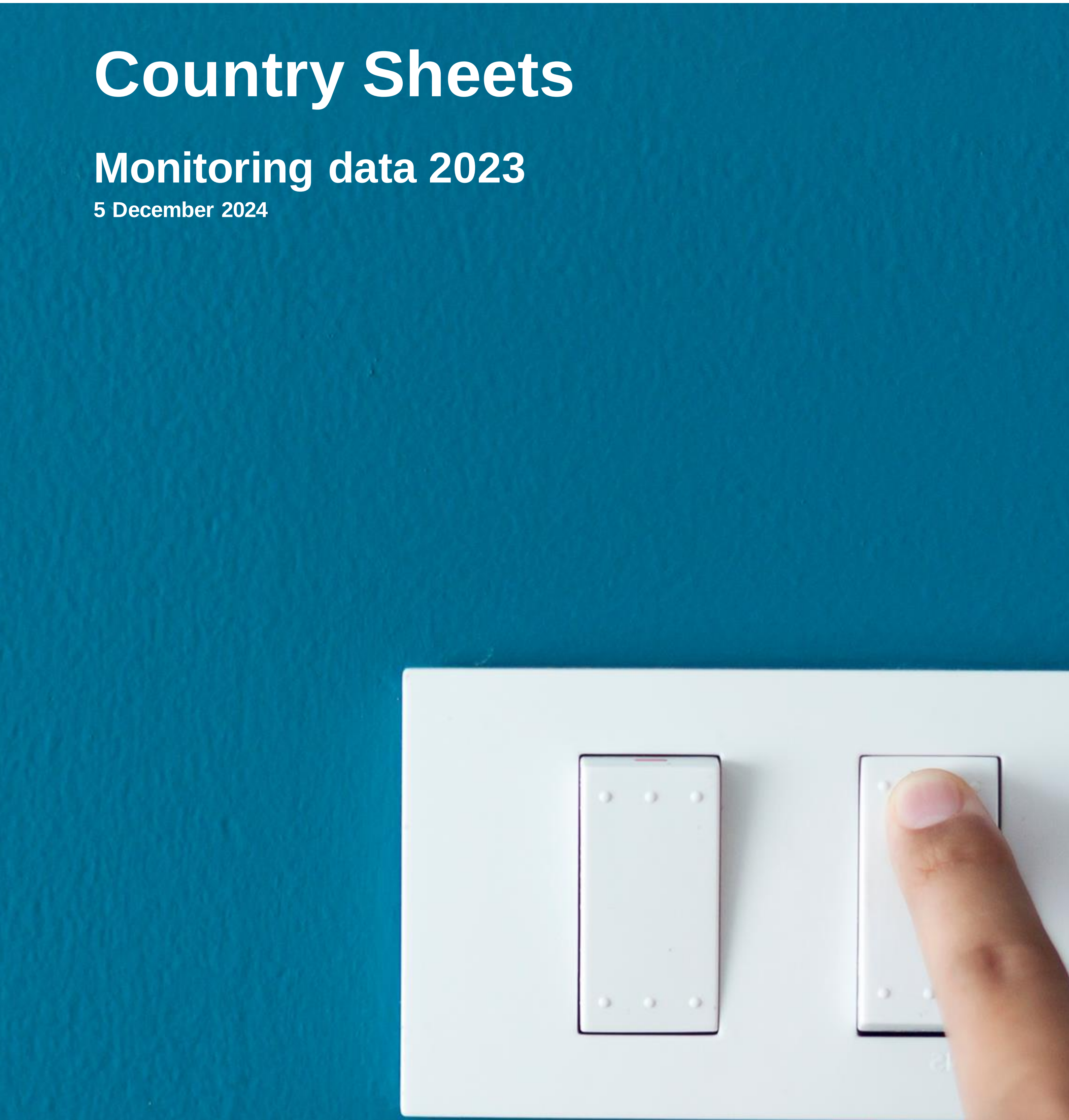
ACER

European Union Agency for the Cooperation
of Energy Regulators

Country Sheets

Monitoring data 2023

5 December 2024



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COUNTRY SHEET GUIDANCE

The ACER Country Sheets present key metrics on retail electricity markets across EU Member States for the year 2023. They give insights into the level of consumer participation at the retail level. As electricity generation fluctuates with increased renewable integration, flexible market structures and adaptive contract models will be needed across the EU to ensure system stability and responsiveness. The indicators assessed, such as pricing dynamics, fuel mix evolution, and market structure, when examined together, help to underscore the degree of flexibility within each market and how well they can adjust and support a resilient, sustainable energy transition. This guidance provides the definitions for each of the indicators presented in the Country Sheets as well as the sources from which they were derived.

Market Facts

Static consumer demand can drive prices up, especially when they are paired with costly and inflexible generation. In contrast, flexible demand, supported by dynamic price contracts, if adjusting to a higher share of price-competitive renewables, can help reduce consumer prices. As EU final energy demand becomes more electrified, this flexibility and demand-responsive dynamics will be crucial for achieving more effective pricing. In parallel, competition fosters fair pricing and innovation, with higher consumer choice and switching rates indicating healthier market dynamics. The values below the indicators show year-on-year changes in the key market fundamental facts (expressed as percentage changes or nominally), with green for positive and red for negative changes.

- **Consumers (mil)** - Refers to the number of household and non-household consumers in each Member State in millions, as measured by the number of metering points in the sector.
- **Demand (MWh)** - Refers to the average annual demand for electricity of household and non-household consumers in MWh.
- **Unit Price (€c/kWh)** - Refers to the average final electricity prices[1] paid by household and non-household consumers in cents/kWh, for the average consumption band in the country.
- **Electricity mark-up (MWh)** - Refers to the difference between the energy component of retail prices and the estimated cost of procuring electricity on the wholesale market. The electricity mark-up does not represent a profit margin, rather, it indicates the degree of responsiveness of retail prices to changes in wholesale prices and, in non-regulated markets, can be used to assess the effectiveness of competition in the market. A negative electricity mark-up[2] signifies that the wholesale electricity price exceeds the prices charged to retail customers, typically associated with subsidies or regulated prices below cost.
- **Concentration (HHI)** - Refers to the market concentration for the household and non-household markets, measured by the market share. The Herfindahl-Hirschman Index (HHI)[3] is commonly used to measure market concentration, ranging from 0 to 10,000. An HHI score below 2,000 indicates a competitive market (green), a score between 2,000 and 4,000 indicates a concentrated market (orange), and a score above 4,000 indicates a highly concentrated market (red).
- **Nationwide suppliers** - Refers to the number of nationwide suppliers operating in the household or non-household sectors in the Member State.

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[1] Final electricity prices reflect not only the costs of energy consumption but also account for all subsidies received by consumers.

[2] During 2023, in many Member States large-scale subsidies aimed at mitigating the effects of the sharply risen energy prices were still in effect. As such, in many countries, the mark-ups for that year will be negative.

[3] HHI values are based on a national market approach. As such, it is possible that strong local incumbents are present in certain regions of the country despite low index values for a Member State.

- **Switching** - Refers to the share of household consumers and non-household consumption volume which has switched electricity suppliers during the year. The year-on-year change in switching rates is displayed as a nominal change, rather than a share of the previous value.

Consumer Landscape & Progress to 2030 Targets

Consumer landscape indicators evaluate retail consumers' contract choice and their expenditure on electricity, including its detailed breakdown. A higher uptake of dynamic pricing contracts reflects more consumer engagement and higher market flexibility. Consumers with higher levels of demand, and thereby higher electricity expenditure, stand to benefit more from being flexible with their consumption. Considering this, the national targets for demand drivers, as set in the country's National Energy and Climate Plans, and the progress towards them are also shown. For households, demand increases are expected from the electrification of transport and heating, while for non-households the share of RES in final energy demand is used as a proxy for electrification.

- **Contract uptake (%)** - Refers to the type of contracts that consumers in each Member State have signed up to, differentiating between dynamic[4], market-based monthly spot variable, regulated variable, regulated fixed price, market-based fixed price, and other contracts[5].
- **Bill breakdown (%)** - Refers to the different components which make up the final electricity price for households and non-households. The bill breakdown illustrates how the components of energy, network costs, VAT, and other taxes influence consumers' final electricity price formation. Negative components, reflective of subsidies which reduce the final price, are not shown in the figure as they do not reflect expenditure by the consumer.
- **Annual spend** - Next to the bill breakdown, the annual expenditure of households and non-households is shown. This refers to the amount of money consumers spend on average on electricity per year, after subsidies and grants, based on the annual average consumption and unit prices in each country.
- **Electric vehicles** – The indicator refers to the national target for electric vehicles in the Member State, the nominal value in 2023, and the progress towards the 2030 target.
- **EV stations** - The indicator refers to the national target for EV charging infrastructure in the Member State, the nominal value in 2023, and the progress towards the 2030 target.
- **Heat pumps** - The indicator refers to the national target for heat pumps in the Member State, the nominal value in 2023, and the progress towards the 2030 target.
- **Renewable consumption** - The indicator refers to the national target for the share of renewable consumption in final energy demand in the Member State, the nominal value in the latest available year, and the progress towards the 2030 target.

Active participation

Decarbonising the energy system requires a shift to renewables and changes in consumption habits, with active consumer participation being crucial for building resilience. Smart meters are vital for facilitating demand-side management, dynamic pricing, and energy community participation. High prosumer levels reflect a move toward active energy management. To enable this shift, robust regulatory frameworks are essential for fostering innovative demand-side solutions and renewable

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[4] Directive (EU) 2019/944 defines dynamic contracts as ones that reflect price variations in the wholesale market at an hourly frequency.

[5] The definitions used by Member States relating to "Other" contracts within their markets can be found in the methodology.

energy communities, which enhance local energy control and responsiveness to market signals, benefiting all participants in the value chain.

- **Smart meter roll-out** - Refers to the share of household consumers with smart meters among total households, as measured by metering points.
- **Prosumers** - Refers to the share of household and non-household consumers that produce their own electricity. Prosumers generate renewable energy, typically via rooftop solar panels or small wind turbines, possibly in combination with battery storage systems. This enables them to consume their own electricity or feed it back to the grid.
- **DSR framework** - Refers to the progress towards the establishment of a demand-side response flexibility framework. The seven assessment dimensions, including both legal and market ones, of the Market Monitor for Demand Side Flexibility from SmartEn and their scoring system serve as the basis for this indicator.
- **Community framework** - Refers to the progress towards the establishment of an enabling framework and national support schemes for renewable energy communities. The comparative assessment Enabling Frameworks & Support Schemes from REScoop, including both legal and market dimensions, serves as the basis for this indicator.
- **Aggregation services** - Refers to the ability of consumers to participate in aggregation services. Three assessment dimensions are considered, namely if consumers can purchase aggregation services, purchase aggregation services without the permission of the supplier, and if residential aggregators and consumers are enabled to participate in the market.

Flexibility considerations

The growing integration of variable renewable generation in the EU wholesale power markets increases the need for flexibility. When electricity supply exceeds final demand, and in the absence of adequate storing solutions, prices can drop to near-zero, turn negative, or even result in supply curtailment, all negatively affecting producers. However, for retail consumers with flexible or dynamic contracts, these low prices create an opportunity to adjust demand to align with renewable availability, ultimately reducing their consumption costs. As the EU power market shifts towards more variable renewable sources, effective demand-side flexibility, storage, robust integration, and enhanced grid infrastructure are essential for balancing supply and demand more efficiently.

- **Low/high wholesale prices (EUR/MWh)** - Refers to the lowest and highest wholesale electricity prices recorded in the day-ahead market in the Member State, in euros per megawatt-hour.
- **Volume & share of low prices** - Refers to the volume of electricity traded on the day-ahead wholesale market in the country below €5 per megawatt-hour and the share of this volume compared to all trades executed on the day-ahead market. The numbers below showcase the nominal changes in volume and share of total trades compared to the previous year.
- **RES curtailment and cost** - Refers to the volume and share of renewable energy production, which is intentionally reduced, due to grid constraints or insufficient demand in the market, and the costs associated with compensating producers for missed revenues. The curtailment of renewable energy production generally results in greater use of more polluting and expensive generation sources, such as coal- or gas-fired power plants, thereby increasing energy bills for end-consumers and undermining the progress towards the energy transition.
- **Share of renewable generation** - Refers to the share of wind, solar, hydropower, and biomass electricity generation in the Member State.

The complete list of sources and methodologies employed for each indicator can be found in the Annex of the Country Sheets.

AUSTRIA

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Market facts

	🏠	🏭
Consumers (mil)	4.3	0.6
Average demand (MWh)	3.2 ↓ -6%	67.2 ↓ -5%
Unit price (€c/kWh)	27.0 ↑ 17%	31.4 ↑ 48%
Mark-up (EUR/MWh)	-40	-41
Concentration (HHI)	N.A.	1,160
Nationwide suppliers	46 ↓ -6	51 ↓ -5
Switching	3.80% ↑ 2%	4.00% ↓ -3%

Active participation

Smart meter roll-out	80%
Prosumers	N.A.
DSR framework	29%
Community framework	80%
Aggregation services	66%

Consumer landscape

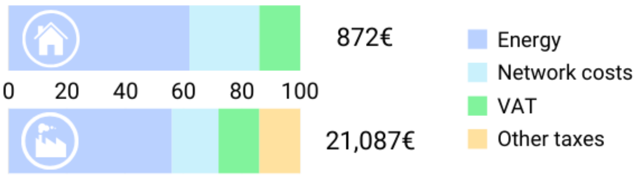
Contract uptake (%)

🏠 Not monitored

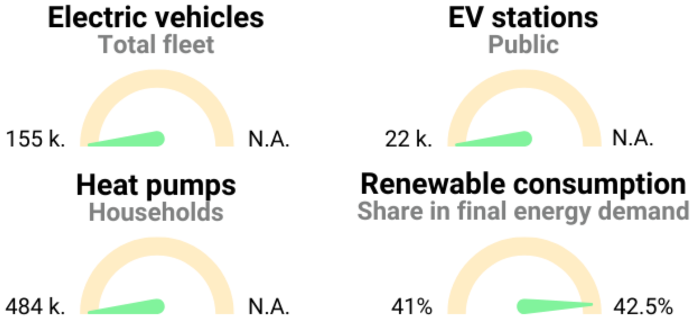
🏭 Not monitored

🟩 Dynamic
🟩 Monthly spot variable
🟩 Regulated variable
🟥 Regulated fixed
🟥 Market fixed
🟨 Other

Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-500€/437€
Volume & share of low prices	67 GWh | 1.5% ↑ 49 GWh | ↑ 1%
RES curtailment & cost	Not monitored
Renewable generation	74%

Strengths

- Large-scale smart meter roll-out enables information provision.
- High number of nationwide suppliers.

Weaknesses

- Most incumbents only offer at local level, where they hold high market shares.
- Low switching rate despite high consumer choice.

Opportunities

- Flexibility initiatives could create off-peak demand management.
- Infrastructure in place to enable more active participation.

Threats

- Inactive consumers.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

BELGIUM

Market facts

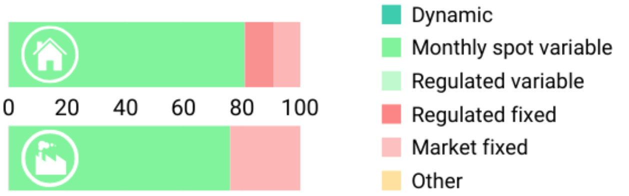
Consumers (mil)	5.2	1.1
Average demand (MWh)	2.5 ↓ -8%	45 ↓ -15%
Unit price (€c/kWh)	40.6 ↑ 3%	30 ↓ -6%
Mark-up (EUR/MWh)	36	-39
Concentration (HHI)	2,760	2,520
Nationwide suppliers	7 ↓ 4	16 ↑ 1
Switching	17.6% ↓ -3%	22.3% N.A.

Active participation

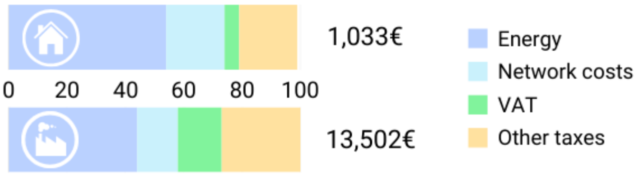
Smart meter roll-out	35%
Prosumers	N.A.
DSR framework	51%
Community framework	60%
Aggregation services	100%

Consumer landscape

Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target

Electric vehicles
Total fleet

EV stations
Public & private

Heat pumps
Space heating

Renewable consumption
Share in final energy demand

Flexibility considerations

Low/high wholesale price	-120€/330€
Volume & share of low prices	100 GWh | 3% ↑ 31 GWh | ↑ 1.3%
RES curtailment & cost	Not monitored
Renewable generation	34%

Strengths

- High switching rate among consumers.
- High level of renewable generation.

Weaknesses

- Limited smart meter roll-out impacts information provision.
- Dynamic contracts are not available to consumers nationwide.
- RES curtailment is not monitored.

Opportunities

- Flexibility initiatives could create potential for off-peak demand management.
- Smart meter roll-out is growing which will improve the access to information.

Threats

- Limited flexibility may drive a need for network reinforcement.
- Limited consumer choice may inhibit options in certain regions.

BULGARIA

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Market facts

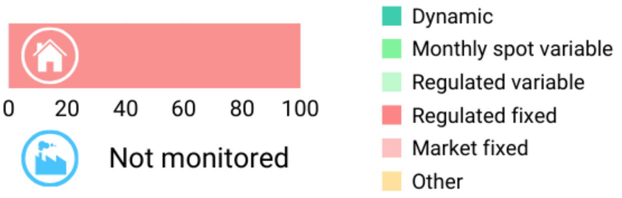
	🏠	🏭
Consumers (mil)	4.7	0.57
Average demand (MWh)	2.6 ↑ 4%	31.8 ↓ -2%
Unit price (€c/kWh)	11.7 ↑ 4%	18.7 ↓ -18%
Mark-up (EUR/MWh)	-53	13
Concentration (HHI)	3,500	3,530
Nationwide suppliers	4 0	128 ↑ 51
Switching	0% 0%	N.A.

Active participation

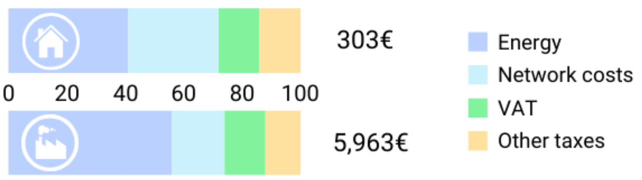
Smart meter roll-out	0%
Prosumers	N.A.
DSR framework	23%
Community framework	40%
Aggregation services	0%

Consumer landscape

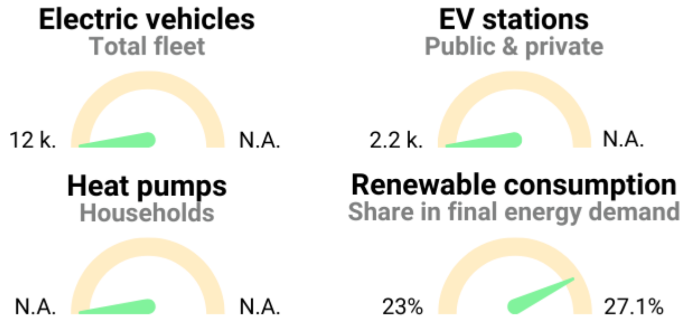
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-1.10€/400€
Volume & share of low prices	28 GWh | 0.6% ↑ 28 GWh | ↑ 0.6%
RES curtailment & cost	Not monitored
Renewable generation	26%

Strengths

- Large number of nationwide suppliers in the non-household sector provides broad choice to consumers.
- Growing share of renewable generation in the national mix.

Weaknesses

- 100% of household consumers on regulated fixed-price contracts.
- Difficult for new suppliers to compete with regulated, below-cost prices.
- RES curtailment is not monitored.

Opportunities

- The committed liberalisation of the energy market will improve competition, innovation, consumer choice, and predictability for producers and consumers.

Threats

- High levels of market regulation prevent the innovation and competition needed to deliver decarbonisation.
- Prolonged price caps for non-household consumers disincentivise energy efficiency.

CROATIA

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Market facts

	🏠	🏭
Consumers (mil)	2.3	0.22
Average demand (MWh)	2.8 ↓ -1%	44.7 ↓ -3%
Unit price (€c/kWh)	14.8 ↑ 4%	33.2 ↑ 16%
Mark-up (EUR/MWh)	-36	124
Concentration (HHI)	8,490	6,390
Nationwide suppliers	6 0	7 0
Switching	1.4% N.A.	N.A.

Active participation

Smart meter roll-out	24%
Prosumers	0.5%
DSR framework	29%
Community framework	40%
Aggregation services	100%

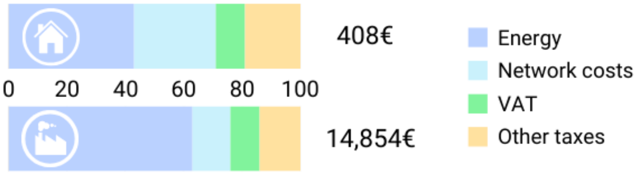
Consumer landscape

Contract uptake (%)

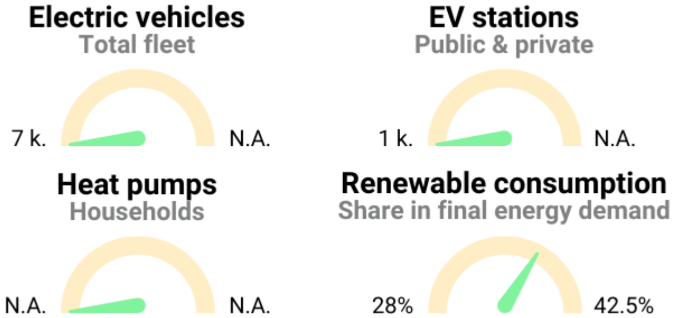
🏠	Not monitored
🏭	Not monitored

- 🟩 Dynamic
- 🟩 Monthly spot variable
- 🟩 Regulated variable
- 🟥 Regulated fixed
- 🟥 Market fixed
- 🟨 Other

Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-500€/430€
Volume & share of low prices	14 GWh | 1.4% ↑ 12 GWh | ↑ 1.2%
RES curtailment & cost	45 GWh | 1.2% | N.A.
Renewable generation	71%

Strengths

- High renewable generation.
- Aggregation services in place to aid participation and flexibility provision.

Weaknesses

- Lack of contract data monitoring.
- Near zero switching rate of consumers indicates lack of participation.

Opportunities

- Flexibility initiatives could create potential for off-peak demand management.
- Smart meter roll-out growing which will improve information provision.

Threats

- Limited suppliers participating impedes consumer activity.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

CYPRUS

Market facts

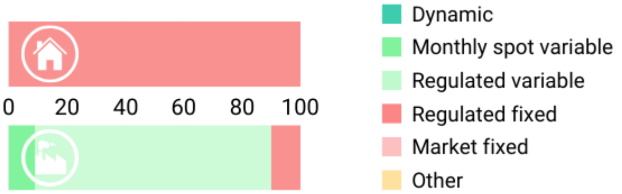
	🏠	🏭
Consumers (mil)	0.49	0.12
Average demand (MWh)	3.6 ↑ 2%	22.8 ↓ -4%
Unit price (€c/kWh)	36 ↑ 23%	34.5 ↑ 3%
Mark-up (EUR/MWh)	189	179
Concentration (HHI)	10,000	8,700
Nationwide suppliers	1 0	9 ↑ 3
Switching	0.0% 0%	5% ↑ 5%

Active participation

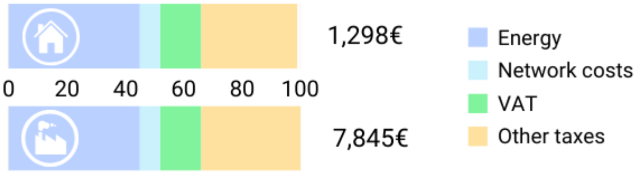
Smart meter roll-out	0%
Prosumers	9.5%
DSR framework	23%
Community framework	40%
Aggregation services	0%

Consumer landscape

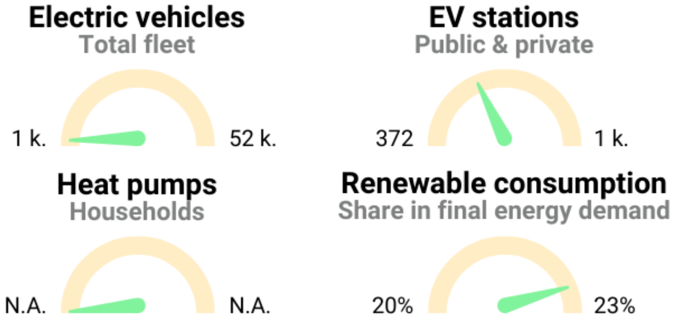
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	Not monitored
Volume & share of low prices	Not monitored
RES curtailment & cost	Not monitored
Renewable generation	21%

Strengths

- Relatively high rate of consumer engagement via prosuming.

Weaknesses

- 100% of consumers are on regulated price contracts.
- RES curtailment is not monitored.

Opportunities

- Smaller population provides opportunity to roll-out smart meters.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Lack of smart meters impede provision of information combined with a highly concentrated market.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

CZECHIA

Market facts

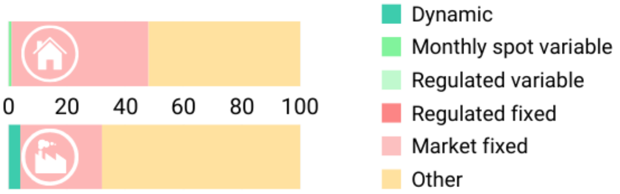
	🏠	🏭
Consumers (mil)	5.5	0.79
Average demand (MWh)	2.8 ↓ -4%	46.5 ↓ -3%
Unit price (€c/kWh)	31.7 ↑ 52%	29.4 ↑ 10%
Mark-up (EUR/MWh)	-11	-20
Concentration (HHI)	2,800	1,180
Nationwide suppliers	80 ↑ 6	96 ↑ 22
Switching	4.2% ↓ -2%	N.A.

Active participation

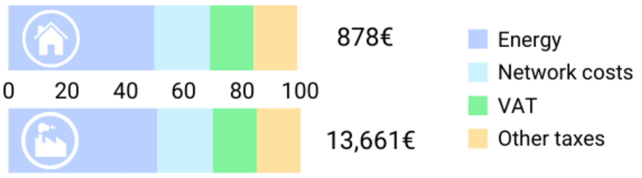
Smart meter roll-out	3%
Prosumers	3%
DSR framework	37%
Community framework	60%
Aggregation services	0%

Consumer landscape

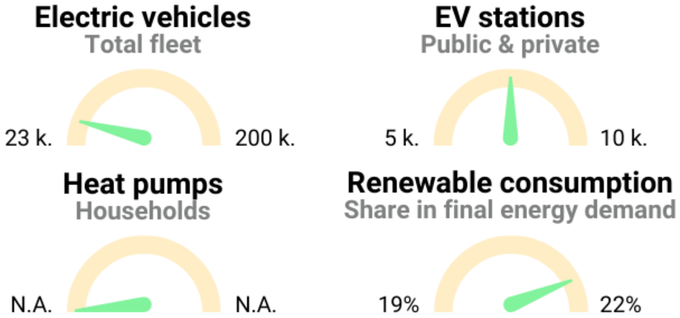
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-69€/444€
Volume & share of low prices	39 GWh | 0.9% ↑ 27 GWh | ↓ -2%
RES curtailment & cost	Not monitored
Renewable generation	16%

Strengths

- Explicit DSR control provides variable network charges assisting efficient operation.

Weaknesses

- Near zero smart meters impede provision of information.
- Low switching rates indicate the absence of consumer engagement.

Opportunities

- Improved data collection from suppliers could improve consumer participation.
- Enhanced flexibility initiatives could create potential for off-peak demand management.

Threats

- Majority of consumers is on fixed-price contracts which impedes flexibility.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

DENMARK

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Market facts

	🏠	🏭
Consumers (mil)	2.9	0.59
Average demand (MWh)	3 N.A.	42 N.A.
Unit price (€c/kWh)	36.8 ↓ -29%	25.3 ↓ -41%
Mark-up (EUR/MWh)	76	28
Concentration (HHI)	1,370	1,360
Nationwide suppliers	40 N.A.	14 N.A.
Switching	9% N.A.	0.3% N.A.

Active participation

Smart meter roll-out	100%
Prosumers	N.A.
DSR framework	37%
Community framework	40%
Aggregation services	66%

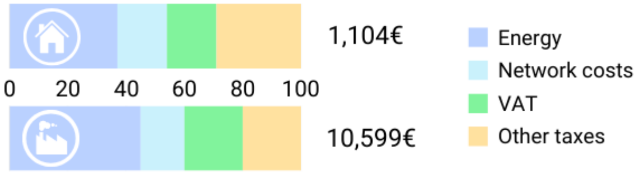
Consumer landscape

Contract uptake (%)

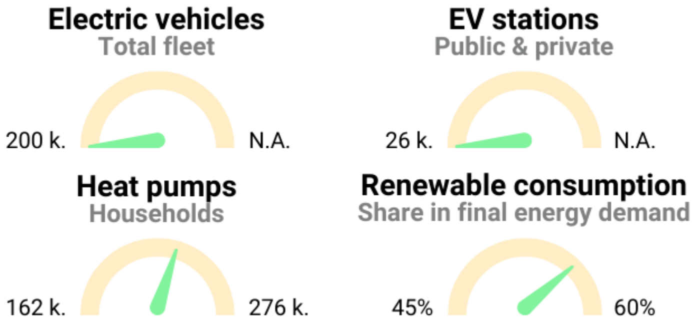
🏠	Not monitored
🏭	Not monitored

- 🟩 Dynamic
- 🟩 Monthly spot variable
- 🟩 Regulated variable
- 🟥 Regulated fixed
- 🟥 Market fixed
- 🟨 Other

Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-440€/524€
Volume & share of low prices	219 GWh | 4% ↑ 176 GWh | ↑ 3.2%
RES curtailment & cost	Not monitored
Renewable generation	89%

Strengths

- Highly competitive market.
- High levels of renewable generation.
- Full smart meter roll-out enables information sharing.

Weaknesses

- Contract monitoring is not monitored.
- RES curtailment is not monitored.

Opportunities

- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

ESTONIA

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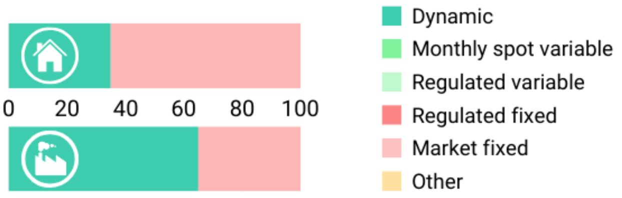
Market facts

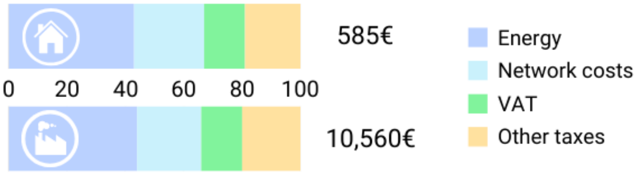
	🏠	🏭
Consumers (mil)	0.66	0.11
Average demand (MWh)	2.6 ↑ 9%	54.5 ↓ -1%
Unit price (€c/kWh)	22.5 ↓ -4%	19.4 ↓ -1%
Mark-up (EUR/MWh)	21	7
Concentration (HHI)	4,980	2,400
Nationwide suppliers	25 0	47 ↑ 4
Switching	7% ↑ 5%	16%

Consumer landscape

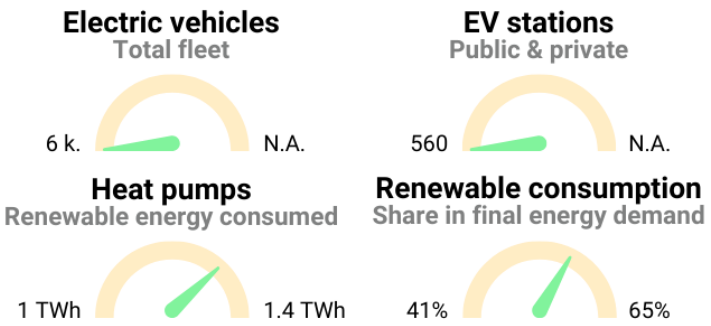
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Active participation

Smart meter roll-out	99%
Prosumers	3%
DSR framework	23%
Community framework	20%
Aggregation services	66%

Flexibility considerations

Low/high wholesale price	-60€/777€
Volume & share of low prices	14 GWh | 1.3% ↑ 14 GWh | ↑ 1.2%
RES curtailment & cost	Not monitored
Renewable generation	52%

Strengths

- Consumers engage in flexibility.
- Large-scale smart meter roll-out enables information provision.

Weaknesses

- DSR framework is missing.
- The majority of consumers are on fixed-price contracts.
- Both aspects impede flexibility services to play a role and evolve.

Opportunities

- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

FINLAND

ACER
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Market facts

	🏠	🏭
Consumers (mil)	3.3	0.43
Average demand (MWh)	5.5 ↑ 6%	141 ↓ -7%
Unit price (€c/kWh)	19.5 ↑ 6%	15.1 ↑ 6%
Mark-up (EUR/MWh)	44	22
Concentration (HHI)	1,030	760
Nationwide suppliers	53 ↑ 19	53 ↑ 19
Switching	15% ↓ -1.9%	13.3% ↓ -3.6%

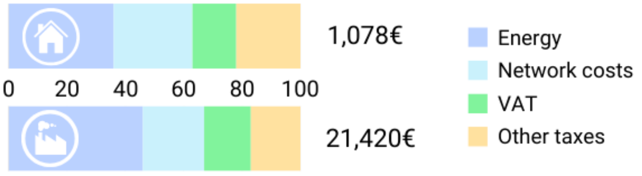
Active participation

Smart meter roll-out	99%
Prosumers	N.A.
DSR framework	54%
Community framework	20%
Aggregation services	100%

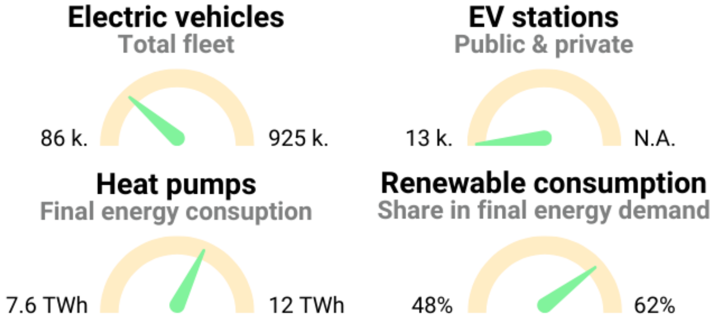
Consumer landscape

Contract uptake (%)

Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-500€/777€
Volume & share of low prices	1,014 GWh | 9.2% ↑ 931 GWh | ↑ 8.4%
RES curtailment & cost	93 GWh | 0.5% | 0 m€
Renewable generation	52%

Strengths

- Strong supply competition provides consumers opportunities.
- Almost full smart meter roll-out driving consumption data available for consumers.

Weaknesses

- Many customers on fixed-price contracts may limit the evolution of flexibility services.

Opportunities

- Infrastructure in place to enable more active participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Volatile prices may pose a risk to producer investment.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

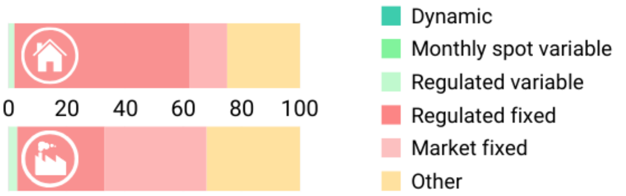
FRANCE

Market facts

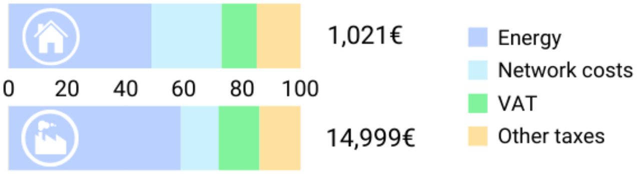
	🏠	🏭
Consumers (mil)	34.4	5.4
Average demand (MWh)	4.2 ↓ -3%	48.7 ↓ -4%
Unit price (€c/kWh)	24.5 ↑ 14%	30.8 ↑ 70%
Mark-up (EUR/MWh)	-85	-10
Concentration (HHI)	4,860	2,690
Nationwide suppliers	35 ↑ 2	46 ↓ -1
Switching	8.3% ↓ -2%	N.A.

Consumer landscape

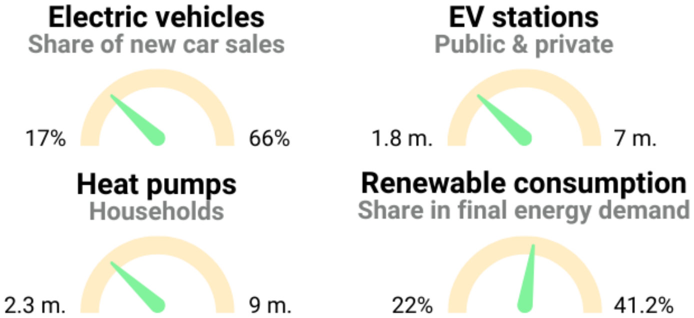
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Active participation

Smart meter roll-out	94%
Prosumers	1.1%
DSR framework	74%
Community framework	60%
Aggregation services	100%

Flexibility considerations

Low/high wholesale price	-135€/276€
Volume & share of low prices	564 GWh | 2.9% ↑ 470 GWh | ↑ 2.4%
RES curtailment & cost	509 GWh | 0.7% | 2.2 m€
Renewable generation	27%

Strengths

- Large-scale smart meter roll-out enables information provision.
- Stable and low-carbon generation mix.

Weaknesses

- Dynamic contracts are not available to household consumers.
- 60% of household consumers on regulated fixed-price contracts which can impede flexibility in some cases.

Opportunities

- Infrastructure in place to enable more active participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Limited flexibility may drive a need for network investment and increase consumer costs.
- Regulated retail prices are a potential barrier to innovative supplier practices.

GERMANY

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Market facts

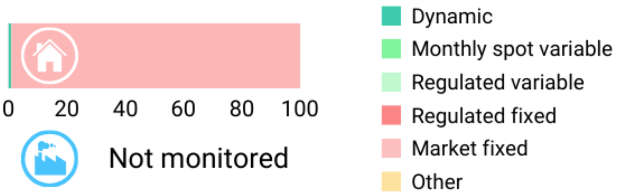
	🏠	🏭
Consumers (mil)	49.6	2.5
Average demand (MWh)	2.3 ↓ -4%	124.9 ↓ -1%
Unit price (€c/kWh)	45 ↑ 22%	30 ↑ 10%
Mark-up (EUR/MWh)	7	-62
Concentration (HHI)	N.A.	N.A.
Nationwide suppliers	197 ↑ 7	18 N.A.
Switching	12.0% ↑ 4%	13.0% N.A.

Active participation

Smart meter roll-out	1%
Prosumers	7%
DSR framework	57%
Community framework	60%
Aggregation services	100%

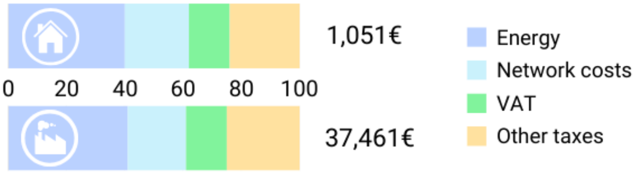
Consumer landscape

Contract uptake (%)

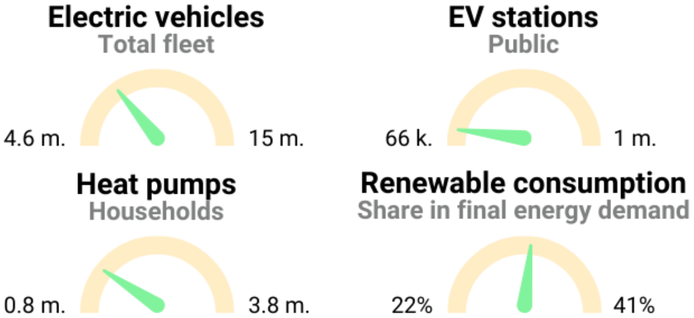


🏭 Not monitored

Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-500€/524€
Volume & share of low prices	2,298 GWh | 4.8% ↑ 1,714 GWh | ↑ 3.3%
RES curtailment & cost	10.5 TWh | 4% | 580 m€
Renewable generation	54%

Strengths

- High rate of engaging consumers via switching and prosuming.
- Large number of nationwide suppliers available to consumers.

Weaknesses

- Near zero smart meter roll-out impedes flexibility and information provision.
- Consumers are predominantly on fixed price contracts impeding flexibility.

Opportunities

- Smart meter roll-out will enhance opportunities.
- Flexibility initiatives can create off-peak management.

Threats

- Grid congestion resulting in RES curtailment costs of €580 m.
- Limited flexibility may further drive a need for network investment and increase consumer costs.

GREECE

ACER
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Market facts

	🏠	🏭
Consumers (mil)	6.0	1.7
Average demand (MWh)	2.6 N.A.	14.9 N.A.
Unit price (€c/kWh)	23.2 ↑ 2%	26 ↓ -18%
Mark-up (EUR/MWh)	127	78
Concentration (HHI)	N.A.	2,800
Nationwide suppliers	16 N.A.	16 N.A.
Switching	9.8% ↑ 10%	9.5% N.A.

Active participation

Smart meter roll-out	1%
Prosumers	N.A.
DSR framework	37%
Community framework	60%
Aggregation services	0%

Consumer landscape

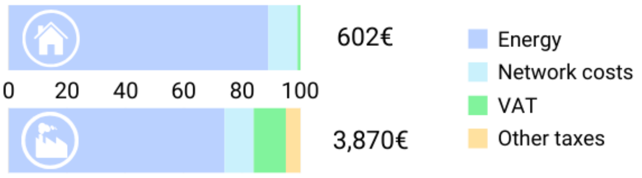
Contract uptake (%)

🏠 Not monitored

🏭 Not monitored

- 🟩 Dynamic
- 🟩 Monthly spot variable
- 🟩 Regulated variable
- 🟥 Regulated fixed
- 🟥 Market fixed
- 🟨 Other

Bill breakdown (%) and annual expenditure



Progress to 2030 target

Electric vehicles
Total fleet

EV stations
Public & private

Heat pumps
Households

Renewable consumption
Share in final energy demand

Flexibility considerations

Low/high wholesale price	0€/385€
Volume & share of low prices	30 GWh | 0.3% ↑ 24 GWh | ↑ 0.2%
RES curtailment & cost	Not monitored
Renewable generation	53%

Strengths
- High level of renewable generation.
- Medium levels of consumer switching.

Weaknesses
- Near-zero smart meters impede information sharing.
- Contract uptake is not monitored.
- RES curtailment is not monitored.

Opportunities
- Flexibility initiatives can create off-peak management and mitigate network cost increases.

Threats
- Limited flexibility may drive a need for network investment and increase consumer costs.

HUNGARY

Market facts

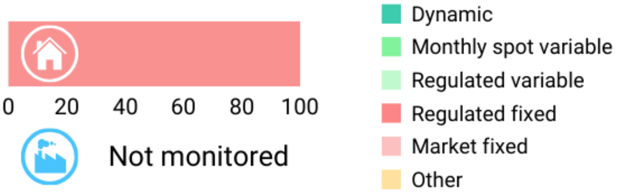
	🏠	🏭
Consumers (mil)	5.3	0.45
Average demand (MWh)	2.1 ↓ -9%	58.9 ↓ -1%
Unit price (€c/kWh)	9.7 ↑ 1%	39.1 ↑ 58%
Mark-up (EUR/MWh)	-218	-22
Concentration (HHI)	5,060	2,300
Nationwide suppliers	1 0	37 ↑ 6
Switching	N.A.	N.A.

Active participation

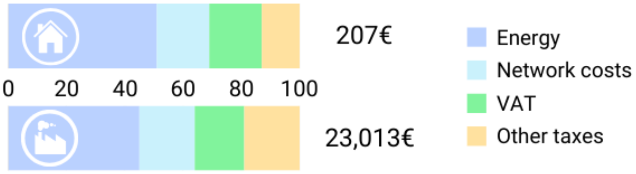
Smart meter roll-out	9%
Prosumers	N.A.
DSR framework	37%
Community framework	40%
Aggregation services	100%

Consumer landscape

Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target

Electric vehicles
Total fleet

EV stations
Public & private

Heat pumps
Final energy consumption

Renewable consumption
Share in final energy demand

Flexibility considerations

Low/high wholesale price	-500€/437€
Volume & share of low prices	47 GWh | 1.2% ↑ 45 GWh | ↑ 1.1%
RES curtailment & cost	Not monitored
Renewable generation	26%

Strengths
- Aggregation services in place.

Weaknesses
- Highly concentrated, uncompetitive retail markets.
- Difficult for new suppliers to compete with below-cost regulated prices.

Opportunities
- Further roll-out of smart meters will enhance flexibility provision.
- Flexibility initiatives can create off-peak management and mitigate against network cost increases.

Threats
- Less than 10% of consumers with smart meters impedes flexibility.
- Limited flexibility may drive a need for network investment and increase consumer costs.

IRELAND

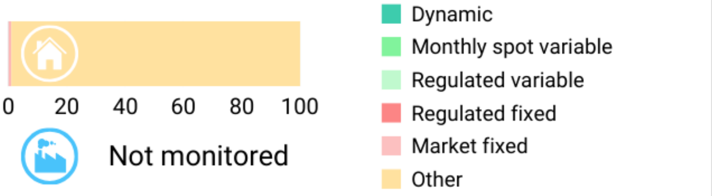
ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

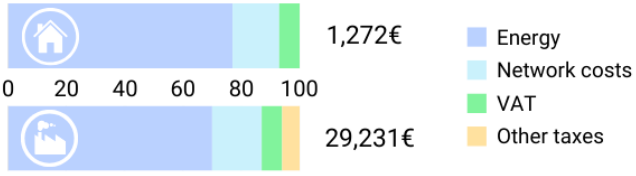
	🏠	🏭
Consumers (mil)	2.2	0.27
Average demand (MWh)	3.9 ↓ -1%	82.1 ↑ 7%
Unit price (€c/kWh)	32.6 ↑ 18%	35.6 ↑ 17%
Mark-up (EUR/MWh)	258	147
Concentration (HHI)	3,110	2,250
Nationwide suppliers	11 ↑ 1	10 ↓ -1
Switching	11% ↓ -6%	32% ↑ 19%

Consumer landscape

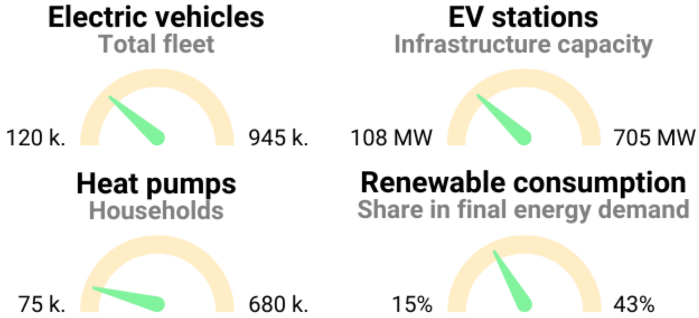
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Active participation

Smart meter roll-out	69%
Prosumers	3%
DSR framework	49%
Community framework	60%
Aggregation services	0%

Flexibility considerations

Low/high wholesale price	-10€/348€
Volume & share of low prices	54 GWh | 0.9% ↓ 5 GWh | ↓ 0%
RES curtailment & cost	Not monitored
Renewable generation	46%

Strengths

- Rapid smart meter growth will enable information provision.
- Ambitious RES-E targets.

Weaknesses

- Dynamic contracts are not offered.
- High difference between wholesale and retail price is ultimately paid by consumers.

Opportunities

- Flexibility initiatives could create potential for off-peak demand management.
- Policy for the offering of dynamic contracts to be implemented in 2024.

Threats

- Consumers predominantly on fixed-price contracts which impedes flexibility.
- Limited flexibility may drive a need for network investment and increase consumer costs.

ITALY

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

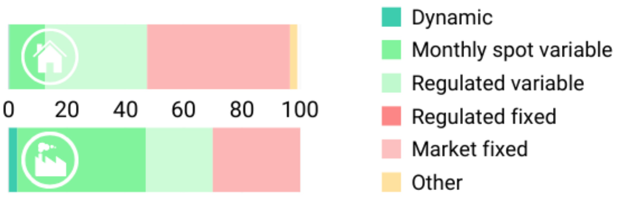
	🏠	🏭
Consumers (mil)	30.2	7.8
Average demand (MWh)	1.9 ↓ -4%	23.6 ↓ -5%
Unit price (€c/kWh)	38.8 ↑ 5%	32.9 ↓ -10%
Mark-up (EUR/MWh)	54	-22
Concentration (HHI)	2,880	1,030
Nationwide suppliers	131 ↓ -40	83 ↓ -51
Switching	18.9% ↑ 1%	28.2% ↑ 3%

Active participation

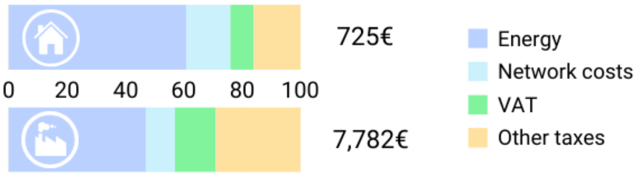
Smart meter roll-out	100%
Prosumers	4.1%
DSR framework	49%
Community framework	80%
Aggregation services	100%

Consumer landscape

Contract uptake (%)



Bill breakdown (%) and annual expenditure



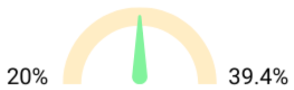
Progress to 2030 target

Electric vehicles
Total fleet

EV stations
Public & private

Heat pumps
Households

Renewable consumption
Share in final energy demand



Flexibility considerations

Low/high wholesale price	0€/298€
Volume & share of low prices	31 GWh | 0.1% ↑ 4 GWh | ↑ 0%
RES curtailment & cost	300 GWh | 0.5% | 20 m€
Renewable generation	45%

Strengths

- Large-scale smart meter roll-out enables information provision.
- High levels of renewable generation.

Weaknesses

- High uptake of fixed-price contracts which may impede flexibility provision.

Opportunities

- Infrastructure in place to enable more active participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

LATVIA

ACER European Union Agency for the Cooperation of Energy Regulators

Market facts

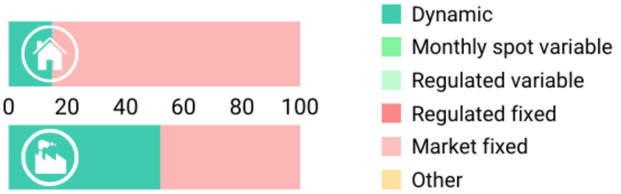
	🏠	🏭
Consumers (mil)	0.78	0.03
Average demand (MWh)	2.0 ↓ -6%	178 ↑ 3%
Unit price (€c/kWh)	31.8 ↑ 32%	20.6 ↓ -0.4%
Mark-up (EUR/MWh)	96	42
Concentration (HHI)	5,360	3,180
Nationwide suppliers	15 ↓ -2	22 ↓ -1
Switching	4.0% ↓ -2%	27.2% ↓ -2%

Active participation

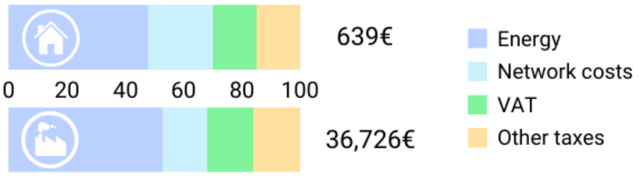
Smart meter roll-out	99%
Prosumers	2%
DSR framework	31%
Community framework	60%
Aggregation services	100%

Consumer landscape

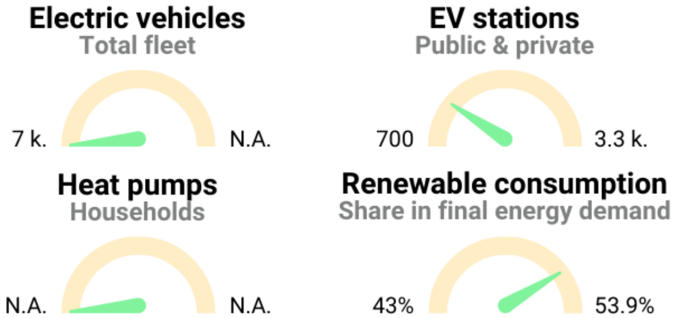
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-57€/777€
Volume & share of low prices	10 GWh | 0.8% ↑ 10 GWh | ↑ 0.8%
RES curtailment & cost	Not monitored
Renewable generation	77%

Strengths

- Large-scale smart meter roll-out enables information provision.
- High renewable penetration.

Weaknesses

- Consumers mostly on fixed-price contracts despite the availability of alternatives which could assist with flexibility.
- RES curtailment is not monitored.

Opportunities

- Aggregation services are available.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Limited progress regarding DSR frameworks.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

LITHUANIA

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

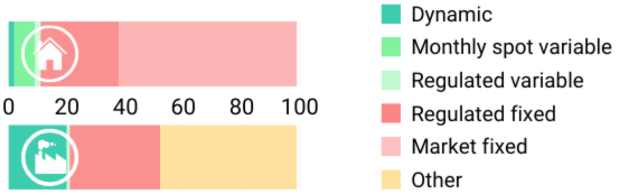
	🏠	🏭
Consumers (mil)	1.7	0.18
Average demand (MWh)	1.8 ↓ -5%	423.2 ↓ -1%
Unit price (€c/kWh)	26.4 ↑ 25%	23.8 ↓ -22%
Mark-up (EUR/MWh)	51	46
Concentration (HHI)	3,750	2,840
Nationwide suppliers	6 ↓ -2	25 ↑ 1
Switching	8.3% ↓ -10%	33.4% ↓ -2%

Active participation

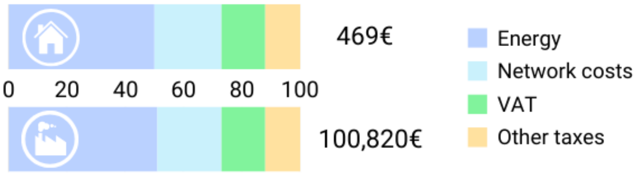
Smart meter roll-out	58%
Prosumers	2%
DSR framework	34%
Community framework	40%
Aggregation services	100%

Consumer landscape

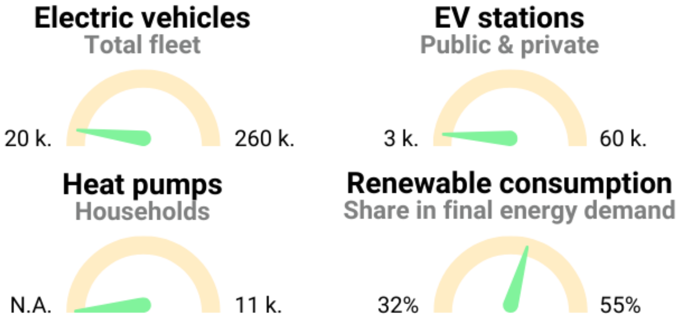
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-57€/777€
Volume & share of low prices	17 GWh | 1.3% ↑ 16 GWh | ↑ 1.3%
RES curtailment & cost	Not monitored
Renewable generation	80%

Strengths

- High level of renewable penetration.
- Moderate engagement from consumers via switching.

Weaknesses

- Moderately concentrated market.
- The majority of consumers on fixed-price contracts despite the availability of flexible alternatives.
- RES curtailment is not monitored.

Opportunities

- Smart meter roll-out is growing and will enhance information provision.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Fixed-price contracts dominant which impedes flexibility.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

LUXEMBOURG

ACER
European Union Agency for the Cooperation
of Energy Regulators

Market facts

	🏠	🏭
Consumers (mil)	0.28	0.06
Average demand (MWh)	3.6 N.A.	74.6 ↓ -5%
Unit price (€c/kWh)	20.1 ↓ -1%	26.9 ↑ 59%
Mark-up (EUR/MWh)	-36	-13
Concentration (HHI)	8,270	5,130
Nationwide suppliers	8 ↑ 2	10 ↑ 1
Switching	0.2% 0%	2.7% 0%

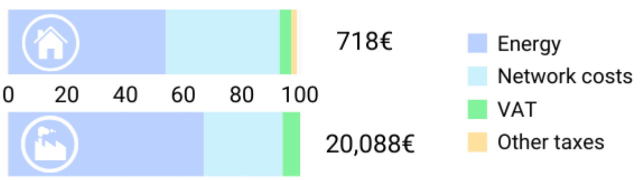
Active participation

Smart meter roll-out	99%
Prosumers	1.2%
DSR framework	14%
Community framework	60%
Aggregation services	0%

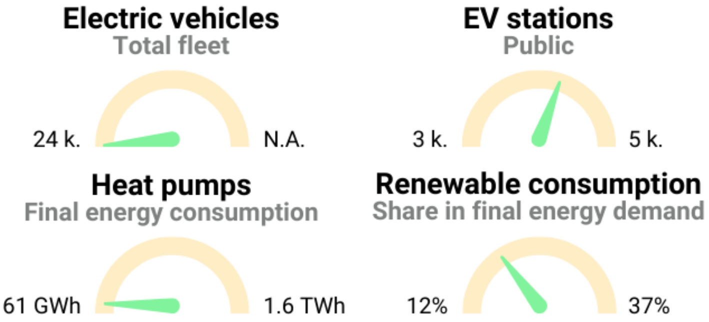
Consumer landscape

Contract uptake (%)

Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	Not applicable
Volume & share of low prices	Not applicable
RES curtailment & cost	Not monitored
Renewable generation	94%

Strengths

- High levels of renewable generation and interconnection to meet domestic demand.
- Large-scale smart meter roll-out enables information provision.

Weaknesses

- Near zero switching among consumers.
- Zero flexibility provided by consumer contracts.
- 80% of electricity imported.

Opportunities

- Infrastructure in place to enable more active participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Highly concentrated market impacts consumer choice.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

MALTA

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

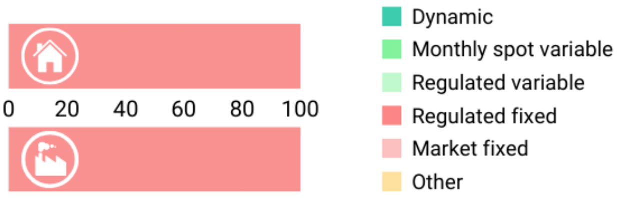
	🏠	🏭
Consumers (mil)	0.32	0.05
Average demand (MWh)	3.3 N.A.	29.5 N.A.
Unit price (€c/kWh)	12.7 ↓ -2%	16.2 ↓ -1%
Mark-up (EUR/MWh)	93	127
Concentration (HHI)	10,000	10,000
Nationwide suppliers	1 0	1 0
Switching	0% 0%	0% 0%

Active participation

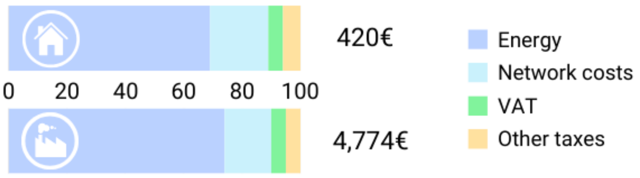
Smart meter roll-out	93%
Prosumers	8.4%
DSR framework	14%
Community framework	40%
Aggregation services	0%

Consumer landscape

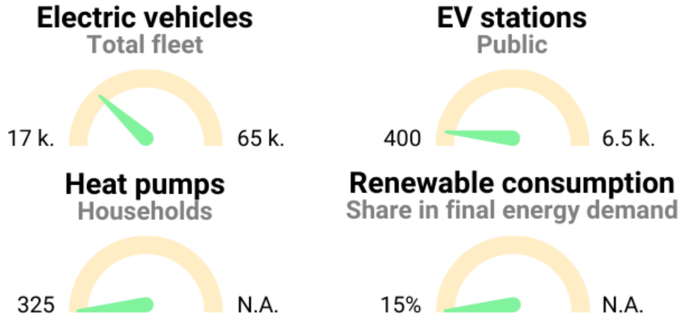
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	Not monitored
Volume & share of low prices	Not monitored
RES curtailment & cost	Not monitored
Renewable generation	13%

Strengths

- Large-scale smart meter roll-out enables information provision.

Weaknesses

- 100% of consumers are on regulated and fixed-price contracts.
- Lack of monitoring complicates targeted policy interventions.

Opportunities

- Infrastructure is in place to enable more active participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Limited renewable generation.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

NETHERLANDS

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

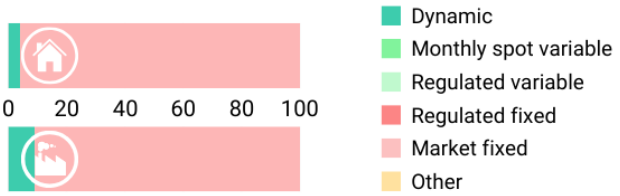
	🏠	🏭
Consumers (mil)	8.3	N.A.
Average demand (MWh)	2.5 N.A.	N.A.
Unit price (€c/kWh)	31.6 ↑ 251%	31.7 ↑ 38%
Mark-up (EUR/MWh)	86	-33
Concentration (HHI)	2,000	2,100
Nationwide suppliers	58 0	58 0
Switching	12.0% ↓ -5%	12.0% N.A.

Active participation

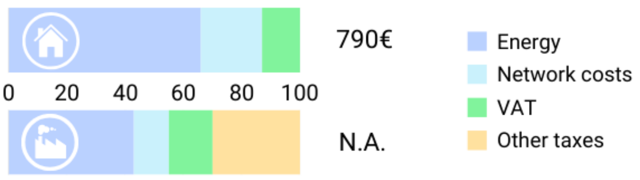
Smart meter roll-out	90%
Prosumers	30%
DSR framework	57%
Community framework	80%
Aggregation services	0%

Consumer landscape

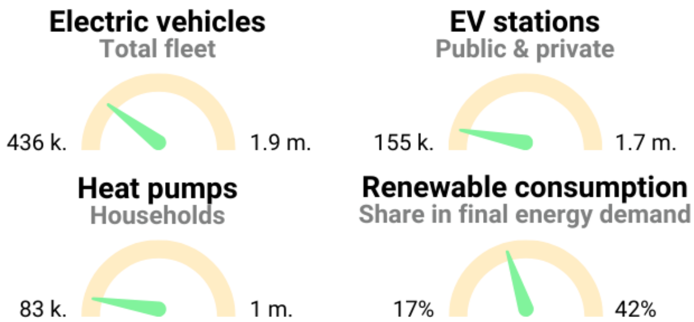
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-500€/464€
Volume & share of low prices	538 GWh | 4.8% ↑ 290 GWh | ↑ 3.2%
RES curtailment & cost	62 GWh | 0.3% | 17.2 m€
Renewable generation	47%

Strengths

- High rate of prosumers demonstrates consumer participation.
- Large-scale smart meter roll-out enables information provision.

Weaknesses

- High level of consumers on fixed-price contracts despite more flexible alternatives.
- High prosumer rates with net metering limit incentives for self consumption.

Opportunities

- Infrastructure in place to enable more active participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- High rates of fixed-price contract uptake limit flexibility.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

NORWAY

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

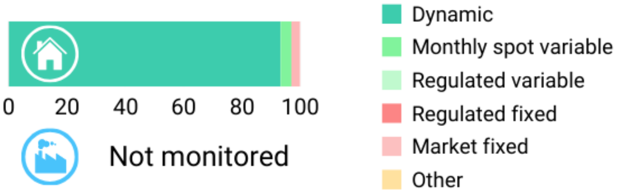
	🏠	🏭
Consumers (mil)	2.7	0.55
Average demand (MWh)	15.7 ↑ 19%	157.3 ↑ 12%
Unit price (€c/kWh)	13.5 ↓ -16%	12.3 ↓ -43%
Mark-up (EUR/MWh)	14	-1
Concentration (HHI)	740	860
Nationwide suppliers	83 ↑ 24	128 ↑ 63
Switching	10.0% ↓ -12%	0.60% 0%

Active participation

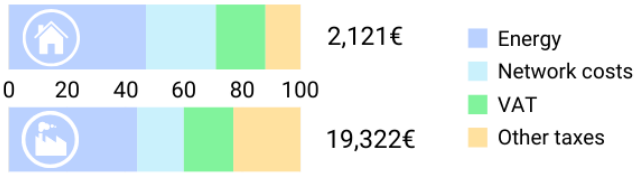
Smart meter roll-out	99%
Prosumers	1%
DSR framework	49%
Community framework	N.A.
Aggregation services	66%

Consumer landscape

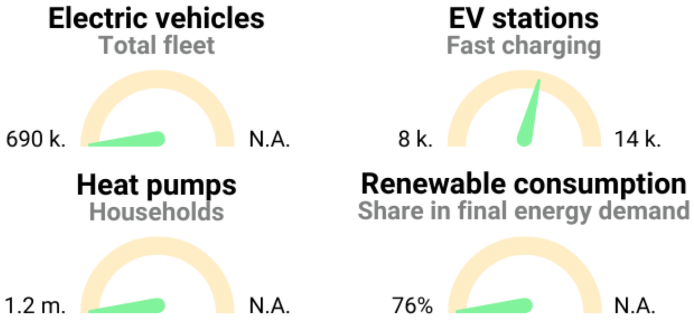
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-62€/332€
Volume & share of low prices	Not monitored
RES curtailment & cost	30 GWh | 0.2% | 1.28 m€
Renewable generation	98%

Strengths

- High level of consumers on dynamic contracts and smart meter roll-out of 99%.
- Strong competition providing consumer choice.

Weaknesses

- While consumer choice is strong, consumers may not fully understand the offers being provided to them.

Opportunities

- High level of EVs and consumers on dynamic spot prices enables flexibility through smart-charging.
- High level of electrification in heating can provide opportunities for flexibility.

Threats

- Fixed-price contracts may reduce liquidity on organised market and reduce transparency and demand response.

POLAND

ACER
European Union Agency for the Cooperation of Energy Regulators

Consumers (mil)	17.4	1.7
Average demand (MWh)	2.0 ↓ -1%	64.1 ↓ -5%
Unit price (€c/kWh)	20.5 ↑ 21%	30.2 ↑ 40%
Mark-up (EUR/MWh)	-139	-88
Concentration (HHI)	2,440	1,875
Nationwide suppliers	79 ↓ -17	154 ↓ -13
Switching	0.3% ↓ -0.1%	19.8% ↓ -35%

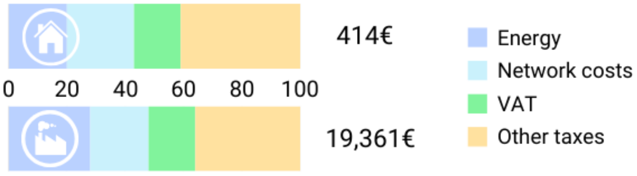
Active participation

Smart meter roll-out	27%
Prosumers	7.4%
DSR framework	46%
Community framework	40%
Aggregation services	0%

Consumer landscape

Contract uptake (%)

Bill breakdown (%) and annual expenditure



Progress to 2030 target

Electric vehicles
Total fleet

EV stations
Public & private

Heat pumps
Households

Renewable consumption
Share in final energy demand

Flexibility considerations

Low/high wholesale price	-14€/216€
Volume & share of low prices	488 GWh | 0.5% ↑ 488 GWh | ↑ 0.5%
RES curtailment & cost	Not monitored
Renewable generation	29%

Strengths

- Relatively high share of prosumers showing engagement.
- High switching among non-household consumers.

Weaknesses

- Lack of contract monitoring.
- Household price regulation hampers consumer engagement and flexibility.
- Aggregation services are not available.

Opportunities

- Smart meter roll-out growing which will enable participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Low transparency of RES curtailment may hamper investment signals.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

PORTUGAL

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

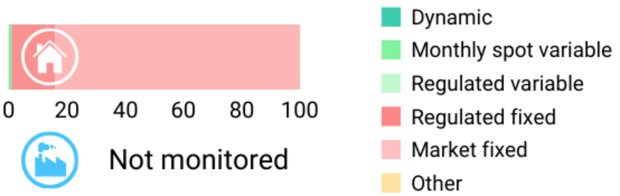
	🏠	🏭
Consumers (mil)	6.4	0.07
Average demand (MWh)	3.0 ↑ 2%	404 ↓ -1%
Unit price (€c/kWh)	21.9 ↓ -1%	17.9 ↓ -3%
Mark-up (EUR/MWh)	65	3
Concentration (HHI)	4,830	1,850
Nationwide suppliers	32 ↑ 5	34 ↑ 5
Switching	14.0% ↓ -2%	27.0% ↑ 8%

Active participation

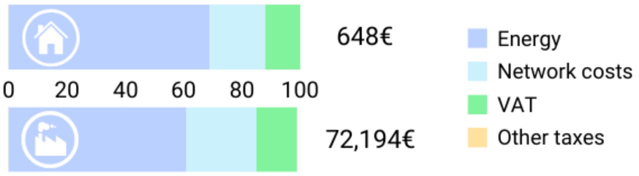
Smart meter roll-out	86%
Prosumers	3%
DSR framework	40%
Community framework	60%
Aggregation services	100%

Consumer landscape

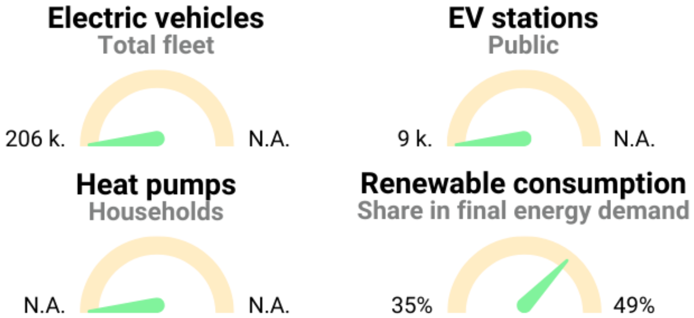
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	0€/220€
Volume & share of low prices	147 GWh | 1.6% ↑ 101 GWh | ↑ 1.1%
RES curtailment & cost	Not monitored
Renewable generation	76%

Strengths

- Large-scale smart meter roll-out enhances data collection and operational efficiency.
- High level of renewable generation.

Weaknesses

- Majority of households are on fixed-price contracts, impacting flexibility provision.
- RES curtailment not monitored.

Opportunities

- Strong participation framework opens new demand channels.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- High concentration and continuation of regulated prices may stifle innovation provision from new suppliers.
- Limited flexibility may drive a need for network investment and in turn increase consumer costs.

ROMANIA

ACER European Union Agency for the Cooperation of Energy Regulators

Market facts

	🏠	🏭
Consumers (mil)	8.7	0.3
Average demand (MWh)	1.5 ↓ -3%	109 ↑ 137%
Unit price (€c/kWh)	16.6 ↓ -43%	22.2 ↓ -41%
Mark-up (EUR/MWh)	-47	13
Concentration (HHI)	2,070	700
Nationwide suppliers	30 ↓ -6	62 ↑ 2
Switching	2.2% ↓ -4%	30% ↑ 4%

Active participation

Smart meter roll-out	23%
Prosumers	1%
DSR framework	37%
Community framework	40%
Aggregation services	0%

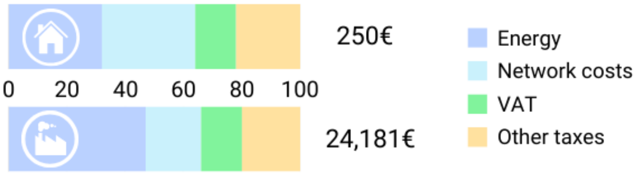
Consumer landscape

Contract uptake (%)

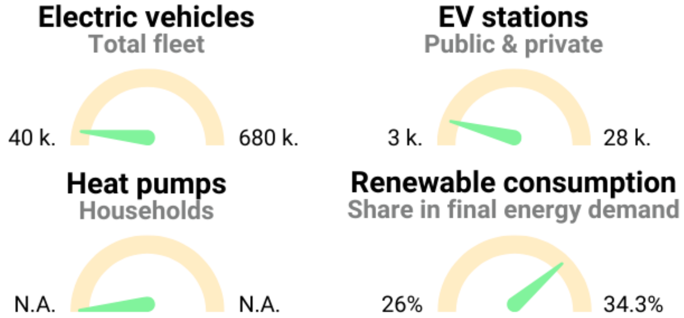
🏠	Not monitored
🏭	Not monitored

- 🟩 Dynamic
- 🟩 Monthly spot variable
- 🟩 Regulated variable
- 🟥 Regulated fixed
- 🟥 Market fixed
- 🟨 Other

Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-23€/437€
Volume & share of low prices	12 GWh | 0.3% ↑ 11 GWh | ↑ 0.3%
RES curtailment & cost	Not monitored
Renewable generation	53%

Strengths

- High share of renewable generation.

Weaknesses

- Lack of contract monitoring driving transparency concerns.
- Limited smart meter roll-out impedes information provision.
- RES curtailment is not monitored.

Opportunities

- Low but growing smart meter roll-out will enhance information availability.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Near zero household switching rates indicate limited consumer participation.
- Rising network costs increase system burdens.

SLOVAKIA

Market facts

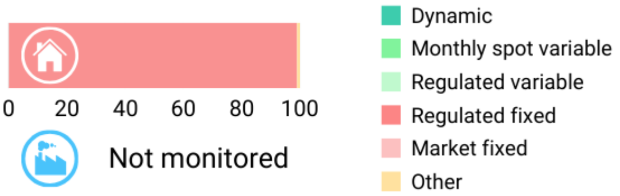
	🏠	🏭
Consumers (mil)	2.5	0.25
Average demand (MWh)	2.4 ↓ -3%	106 ↑ 19%
Unit price (€c/kWh)	21.5 ↑ 5%	38.8 ↑ 32%
Mark-up (EUR/MWh)	-19	109
Concentration (HHI)	N.A.	1,610
Nationwide suppliers	14 0	14 0
Switching	0.4% 0%	6.1% ↑ 2%

Active participation

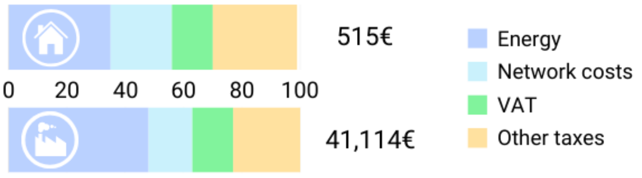
Smart meter roll-out	15%
Prosumers	N.A.
DSR framework	37%
Community framework	40%
Aggregation services	33%

Consumer landscape

Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target

Electric vehicles
Total fleet

EV stations
Public

Heat pumps
Final energy consumption

Renewable consumption
Share in final energy demand

Flexibility considerations

Low/high wholesale price	-24€/444€
Volume & share of low prices	8 GWh | 0.4% ↑ 8 GWh | ↑ 0.4%
RES curtailment & cost	Not monitored
Renewable generation	24%

Strengths
- Stable and low-carbon generation mix.

Weaknesses
- Lack of contract monitoring complicates targeted policy supports.
- Limited smart meter roll-out impedes information provision.

Opportunities
- Low but growing smart meter roll-out will assist in enabling consumer participation.

Threats
- Limited consumer participation and choice restrict flexibility.
- 99% of household consumers on regulated contracts.
- All household consumers are defined as vulnerable.

SLOVENIA

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

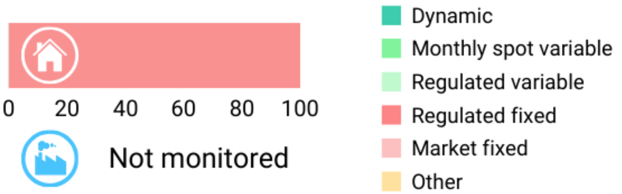
	🏠	🏭
Consumers (mil)	0.87	0.11
Average demand (MWh)	3.9 ↓ -2%	72.4 ↓ -15%
Unit price (€c/kWh)	20.2 ↑ 20%	25.9 ↑ 34%
Mark-up (EUR/MWh)	-4	59
Concentration (HHI)	1,900	1,300
Nationwide suppliers	11 ↑ 1	17 ↑ 4
Switching	0.5% ↓ -6%	16.1% ↑ 3%

Active participation

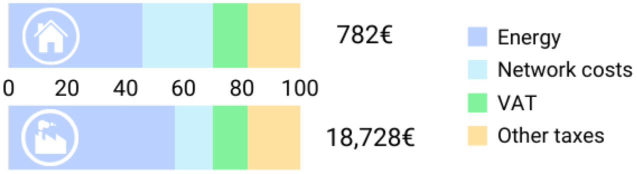
Smart meter roll-out	95%
Prosumers	4.7%
DSR framework	40%
Community framework	40%
Aggregation services	100%

Consumer landscape

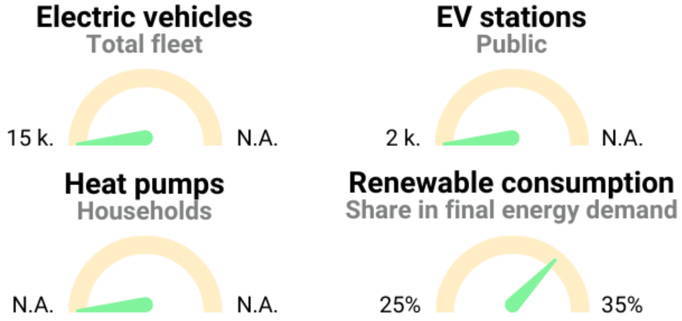
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Flexibility considerations

Low/high wholesale price	-500€/426€
Volume & share of low prices	6 GWh | 1.2% ↑ 4 GWh | ↑ 0.8%
RES curtailment & cost	Not monitored
Renewable generation	42%

Strengths

- Large-scale smart meter roll-out enhances data collection and operational efficiency.
- High rate of prosumers in the market showing participation.

Weaknesses

- All household consumers are on regulated fixed-price contracts.
- Non-household contract uptake not monitored.
- RES curtailment is not monitored.

Opportunities

- Infrastructure in place to enable more active participation.
- Flexibility initiatives could create potential for off-peak demand management.

Threats

- Lack of alignment between wholesale and retail prices.
- Lack of consumer flexibility via contracts.
- Utilisation of net metering may result in inefficient consumer consumption.

SPAIN

ACER
European Union Agency for the Cooperation of Energy Regulators

Market facts

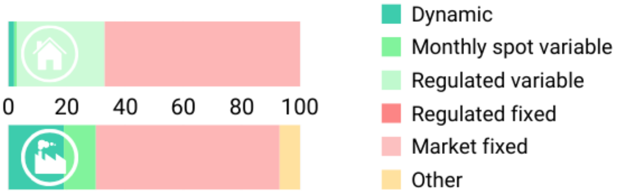
	🏠	🏭
Consumers (mil)	29.3	0.92
Average demand (MWh)	2.5 0%	159.8 ↓ -3%
Unit price (€c/kWh)	28.3 ↓ -24%	24.0 ↓ -13%
Mark-up (EUR/MWh)	10	1
Concentration (HHI)	2,490	1,370
Nationwide suppliers	230 ↓ -4	214 ↑ 2
Switching	20% 0%	32% ↑ 1%

Active participation

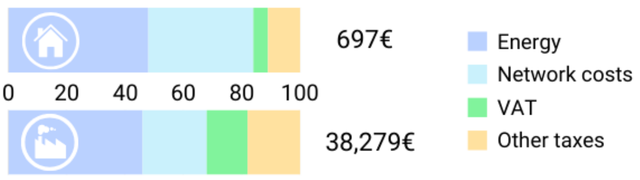
Smart meter roll-out	99%
Prosumers	1.5%
DSR framework	40%
Community framework	60%
Aggregation services	0%

Consumer landscape

Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target

Electric vehicles
Total fleet

EV stations
Public

Heat pumps
Final energy consumption

Renewable consumption
Share in final energy demand

Flexibility considerations

Low/high wholesale price	0€/220€
Volume & share of low prices	459 GWh | 1.5% ↑ 360 GWh | ↑ 1.2%
RES curtailment & cost	1.2 TWh | 1.2% | 0.78 m€
Renewable generation	52%

Strengths

- Large-scale smart meter roll-out and variable network tariffs enabling operational efficiency.
- High switching from consumers.
- High share of RES helping to reduce prices.

Weaknesses

- Majority of consumers on market-based fixed contracts despite the availability of flexible contracts.
- Need to adapt DSR framework to improve the effective participation of consumers.

Opportunities

- Low and negative wholesale hours support off-peak usage with data collection available from smart meters.
- Variable network tariffs implemented to improve network operational efficiency.

Threats

- Limited interconnection with other Member States driving dependency internally.
- Limited demand response may place upward pressure on network prices.

SWEDEN

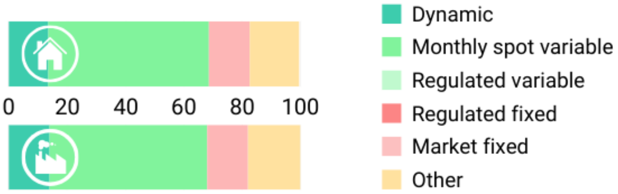
ACER
European Union Agency for the Cooperation
of Energy Regulators

Market facts

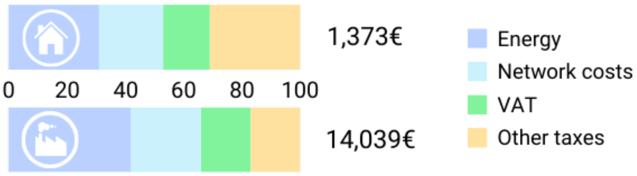
Consumers (mil)	4.7	0.9
Average demand (MWh)	6.8 ↓ -2%	103 ↑ 1%
Unit price (€c/kWh)	20.2 0%	13.9 ↓ -29%
Mark-up (EUR/MWh)	27	16
Concentration (HHI)	850	N.A.
Nationwide suppliers	63 ↓ -7	38 ↓ -5
Switching	10% ↓ -7%	11% ↑ 1%

Consumer landscape

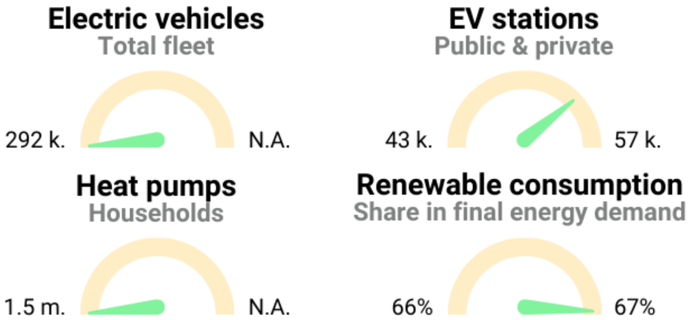
Contract uptake (%)



Bill breakdown (%) and annual expenditure



Progress to 2030 target



Active participation

Smart meter roll-out	100%
Prosumers	N.A.
DSR framework	60%
Community framework	20%
Aggregation services	100%

Flexibility considerations

Low/high wholesale price	-60€/332€
Volume & share of low prices	2,124 GWh | 8.2% ↑ 1,488 GWh | ↑ 5.8%
RES curtailment & cost	1.1 GWh | 0.05 m€
Renewable generation	70%

Strengths

- Large-scale smart meter roll-out enhances data collection and operational efficiency.
- Strong competition providing consumer choice.

Weaknesses

- 2030 targets for EVs and heat pumps not defined.
- Curtailment increases system burden.

Opportunities

- Low and negative wholesale hours support off-peak usage.
- Majority of consumers are actively engaging.

Threats

- Majority of consumers on variable monthly spot contracts which provide limited incentive for behavioural adjustment.

METHODOLOGY

Market facts

- **Average demand** – Average demand is calculated by dividing total demand in the household/non-household sectors by the number of metering points in the given sector, as provided by the National Regulatory Authority.

- **Unit price (€c/kWh)** – The unit price is calculated as the average final price, across both semesters in the year, in the consumption band representative of the average demand of consumers in the Member State. The unit price accounts for all taxes, levies and subsidies imposed on consumers.

- **Electricity mark-up** -The mark-up is defined as the difference between the cost of the retail energy component and the wholesale procurement cost. The estimated mark-ups are not intended to mimic or assess retail (profit) margins from suppliers in different Member States. However, the evolution of mark-ups may serve as an indication of the level of retail competition and the responsiveness of retail to wholesale prices over time. The complete methodology can be found in Annex 6 in ACERs Market Monitoring Report 2015.

- **Concentration (HHI)** – The Herfindahl-Hirschman Index (HHI) is a common measure of market concentration and is used to determine market competitiveness. The index measures the size of companies relative to the size of the industry they are in and the amount of competitiveness. The HHI is calculated by squaring the market share of each firm competing in a market and then summing the resulting numbers. The HHI for the household sector is calculated based on the number of metering points, while for the non-household sector based on volumes. The index can range from close to zero to 10,000. Values below 2,000 represent a competitive market, between 2,000 and 4,000 a concentrated market, and values above 4,000 a highly concentrated market.

- **Switching** – Switching rates for the household sector are calculated based on the number of metering points that have switched suppliers in the calendar year. Switching rates for non-household consumers are calculated based on the volume of demand that has switched suppliers in the calendar year.

Contract uptake

- Dynamic contracts are defined as ones that reflect price variations in the wholesale market at an hourly frequency, in alignment with Directive (EU) 2019/944.
- Monthly spot variable contracts are defined as ones whose price changes monthly based on changes in the spot prices in the wholesale market.
- Regulated variable contracts are defined as dynamic contracts whose hourly rates are regulated and set by the NRA or another designated authority.
- Regulated fixed contracts are defined as fixed-price, fixed-term contracts whose prices are determined by the NRA or another designated authority.
- Market fixed contracts are defined as fixed-price, fixed-term contracts whose prices are determined by competition.
- The Czech NRA has stated that ‘Other’ contracts are defined as market-based variable price contracts of the indefinite term.

- The Irish NRA has stated that 'Other' contracts are defined as contracts for 12 months where the supplier can change the standing charge/unit rate at 30 days' notice.
- The Luxembourg NRA has stated that 'Other' contracts are defined as a contract that does not have a fixed term, the duration is undefined and one under which the unit price can be changed by the supplier with a 30 days' notice.

Progress to 2030 target

- In their National Climate and Energy Plans (NECP), Member States have set their 2030 targets for EVs, EV charging infrastructure, heat pumps, and share of RES in final energy demand in several different ways. For instance, EV targets are set either as a flat number of EVs, additions per year, share of new car sales, or share of total fleet. To accommodate these differences, the explicit metric targeted is shown above the figure.

Active participation

- **Demand side response (DSR) framework** – The DSR framework index is calculated by SmartEn and LCP Delta in the Flex Market Monitor 2024. It is designed to represent a high-level benchmark of demand side flexibility (DSF) market activity across 30 European countries, allowing for comparison between countries. It is based on 7 categories, namely accessibility of DSF in ancillary services, TSO spend on markets accessible to DSF, DSO accessibility, residential accessibility, capacity market accessibility, wholesale accessibility and volatility, and future development of DSF. The complete methodology and per-category progress can be found in their report.

- **Community framework** – The community framework index is calculated by REScoop in the Transposition tracker - Enabling Frameworks & Support Schemes. This transposition tracker assesses the progress of the national transposition of the main EU legal provisions on enabling frameworks and national support schemes for Renewable Energy Communities (RECs) and Citizen Energy Communities (CECs). The index classifies the progress of countries from bad transportation to best practices. The complete methodology and additional information can be found in their report.

- **Aggregation services** – The index represents the ability of consumers and aggregators in Member States to participate freely in wholesale markets. The index is calculated based on responses from National Regulatory Authorities on 3 questions with each contributing an equal amount to the final values. The questions asked were:
  - (i) Can consumers purchase aggregation services in your market?;
  - (ii) Where the consumer can purchase aggregation services, can such contracts take place without the permission of the supplier?;
  - (iii) In your country, are end-user residential aggregators and customers enabled to participate in the markets?

Flexibility considerations

- **Renewable energy sources (RES) curtailment and cost** – RES curtailment is defined as the volume of renewable energy production, which is intentionally reduced, due to insufficient demand in the market or grid constraints. Curtailment costs represent the compensation producers of curtailed generation receive for missed revenues.

LIST OF SOURCES

Market Facts	
Indicator	**Data Source**
Consumers (mil)	National Regulatory Authorities
Demand (MWh)	National Regulatory Authorities
Unit Price (€c/kWh)	Eurostat (nrg_pc_204 & nrg_pc_205)
Electricity mark-up (MWh)	ACER based on data from Eurostat (nrg_pc_204_c & nrg_pc_205_c), REMIT, and ENTSO-E.
Concentration (HHI)	National Regulatory Authorities
Nationwide suppliers	National Regulatory Authorities
Switching	National Regulatory Authorities
Consumer Landscape	
Indicator	**Data Source**
Contract uptake (%)	National Regulatory Authorities
Bill breakdown (%) and annual spend	Eurostat (nrg_pc_204_c & nrg_pc_205_c) and National Regulatory Authorities
Consumption Bands[6]	
Household Consumers	**Non-Household Consumers**
Band DA: Less than 1,000 kWh	Band IA: Less than 20 MWh
Band DB: Between 1,000 and 2,499 kWh	Band IB: Between 20 and 499 MWh
Band DC: Between 2,500 and 4,999 kWh	Band IC: Between 500 and 1,999 MWh
Band DD: Between 5,000 and 14,999 kWh	Band ID: Between 2,000 and 19,999 MWh
Band DE: 15,000 kWh or over	Band IE: Between 20,000 and 69,999 MWh
	Band IF: Between 70,000 and 149,999 MWh
	Band IG: 150,000 MWh or over
Progress to 2030 target	
Indicator	**Data Source**
Electric vehicles	National Regulatory Authorities and Eurostat (road_eqs_zev)
EV stations	National Regulatory Authorities and the European Alternative Fuels Observatory
Heat pumps	National Regulatory Authorities and the European Heat Pump Association
Renewable consumption	Eurostat (nrg_ind_ren)
Active participation	
Indicator	**Data Source**
Smart meter roll-out	National Regulatory Authorities
Prosumers	National Regulatory Authorities
DSR framework	SmartEn
Community frameworks	RESCoop
Aggregation services	National Regulatory Authorities
Flexibility considerations	
Indicator	**Data Source**
Low/high wholesale prices	ENTSO-E

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[6] Further information regarding the consumption bands is accessible on Eurostat, for household and non-household consumers.

Volume &share of low prices	REMIT
RES curtailment and cost	National Regulatory Authorities
Share of renewable generation	Eurostat (nrg_cb_pem)