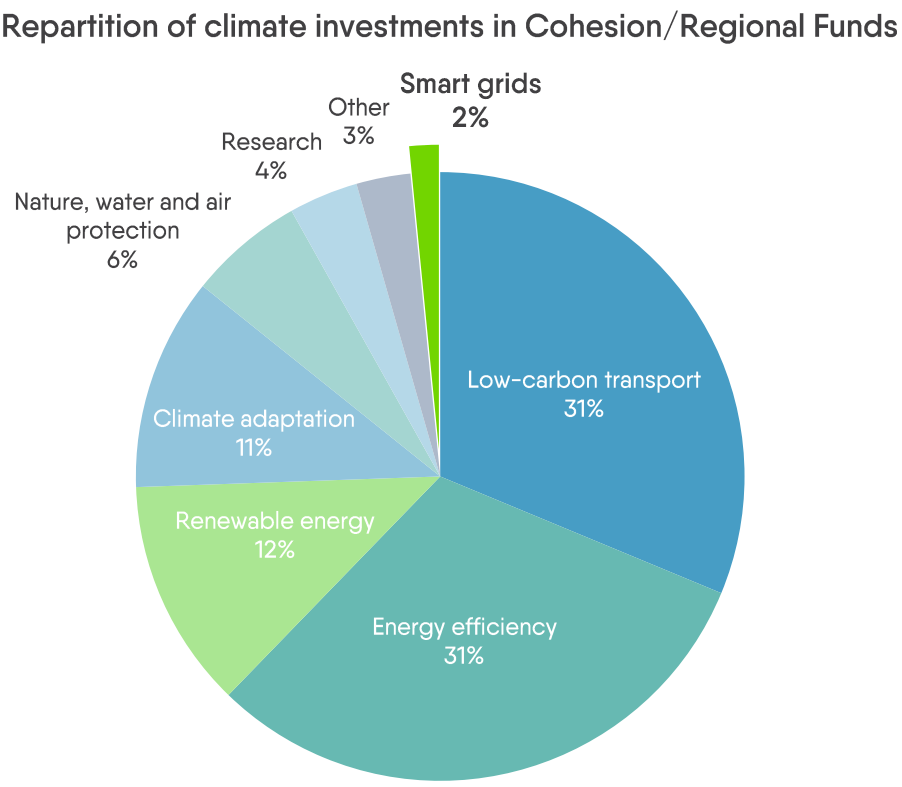
Source: Eurelectric, retrieved from EU public data (cohesion data portal)

The geographical breakdown shows that the allocation of funds in energy and distribution tends to be balanced between old and new Member States.

Climate-related investments in Cohesion/Regional Funds

Climate action is one of the pillars of European investments. For the period 2014-2020, the EU set a goal of **20% of the total budget dedicated to climate-related investments**. The target hasn't been reached, with **18.8% of the whole budget dedicated to climate**.

The Cohesion and Regional Funds achieved better results, with **21% of climate-related investments (55 B€)**. Among these climate-related investments, **electricity distribution grids represent a small share (2%, 860 M€)**.



Source: Eurelectric, retrieved from EU public data (cohesion data portal)

➔ The EU has failed to achieve its goal of 20% of climate-related investments in the 2014-2020 budget (only 18.8%) but Cohesion/Regional Funds performed well (21%)
➔ In the next budget, the Cohesion/Regional Funds will be crucial to achieve higher ambition in line with the Green Deal

iii) Outlook on the future Cohesion and ERDF Funds (2021-2027)

- New allocation criterias (i.e. climate change, youth unemployment) and simplification measures [9] have been added in the upcoming Cohesion and Regional Development Policies. In the next long-term EU budget 2021-2027.
- 65% to 85% of ERDF and Cohesion Fund resources will be allocated to the objectives 'Smarter Europe' and 'Greener Europe' respectively.
- In May 2018, the Council and the Parliament reached a provisional agreement on the revision of the common provisions for the cohesion policy[10] and the regulation on ERDF and CF[11]. This revision will enter into force **with the 2021-2027 budget.**

[9] See 80 simplification measures in cohesion policy 2021-27 for more informations
[10] See Proposal for a Regulation No 2018/0196 laying down common provisions for the cohesion policy.
[11] See Proposal for a Regulation No 2018/0197 on the ERDF and the CF.

- The future regulation set detailed indicators to monitor the progress of the new ERDF/CF (Annex I and II). In addition to the number of users connected to a smart grid and the decrease of GHG, a new indicator will be added, the **roll-out of smart grid projects**.

Budgetary projections

The table below shows the positions of the European institutions and projections for distribution grids based on three scenarios:

		2014-2020	2021 -2027 [12]
CF/ERDF **Total budget** (change vs 2014-2020)		**272 B€**	245 B€ (-10%)
Projections for Smart grids	**Conservative** scenario (smart grids = 0.32% of the budget)	**860 M€**	784 M€
	Same increase as climate-related funding scenario (smart grids = 0.5% of the budget)		1.23 B€
	Ambitious scenario (smart grids = 1% of the budget)		2.45 B€

Source: Eurelectric projections

[12] According to the Multiannual Financial Framework Budget Agreement of the European Council (July 2020)

3. European Fund for Strategic Investments / InvestEU

The European Fund for Strategic Investments is a guarantee system to attract private investments in activities where the costs or risks are too high. It is usually financing large-scale projects, including for the distribution grid.
Energy is an important sector for EFSI (21% of its guarantees). Electricity networks were granted 1.5 B€ of guarantees, 3% of the total guarantees, but it is lower than gas networks funding (2.1 B€).
Type of projects financed: modernization and extension of networks, roll-out of smart meters, renewables integration in grid.
InvestEU will replace EFSI in 2021-2027, with more opportunities for distribution grids.

i) What is the European Fund for Strategic Investment (EFSI)?

The **EFSI** is a **guarantee system** to support investments in strategic sectors and SMEs. The Fund is managed by the European Investment Bank (EIB), but is separated from its other activities.

The objective is to leverage public guarantee to attract private investment in activities where the costs or risk are too high. The **enhanced risk-bearing capacity** that the EFSI provides to the EIB allows the EIB to invest in projects with a **higher risk profile than usual**. EIB investment (loans, guarantees) with the backing of the EFSI guarantee is expected to attract private investment.

The EFSI has two components:

- The **Infrastructure and Innovation** window managed by the EIB (transport, energy and ICT). It represents 80% of the EFSI financing and **40% of the window should contribute to climate action (10.7 B€ of guarantees).** It is close to reach it with **36%** by the end of 2018.
- The **SME Window** implemented by the European Investment Fund (EIF).

In 2021-2027, EFSI will be replaced by InvestEU (See below in sub-section 3.iv).

How does it work in practice?

In 2017, the Polish DSO Energa wanted to modernize and expand its distribution grid. It applied for an EIB financing and reached an agreement with them: Energa issued a 250 M€ bond bought by the EIB and guaranteed by the EFSI: here, the EFSI allows the EIB to buy a higher-risk bond.

The EU guarantee can also support investment from national promotional banks or institutions.

ii) Overview of the current EFSI (2015/2020)

What type of project can be funded by EFSI?

In the **Infrastructure and Innovation window (IIW)**, the relevant priority for distribution grids is the "development and modernisation of energy infrastructure (in particular interconnections, **smart grids at distribution level**, energy storage and synchronisation of network"[13].

[13] See Regulation No 2015/1017 on the EFSI, Art. 9. 2. (b) (iii), (no more precision on the eligible technologies).

The project should also meet the following criteria:

- It should be **economically and technically viable**
- It should be **consistent with EU policies** (sustainable growth, job creation, cohesion)
- It should provide **additionality**[14]: it means that the EFSI operations should **address market failures or sub-optimal investment situations** and that these operations could not have been carried out with the help of EIB and EU financial instruments other than EFSI
- It should undergo the **standard EIB due diligence** process.

There are no geographical or sectoral quotas. Following the EIB lending rules, there is a **minimum amount of 7.5 M€** for a project to have access to EFSI financing.

How to apply?

- How does a project get EFSI financing?

Examples of DSO projects funded by EFSI

Most guarantees have benefitted to big projects on traditional distribution grid assets (renewal and extension the network) and in the rollout of electricity smart meters:

The Distribution Network Investment Programme led by Ellevio (Sweden) obtained **250 M€** of guarantee to **increase the capacity and renew the network**, continue to weather-proof the rural network and prepare it to receive more distributed renewable energy.

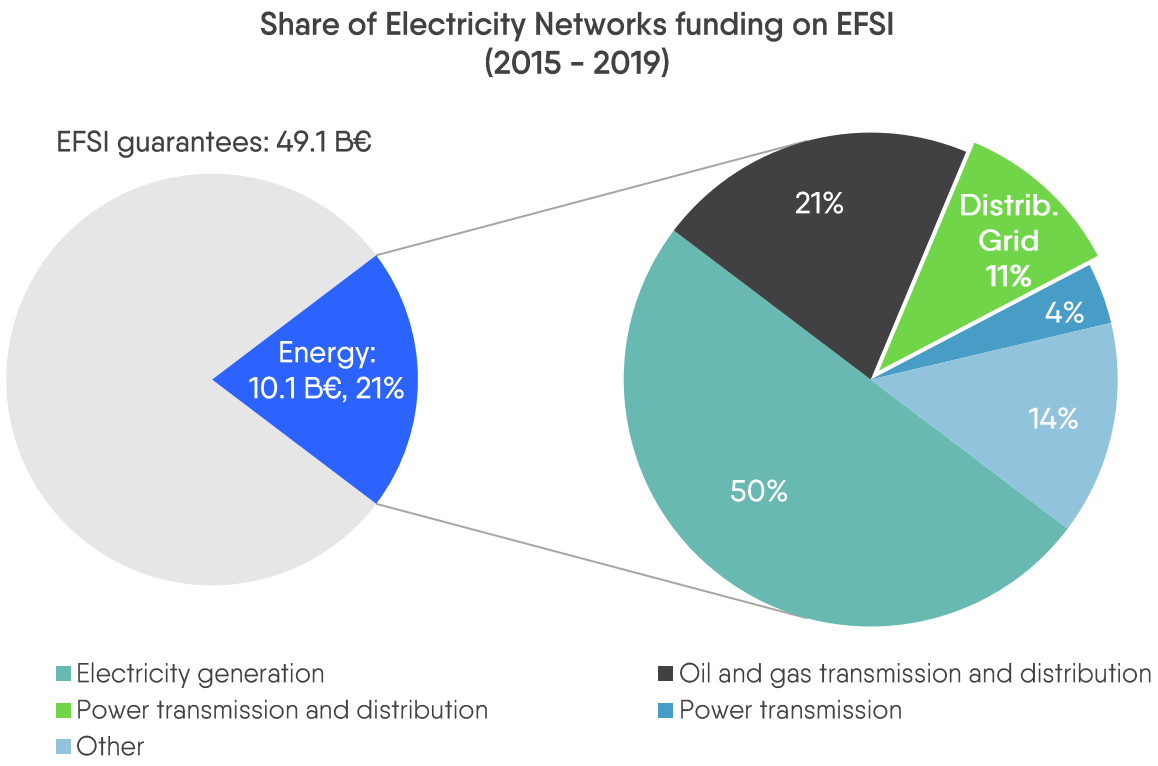
Tauron Distribution (Poland) has benefited from **190 M€** (and 174 M€ in a 2nd phase) of guarantees to **modernize and extend the distribution network** in southern Poland (approx. 4500 km of new lines).

Calvin Capital obtained **53 M€** of guarantee from EFSI for the **rollout of electricity** and gas **smart meters** in the United Kingdom with the Calvin SmartMeter Programme.

How did it benefit to distribution grids?

- Energy production and networks is a significant part of EFSI guarantees: **10.1 B€** of guarantees were allocated to this objective, **21% of EFSI total guarantees (49.1 B€)**
- Between 2015 and 2019, EFSI provided **1.1 B€ of guarantees** to electricity distribution networks (11% of all energy production and network guarantees)
- **Electricity networks represent only 3% of EFSI investments, lower than oil and gas infrastructure (2.1 B€).** This demonstrates a disproportionate financing of gas and the need for a rebalancing in favor of electricity networks.

[14] The additionality is defined in Regulation No 2015/1017, Article 5.



Source: Eurelectric, retrieved from European Commission and EIB data.

➔ EFSI has provided 44% more guarantees to gas networks than electricity transmission and distribution networks

iii) EFSI will be replaced by InvestEU in 2021-2027: what does it change?

InvestEU brings together the European Funds for Strategic Investments and 13 other EU financial instruments. It is, like EFSI, a **guarantee system** to mobilize private investment in 4 key areas including **Sustainable infrastructure.**

After multiple rounds of negotiations over the long-term EU budget and the establishment of different funds (i.e. NextGenerationEU, Resilience and Recovery Facility) to face the economic crisis following the COVID-19, the InvestEU budget has significantly been **restricted compared** to initial proposals from the European Commission and Parliament. In December 2020[15], the European Commission proposed a **26.2 B€ budgetary guarantee,** complemented by multiple partner national promotional banks. This new instrument will have five windows: 1) Sustainable Infrastructure (9.9 B€), 2) SMEs (6.9 B€), 3) Research and Innovation (6.6 B€), 4) Social Investment and skills (2.8 B€) and introduce a new Strategic European Facility to invest in resilient value chains.

[15] European Commission - Press release (8 December 2020)

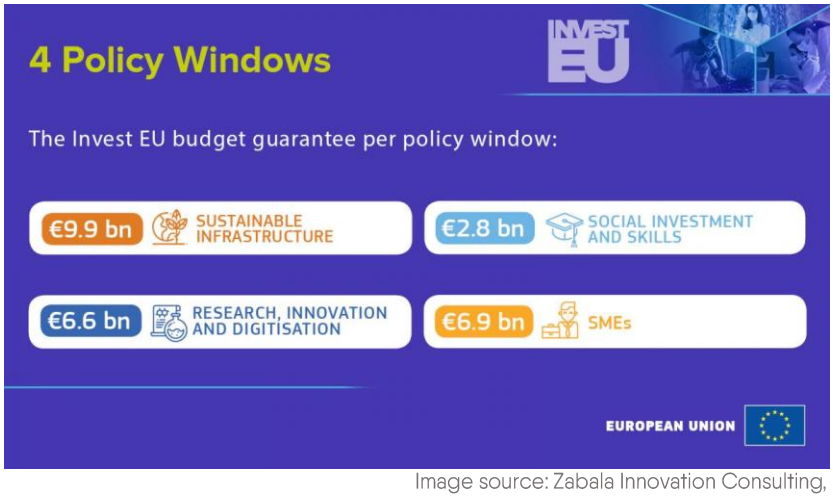


Image source: Zabala Innovation Consulting, European Commission

The Sustainable infrastructure area would be required to have **60% of climate-related financing**[16], higher than the 2014-2020 target of **40%** for the Infrastructure and Innovation window (IIW) **and the effective 36%**, achieved by the end of 2018. The common target for InvestEU is 30% of climate-related financing.

Relevant eligible area for **distribution grids** is the "**development, smartening and modernisation** of sustainable energy infrastructure in particular, but not only transmission and **distribution level**, storage technologies, electricity interconnection between Member States and **smart grids**)"[17], a formulation similar to the previous investment area under EFSI.

Budgetary projections

	EFSI (2015-2020)	InvestEU (2021-2027)
Total budget	**33.5 B€**	26.2 B€ (-21%)
For distribution grids (actual guarantees and projections based on a budget cut of -21%)	**1.1 B€**	870 M€

Source: Eurelectric projections

➔ Investments in energy networks should be rebalanced in favor of electricity networks in InvestEU to be in line with the European Green Deal

[16] See Proposal for a Regulation No 2020/0108 establishing the InvestEU Programme, Art. 7.6.
[17] See Proposal for a Regulation No 2020/0108 establishing the InvestEU Programme, Annex II, 1. (c).

4. European Investment Bank

The European Investment Bank provides loans to finance large-scale projects, typically more than 25 M€.

The EIB is a good instrument for lending to DSOs: 3.3% of EIB loans (14.8 B€) went to distribution grids since 2012, more than for transmission grids or gas networks.

Type of projects financed: refurbish and extend MV and LV networks, EV charging infrastructure, automation and remote control systems.

The transformation of the EIB into a "Climate Bank", with the end of fossil funding and 50% of climate-related loans, will give more possibilities to get loans for distribution infrastructure and in particular for investments to develop smart distribution networks.

i) What is the EIB doing?

The European Investment Bank (EIB) provides **loans** and **financial instruments** (equity, guarantees) to finance very different type of projects (energy, transport, agriculture, health, education, etc.). Among these sectors, energy infrastructure represents an important part of EIB financing.

ii) Overview of the previous EIB energy lending (since 2013)

What type of project was eligible to EIB financing?

- In 2013, the EIB released its energy lending criteria, and electricity distribution grids were already an important area for their funding: "**Electricity distribution deserves greater attention**. The high potential of distribution grids in ensuring and managing the security of supply and reaching the 2020 targets is often underestimated."
- **EIB has prioritized its financial support** to distribution investment programmes, including **roll-outs of smart meters** and, more comprehensively, **smart grid** demonstration projects.
- EIB loans typically covers up to 50% of a project's total cost. These loans typically start at 25 M€ and in certain cases the EIB will consider lower amounts.

The project should also meet the following criteria:

- Compliance with the Bank's Guide to Procurement and Environmental and Social Standards
- Consistency with EU policies (sustainable growth, job creation, cohesion)

Examples of DSO projects funded by the EIB

The EIB has mostly funded traditional distribution grid assets and smart meters, but it is willing to invest more in new technologies such as smart grids and integration of renewables or electric vehicles.

The energy utility CEZ (Czech Republic) has received 330 M€ in 2019 to improve its distribution network (reinforce **MV and LV networks**, install **automation** and **tele-control** systems, 4160 km of new lines and refurbishment of 2475 km of lines.

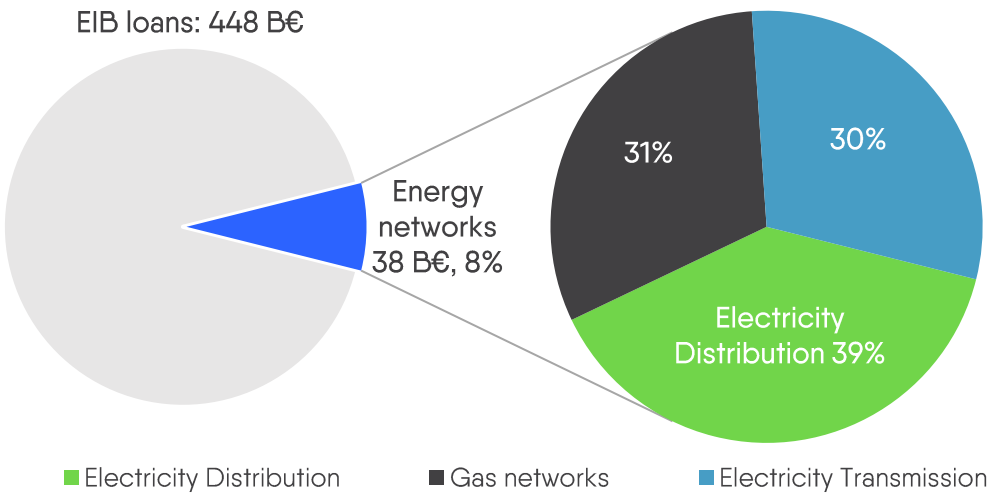
Eesti Energia (Estonia) has obtained loans of **175 M€** in 2019 to **extend and refurbish distribution** networks, invest in public lighting and **charging stations for electric vehicles.**

EAC (Cyprus) received **200 M€** in 2010 of loans to **reinforce and extend** its transmission and **distribution** network.

How did it benefit to distribution grids?

- Since 2012 the EIB has signed **38 B€** of contracts to invest in **electricity and gas infrastructures** in the EU, which is a relatively small part of the EIB loans (8% of the total budget 448 B€).
- **14.8 B€ went to electricity distribution grids (39%),** more than electricity transmission networks and gas networks.
- In comparison with electricity grids, gas networks are less financed by the EIB than other instruments but it still represents one third of the loans.

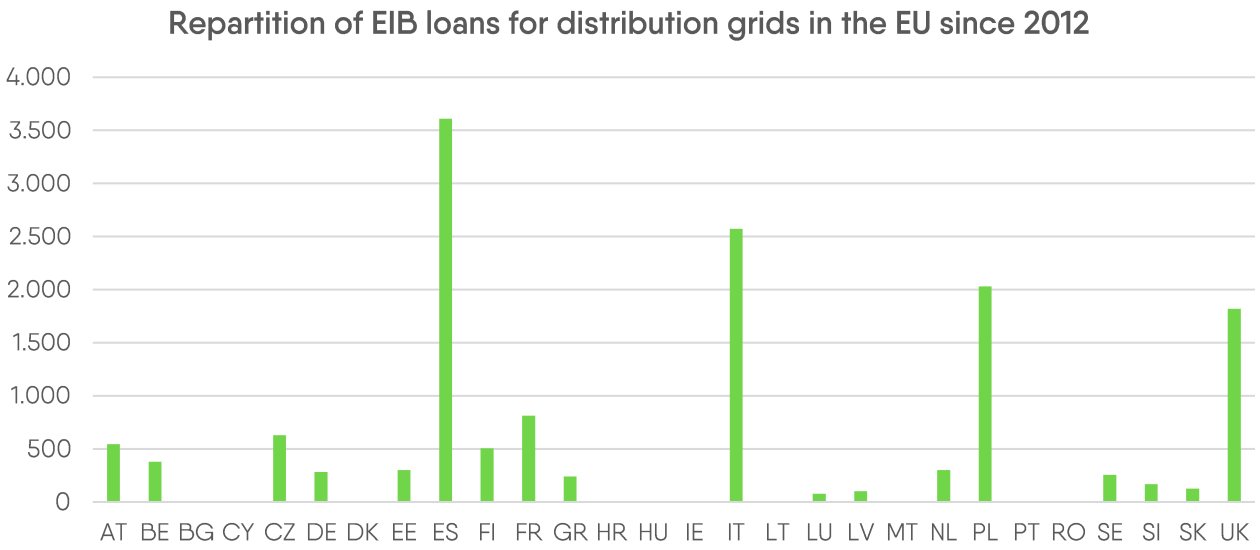
Share of Distribution grids funding by EIB (2012 – 2019)



Source: EIB, 24/02/2020.

➔ The EIB is a good instrument for lending to DSOs
➔ The increase of its climate action will give more possibilities to get loans for smart distribution networks

Geographical breakdown of EIB loans for distribution grids



Source: EIB, 24/02/2020.

The EIB loans for distribution grids were mostly granted in four countries (Spain, Italy, Poland and the United Kingdom). Conversely, some EU countries haven't use EIB loans for distribution grids since 2012.

iii) How will it evolve with the new energy lending policy (2019)?

The new energy lending policy released in November 2019 **doesn't change the application process for EIB lending** but **increase its climate ambition**. The EIB aims to become a "climate bank" with a goal of **50% of climate action** financing in 2025, compared to 30% in 2019.

This increasing climate action **will benefit to electricity network projects and distribution grids.** In its new energy policy, the EIB plan to **stop all the fossil fuel funding by 2021**, excepted for low-carbon gases. This new lending policy is leading the climate action and should be **enforced to achieve 50% of EIB's investments related to climate in 2025.**

	2012-2019	2020-2027
Total lending by the EIB (actual and projection)	448 B€	448 B€[18]
For distribution grids (actual and projection of a same increase as the climate ambition[19], +67%)	14.8 B€	24.7 B€

Source: Eurelectric projections

[18] As the total lending depends on the demand of loans, we make the assumption that the total lending is the same in 2020-2027 that in 2012-2019.
[19] Climate action will represent 50% in 2025 compared to 30% in 2019, a 67% increase if the total lending for grids remains the same.

As a response to the expected increase in electrification of Europe, the EIB is prioritizing electricity network infrastructure and especially investments to help develop smart grids, and has **enlarged the scope of technologies** that could be financed, **allowing higher funding of distribution grids**:

- The Bank will give **high priority** to projects that will enable the **integration of renewables** and infrastructure that will be needed to support the development of **electromobility** and of **decentralised flexibility** sources connected to distribution networks.
- The Bank will support the development of **energy communities** and **microgrids**, enabling investment in new types of energy infrastructure, including in small isolated systems. This may include, in particular, projects increasing the degree of automation, digitalization and "smartness" of power systems.
- **Flexibility** (battery storage, increased electrification, demand response)
- The Bank will support the **Projects of Common Interests** for electricity transmission, storage and smart grids.
- The Bank will continue to support rehabilitation, grid extension, automation and tele-control.

Contact

- Applying for a loan, EIB

5. Framework Programmes: Horizon 2020 & Horizon Europe

Since 2014, **DSOs received 61% (327€ M) of Horizon 2020's energy networks grants**, establishing them as one of biggest recipients of the energy sector.
Horizon 2020 successfully supported **DSOs**, providing them with **funding** and **open access platforms** facilitating the **research and development** of **new disruptive technologies** necessary to tackle challenges faced by the sector (e.g. renewable integration, network flexibility, EV charging optimization).

Horizon Europe, the successor of Horizon 2020 will provide additional funding opportunities for DSOs. 35% of total budget will be dedicated to climate related innovation and 15BN will be allocated to the cluster (climate, energy and mobility)

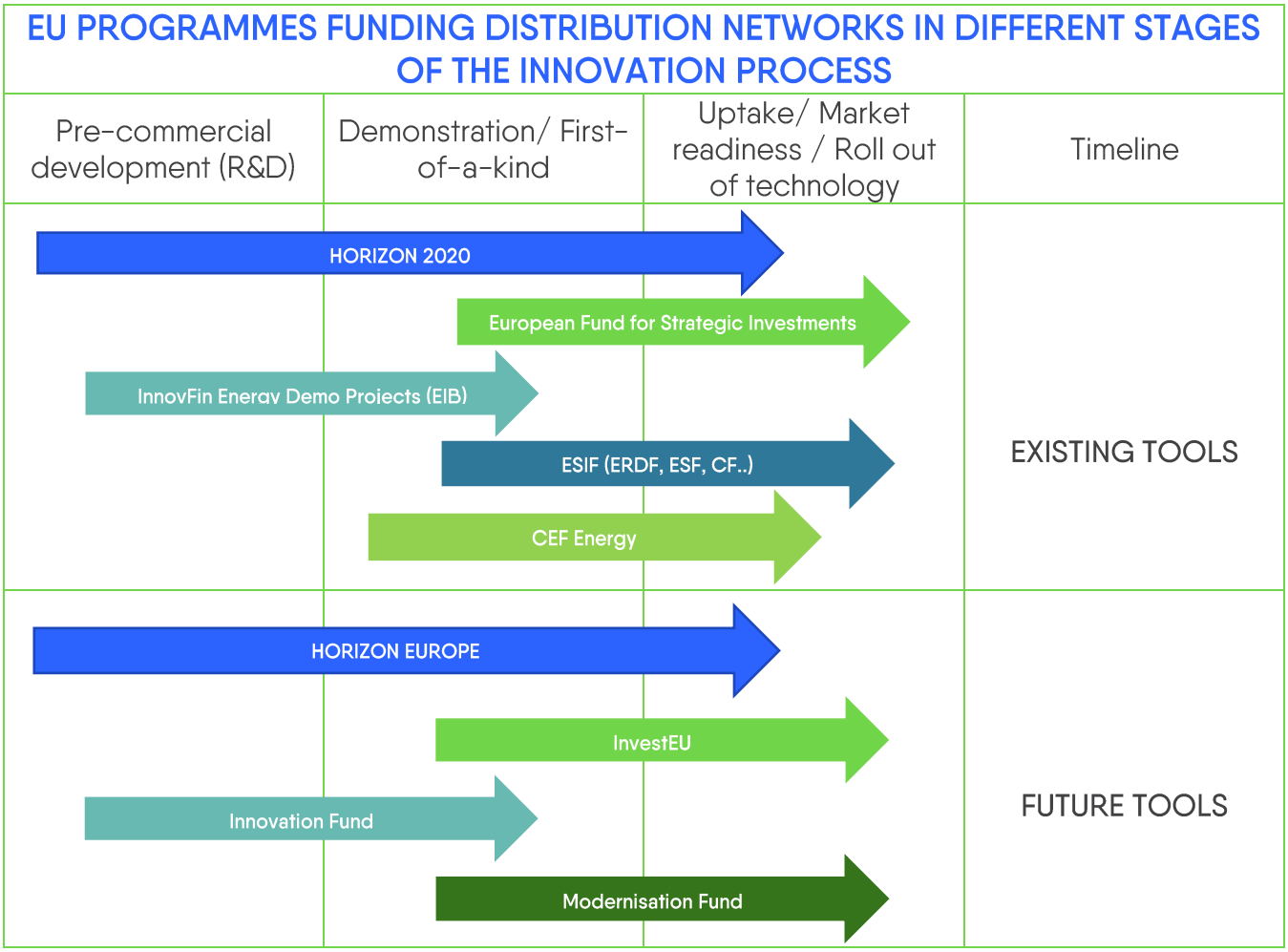
i) What is Horizon 2020?

Horizon 2020 offers **funding for research and innovation activities** through multi-annual calls for proposals set in the Work Programme. For the preparation of Work Programmes, the European Commission involves 19 Advisory Groups (including Energy) involving industry, research and civil society representatives. the latest Work Programme (2018-2020) disposes of a budget of **30 BN€**, with **83 M€ for energy projects**.

Horizon 2020 is based upon three main research areas, also known as "pillars":

- **Excellent Science (budget of 24 BN€)** focuses on basic scientific research and funds energy projects through the Future and Emerging Technologies (FET) program
- **Industrial Leadership (budget of 14 BN€)** focuses on enabling technologies and innovations for SMEs. Closely followed by the Executive Agency for Small and Medium Enterprises (EASME) and by DG GROW, the Leadership in Enabling and Industrial Technology (LEIT) Work Programme offers DSOs a valuable research framework (e.g. for smart homes and grids)
- **Societal Challenges (budget of 29 BN€)** funds potential solutions to social and economic problems. The third Societal Challenge "Secure, Clean and Efficient Energy" has a **5.9 BN€** budget (equivalent to **7.8% of the total Horizon 2020 budget**) to tackle various issues concerning electricity distribution such as smart cities and energy efficiency

Horizon 2020 is characterized by a wide coverage of projects throughout **different stages** of the innovation process, from pre-commercial development to uptake. The table below compares this feature with other current and future European funding mechanisms for innovative energy and electricity distribution projects.



ii) Overview of Horizon 2020 (since 2014)

What type of project are eligible to H2020 financing?

Horizon 2020 provides grants through open and competitive calls for proposals. Any legal entity from the EU and associated countries is eligible for funding, provided that following minimum conditions are met:

- applicants must represent **at least 3 legal entities**
- all participanting entities must be **independent** of each other.

Subsequently, DSOs must comply with two evaluation criteria, enforced by an independent panel of experts:

- Financial capacity, in line with the Financial Regulation (No 966/2012) and the Horizon 2020 Rules for Participation (No 1290/2013).
- Operational capacity, in line with Horizon 2020 Rules for Participation (No 1290/2013).

After approval, all participating projects are classified into three types of actions:

1. **Research and innovation actions (RIA)**. From 2014 to 2020, 33,3% of energy network projects in the EU have been RIAs and the funding rate amounts to 100% of eligible costs.
2. **Innovation actions (IA)** focus on closer-to-the-market activities producing new or improved products or services (e.g. prototyping, testing, demonstrating, piloting, scaling-up etc.). From 2014 to 2020, 63,7% of energy network projects in the EU-28 have been IAs and the funding rate amounts to 70% of eligible costs (except for non-profit legal entities, where a rate of 100% applies).
3. **Coordination and support actions (CSA)** cover the coordination and networking of research and innovation projects, programs and policies. From 2014 to 2020, 3% of energy network projects in the EU-28 have been CSAs and the funding rate amounts to 100% of eligible costs.

Examples of DSO projects funded by Horizon 2020

Most of H2020 funding for distribution grids was allocated to the development of new technologies, smart grids and flexibility projects.

Until 2019, DSOs in several EU countries (Enedis, E.ON, CEZ distribuce...) received **17 M€** for the IA InterFlex. The project developed new solutions supporting **local network flexibility systems** (demand response, gird automation etc.), preparing the **distribution grid to new uses** (e-mobility) while expanding renewable energy sources integration.

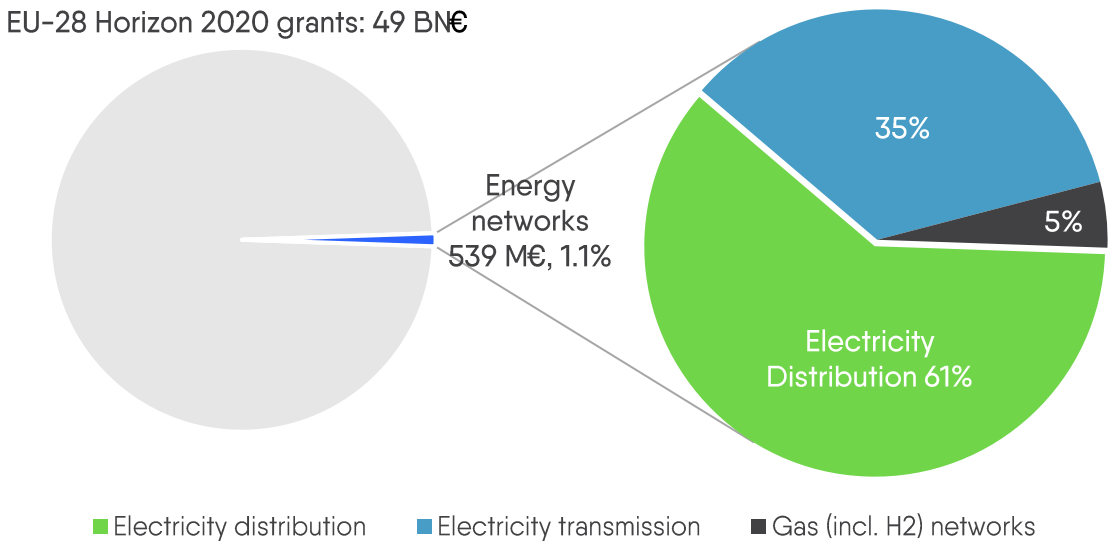
The consortium Storage4Grid (featuring Italian DSO Edyna) received **3.6 M€** since 2016 for the RIA developing smart metering, storage coordination and cooperative EV charging systems.

The IA Coordinet (Vattenfall, Iberdrola DE, E.ON, HEDNO..) received **15 M€** to build large-scale demonstrations of innovative grid services through demand response, storage and small-scale (RES) generation. The project involves DSO, TSO and consumers.

How did it benefit to distribution grids?

Since 2014, Horizon 2020 has granted **539 M€** to **energy (electricity and gas) network projects, which amounts to 1.1% of the 49 BN€ contributions made by Horizon 2020 in the EU-28.**

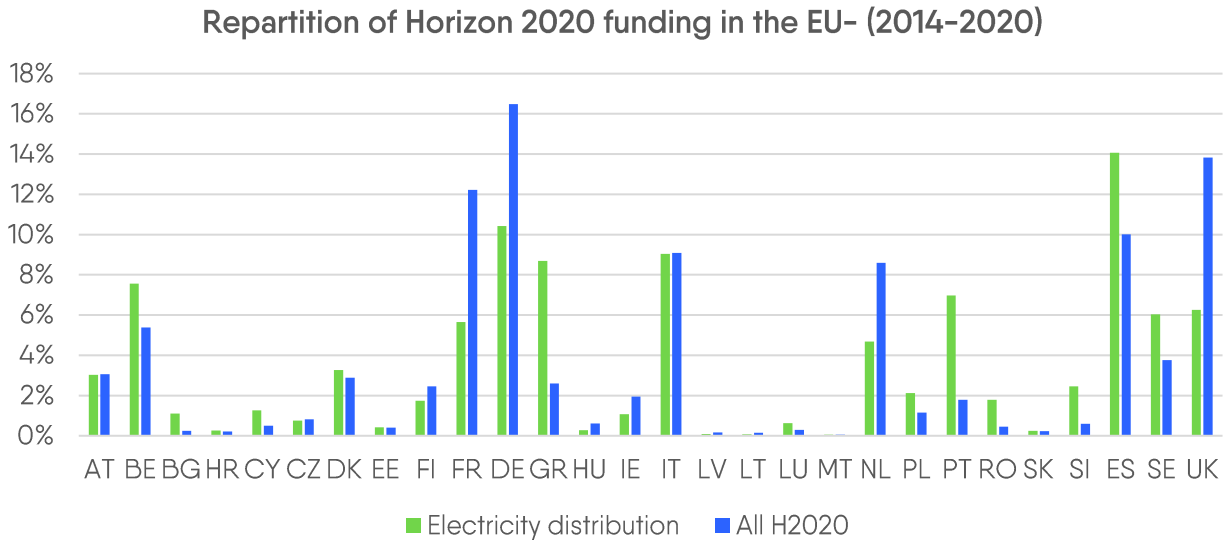
Share of Distribution grids funding by Horizon 2020 (since 2014)



➔ Within energy distribution, most of H2020 funding (61%) went to electricity distribution, testifying the innovative potential of DSOs.
➔ However, only 1.1% of H2020 funding has been allocated to energy networks. Considering the imminent challenges faced by DSOs and interested parties (e.g. renewables integration), this figure should increase in the upcoming Framework Program Horizon Europe in order to be able to achieve secure, clean and efficient energy targets.

Source: European Commission.

Geographical breakdown of H2020 grants for distribution grids



Source: Eurelectric, retrieved from EU public data (Horizon 2020 dashboard, June 2020).

The repartition between electricity distribution related projects over Horizon 2020 funding **is fairly balanced throughout** Europe. Yet in some Western European countries (notably Germany, France, the United Kingdom and the Netherlands) electricity distribution related projects tend to be financed less through Horizon 2020 compared to some Southern European countries (such as Spain, Greece and Portugal), where significantly higher shares of Horizon 2020 funding has been allocated to research and development in the electricity grid.

iii) Outlook on the future: the European Green Deal call and Horizon Europe

The European Green Deal call (September 2020)

Following the publication of the European Green Deal strategy, the European Commission launched a citizen consultation to design the European Green Deal call. The call is **worth close to 1BN€** and selected projects are expected to start in Autumn 2021, covering 11 areas with topics cutting across and integrating different disciplines and sectors. For DSOs, the most relevant will be:

Call area 1: Increasing climate ambition: cross-sectoral challenges

- Topic 2: Towards climate-neutral and socially innovative cities (text)
- Topic 3: Climate-resilient innovation packages for EU regions (text)

Call area 2: Clean, affordable and secure energy

- Topic 1: Demonstration of innovative critical technologies to enable future large-scale deployment of offshore renewable energy technologies (with the possibility to address also hydrogen applications) (text)

Call area 4: Energy and resource-efficient buildings

- Topic: Building and renovating in an energy and resource efficient way (text)

Call area 5: Sustainable and smart mobility

- Topic: Green airports and ports as hubs for sustainable and smart mobility (text)

What is new with Horizon Europe? (starting 2021)

	Horizon 2020 (2014-2020)	Horizon Europe (2021-2027)
Total budget	77 B€	84.9B€ (+10%)
For distribution grids (conservative projection)	329 M€	594 M€
Pillars	1. Excellent Science 2. Industrial Leadership 3. Societal Challenges	1. Open Science 2. Global Challenges and Industrial Competitiveness 3. Open Innovation 4. Widening and strengthening the European Research Area
Mission areas relevant to DSOs	• Research & Innovation • Climate change & energy • Fighting poverty	• Adaptation to climate change, including societal transformation • Climate-neutral and smart cities

Horizon Europe will enter into force in 2021 and have a target of 35% for funding to climate change related projects (equivalent to at least 29.7 B€). It will include **new approaches to partnerships** (co-programming, co-funding, institutionalized) along with regular calls for proposals and R&I missions.

Energy proposals and activities will be bundled together into the **"Climate, energy and mobility" cluster** encompassed in the second pillar (Global challenges and Industrial competitiveness), with a proposed overall funding of **15€BN**. Horizon Europe is set to become highly valuable for DSOs looking to develop synergies with other sectors (telecoms and ICT industry). The main changes introduced by of Horizon Europe are:

- Renewed implementation strategy - greater transparency and further simplification [20]
- **Increased synergies with other EU programmes** (e.g. InvestEU, ERDF and CEF Energy) – sequential and accumulative funding will be available to Horizon Europe projects
- **Increased budget flexibility** - Article 9.3 of the Commission proposal allows for shifts of up to 10% within and across pillars
- A new entity - the **European Innovation Council (EIC)** will allocate 70% (i.e. **around 7 B€)** of the budget to the support of research and innovation projects from SMEs.
- Following funding instruments will be available (through the EIC):

[20] https://ec.europa.eu/info/sites/info/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_implementation-strategy_he.pdf

- The Pathfinder based on Future and Emerging Technologies (FET) Open and FET Proactive schemes from Horizon 2020
- The Accelerator will offer grants and blended finance for development and market deployment

Monitoring the activity of the EIC may benefit DSOs partnering with startups and SMEs for disruptive projects (e.g. block chain technology and grid flexibility deployments) with scale up potential that are too risky for traditional investors.

Contact

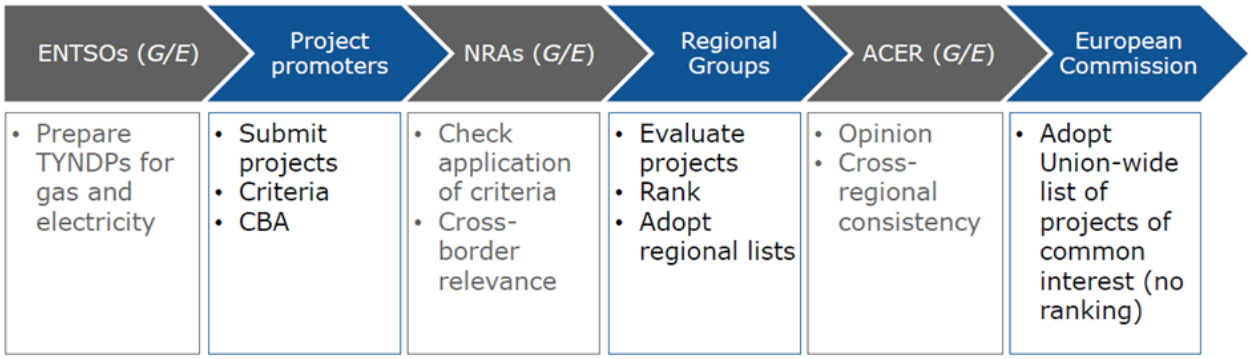
- Submit a proposal to H2020
- Horizon 2020 European Green Deal Call (deadline: 26 January 2021)
- Apply for the EIC Pathfinder (Open & Proactive)
- Apply for the EIC Accelerator
- Implementation Strategy for Horizon Europe (Version 1.0 – 29/04/2020)

ANNEX 1: Trans-European Network – Energy (TEN-E)

i) What is TEN-E and the PCIs?

The TEN-E Regulation aims to better interconnect electricity and gas infrastructure across Europe. The goal is to help, identify and implement **Projects of Common Interest** (PCIs) that are needed to improve these networks, focusing on 9 priority corridors (4 electricity, 4 gas and 1 oil) and 3 thematic areas (**smart grids**, electricity highways and cross-border CO_2 network).

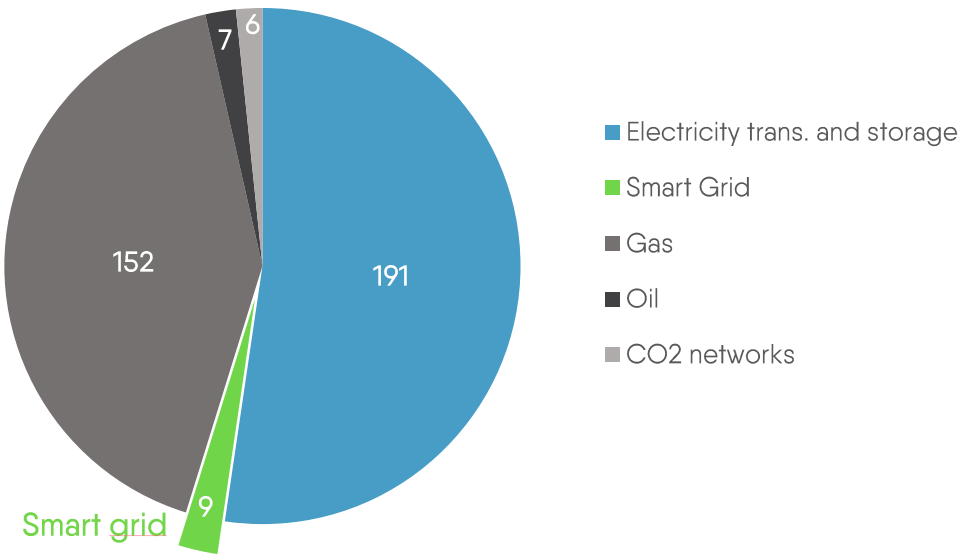
Process of PCI selection



ii) Statistics on smart grid PCI

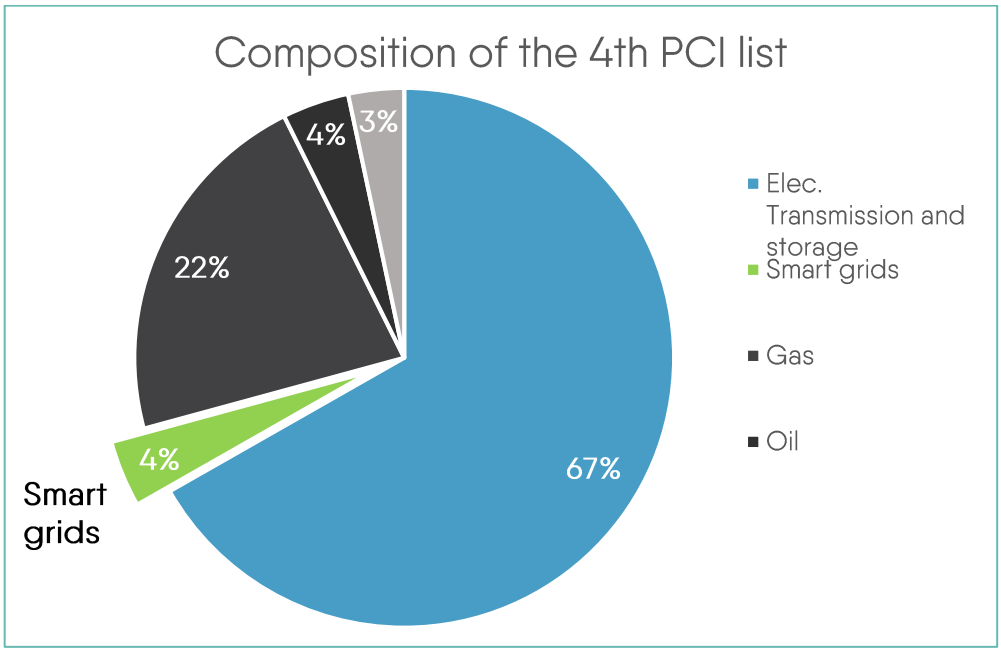
Since the 1st list in 2013, **9 smart grids** projects have been part of the PCI list on 365 projects. It is usually the same projects that are on the lists (for example, SINCRO.GRID has been in list 2, 3 and 4).

Number of PCI by sector since the 1st list



Source: European Commission

On the 4th PCI list (Oct. 2019), 6 projects are **smart grid projects out of 149** projects, whereas 100 are for transmission networks and storage:



Source: European Commission

iii) What are the benefits of being a PCI?

- Highest national priority status, accelerated permitting and administrative support
- Required to be a PCI to benefit from the **Connecting Europe Facility (CEF)**
- Easier access to **Cohesion Fund** (CF) and **European Regional Development Fund** (ERDF) **grants**, to the de-risking tools and **guarantees of InvestEU** and to the **EIB lends**

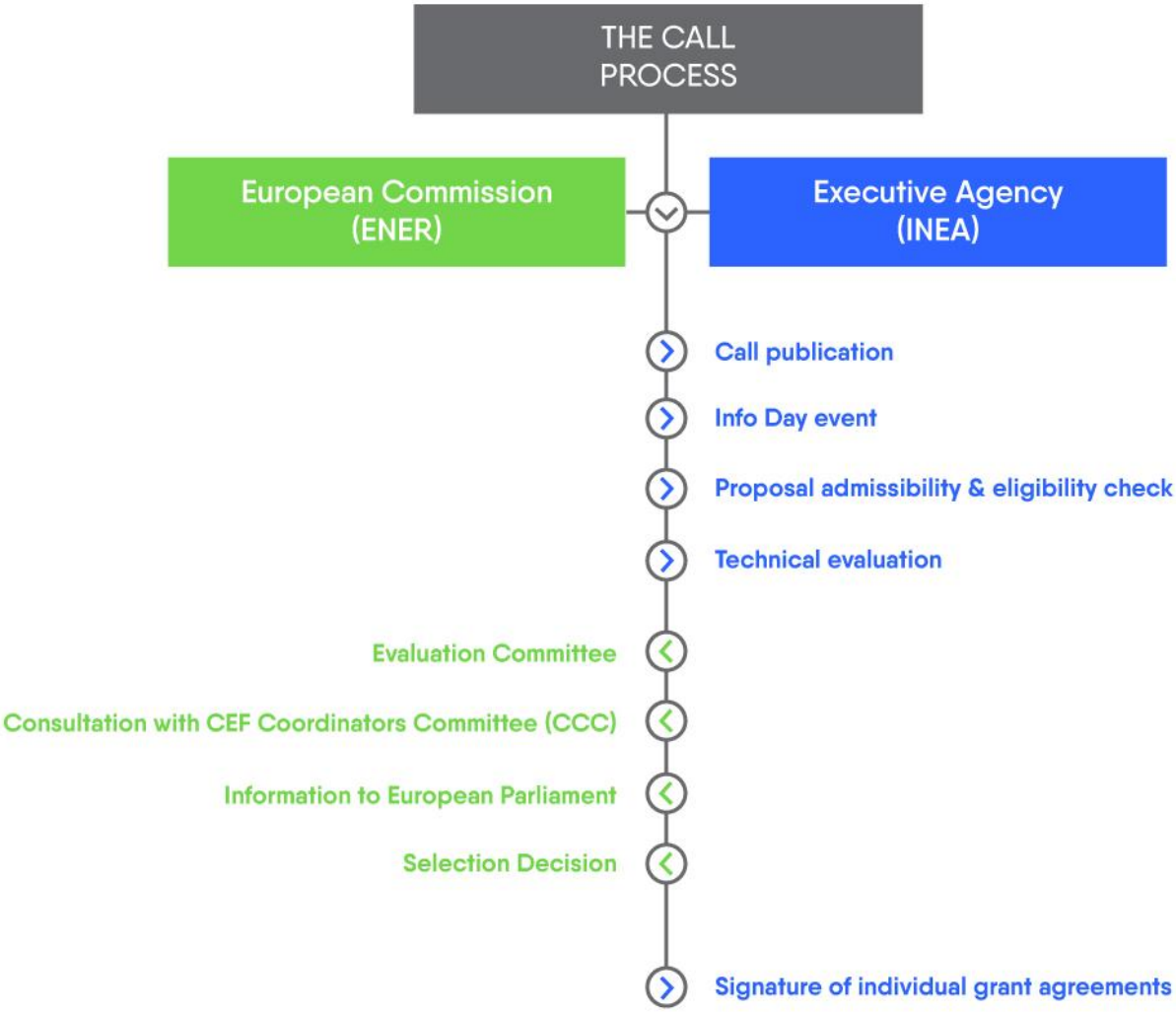
iv) How to label a DSO project as PCI?

For a smart grid[21] project:

- HV and MV with Voltage > 10 kV
- Involve TSO and DSO from 2 member states
- At least 50 000 users (consumers & producers) in an area > 300 GWh/year, with > 20% of vRES.
- Should contribute significantly to all of the following specific criteria: integration and involvement of network users; efficiency and interoperability of electricity transmission and distribution; network security, system control and quality of supply; optimised planning of future cost-efficient network investments; market functioning and customer services; involvement of users in the management of their energy usage.

[21] 'Smart grid' means an electricity network that can integrate in a cost efficient manner the behaviour and actions of all users connected to it, including generators, consumers and those that both generate and consume, in order to ensure an economically efficient and sustainable power system with low losses and high levels of quality, security of supply and safety. (Regulation No 347/2013)

ANNEX 2: CEF-Energy selection process – the Commission and the Innovation and Networks Executive Agency



Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability

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