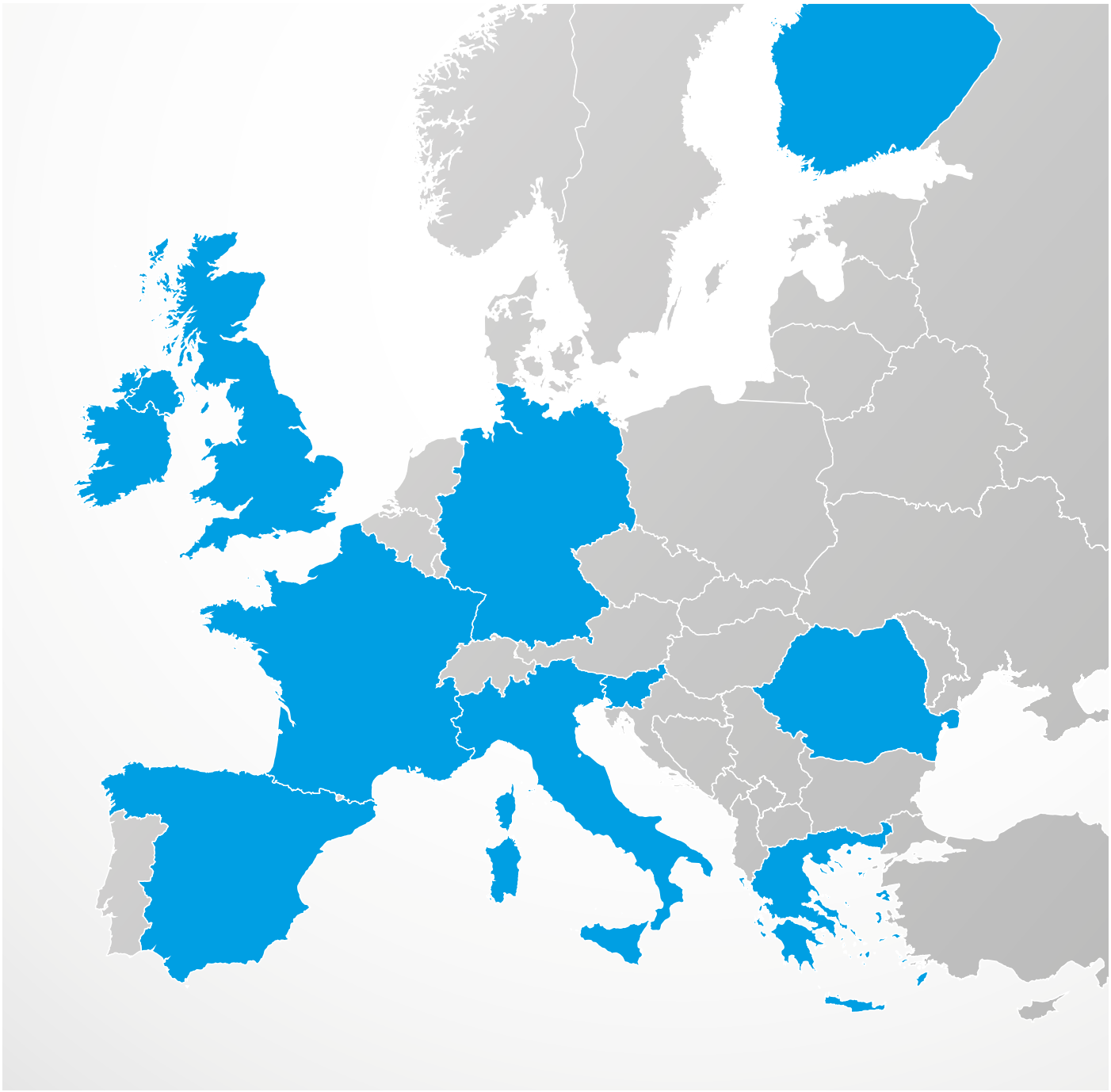
smartEn
Smart Energy Europe

THE IMPLEMENTATION OF THE ELECTRICITY MARKET DESIGN TO DRIVE DEMAND-SIDE FLEXIBILITY

smartEn Monitoring Report November 2020



Index

INTRODUCTION

The EU Electricity Regulation and Directive provide the basis for an ambitious **European Green Deal and Green Recovery.**

Europe's opportunity to realise its climate ambition depends on dynamic market structures enabling clean and innovative solutions, empowering consumers, and using demand-side flexibility to complement a renewable-energy based supply.

25 articles in both the Electricity Regulation and Directive are crucial in this respect. They remove existing regulatory barriers to demand-side flexibility, enable active participation of all energy consumers in the transition to clean energy and increase system efficiency.

While most of the provisions of the Regulation were immediately applicable with its publication on the Official Journal of the European Union in June 2019, several provisions set in the Electricity Directive are expected to be transposed into national legislation by December 2020. The implementation is still a work in progress.

In 2020 smartEn, with the support of its network of member companies, monitored progress in 10 European countries (France, Finland, Germany, Greece, Ireland, Italy, Romania, Slovenia, Spain and the UK) on the implementation of central articles for demand-side flexibility around:

- **Market-based procurement of all Decentralised Energy Resources (DER) by System Operators,**
- **Non-discriminatory participation of all DER to all markets and mechanisms,**
- **Frameworks for innovative services,**
- **Access to price signals for end-users.**

The present report brings together the key information gathered from this monitoring effort. It aims to provide EU institutions and countries with an overview of progress to date and to encourage capitals to accelerate the development of correct national frameworks.

It does not claim to generalise information gathered for 10 countries to all EU Member States, but the balanced geographical representation it proposes gives an insight on challenges and some innovative developments.

The analysed countries are classified according to a **simple traffic-light methodology:** green for a satisfactory implementation of Market Design provisions, orange for weak progress and red for no relevant measures. The green ranking for a country does not guarantee an ideal scenario, but highlights a satisfactory implementation compared to the other countries analysed.

OVERVIEW

Weak progress on the implementation of demand-side flexibility provisions

Both the Electricity Regulation and Directive set the right EU legislative framework to eliminate existing barriers to demand-side flexibility. However, at the time of writing, **most provisions have not been fully implemented.**

Two years after the trilogue agreement among EU co-legislators and more than fifteen months after the publication of the two pieces of legislation in the Official Journal of the EU, the potential of demand-side resources remains untapped to the detriment of increasing system efficiency and achieving the goals of the European Green Deal in a cost-effective way.

• The market-based procurement of all Decentralised Energy Resources (DER) by System Operators is still at its infancy

Provisions on **market-based procurement** are more developed at the TSO level. Remunerations and incentives to procure flexibility exist for TSOs, but are still lacking for DSOs, which in some cases are only developing pilot projects in local flexibility markets.

No clear rules are set for the **ownership, development, management or operation of charging infrastructures for electric vehicles and energy storage facilities** by System Operators, with some exceptions in Finland, Ireland, Greece and Spain.

• Widespread limits to the non-discriminatory participation of all DER in all markets and mechanisms

Relevant limitations persist in some countries for the non-discriminatory participation of all DERs, both individually and aggregated, to **balancing markets,** while half of the analysed countries (France, Finland, Italy, Romania and Slovenia) tend to comply with non-discriminatory provisions for **day-ahead and intraday markets,** although most of them still have a high bid size of 1 MW, which is double to what foreseen by the Regulation (500 kW or less).

Non-discriminatory and market-based rules for **redispatching** are only applied in Finland, and after the entry into force of the Regulation, the UK and Greece do not seem to be fully compliant with provisions opening **capacity mechanisms and strategic reserves** to demand-side resources.

• Fragile frameworks for innovative services

Just a few weeks before the transposition deadline in December 2020, a comprehensive **demand response aggregation framework** is missing in most countries. The prior consent of suppliers remains an obstacle and with the sole exception of Italy, no national legislation among those that have been reviewed has expressly eliminated the possibility for suppliers to discriminate against customers that have a contract with an aggregator.

Free access to end-customer data by eligible parties, based on consumer's consent, would be a major enabler of innovative services, but only France, Finland, Germany and Slovenia have already set national rules requiring it.

France and Spain are the only Member States compliant with the elimination of double network charges for **active customers owning an energy storage facility.** Finland has eliminated double taxation, but not double network charges.

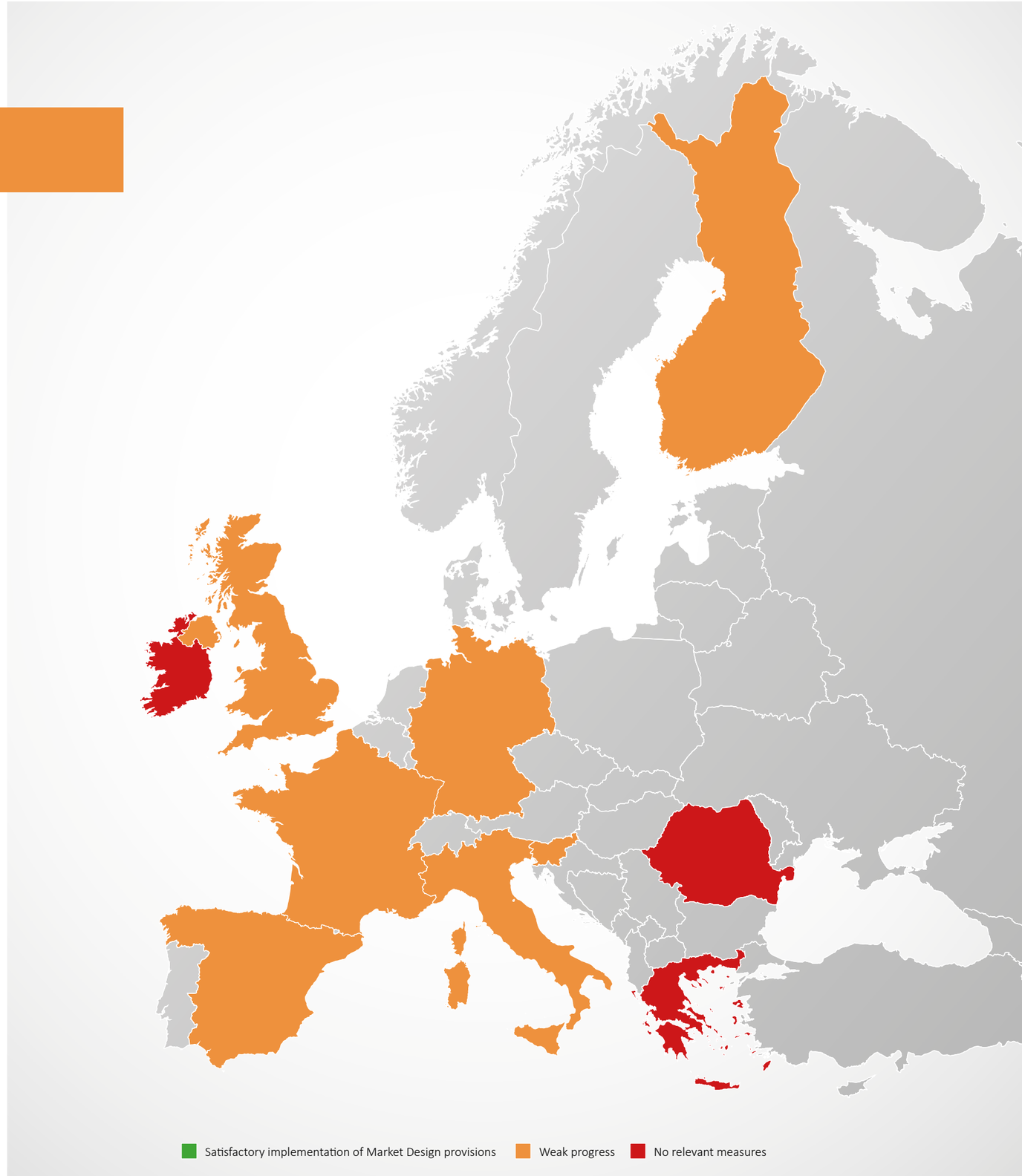
No specific national framework enabling **citizens energy communities** is in place in any of the analysed countries.

• Small steps to ensure access to price signals for end-users

Following the deployment of smart meters, suppliers in Finland, Italy, Spain and the UK already offer **dynamic electricity price contracts** linked to wholesale and spot market prices, in compliance with the obligation to provide at least one such commercial offer. In France, time-of-use tariffs are offered and an evolution to tariffs based on spot and intraday prices is in discussion.

The development towards **time-differentiated network tariffs** is a reality only in France and Finland, where the NRAs approved cost-reflective, transparent network charges that also take into account the need for flexibility.

To conclude, the implementation of the Electricity Market Design aims to remove regulatory barriers, promote innovative data-driven energy services, foster industrial competitiveness and create new jobs across Europe. It should also support innovative companies and new market players that are currently identifying new markets for demand-side flexibility to flourish. The current weak and slow progress means that much of the demand-side flexibility potential remains untapped. Both the European Commission and Member States should target this backlash to the Energy Union without further delays.



Provisions covered by this mapping:
Articles 5, 11-13, 15-17, 19, 23, 32-34, 36, 40, 51, 54, 71 of the Electricity Directive and articles 6-8, 13, 18, 20-22 of the Electricity Regulation

MAP 1

Market-based procurement of all Decentralised Energy Resources by System Operators

A radical shift is required by both TSOs and DSOs to become neutral market facilitators. The Electricity Directive has established specific rules to switch to a TOTEX approach, allowing market players to invest in decentralised energy resources encouraging and incentivising them to procure flexibility services to reduce unnecessary grid reinforcements and increase system efficiency.

At the time of writing, no country has fully transposed provisions to **incentivise DSOs to procure flexibility,** as required by article 32 of the Electricity Directive.

France, Finland, Italy and the UK have allowed DSOs to procure flexibility services on a pilot basis, but without a comprehensive framework foreseeing transparent, non-discriminatory and market-based procurement. Local flexibility markets are still in their infancy.

No Member State has adopted a framework to **adequately remunerate DSOs** for the procurement of flexibility services. The CAPEX approach is still predominant and adaptations to the status quo might follow once ongoing pilot projects are concluded. No **standardised market products for flexibility services** have been defined in any of the countries analysed, with only some voluntary efforts towards standardisation between DSOs in the UK.

Regarding the **prohibition of ownership, development, management or operation of charging infrastructures for electric vehicles by DSOs,** only Greece and Spain have already set this principle in legislation, to enable market players to invest in e-mobility deployment in a competitive way.

In other countries, DSOs are either tasked to develop an EV charging network or their role is currently under revision, in parallel with the complementary implementation of the Alternative Fuels Infrastructure Directive, as in Italy.

Similarly, no country has enshrined in national legislation the principle of **market-based ownership, development, management and operation of energy storage facilities, excluding ownership by DSOs as regulated entities.** However, France, Finland, Germany and the UK seem to be evolving towards a market-based approach.

No NRAs have intervened until now to develop specific **guidelines or procurement clauses** to help DSOs ensure a fair tendering procedure for EV charging infrastructure and energy storage facilities.

However, half of the analysed countries (France, Finland, Germany, Italy and Slovenia) have already set clear rules to ensure all eligible parties have **non-discriminatory access to data managed by DSOs,** an important condition for the development of innovative services (see Map 3 for more information).

Compared to DSOs, the **framework on market-based procurement of all DERs by TSOs** is more advanced, although not ideal. France, Greece, Ireland, Slovenia and Spain have set clear rules for the market-based procurement of ancillary services. The other countries covered by this report are adapting their existing frameworks in accordance with the provisions of article 40 of the Electricity Directive.

Most of the national frameworks already **adequately remunerate TSOs** for the procurement of flexibility services, or are aiming towards this evolution.

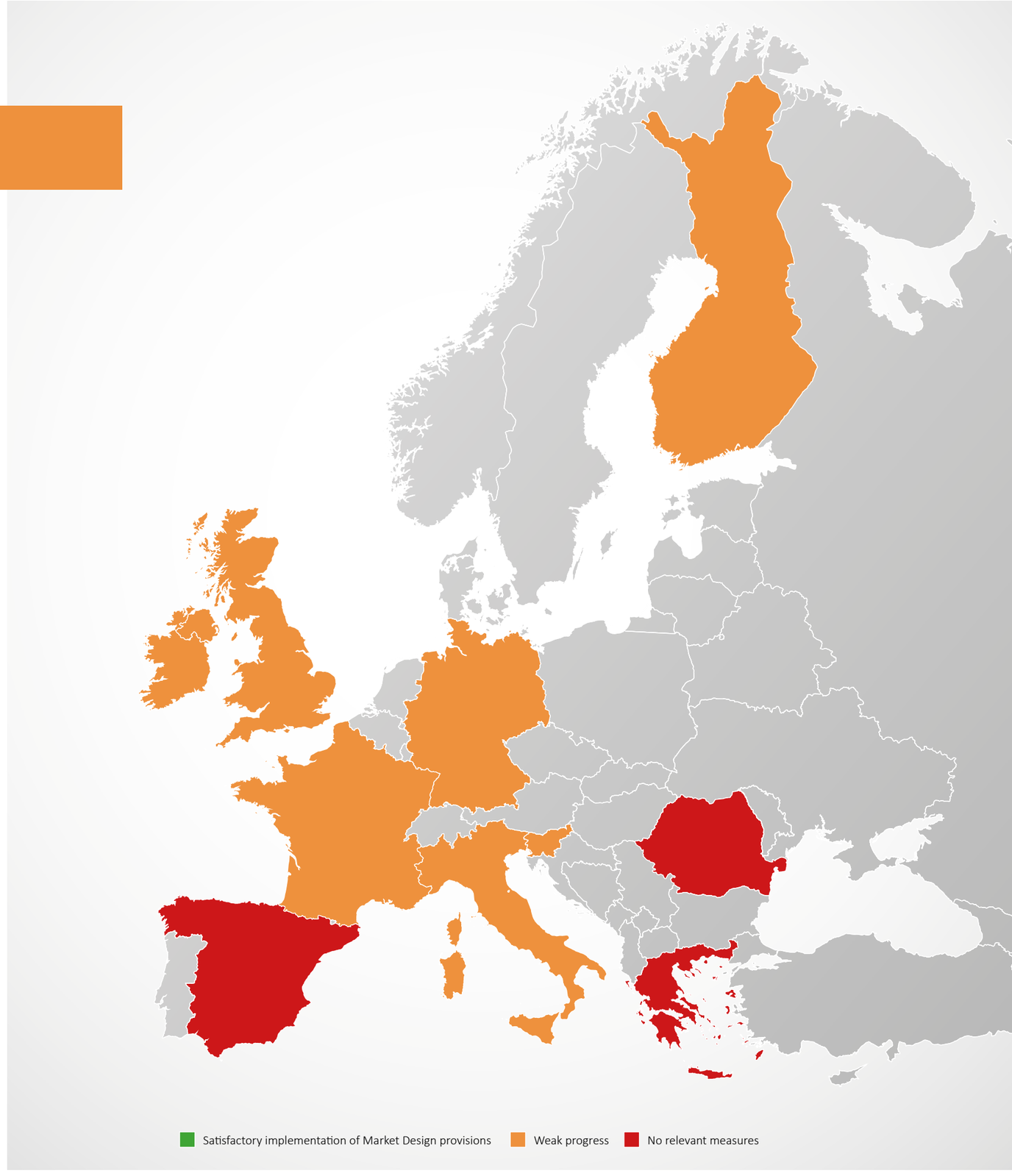
Most countries have either already defined **standardised market products for flexibility services** or are in the process of adopting them.

As with the DSO provisions on the principle of **prohibiting ownership, development, management, operation of energy storage facilities,** countries have not defined clear rules for TSOs, with the exception of Finland and Ireland. Countries such as Germany and Spain do not seem to have revised their existing frameworks in accordance with article 54 of the Electricity Directive.

The NRAs have not developed **guidelines or procurement clauses** to assist TSOs in ensuring a fair tendering procedure for energy storage facilities, with the exception of Ireland.

As regards the long term, the TSOs in France, Finland, Germany, Slovenia and the UK have already fully considered the potential of using all DER as alternatives to system expansion in their **10-year network development plans.** France, Finland and Slovenia have also ensured consistency between such long-term network development plans and the submitted National Energy and Climate Plans, following a fruitful cooperation between the relevant Ministries, NRAs and TSOs.

While in Italy a contradictory approach in Terna's mid- and long-term plans creates uncertainties, TSOs in Greece, Ireland and Spain are still lagging behind in meeting the network development requirements set out in article 51 of the Electricity Directive.



Provisions covered by this mapping:
Articles 32-34, 36, 40, 51 and 54 of the Electricity Directive

MAP 2

Non-discriminatory participation of all Decentralised Energy Resources to all markets and mechanisms

The Electricity Regulation has established clear rules to ensure the non-discriminatory participation of all DERs, both individually and aggregated, to balancing, intraday and day-ahead markets, redispatching, capacity mechanisms and strategic reserves.

At the time of writing, relevant limitations for **balancing markets** persist in most countries.

For example, Finland allows independent aggregation with restraints as limited to some products and Greece opens balancing markets only to aggregated DERs.

In the UK, the balancing mechanism cannot be really considered to be a market, as bids and offers are accepted by the TSO at its sole discretion.

While only generation units can participate in both Spain and Italy, the UVAM project in Italy is an attempt to open balancing to all DERs, both individually and aggregated, provided they meet the minimum bid size of 1 MW, which is still too high, as in most countries.

For **day-ahead and intraday markets,** half of the analysed countries (France, Finland, Italy, Romania and Slovenia) tend to comply with non-discriminatory provisions although most of them still have a high bid size of 1 MW, which is double that foreseen by the Regulation (500 kW or less).

Limits to the participation of independent aggregators are still a major issue in Germany and the UK, and a level playing field for all DERs is still not guaranteed in Greece, Ireland and Spain.

Derogations and exceptions have been granted in almost all countries, since trade in time intervals as short as 15 minutes both in day-ahead and intraday markets, seems to be a reality only in Germany.

Article 13 of the Electricity Regulation also requires the non-discriminatory participation of all DERs according to market-based rules for **redispatching.**

Among the countries analysed, only Finland seems to be fully compliant as it also ensures financial compensation based on market prices and does not provide for derogations from market-based redispatching.

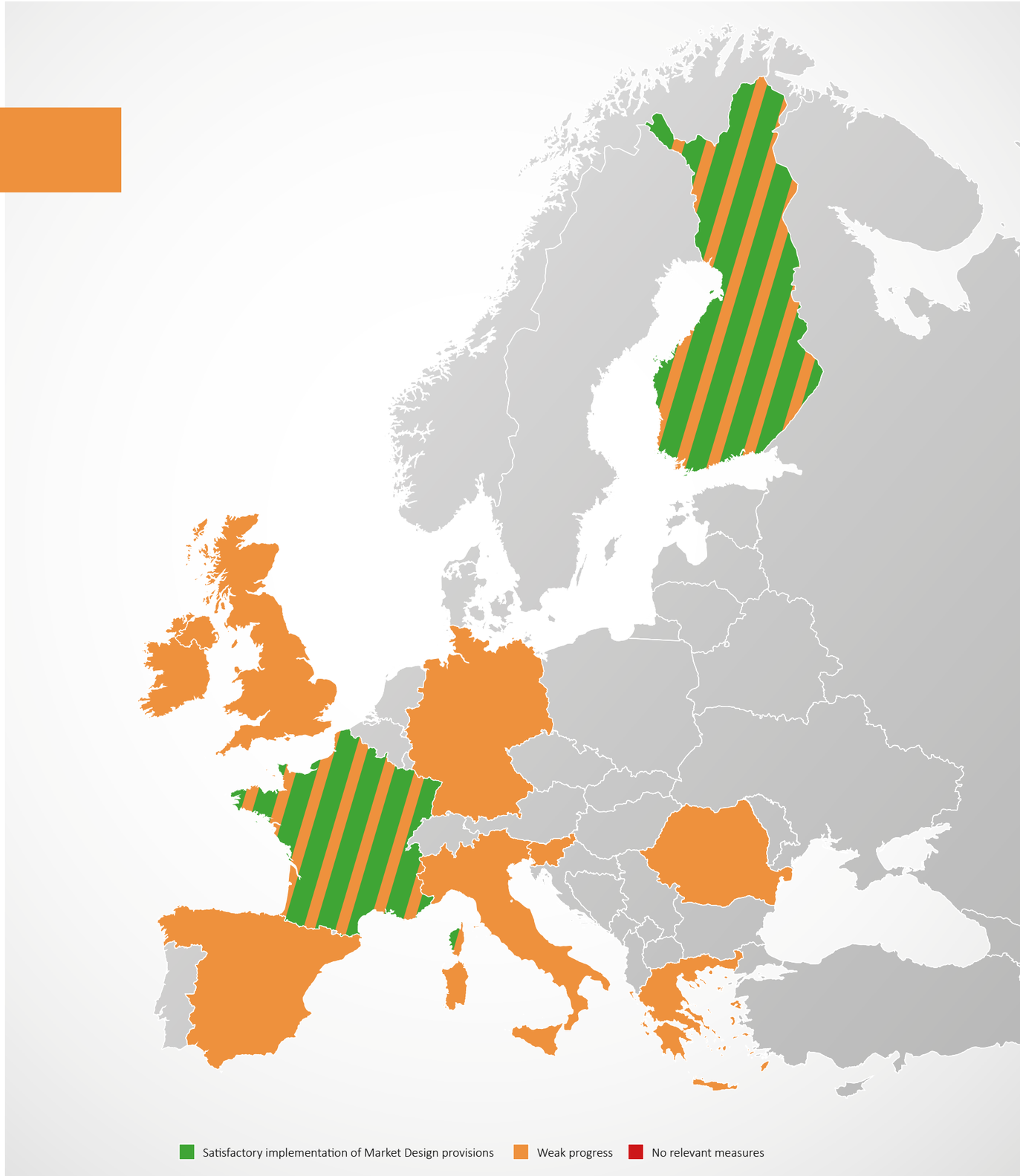
In Italy and the UK, redispaching is operated by TSOs through the balancing or ancillary services markets and no separate accounting is provided.

In France it is a market just at TSO-level, based on market prices and only in case of insufficient bids can the system operator request a non-market-based redispatching. Other countries are not yet compliant with this article, in particular Germany, which will launch a mandatory, cost-based redispatching, for all resources larger than 100 kW from 1 October 2021, with the stated intention of avoiding gaming.

Similar rules on the non-discriminatory participation of all DERs, both individually and aggregated, are introduced for **capacity mechanisms and strategic reserves** in articles 20-22 of the Electricity Regulation.

At present, four of the analysed countries have introduced resource adequacy mechanisms after the entry into force of the Regulation:

- France modified its existing capacity mechanism, as requested by the European Commission, before delivery year 2020 to be compliant with EU rules,
- Italy introduced a capacity mechanism, starting in 2022, open to all DERs,
- The UK restarted its existing capacity mechanism after a renewed State aid approval by the European Commission, but it still discriminates in favour of generation over demand,
- Greece launched an interruptibility scheme open only to industrial consumers and a Transitional Flexibility Remuneration Mechanism which de facto excludes DERs from participation.



Provisions covered by this mapping:
Articles 6-8, 13, 20-22 of the Electricity Regulation

MAP 3

Frameworks for innovative services

The Electricity Directive fosters innovative services to unlock the demand-side flexibility potential of end-users, notably demand response aggregation and citizens energy communities.

For the first time, the Electricity Directive established a **framework for demand response (DR) aggregation** at EU level and incentivises Member States to allow it.

With only a few weeks to go before the December 2020 transposition deadline, no major provisions have been adopted in any of the capitals analysed, except in France where, in principle, aggregation is allowed to participate in all markets and there has also been an annual demand response exclusive tender since 2018. In most countries it is mainly, if not exclusively, allowed in balancing markets (Finland, Germany, Italy and Slovenia) or other dedicated schemes like the interruptible load programme in Germany. Very basic provisions and actual discriminations are not yet duly addressed in particular in Greece and Ireland.

The necessity of **prior consent by suppliers** has been a major obstacle for independent aggregators. Article 13 of the Electricity Directive eliminates this possibility and set a major principle, but this is clearly enshrined in national legislation only in France. Germany has eliminated it only for balancing markets, but not for wholesale markets (day-ahead or intraday) or interruptible loads programme. With the exception of France, Italy and Romania (Finland and the UK planning regulatory changes), no national legislation has eliminated the possibility for suppliers to **discriminate against customers** that have a contract with an aggregator..

With the sole exception of Italy (Finland and the UK planning regulatory changes), no national legislation has eliminated the possibility for suppliers to **discriminate against customers** that have a contract with an aggregator.

The lack of a DR aggregation framework in most countries also implies that currently an uncorrected model applies, but most countries are heading towards a corrected model. In addition, in no country does the (existing or planned) **calculation method for compensation** take into account all benefits to the overall system caused by independent aggregators.

Would compensation schemes be reviewed as set forth by the Electricity Directive not to create a barrier to DR participation, then DR aggregation would have a chance to access profitably and to develop rapidly on the energy markets.

The right to switch supplier and aggregator is another relevant provision to increase competition towards more innovative offers.

Article 12 of the Electricity Directive foresees that the maximum time taken to switch contracts is set at 3 weeks for both suppliers and aggregators. Although no legislative requirement is set for aggregators in any analysed country, almost all of them are compliant with this obligation for suppliers, with Finland reducing it to 2 weeks and France moving to the same timeframe by the end of the year.

Greece and the UK have set some exceptions to the rule. Slovenia is lagging behind due to a 1-year constraint.

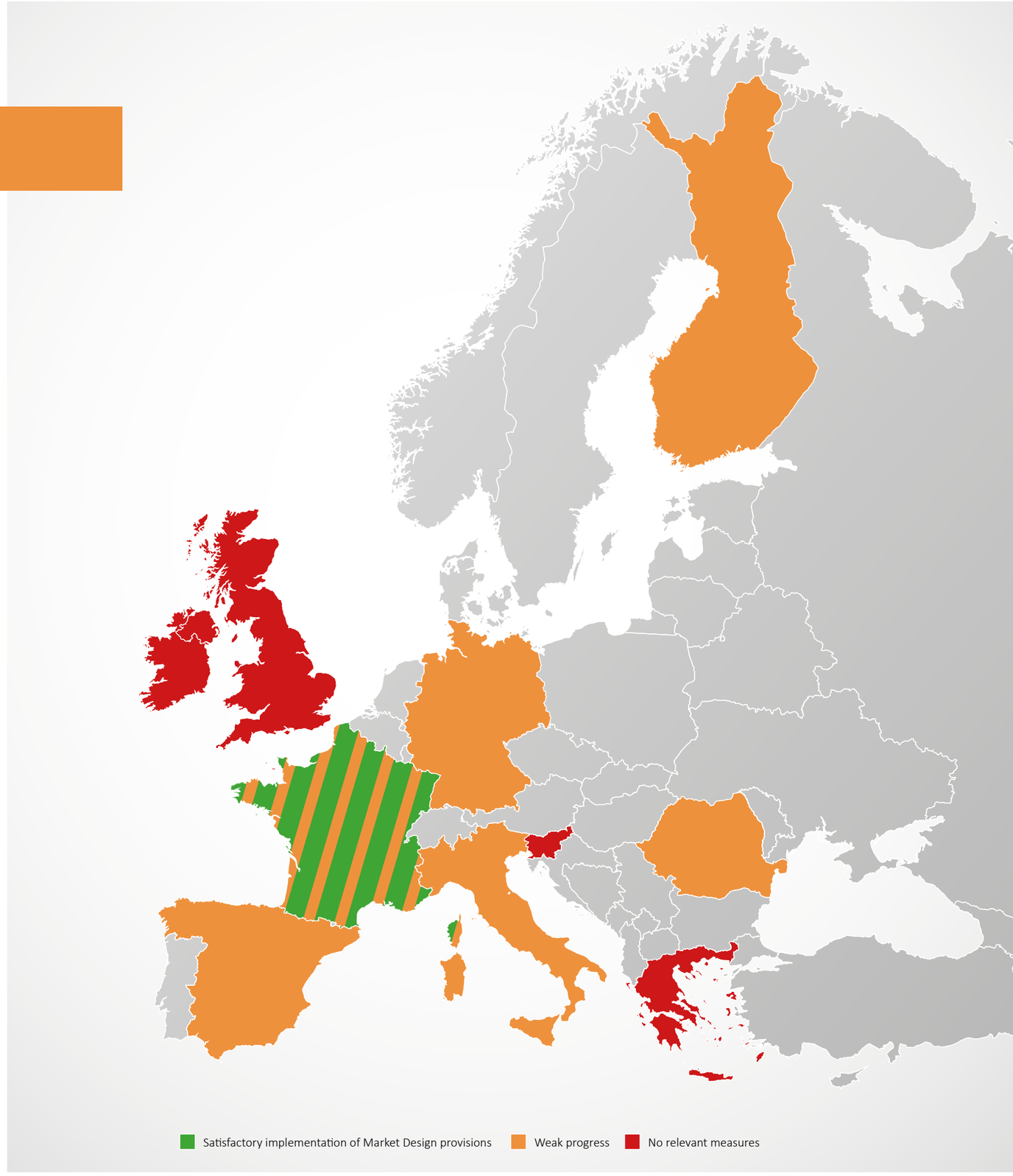
No country has taken provisions to reduce this requirement to 24h, only for suppliers, by 2026.

Early termination fees are permitted in Ireland, Slovenia, Spain and the UK, while the other analysed countries have not explicitly allowed them, but let bilateral contracts with customers include such fees.

A key enabler of innovative services is **free access to final customer data** by eligible parties, based on consumer's consent. While France, Finland, Germany and Slovenia have already set national rules allowing it, other countries have either not transposed yet this obligation, or have left DSOs to voluntarily establish online platforms for third party access, as in Spain.

Active customers owning an energy storage facility will be discouraged from interacting with the system if countries allow double network charges and taxes. This is a major barrier to a promising business model. Article 15 of the Electricity Directive has only eliminated the double network component and for the time being France and Spain are the only countries compliant. Finland has eliminated double taxation, but not double network charges.

At the time of writing, no specific national framework enabling **citizens energy communities** is established in the analysed countries. Some countries (Greece, Slovenia and Spain) will use the existing provisions on energy communities, collective self- consumption and net-metering to establish a specific framework. Italy, which pushed for this article during EU negotiations, has launched an experimental scheme whose results will inspire the national regulatory framework.



Provisions covered by this mapping:
Articles 12, 13, 15-17 and 23 of the Electricity Directive

MAP 4

Access to price signals for end-users

The Electricity Market Design has introduced clear provisions to move from regulated electricity prices to market-based prices and time differentiated grid tariffs for end- users. This allows transparent access to price signals, the adaptation of energy consumption on the basis of external signals and drives innovative business models to automatically adjust the consumption of end-users while increasing comfort and efficiency.

While France and Spain are not planning to phase out regulated prices for small consumers, half of the analysed countries have not opted for **regulated prices** (Finland, Germany, Greece, Ireland) or have limited them to vulnerable customers in energy poverty (Slovenia), while Italy, Romania and the UK are phasing out the possibility for households and SMEs to opt for regulated prices between 2021 and 2023.

The deployment of **smart meters** is essential for the development of innovative tariff formulas, such as dynamic electricity price offers, to optimise the use of electricity and empower final customers.

Articles 19 and 20 of the Electricity Directive set minimum functionalities to ensure smart meters enable the active participation of end-users to price-driven demand-side flexibility schemes.

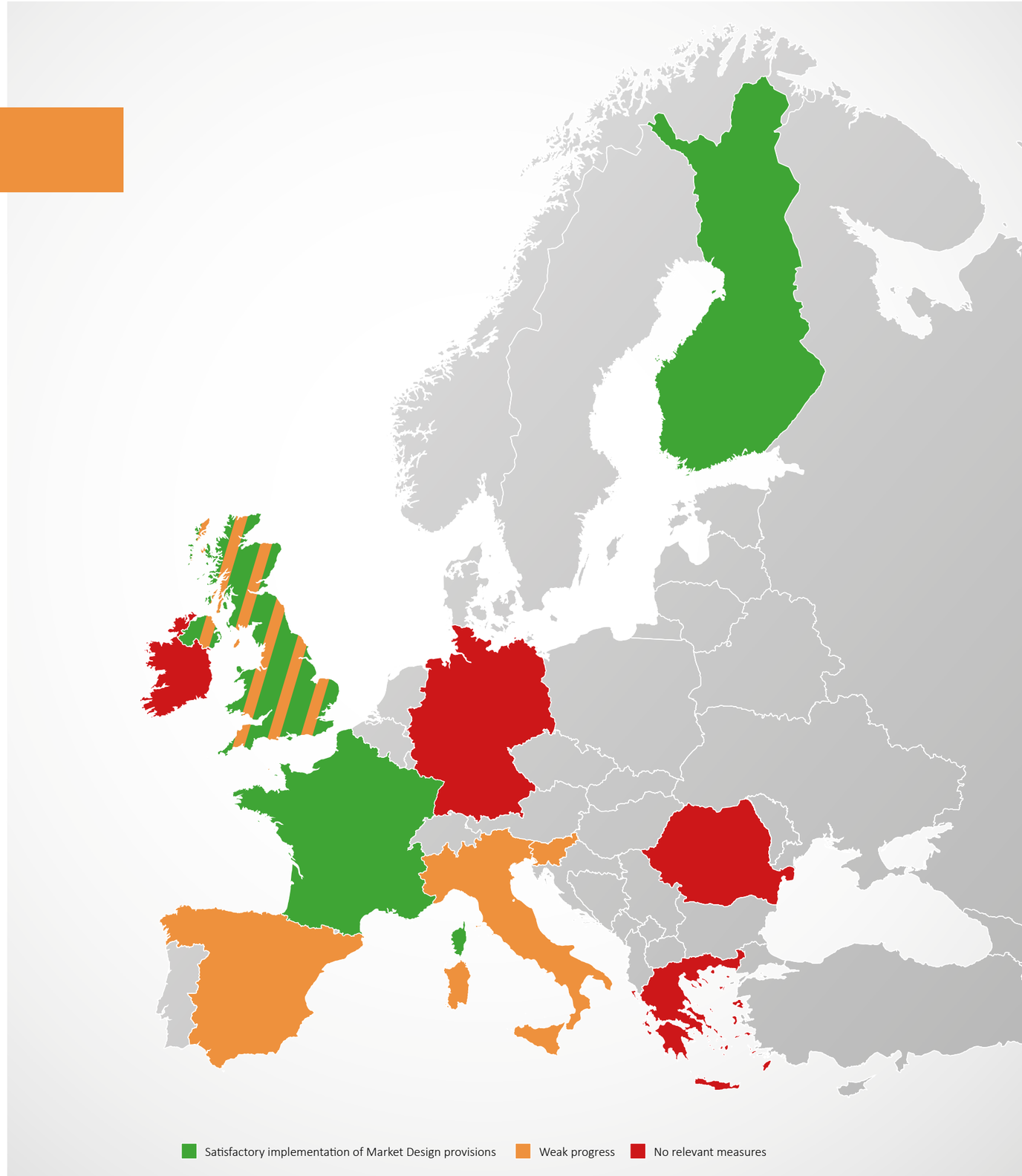
All analysed countries have either completed or launched the roll-out of smart meters. France, Finland, Italy and the UK have already defined that the new smart metering systems should be interoperable with both energy management systems and smart grids to ensure full interoperability both behind and in front of the meter.

In Finland, Italy, Spain and the UK, suppliers offer **dynamic electricity price contracts** linked to wholesale and spot market prices, in compliance with the obligation to provide at least one such commercial offer. In France, time-of-use tariffs are offered and an evolution to tariffs based on sport and intraday prices is in discussion. While in Germany, the delay in the roll-out of smart meters means that such contracts are not yet available. However, a specific provision in Germany, which is currently subject to misinterpretations, allows final customers with a smart meter to request such offers. Due to the lack of smart meters, suppliers in Greece cannot offer dynamic price offers to their clients.

Dynamic tariffs covering both the electricity and network components are in place only in France, Finland and the UK. In Slovenia, the NRA has promoted pilot projects on these issues, whereas Spain has developed time-of-use network tariffs.

In addition to the presence of smart metering systems, the development towards **time-differentiated network tariffs** depends on the approval by the NRAs of cost-reflective and transparent network charges that also take into account the need for flexibility. This is the case especially in France and Finland, while most of the other countries analysed either foresee this type of charge only for the transmission networks, as in Slovenia, or still follow a CAPEX approach, thus favouring network reinforcements.

Most tariff methodologies and performance targets introduced by the NRAs incentivise DSOs to raise efficiency and introduce some forms of digitalisation, but still lack requirements for flexibility.



Provisions covered by this mapping:
Articles 5, 11 and 19 of the Electricity Directive and article 18 of the Electricity Regulation

COMPLETE TABLE

Electricity Regulation

ARTICLE	QUESTION	FRANCE	FINLAND	GERMANY	GREECE	IRELAND	ITALY	ROMANIA	SLOVENIA	SPAIN	UNITED KINGDOM
Balancing Market (art. 6)	Is the non-discriminatory participation of all decentralised energy resources effectively ensured, both individually and aggregated?	Yes, the TSO has updated the format of services to make it possible for any resource to participate as soon as it has the technical capabilities to fulfill the needs of the TSO	Yes, but independent aggregation is allowed with certain limitation in the reserve markets	Yes, but asset backing for FCR capacity across different TSO areas is still not possible	Partially as only DER can participate if aggregated (not individually). Individual participation is allowed only for dispatchable production	Partially	Only relevant generation units (>10MW) can participate, but from 2017 a UVAM project between ARERA and Terna opens to all DERs, both individually and aggregated units provided they satisfy the minimum bid size	Yes, implemented by Ord. 236/2019	Yes	Partially as at the moment only RES can participate, not yet for DR and storage. Consultations ongoing to revise status quo	No. There is no strong concept of a merit order. Balancing Mechansm bids and offers are accepted by National Grid at their sole discretion. They may be carefully optimising against numerous considerations, but it is impossible for any participant to tell. It's not really a market, as National Grid has discretion to buy whatever it likes
	What is the minimum bid size for the market-based procurement?	1 MW	FCR-N: 100 kW, FCR-D: 1MW Other: 5-10 MW	mFRR and aFRR: 1 MW, FCR: +/- 1 MW	1 MW	1 MW	1 MW	500 kW	1 MW	1 MW	1 MW, in 1 MW increments
Day-Ahead and Intraday Markets (art. 7-8)	Is the non-discriminatory participation of all decentralised energy resources effectively ensured, both individually and aggregated?	Yes, both market are portfolio-based and do not make any difference between resources behind the offers and bids	Yes	Yes, but there is still a requirement for aggregators to get permission of the supplier when aggregating and selling customer load flexibility to these markets	Not yet	No	Yes	Yes, implemented by Ord. 236/2019	Yes	Not yet. There are no provisions for DR, storage or EVs in such markets	No. Third-party aggregated DR has no way of accessing the wholesale markets. Only a customer's supplier can make wholesale transactions
	The minimum bid size should be 500kW or less. Is this provision respected?	1 MW	1 MW	100 kW	Yes	Yes	1 MW	Yes	No	100 kW	100 kW
	Market participants should trade energy in time intervals at least as short as 15min in both day-ahead and intraday markets, unless NRAs have granted derogations or exemptions. Is it the case?	The ISP is 30 minutes until 2025. IDM is trading 30 minutes product. DAM makes 1h product only	Trading with 1 hour resolution, Q2 2023 will be 15 min balance settlement period. Intra day also 2023, day ahead not defined timeline yet	15 min time intervals in both day-ahead and intraday markets	IDM is trading 30min products while DAM only 60min products	No	Energy is traded in 1 hour time interval	Yes, by the end of 2020, as foreseen by ANRE Ord. 63/2020	Yes for ID, not for DA	Currently the ISP is at 60min, but consultations to reduce it to 15min	Still 30 minutes
Redispatching (art. 13)	Is redispatching open to all decentralised energy resources according to market-based rules?	Redispatching for constraints on the transmission network (>50kV) is open to all resources participating in the "mécanisme d'ajustement". Price, location, and dynamic capabilities are taken into account to select the redispatching actions. There is no Redispatching by DSOs (< 50 kV)	Yes	No, there is no market based redispatch, only mandatory redispatch for all resources larger than 100 kW starting from 1 October 2021	No, only for dispatchable production units	Yes	Theoretically yes, even if the TSO does not provide a separate accounting specifically for redispatching. In fact, redispatching with market based rules is operated by Terna through the ancellary services market: only units that participate to that market are involved in the redispatching market. For other units, redispatching is out of the market (mostly wind farms curtailment)	No	No, just bilaterally by request	No as now DER do not participate in redispatching and no indications this will change in the short-term	Redispatching is done through the Balancing Mechanism. It is not yet open to third-party aggregated DR, but should be soon
	Is financial compensation included?	Yes, based on market prices	Yes, based on market prices	Financial compensation covers only the costs	No	No	N/A	N/A	Yes	N/A	N/A
	Are derogations foreseen to the market-based redispatching?	Yes, in case there is no sufficient bid, TSOs and DSOs can refer to the Network Access Contract of the network users to request a non market-based redispatching	No	Cost-based redispatch in Germany is a complete derogation to the market-based EU standard. This is justified by a study by the Department of Energy which affirms that market-based redispatch would lead to gaming in any case (INC DEC gaming) and should therefore not be implemented in Germany at all	Yes	No	Yes for wind generation curtailment, but further developments in TIDE "Testo integrato del dispacciamento elettrico" 322/2019/R/eel, to be approved in summer 2020	N/A	N/A	N/A	N/A

ARTICLE	QUESTION	FRANCE	FINLAND	GERMANY	GREECE	IRELAND	ITALY	ROMANIA	SLOVENIA	SPAIN	UNITED KINGDOM
Network charges (art. 18)	Has the NRA approved network charges which are cost-reflective, transparent and take into account the need for flexibility?	Yes, network charges are technology-neutral and take into account the actual outcome	Yes	No, network charges still do not take into account the need for flexibility. On the contrary, there are incentives for inflexible consumption behavior in the energy-intensive industry	No	No	Network charges are transparent and cost reflective, nevertheless to date, flexibility needs are not explicitly considered	No	Yes for transmission network charges, no for distribution network charges. The latter are investigated by the R&I sanbox only (with pilot dynamic network charge mechanisms). NRA is just starting the substantial tariff reform, to remove identified shortcomings and to make the tariffs more cost-reflective in view of active customer and development of local flexibility markets	The new Spanish network tariff methodology regulated in Circular 3/2020 is transparent. Additionally, it is forseen that the NRA will create a group to assess if the network tariff structure contributes with the goals of the energy transition	Currently undergoing substantial reform, to make the tariffs more cost-reflective (previously, too much fixed cost was represented in per-kWh charges)
	Do the tariff methodologies provide appropriate incentives to System Operators, support efficient investments and facilitate innovation in areas such as digitalisation and flexibility services?	Network tariffs make it possible for System Operators to propose innovative approaches based on a regulatory sandbox concept. They can incorporate network flexibility in connection charges as well without any financial penalty. Also, network operators are financially incentivized for the deployment of smart meters	No, NRA is developing capacity-based distribution tariffs	No, CAPEX is rewarded and OPEX is not	No	No	"A TOTEX approach is not in force (implementation foreseen in the future). Since 2015 output based incentive mechanisms have been introduced to support the adoption of some innovative functionalities, linked to digitization. There are still no specific rules relating to flexibility services"	Discussions ongoing, but the current investment methodology focuses on network reinforcements	Only through core methodology & Research&Innovation sandbox	Yes for digitalization, no for flexibility services. The current scheme is valid unitl the end of 2025	There is certainly some activity of these types, as a response to some incentives
	Where Member States have implemented the deployment of smart metering systems, are time differentiated network tariffs considered by NRAs?	Yes	Yes	Germany starts the smart meter rollout for customers above 6'000 kWh annual power consumption, prosumers with more than 7 kW photovoltaics installation and controllable assets such as EV charging stations. However, currently consultants for the Department of Energy are working on a mechanism to split network connection into "guaranteed capacity" and "optional capacity". In that case the DSO would have the right to restrict connection capacity to the guaranteed amount in times of congestion. However, this has not yet led to draft legislation	N/A as smart meter deployment has not been implemented	No	Not yet, given that the installation of 2G smart meters for all DSOs should end in 2026	No, slow implementation of DSOs targets for smart meter deployment until 2028	Tested by various qualified pilot project within the R&I sandbox introduced in 2016 and improved for ongoing regulatory period 2019-2021	Yes, the Spanish access tariffs (network + charges) are time of use, although for consumers with contracted power up to 15 kW there's the option of fixed access tariffs. The new network tariff methodology only establishes time of use tariffs for all type of costumers	Yes
	Has the NRA introduced performance targets to incentivise DSOs to raise efficiencies, flexibility and the development of smart grids and intelligent metering systems?	Yes	Yes	No for flexibility and smart grids (just limited to five SINTEG R&D projects until 2022) Yes for efficiency and smart meters, but focused on some specific cases	Under discussion	No	Output based incentive mechanisms have been introduced for innovative features typical of smart grids since 2015. For intelligent metering systems, the NRA provided performance KPIs and penalites for LV second generation metering systems	Performance indicators are set on the efficiency of DSOs, but lacks requirements for flexibility and development of smart grids	Yes, the comprehensive incentive scheme covers investment areas in both smart-grids and smart metering	DSO have quality and loss incentives in the remuneration schemes	Partially for 2020-2023, but significant incentives in the funding settlement expected from 2023
Resource adequacy (art. 20-22)	Has this Member State introduced a capacity mechanism or strategic reserve after the entry into force of the Regulation?	The French capacity mechanism has come into force in December 2014. In 2016, DG COMP has approved this mechanism as a State aid scheme under two given conditions to be implemented as soon as 2019: 1) the explicit participation of cross-border capacities; 2) the implementation of a multiannual scheme dedicated to new capacities development. Those conditions have been fully implemented before delivery year 2020	No	No, but Germany has already a number of capacity mechanisms officially claimed to be open and technology neutral, but the technical details do not allow DER to participate: - 1'200 MW ""special network equipment"" for four gas power plants of 300 MW each in southern Germany, - 2'000 MW capacity reserve with 1'056 MW bids of eight gas power plants for 68'000 EUR/MW/a, - 2'700 MW security readiness over four years for eight lignite-fired power plants, - 5'126 MW network reserve 2019/2020 (""winter reserve"") that increases to 10'647 MW 2022/2023, - H2 R&D project ""Element Eins"" of three TSOs with public funding	No	No	Yes, Capacity market (DCM 28 giugno 19), starting in 2022 (auctions for years 2022 (1,8 GW) and 2023 (4 GW) already completed)	No	No	No yet. However, the NECP mentions the possibility to assess capacity mechanism	The Capacity Market was first introduced before entry into force, but restarted after renewed State Aid approval after entry into force

ARTICLE	QUESTION	FRANCE	FINLAND	GERMANY	GREECE	IRELAND	ITALY	ROMANIA	SLOVENIA	SPAIN	UNITED KINGDOM
Resource adequacy (art. 20-22)	If introduced, are they open to the non-discriminatory participation of all decentralised energy resources?	Yes	N/A	N/A	N/A	N/A	Italian CM is open to all kind of resources (generation, demand, storage, foreign resources, also renewable non programmable generation is allowed to participate) through different derating factors that represent the adequacy contribution of every technology. Participation is open to decentralised resources (for instance, can participate aso generation unit < 10 MW, even if these unit cannot participate to ancillary service market, but ony to DA and ID market)	N/A	N/A	N/A	It is not non-discriminatory. Rather, it privileges generation over demand response by having a testing regime which suits generation and offering multi-year contracts only to high-capex resources. But all these discriminatory aspects seem to have been blessed by DG COMP
	After the entry into force of the Regulation, has this Member State introduced any other similar mechanism? If any, are they open to all decentralised energy resources?	No	No	No	An interruptibility scheme open only to industrial consumers and a Transitional Flexibility Remuneration Mechanism open also to DR and storage but due to technical barriers, de facto only gas can participate	No	No	No	No	No	No

COMPLETE TABLE

Electricity Directive

ARTICLE	QUESTION	FRANCE	FINLAND	GERMANY	GREECE	IRELAND	ITALY	ROMANIA	SLOVENIA	SPAIN	UNITED KINGDOM
Transposition (art. 71)	Member States shall bring into force key provisions in the Directive by 31 December 2020. Has this Member State already accomplished this requirement?	Yes. The Energy and Climate Law of 8th November 2019 empowers the government to take via ordinances the necessary measures to transpose and integrate the Electricity Directive and Regulation. Most of the detalied measures are still expected	Expected in autumn 2020	Not yet, just launched a first consultation processes on a market-based procurement of reactive power	Not yet, Law 4643/2019 adopted some parts of the Directive	The NRA concluded that Ireland is already compliant with most requirements. Where needed, modifications will occur by 2020	Not yet, public consultation concluded	Not yet	Not yet, Energy Act under revision	Not yet	No specific transposition
Market-based supply prices (art. 5)	Has this Member State opted for regulated prices?	Regulated-prices-based contracts only represent an alternative to market-based offers that exist for all consumers, including for households and small companies	No	No	No	No	Yes through "servizio di tutela", possible for all domestic customers and small enterprises (but decreasing over the years: 44% of domestic customers an 56% of small enterprises have abandoned it)	Yes, until 1.7.2021	Not in general terms, except for special arrangements	Yes, no phase out foreseen	Yes, until 2023
	Who is going to benefit? Until when?	From 2021, residential customers and SMEs below 36 kW	N/A	N/A	N/A	N/A	Until 1.1.2021 for small enterprises and 1.1.2022 for households and micro-enterprises	Households	Mainly vulnerable customers in energy poverty	Consumers below 10 kW can choose between regulated prices (Precio Voluntario para el Pequeño Consumidor) or liberalized price	There are two price caps. The main one covers all customers on any supplier's "standard variable tariff" or default fixed tariff, to last until 2023 at the latest. There is also a separate prepayment meter cap, due to end in 2020
Dynamic price contracts (art. 11)	Which national provisions enable suppliers to offer dynamic electricity price contracts?	The legislative and regulatory framework already provides for time-of-use tariffs and such tariffs exist. Tariffs based on Spot and Intraday prices will be specified by December 2020	All customers have smart meters and customers are free to choose supplier and the type of contract. Dynamic price models are available widely from various companies	The 8-year-delay of the German smart meter roll-out implies that no such contracts are available yet. § 14a Energiewirtschaftsgesetz (EnWG) allows dynamic price contracts for final customers with a special meter or even a smart meter, but the details are unclear and should be defined in 2020	Not yet, ongoing public consultation	Smart meter roll-out started only in September 2019	Law n. 124/2017 has introduced the obligation on retail suppliers to provide at least one commercial offer linked to wholesale spot market prices in addition to flat rate offers	No specific provision yet	Possible. The regulator favours pilot projects with full dynamic tariffs (energy and network fees)	Suppliers were already able to offer dynamic price contracts according to Law 24/2013 to all consumers (households and industries) whose meters allow it. Additionally, Royal Decree 216/2014 establishes the regulated voluntary dynamic price for consumers with contracted power below 10 kW	There is no provision that stops them from doing so, it fits into the existing provisions for Time of Use rates
	How this Member State ensure that final customers with a smart meter can request to conclude dynamic electricity price contracts?	It's possible in the competitive market for retailers to offer dynamic price contract, but at the moment just some types of ToU. Specific conditions and details in development	Pricing is free, several suppliers offers dynamic pricing and the NRA set price comparison tools	Final customers with a smart meter can request it. However, the "technically feasible and economically reasonable" provision is subject to misinterpretations	N/A	Ongoing internal regulatory review of the Supplier Handbook with a focus on smart metering to verify compliance with Directive. If needed, a Consultation on updates to the Supplier Handbook will be considered for Q3 2020. If needed, a Decision on the updates will be considered for Q4 2020	Some suppliers are providing specific contracts with hourly dinamic prices for small customers with a smart meter installed	No specific provision yet	No specific provision, just a possibility	All consumers (households and industries) whose meters allow it can request it	Customers can switch suppliers to one who does offer such a contract
Right to switch supplier/ aggregator (art. 12)	What is the maximum duration of switching contracts for both suppliers and aggregators?	Suppliers: up to 21 days (to be reduced to 14 days by 2020) Aggregators: not regulated, but left to bilateral agreements	Suppliers: 14 days Aggregators: to be defined in autumn 2020	Suppliers: 3 weeks Aggregators: N/A	Suppliers: 7 days for Residential and 30 days for Commercial Aggregators: not defined yet	Not decided yet	Suppliers: 3 weeks (switching request submitted by the 10th of each month, new supply contract to start on the 1st day of the following month) Aggregators: not regulated yet, but left to bilateral agreements	Suppliers: 21 Days Aggregators: N/A	Suppliers: 1 year Aggregators: not defined yet	Suppliers: 21 days Aggregators: not defined yet	Suppliers: 21 days, with some exceptions. Changes already planned. Aggregators: not defined yet
	No switching fees is the rule, but Member States may permit suppliers and aggregators to set termination fees. Has this Member State introduced termination fees?	No, but bilateral agreements with customers can include early termination fees	No, but bilateral agreements with customers can include early termination fees	No	Suppliers are permitted to apply termination fees if customers decide for an earlier contract termination, specified in the contract	Yes for suppliers	No, but bilateral agreements with customers can include early termination fees	No	No, explicitly forbidden by law if the contract exceeds 1 year. Before the supplier can include in the contract a termination fee	Yes	Yes

ARTICLE	QUESTION	FRANCE	FINLAND	GERMANY	GREECE	IRELAND	ITALY	ROMANIA	SLOVENIA	SPAIN	UNITED KINGDOM
Aggregator contract (art. 13)	Is the elimination of the prior consent by supplier clearly enshrined in legislation?	Yes, independent aggregator framework is effective since 2014, allowing aggregators and consumers to provide flexibility without having to sign a contract in parallel with the supplier of the BRP of the site	Not yet, in autumn 2020	Yes only for balancing markets (aFRR and mFRR) No for wholesale markets (day-ahead or intraday) and the interruptible loads programme	No	No	No	Yes in ANRE Ord. 61/2020 (published on 02.04.2020) and ANRE Ord. 65/2020 introducing aggregation and updated balancing market rules	No, specific aggregation framework is missing, but some provisions exist both in the Market Rules and Terms and Conditions for BSPs	No, no aggregator framework has been defined yet	No, although in practice the current processes for the markets that are open to aggregators do not involve supplier consent. Changes anyway planned
	Is legislation eliminating the possibility for suppliers to discriminate customers that have a contract with an aggregator?	Yes	Not yet, in autumn 2021	No	No	No	Yes	Yes	No	No	No, but changes planned
DR through aggregation (art. 17)	How is DR aggregation allowed and fostered?	In principle, allowed to participate in all markets. Since 2018 also an annual DR exclusive tender ("AOE", Appel d'Offres Effacement) gives the awarded DR capacities the opportunity the get an additional remuneration. Eligibility is limited to 6 years for sites ≤1MV and 4 years for sites > 1MW	DR aggregation is just allowed in balancing markets	Balancing Markets have been opened for DR and allowed DR to compete on a level playing field with generation. On top of that, Germany has introduced an interruptible load programme to foster DR and aggregation. DR aggregation is mainly allowed at TSO level. DR aggregation at DSO level or for intraday and wholesale market flexibility is not common	Only some very basic provisions	DR aggregation is technically allowed, but is discriminated against by not allowing it receive energy payments for activation	DR resources may participate to the ancillary services market by the TSO through pilot projects called UVAM (mixed virtual aggregated unit) with a fixed remuneration for their availability. Participation for small customers is today not easily accessible (technology barriers)	Although aggregation license requirements have been formulated, the DR functional and technical requirements are not yet implemented	DR aggregation is allowed for ancillary services	Consultation ongoing to allow DR aggregation to participate to Balancing Markets	New licence conditions are planned. It is allowed in the capacity market. It will be allowed in the balancing mechanism with the introduction of the Virtual Lead Party role. It is allowed in most of the balancing services that are open to DR (not all are), although National Grid's proposed reforms to frequency response services are undermining this. It is not yet allowed for the wholesale markets
	Has this Member State opted for a corrected or uncorrected model?	Corrected model is applied for capacities > 36 kVA. For smaller sites, an uncorrected model with compensation of the supplier by the aggregator is provided through regulated scales	Corrected model	Corrected model (intention of the NRA)	Not yet	Unclear	Corrected model (intention of NRA and TSO)	Unclear	Not yet	Not yet, but corrected model with compensation and availability payments seems to be adopted	New licence conditions are planned. In the absence of a formal framework, everything is currently uncorrected. For the balancing mechanism, there is a correction to the imbalance position, but no compensation payment proposed
	Does the calculation method for compensation take account the benefits incurred by independent aggregators?	The NRA regularly assesses the impact of DR on wholesale prices, but does not assess other benefits	N/A	No, it does not. It is based on the price that had been agreed between the supplier and the customers in the retail contract	N/A	No	N/A	N/A	No	N/A	No, but new licence conditions are planned
Active customers (art. 15)	Which national provisions are set to ensure final customers are entitled to act as active customers?	Yes, specific regulation on self-consumption even before Directive and possibility to participate to all electricity markets	Yes, both in explict and implicit terms	No specific definition of active customers and dedicated framework. However, the so called Mieterstrommodell (tenant electricity model) enable final customers to profit from PV electricity from the roof. Especially the right to be subject only to "technical requirements, administrative requirements, procedures and charges" is today insufficiently put in practice. With over 900 DSOs in Germany, each with their own administrative and technical requirements, it is extremely burdensome and costly to become an active customer	Active customers are mentioned in the implementing regulation and specific regulation on self-consumption and energy communties already existed	Not yet, consultation planned for Q4 2020	No specific regulation for active customers. At the moment it is incentivated the self consumption in a 1:1 configuration	Active customers not defined yet. No specific regulation.	No specific definition of active customers and dedicated framework. However, some provisions related to net-metering and DR aggregation in ancillary services enable the active participation of consumers	No specific definition of active customers and dedicated framework. However there are some provisions like the RD244/2019 in which self-consumption and shared self-consumption are allowed	Currently under review
	Is net metering phased out?	Marginal use at the moment, and in practice phased out with the deployment of smart meters, which differentiate injections and offtakes	Yes	There is no net metering in Germany. However, the NRA recently suggested to introduce a new (!) net metering style approach to solar and storage ("Symmetrisches Modell")	No, but not so attractive due to regulated charges	No	The "full" net metering is not in force, but a net-billing scheme ("Scambio sul Posto") for PV < 500 kW and high-efficiency CHP < 200 kW is applied	N/A	No, open to individuals, multi-apartment building as well as RES communities	A net metering scheme has never been in place. However, installations < 100 kW can have a net billing scheme	Under review
	Has this Member State eliminated double network charges for active customers owning an energy storage facility?	Yes	Double taxation eliminated, grid fees for feed-in and supply may apply both directions depending on the network operator. Feed in fee is regulated to maximum 0,07 c per kwh	No unless for grid-level-storage and storage used only for self-supply purposes	No	No	Consultation 345/2019 concluded. Decision expected by 2020	Not yet	Charging is treated as a consumer, while discharging as a producer. There is no G-component	Yes, since the publication of Circular 3/2020 the inyection charge has been eliminated	Not yet complete

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Citizens energy communities (art. 16)	Has this Member State set a national framework enabling citizens energy communities aligned with the provisions set by the Directive?	Not yet. But a draft ordinance is in discussion since April 2020. The finalized version should be published beginning of 2021	Not yet, autumn 2020	No. Also no drafts	An active National framework on energy communities existed already in 2018, but is not totally compliant with the Directive	Not yet, consultation planned for Q4 2020	In consultation, but Decree Milleproroghe (DL 162/19) adopted a transitory scheme for Renewables Energy Communities. In 2H 2020 an experimental scheme for virtual/commercial energy sharing through the distribution network managed by the DSO will be launched. The results will be essential to define the regulatory framework of citizens energy communities	No	Yes, within the scope of net-metering	Not yet, but the current collective self-consumption regulation should be the starting point	Currently under review
Smart metering (art. 19)	Is this Member State implementing the smart meter roll-out, following a positive cost-benefit analysis?	Yes	Yes	Since February 2020 Gemany is implementing a restricted smart meter roll-out. Customers above 6'000 kWh/a and prosumers with 7 kW installations will get a smart meter within the next 8 years, all other costumers receive a digital meter that can be updated to a smart meter later	Yes	Yes	In Italy 1st generation smart meters roll out is completed. The 2nd generation meters roll out started in 2017 and all DSOs must beging by 2022 to ensure completion by 2025	Yes	Yes, full roll-out expected by 2025. All metering points above 41kW are already compliant with functionalities, below 41kW approx. 50%	Yes	Yes
	Does the national legislation foresee that new smart metering systems are interoperable with energy management systems and smart grids?	Yes	Yes	In general, national legislation and technical guidelines should respect these requirements	Not yet	Not yet, consultation planned for Q4 2020	Yes, on the end-user side, 2G LV meters can supply data to EMS through a dedicated PLC communication channel interfaced with an IHD. On the network side, the meters can send some operating data upward to the 'head end system' that manages the measurement process	Not yet	Not yet, standardized interfaces will most probably be made available	Not yet, probably consultation	Yes
Data management (art. 23)	Does national rules specify the access to data of the final customer by eligible parties free of charge?	Yes, on the basis of customers' consent	Yes, on the basis of customers' consent	Yes for a "basic set" and not in real time, if customers gave consent	No	Not yet, consultation planned for Q4 2020	No, only costumers with their Digital Identity (SPID) can consult their consumption data and technical informations accessing to Portale Consumi of Integrated Information System (SII). The access to this data collection platform by third parties is not open now.	No	Yes	Not yet, but DSOs have voluntarily released a common website where consumers and theoretically eligible third parties can access data. The System Operators have also proposed to share aggregated consumption and self-consumption data with Regions	Under review
DSOs incentives for flexibility (art. 32)	Does this Member States allow and incentivise DSOs to procure flexibility services, according to transparent, non-discriminatory and market-based procedures?	Not yet, a draft ordinance compliant with the Directive is under discussion. It is allowed under a pilot framework, but no incentive to date, no obligation of transparency, including on needs nor objectives	Allowed, not incentivised. Legislative framework in autumn 2020 where the DSO regulation model will be modifed to encourage flexibility	No, a DSO mechanism is missing entirely. The only mechansim in place allows DSOs to procure flexibility exclusively from CHP plants	No	No. Specifications and requirements are planned	Not yet. In 2019, the NRA published its first guidelines to open for pilot projects called Type 322	No	No	No, just pilot projects. The last revision of the Distribution remuneration mechanism does not even mention any flexibility mechanism	It is definitely allowed, and it is happening
	Does the procurement contemplate all DER?	No obligation, just an initiative from the major DSO Enedis	Yes in draft framework	No	No	N/A	No	No	No	No	Yes
	Have standardized market products for flexibility services been defined?	No	No	No	No	N/A	No	No	No	No	There have been some voluntary efforts towards standardisation between the different DSOs
	Does the new framework adequately remunerate DSOs for the procurement of such services?	Not yet, just pilot projects, but foreseen in the new T&D tariffication (to be applied from 2021 onwards) currenlty in preparation	Not yet	No, focus is still on CAPEX remuneration	No	N/A	Currently not, the regulatory framework will be updated after Type 322 pilot projects	No	No	No	Not clear to what extent there is a positive incentive for DSO to procure flex services
Integration of EVs (art. 33)	Is the principle of not ownership, development, management or operation by DSOs clearly enshrined in national legislation?	Not yet, a draft ordinance compliant with the Directive is under discussion to clarify the principle	Legal framework in autumn 2020. However, in Finland several market driven e-moblity providers have emerged to provide services	No, the majority of charging stations is managed by DSOs	Yes, with the exception in case DSOs own charging infrastructure for their own use	No	Not yet, just implementation of AFID by Legislative Decree n. 257 on 16.12.2016 stating that DSOs cooperate on a non-discriminatory basis with any entithy who opens or manages charging stations accessible to the public	No	Not yet. In the current Energy Act, the DSO was tasked with developing fast charging EV infrastructure on the highways, which was accomplished, while operations transferred via tender.	Yes, law 24/2013 (art.38) allows DSOs ownership only as a last resort, meaning there is no market interest	Not yet, but new licence condition planned
	Has the NRA draw up guidelines or procurement clauses to help DSOs ensure a fair tendering procedure?	No, eventually after ordinance	No	Possibility of a market test for market-based ownership etc., but not implemented yet	No	No	The NRA has not drawn up any guidelines or procurement clauses as it has often outlined that the public charging is not a service subject to its regulation, and must be developed in a competitive regime based on market dynamics	No	DSOs must respect public procurement rules	No	No

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Tasks of DSOs in data management (art. 34)	Has this Member State set clear rules to ensure all eligible parties have non-discriminatory access to data?	Yes	Yes, in the Electricity market act chapter 11 a	Yes in the new smart meter framework	No	No	Measurement and consumption data collected and validated by DSOs is put on the cloud platform of Integrated Information System (SII) to guarantee a non-discriminatory access to data by all interested operators. SII certifies that the data exchange between DSOs and suppliers takes place on the basis of flows and time defined by regulation	No	Yes	It is very tedious for third parties to access customers data, but developments ongoing	This does not apply in the UK as DSOs are not involved with smart meter data management
DSOs storage (art. 36)	Is the principle of not ownership, development, management, operation by DSOs clearly enshrined in national legislation?	Not yet, a draft ordinance compliant with the Directive is under discussion	Not yet, in the legislative framework in autumn 2020	Possibility of a market test for market-based ownership etc., but not implemented yet	No	No	No as the existing legal framework (Legislative decree 93/2011) foresees that DSOs could own, develop, manage or operate batteries. Art.36 clause 4 specifies that DSOs are allowed to own, develop and manage storage batteries only if they are part of the Network Development Plan and are needed to ease the RES dispatching	No	No	Not yet, consultation concluded	Now limited to operational unbundling, but change to an existing licence condition is planned to prohibit both ownership and operation of storage
	Has the NRA draw up guidelines or procurement clauses to help DSOs ensure a fair tendering procedure?	No, eventually after ordinance	Not yet, in the legislative framework in autumn 2020	No	No	No	Not yet, at the end of the pilot project "Type 322"	No	No	Not yet	No
TSOs tasks (art. 40)	Does this Member State set clear rules for the market-based procurement of ancillary services?	Yes, part of TSO's mission	Not yet, in the legislative framework in autumn 2020	Yes for balacing services. Procurement of ancillary services that are not connected to frequency (such as e.g. reactive power) is still in consultation with the aim of a regulation by the end of 2020	Yes	Yes	With TIDE "Testo integrato del dispacciamento elettrico" 322/2019/R/eel, the NRA reviews the definition of ancillary services necessary to guarantee system security and the minimum performance requirements to be respected in order to provide them. TIDE forthcoming approval summer 2020	Not yet, in development by 2020	Yes	Yes, 20 operation procedures have been modified to allow DER to participate in balancing markets	Not yet, but new/changes to existing licence conditions are planned. The TSO has a great deal of discretion to buy services however it wants, and it arbitrarily buys some services, such as Mandatory Frequency Response, only from large generators
	Have standardized market products for flexibility services been defined?	Yes	Not yet, in the legislative framework in autumn 2020	Yes for FCR, aFRR, mFRR, capacity reserve	Ongoing consultations	Yes	Standardized products have been defined, but the product differentiation is still not enough. Under revision through TIDE	Not yet, in development by 2020	Yes	Yes for balancing products, not for the non-frequency ancillary products procurement	Not really. There are a huge number of products with overlapping functionality. A new range of products is being developed, with the intention that they will replace some of the existing products
	Does the new framework adequately remunerate TSOs for the procurement of such services?	The new T&D tariffication (to be applied from 2021 onwards) currenlty in preparation foresees that TSOs have to justify any investment in power lines/cables/transformers by demonstrating that it is more economical than relying on flexibilities	Not yet, in the legislative framework in autumn 2020	Yes	No	Yes	TIDE is reviewing the ways in which resources for ancillary services are procured and remunerated in the most efficient manner, in compliance with the time and logistical constraints that characterize the functioning of the electricity system	Not yet, in development by 2020	Yes	Yes	It's largely a pass-through cost
Network development (art. 51)	Do the TSOs in this Member State fully take into account the potential of the use of all DER as an alternative to system expansion in their 10-year network development plan?	Yes, even mandated by the NRA	Yes, to be further valorised in autumn 2020	Yes, several DER are included in the TYNDP	No	No	The TSO describes in its 2020-2024 Plan the paradigm shift from a centralized generation model to a decentralized one, taking into account all the actors and implications. However, in its 10 year plan procurement of DERs is not specified as an alternative to system expansion	N/A	Yes, the TSO has actively procured these services for quite a number of years and is constantly expanding the use of DER in ancillary services	No	Yes
	Is such network development consistent with the submitted NECP?	Yes, cooperation between Ministry, NRA and TSO	Yes	N/A	No	No	Yes, the TSO took part in developing the NECP	N/A	Yes	No	N/A

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TSOs storage (art. 54)	Is the principle of not ownership, development, management, operation by TSOs clearly enshrined in national legislation?	Not yet, a draft ordinance compliant with the Directive is under discussion to clarify the principle	Yes, grid codes and regulation	No, there are actually examples and R&D projects, where TSOs develop and own storage assets such as "Element Eins" for hydrogen electrolysis	No	Yes	According to decree 28/03/2011 art. 17 clause 2 and decree 93/2011 art.36 clause 4, the TSO is allowed to own, develop and manage storage batteries only if they are part of the Network Development Plan and are needed to ease the RES dispatching	According to latest changes in regulation a TSO Licence Holder is forbidden from obtaining a Storage Operator License	No	No, and confirmed in the draft Climate Change and Energy Transistion Law, art. 7	Under review
	Has the NRA draw up guidelines or procurement clauses to help TSOs ensure a fair tendering procedure?	Not yet	No	No	No	Yes	No ad hoc NRA guidelines for the TSO tendering procedures. For tendering procedure (not only for storage) the Italian NRA is in charge to approve the procedures proposed by the TSO. The NRA can ask modification to the procedure, prior to approve. Arera Deliberation n°288/2012 and determination n°08/2012 draw up the procedure to follow to let TSO build and manage storage facilities (through pilot projects)	N/A	No	No	Under review

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