Demand Side Flexibility in V4 Countries

Country sheets on DSF for Czechia, Hungary, Poland and Slovakia

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All errors are ours.
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Table of contents

Introduction **4**

Methodology **5**

1. Czechia **5**

1.1. Accessibility of DSF in ancillary services 5

1.2. Accessibility of DSF in DSO services 6

1.3. Accessibility of DSF in wholesale markets 6

1.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms 6

1.5. Tariffs incentivising implicit flexibility – suppliers 7

1.6. Network tariff design encouraging implicit flexibility 8

1.7. DSF potential and electrification rates 8

1.8. Technical enablers 9

1.9. DSF in key documents 9

2. Hungary **10**

2.1. Accessibility of DSF in ancillary services 10

2.2. Accessibility of DSF in DSO services 11

2.3. Accessibility of DSF in wholesale markets 11

2.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms 11

2.5. Tariffs incentivising implicit flexibility - suppliers 11

2.6. Network tariff design encouraging implicit flexibility 12

2.7. DSF potential and electrification rates 13

2.8. Technical enablers 14

2.9. DSF in key documents 14

3. Poland **15**

3.1. Accessibility of DSF in ancillary services 15

3.2. Accessibility of DSF in DSO services 15

3.3. Accessibility of DSF in wholesale markets 16

3.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms 16

3.5. Tariffs incentivising implicit flexibility - suppliers 16

3.6. Network tariff design encouraging implicit flexibility 17

3.7. DSF potential and electrification rates 17

3.8. Technical enablers 18

3.9. DSF in key documents 18

4. Slovakia **18**
4.1. Accessibility of DSF in ancillary services 18
4.2. Accessibility of DSF in DSO services 19
4.3. Accessibility of DSF in wholesale markets 19
4.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms 19
4.5. Tariffs incentivising implicit flexibility - suppliers 20
4.6. Network tariff design encouraging implicit flexibility 20
4.7. DSF potential and electrification rates 21
4.8. Technical enablers 21
4.9. DSF in key documents 22
5. Summary **22**
Explanations and abbreviations **23**

Introduction

In an electricity system with a high share of variable renewable generation, the value of a kilowatt-hour (kWh) is far less stable than in a system built on baseload power plants. Prices behave more like airline or rail fares: travelling — or, in this case, consuming significant amounts of electricity — at peak times commands a premium, while moving the same activity to off-peak hours unlocks substantial savings. Unlike in transport, however, **electricity consumers** can in principle go one step further: they **can be paid to shift their consumption to moments when generation exceeds demand, or to reduce it briefly when the grid is under stress. This is the essence of demand-side flexibility (DSF).**

DSF spans a wide range of mechanisms — from time-of-use tariffs, through participation in capacity markets and ancillary services, to local flexibility markets operated by distribution system operators. It can be exercised directly by large industrial users or, increasingly, by households and small businesses acting through aggregators.

The country sheets prepared for Czechia, Hungary, Poland and Slovakia examine whether end users in each of these markets have the legal right, the technical means, and the financial incentives to participate in DSF.

Methodology

The country sheets are an adaptation of the structure proposed by smartEn's *Market Monitor for Demand Side Flexibility*. The adapted approach differs from the original in several aspects: it focuses on the legal status quo rather than market data, places less emphasis on finer operational detail, but expands on DSF potential, especially at the individual level, as well as technical enablers. Nine categories are examined for each country: (i) accessibility of DSF in ancillary services; (ii) accessibility of DSF in Distribution System Operator (DSO) services; (iii) accessibility of DSF in wholesale markets; (iv) accessibility of DSF in capacity markets and resource adequacy mechanisms; (v) presence of tariffs incentivising implicit flexibility (suppliers); (vi) presence of tariffs incentivising implicit flexibility (networks); (vii) DSF potential on individual level; (viii) technical enablers of DSF measures. In addition (ix) a review of key strategic documents like the respective National Energy and Climate Plans (NECPs) was conducted through the lens of DSF.

The review is based on desk research of primary regulatory and statistical sources (national regulators, Transmission System Operators (TSOs), market operators and statistical offices), legal texts, and recent analytical publications, complemented by three early stakeholder consultations per country. The cut-off date for data and legal status is Q2 2026.

The country sheets deliberately give limited attention to the industrial aspect of DSF. Such arrangements are often highly tailor-made and very industry-specific, as load profiles and cost structures vary greatly between major offtakers. They are therefore better addressed in an in-depth report, utilising case studies, to be published later this year.

1. Czechia

1.1. Accessibility of DSF in ancillary services

DSF can participate in all TSO ancillary services. In practice, an ancillary service provider can be a single source of energy or a single consumer, or smaller facilities/consumers can be grouped into the aggregation block.

Integrated aggregation, in which the roles of supplier and aggregator are combined within a single market party, was formally **introduced in 2021** through an amendment to the Transmission System Code.

Independent aggregation was introduced into Czech law with the amendment to **Energy Act in 2025**. However, independent aggregation is not technically feasible because it requires the full operation of an Electricity Data Centre to calculate the flexibility provided and facilitate data exchange among market participants – this is expected **only as of 1 December 2027**.

Since 1 January 2021, the minimum bid size is 1 MW[1]. Aggregators can however group smaller facilities into a so-called aggregation block to achieve the required 1 MW capacity for participation in the ancillary services market. This minimum applies to all types of ancillary services: Frequency Containment Reserve (FCR), Automatic Frequency Restoration Reserve (aFRR), and Manual Frequency Restoration Reserve (mFRR).

1.2. Accessibility of DSF in DSO services

Unlike the TSOs ancillary services, the DSO services market is hugely underdeveloped, **basically non-existing**. The distribution system is operated by **three regional distribution system operators** (regulated monopolies): ČEZ Distribuce, EG.D, and PREdistribuce.

There is currently **no information** on possible commercial DSO flexibility markets being developed.

1.3. Accessibility of DSF in wholesale markets

While **Czech legislation formally allows DSF** to take part in wholesale electricity markets — both day-ahead and intraday — its actual uptake remains constrained, especially when it comes to independent aggregation.

Although **the amendment to the Energy Act (Lex OZE III)[2]** explicitly permits the aggregation of flexibility, key implementing rules are lacking, which hinders the full implementation of demand-side response in practice. **While integrated aggregators can participate in wholesale electricity markets, independent aggregators cannot until implementing rules are in place**. The European Commission has stated that these rules are needed to ensure that demand-side response (DSR) can effectively participate in electricity markets through independent aggregators[3]. For the time being, full participation of demand response in

1 See current version of the Transmission System Code – Part 2: https://www.ceps.cz/cs/kodex-ps

2 See the full text here: https://e-sbirka.gov.cz/sb/2025/87?zalozka=text

3 See p. 10 of European Commission opinion on Czechia's Market Reform Plan:
https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/12a39a1e-e459-4e0c-89ef-cc6796e11158/download

wholesale markets is expected only as of December 1, 2027, along with future adjustments to the Electricity Data Centre.

1.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms

There are currently **no capacity markets or resource adequacy mechanisms** in place in the Czech Republic. However, the introduction of capacity mechanisms is one of the Czech government's priorities, originally intended primarily to support gas-fired power plants. The need for capacity mechanism is based on the **Czech Market Reform Plan** submitted at the end of 2025, subsequently reviewed by European Commission in March 2026[4]. Representatives of the Ministry of Industry and Trade expect the European Commission to approve the capacity mechanism **as early as summer 2026**[5].

According to statements by representatives of the same ministry, capacity mechanisms should be **technology-neutral**, meaning that other sources (e.g., battery energy storage systems (BESS)) may also participate. **Poland's experience** is set to serve as a model or reference point for the Czech Republic - for example, in terms of setting de-rating factors, the "Pay-As-Clear" auctions or the pricing mechanism. No further information is available regarding DSF's participation.

1.5. Tariffs incentivising implicit flexibility – suppliers

Time-of-use supplier tariffs with timeframes are widely used in the Czech Republic, but almost exclusively in the form of **2-band, high/low tariff**. The exception is the **4 timeframe tariff offered by ČEZ**, the largest electricity supplier (41% share of the retail market), launched in the fall of 2025. This 4 timeframe tariff is currently being used by 751 customers, 82% of whom are saving money compared to before they signed up for the tariff (the savings amount to approximately 10% of the base electricity price)[6].

Tariffs with price per kWh based on wholesale price **(dynamic tariffs)** are also present but **not widely utilized**. This is caused by the limited development of smart metering at the low-voltage level mentioned below. The energy law requires that electricity suppliers with more than 200,000 customers (currently five suppliers[7]) offer these rates, but many smaller suppliers offer them as well.

The most recent available data for 2024 show that the uptake of these tariffs is **around 1% in Czechia**[8]. More up-to-date data are expected in Q3/2026.

Electricity retail market is liberalised – currently consumers can choose from **116 suppliers**[9]. On the other hand market share of the three largest electricity suppliers by consumption points served is approx. 72% and all of these suppliers are **vertically integrated** with regional distribution system operators. Therefore, Czech Energy Regulatory Office points out that the markets for the supply of electricity to smaller consumers

4 See consultation process for Czech market reform plan here:
https://energy.ec.europa.eu/resources/consultations/consultation-czech-market-reform-plan_en and EC opinion here:
https://webgate.ec.europa.eu/circabc-ewpp/d/d/workspace/SpacesStore/12a39a1e-e459-4e0c-89ef-cc6796e11158/download

5 https://www.solarninovinky.cz/aktualne-v-cesku-se-brzy-spusti-kapacitni-aukce-na-podporu-bateriovych-systemu-akumulace-energie/

6 Based on numbers provided by ČEZ at the ČEZ General Meeting in May 2026.

7 see the list of suppliers and number of consumption points they serve:
https://www.ote-cr.cz/cs/statistika/mesicni-zprava-elektrina/pocty-opm-dodavatelu-v-cs-ote?date=2026-01-01

8 https://www.acer.europa.eu/sites/default/files/documents/Publications_annex/2025-Retail-Monitoring-Report-Country-Sheets-Electricity.pdf

9 https://www.ote-cr.cz/cs/statistika/mesicni-zprava-elektrina/pocty-opm-dodavatelu-v-cs-ote?date=2026-01-01

cannot be considered fully competitive[10]. However, process for switching suppliers is easy - in 2024 alone **377,827 households switched suppliers** (7% of all household consumers)[11].

Regarding **heat pumps and electric vehicles (EVs)** there is a **2-band, high/low tariff** offered by most suppliers with prices similar to other types of electricity use (common household appliances, water heater etc). These 2-band tariffs offered by suppliers are connected with the specific network tariffs for these technologies (distribution class D27D, D56D, D57D)[12].

There are **pilot projects targeting households** that explicitly mention DSF. However, these projects primarily focus on the potential to provide flexibility rather than offering individual tariffs. One example is Delta Green, which was the first supplier to create an **aggregation block consisting exclusively of households** certified by a TSO[13]. Among larger suppliers, E.ON's "EON Rovnováha" product is worth mentioning, as it also targets smaller prosumers[14].

1.6. Network tariff design encouraging implicit flexibility

Flat or high/low (two-band) network tariffs are used for **volumetric component**, the latter applied to low voltage levels. High/low (time-of-use) volumetric tariffs are static - time zones are set once a year in the price order of the Energy regulatory office[15]. Currently, **no complex models of time-of-use volumetric tariffs are available**.

There are **no network tariffs with variable power-based component**. However, in the context of high voltage (HV) and extra high voltage (EHV) levels, the regulator has mentioned in expert discussions the possibility of introducing time-of-use network tariffs for power-based component in the future. Currently, on the low-voltage (household) level, power-based payments are based on a fixed fee for reserved power (the circuit breaker's rating).

There are **no network tariffs with locational components** (locational grid charges) in Czechia.

Dynamic network tariffs are not yet implemented and available to households or businesses.

Flexible Connection Agreements (non-firm connections) **are not available for consumers but only for generation** (mainly renewables). Nevertheless, DSOs are currently in discussions with the regulator regarding the introduction of non-firm (non-guaranteed) connections for consumers at higher voltage levels.

1.7. DSF potential and electrification rates

According to the European Heat Pump Association (EHPA) data, by the end of 2024 there were **339,000 units of heat pumps installed in Czechia**, with a total installed capacity of **3.44 GW[16]**.

More recent data is available in the 2025 report on heat pumps from the Czech Ministry of Industry and Trade. According to this report, approximately **330,000 heat pumps are in**

10 ibid.

11 ibid.

12 See the individual distribution tariff classes here: https://www.cez.cz/cs/podpora/prehled-distribucnich-sazeb-elektriny

13 https://www.deltagreen.cz/press-releases/ceske-domacnosti-zacaly-poprve-vydelavat-na-poskytovani-sluzeb-vykonove-rovnovahy

14 https://www.eon.cz/domacnosti/sluzby/eon-rovnovaha/

15 See the Price Order for the year 2025 here: https://eru.gov.cz/energeticky-regulacni-vestnik-182025

16 Source: https://ehpa.org/market-intelligence/?platform=free

operation, with a total capacity of **4.1 GW** in Czechia as of 2025. A total of **23,338 heat pumps were sold in 2025** in the Czech Republic. The share of heat pump installations in newly completed single-family and apartment buildings reached nearly 34% of the total number of newly approved dwellings in 2025 (in 2024 this share was 28%)[17].

Overall, nearly **67,000 battery electric passenger vehicles** (Passenger BEVs) are operated in Czechia. Out of 6.6 million registered cars in the Czech Republic, BEVs constitute **approximately 1% of total registered vehicles**. In 2026 so far, the share of BEVs in **new registrations is 6.2%**[18].

At the end of 2025, there were **3,446 fully electric light commercial vehicles category N1 (LDVs)** in Czechia. They constitute approximately **0.53% of the overall LDV fleet**[19].

At the end of the first half of 2026 the total **installed capacity of batteries** in the Czech Republic is 2,867 MWh, with the vast majority of that capacity in households (around 80%)[20].

There are **subsidy schemes for household batteries and heat pumps available – mainly through the** New Green Savings Programme. However, this program is currently being revised, and it will transition from a non-repayable grant to an interest-free loan. As of April 2026, there are **no EV subsidies available**[21].

1.8. Technical enablers

So far, **approx. 10%** of consumption points connected to **low voltage level** is equipped with smart meters[22].

In case the consumer is equipped with a smart meter, the data are **accessible in the real-time** and can be connected with smart home applications. In case of **older meters, the data are available only with daily delay** (for continuous meters) or yearly delay (non-continuous meters).

The greatest technical barrier is a low rollout ratio of smart meters among consumption points connected to low voltage. According to current legislation[23], the DSOs are obliged to equip with smart meters only consumption points with a higher electricity consumption (at least 6 MWh/year) by July 2027. As for the national rollout for all consumers, the cost benefit analysis shall be conducted by the end of 2028 with its conclusion being uncertain.

1.9. DSF in key documents

The Czech National Energy and Climate Plan includes regulatory instruments for DSR. These include dynamic retail tariffs with potential for load shifting, as well as the Electricity Data Centre, which is a key component for enabling a new market model involving electricity sharing, storage, and flexibility aggregation. Furthermore, it highlights smart metering as a key enabler for DSR in the Czech Republic, and the transposition of EU

17 https://mpo.gov.cz/cz/energetika/statistika/obnovitelne-zdroje-energie/zprava-o-tepelnych-cerpadlech-za-rok-2025--292413/ and https://data.csu.gov.cz/datastat/data/VYBER/SLD039T01?vSel=1

18 https://www.cistadoprava.cz/tiskove-zpravy/zajem-o-elektromobily-v-cesku-roste-duben-prinesl-rekordni-pocet-registraci/

19 Source: https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/czech-republic/vehicles-and-fleet

20 According to most recent data published by Czech BESS and PV associations in July 2026: https://solarniasociace.cz/dalsi-zpomaleni-solarniho-trhu-letos-pribylo-9364-instalaci-rozmach-zaziva-akumulace-s-8-tisici-bateriemi-vznikaji-i-velke-projekty/

21 Historically, only installation of charging stations for households was supported within the New Green Savings Programme.

22 Czech electricity market: Implementation Plan, p. 31: https://energy.ec.europa.eu/document/download/ad67e81c-85b5-4485-8ced-14193b4329d7_en

23 https://e-sbirka.gov.cz/sb/2020/359?zalozka=text

Directive 2019/944, whose requirements related to flexibility and DSR are to be gradually incorporated into national legislation[24].

Czech State Energy Policy does not mention DSF[25].

The TSO development plan addresses DSF only in general terms - in the context of the need for energy storage and the use of the flexibility offered by electromobility[26].

Czechia is yet to publish its Flexibility Needs Assesment.

Other DSF related strategic documents are:

- Czech electricity market: Implementation Plan - sets out a row of strategic documents, one whole chapter on DSR,
- Report on the Need for Non-Fossil Flexibility - Initial assessment identifying the key challenges, barriers, and potential measures to enable flexibility in the Czech electricity system,
- National Action Plan for Flexibility - sets out a series of strategic tasks to be implemented during 2025-2026, designed to remove key barriers and strengthen the development of flexibility before the Czech Republic prepares Flexibility Needs Assessment.

2. Hungary

2.1. Accessibility of DSF in ancillary services

In Hungary **demand-side flexibility can, in principle, participate in ancillary services**; however, in practice, such participation remains limited. While DSF participation does exist (in the aFRR and mFRR market segments), the market is still in a developmental phase and requires further regulatory refinement and improvements in market design to enable broader and more effective integration.

While the **legislative basis for independent aggregators exists**, key implementation rules are still missing, particularly those governing imbalance settlement and independent access to customers without the consent of the Balance Responsible Party (BRP). As a result, aggregators currently need to cooperate with suppliers or BRPs. A total of 99 entities were registered as aggregators by the Regulator as of 26 June 2026[27]. However, publicly available information does not indicate how many of these entities operate as truly independent aggregators, nor how many are affiliated with suppliers, traders, or BRPs.

The **minimum bid size in the Hungarian FRR** (mFRR and aFRR) **markets is 1 MW**. The **introduction of a demand-side (consumer) product by MAVIR** (the Hungarian TSO)

24 https://mpo.gov.cz/assets/cz/energetika/strategicke-a-koncepcni-dokumenty/2024/12/Vnitrostatni-plan-Ceske-republiky-v-oblasti-energetiky-a-klimatu- _prosinec-2024_.pdf

25 https://mpo.gov.cz/cz/energetika/statni-energeticka-politika/statni-energeticka-koncepce--223620/

26 https://eru.gov.cz/plan-rozvoje-ps-cr-2025-2034

27 https://www.mekh.hu/engedelyesek-listaja, accessed: 25 June 2026

represents an important step toward integrating DSF into balancing markets. However, the market has not yet been launched due to the limited number of applicants, and the current framework remains a transitional solution that does not allow for fully independent aggregation[28].

2.2. Accessibility of DSF in DSO services

In Hungary, **DSO-level flexibility markets are still at an early and transitional stage**, despite a regulatory framework aligned with EU requirements that encourages market-based flexibility procurement.

Several pilot and experimental initiatives have emerged – including projects by E.ON Hungária (one of the Hungarian DSOs) and the Flex.ON[29] platform concept aimed at business consumers – but these remain limited in scale and are not yet integrated into routine DSO operations.

As a result, **fully operational commercial DSO flexibility markets have not yet been established**, as key elements such as standardized products, transparent procurement platforms, and clear remuneration mechanisms are still missing.

2.3. Accessibility of DSF in wholesale markets

DSF is legally permitted to participate in Hungarian wholesale electricity markets, including the day-ahead and intraday markets, but **practical participation remains limited**, particularly for independent aggregators.

Although the Hungarian regulatory framework is formally aligned with EU legislation and recognises aggregation, the detailed rules required for independent aggregation are still not fully implemented. As a result, **aggregators remain dependent on cooperation with BRPs**, since key mechanisms such as imbalance settlement and BRP-independent market access are insufficiently defined, while the mandatory balance group structure under the MAVIR Commercial Code further limits independent operation[30]. When an aggregator activates demand-side flexibility, it may alter the consumption profile of customers within the balance group they belong to, thereby affecting the BRP's imbalance position. Since the detailed rules for imbalance settlement and compensation between independent aggregators and BRPs have not yet been implemented, aggregators must coordinate closely with the relevant BRP. As a result, the balance-group structure effectively limits entirely independent aggregation.

2.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms

There are **no capacity markets or resource adequacy mechanisms** in place in Hungary.

28 Hungarian Electricity Act, LXXXVI/2007, and its implementing regulation, Gov. Decree 273/2007.

29 https://www.eon.hu/hu/uzleti-es-kozigazgatasi/termekek/energetikai-megoldasok/infrastruktura-szolgaltatasok/fogyasztoi-rugalmassag.html#ajanlat, accessed: June 2 2026

30 https://www.mavir.hu/web/mavir/kereskedelmi-szabalyzat, accessed: May 28 2025

2.5. Tariffs incentivising implicit flexibility - suppliers

Most household consumers are on a single-rate tariff (A1) with no time-of-use differentiation and a very low energy component of approximately 12 EUR/MWh[31].

There is **one special tariff with a variable energy component by timeframe (A2)**. This is a time-of-use tariff **with two pricing periods**: a lower price applies between 22:00–06:00 on weekdays and for all hours during weekends, while a higher price applies during the remaining hours. Only a few thousand household consumers opt for this tariff, mainly for two reasons: (i) a special meter is required, and (ii) the difference in the energy component is relatively small, with no differentiation in network tariffs[32].

There is a **ripple-controlled electricity tariff** (B tariff), a specific tariff mainly used for electric boilers. Under this scheme, electricity can be consumed for up to 8 hours of operating time per day (which is sufficient to heat up the boilers), of which 4–6 hours fall within off-peak periods controlled by DSOs for the purpose of explicit DSF. It is **relatively widely used**, covering about 12.4% of total household consumption, because not only the energy component, but also the network tariffs are reduced compared to A1. The total capacity of these appliances is around 600 MW[33].

There is **no dynamic tariff** option for household consumers in Hungary.

There is **only one supplier serving household consumers** in Hungary, due to the regulated, very low energy price component (~12 EUR/MWh)[34] set under the Universal Service scheme.

There are **two specific tariffs available for heat pump users**. H tariff is available only **during the heating season[35]**. It is not time-differentiated within the day, but the price level is significantly lower compared to the standard A1 tariff. The other option is the GEO tariff, which features only minor differences compared to the H tariff (it is available in all seasons, but the electricity supply can be interrupted only twice a day for up to 2 hours per interruption). However, new consumers have not been able to choose the GEO tariff since 1 September 2021, primarily because the H tariff provides more favourable conditions for consumers.

There are **no dedicated tariffs for electric vehicle users**.

There are currently no offers for individuals/residential consumers (including pilot projects) that explicitly feature or **incentivise DSF**.

2.6. Network tariff design encouraging implicit flexibility

Network tariffs with variable volumetric components only exist in theory. Authorized by the Electricity Act and its implementation decree, the energy regulator (HEA) introduced a „smart-meter grid tariff" (KIF IV) as of 1 January 2025, for low-voltage customers with smart meters. This tariff utilizes three time zones: daytime (6:00–17:00), peak time (17:00–22:00), and off-peak time (22:00–6:00). As of now, however, grid fees remain the

31 Decree No. 4/2011 of the Ministry of National Development on the pricing of universal electricity supply, as amended by Decree No. 20/2025 of the Minister of Energy

32 www.mekh.hu/arak-a-villamos-energia-egyetemes-szolgaltatasban-2026-januartol, accessed: 26 June, 2026

33 MEKH Decision No. H2995/2025 on the determination of electricity system usage fees and special charges applicable from January 1, 2026. p. 105, https://mekh.hu/download/8/f3/b1000/H2995-2025%20sz%20-%20Villamos%20RHD%20hat%C3%A1rozat%202026%20%C3%A9vre%20-%20VAO-63-9-2025%20-%20HONLAP.pdf, accessed: 15 May 2026

34 Decree No. 4/2011, *op. cit.*

35 ibid.

same in all three time zones (and equal the fees that low-voltage customers without smart-meters are paying)[36].

Hungary does not apply variable capacity-based components to its network tariffs.

Furthermore, **the system completely excludes locational components, such as locational grid charges**.

Dynamic network tariffs are not yet offered to households.

Flexible connections have been regularly used in recent years to allow faster grid access to renewable energy generators. While Hungarian DSOs have applied non-firm connection methods since the 2010s, the definition of a „flexible connection agreement" was implemented in the Electricity Act, and unified rules were defined in 2025[37]. Currently, flexible connections are used for generators, consumers, and storage connected to medium and high voltage; however, their application for household PV and storage at low voltage is still being developed. Grid users do not receive compensation in case of curtailment.

2.7. DSF potential and electrification rates

According to the EHPA data, by the end of 2024 there were **261,000 heat pumps installed in Hungary**, equivalent to **65 units per 1,000 households**. No 2025 sales figures for Hungary by EHPA are publicly available yet[38]. The latest official Census baseline from 2022 uses a somewhat different classification: it reports **67,900 households with heat-pump heating equipment (excluding split air conditioners)** and **1.11 million households with air conditioning**, representing 1.7% and 28% of households, respectively[39].

There are over **94,000 fully electric passenger BEVs in Hungary[40,41]**. They constitute 2.2% of the total registered passenger vehicles.

At the end of 2025, there were **7,158 fully electric LDVs in Hungary**, representing approximately 1.3% of the overall population of LDVs[42].

In March 2026, the **installed capacity of licensed, non-residential battery storage units stood at 348 MW**. Based on an estimate using data from the Solar Energy Plus Programme, residential battery storage capacity is roughly 90–100 MW. The total storage capacity of around 450 MW corresponds to 6% of peak load (approximately 7.5 GW), while residential storage alone accounts for around 1.3% of that peak load[43].

Small household batteries were recently supported[44] through the Home Energy Storage Programme, which offered a non-repayable grant of up to HUF 2.5 million (~EUR 7,000) for

36 Decree No. 10/2024 of the Hungarian Energy and Public Utility Regulatory Authority, 11(6).

37 Act LXXXVI of 2007 on Electricity, and related implementing regulations, in particular MEKH Decree 13/2025

38 https://ehpa.org/market-intelligence/?platform=free, accessed: 20 June 2026

39 https://nepszamlalas2022.ksh.hu/adatbazis/#/table/WBL003/N4IgFgpghgJiBcBtEAVAkgWQKIH0AKWASmgPIAiIAugDQgDOAljBAsmgHJloDCAgiiUIBlAExVadCAGMALgwD2AO1Y0QAMwYAbGRABOdBKADWDRXHggMUAA4haERTN0MIBpJQC-HoA== ;

https://mavir.hu/documents/10258/239341965/A+magyar+VER+term%C3%A9szetviselked%C3%A9sei_2025.pdf/8b53c4c9-54e2-e572-b722-505c8582371a?t=1773654501289, accessed: 06 June 2025

40 https://nepszamlalas2022.ksh.hu/adatbazis/#/table/WBL003/N4IgFgpghgJiBcBtEAVAkgWQKIH0AKWASmgPIAiIAugDQgDOAljBAsmgHJloDCAgiiUIBlAExVadCAGMALgwD2AO1Y0QAMwYAbGRABOdBKADWDRXHggMUAA4haERTN0MIBpJQC-HoA== ;

41 https://mavir.hu/documents/10258/239341965/A+magyar+VER+term%C3%A9szetviselked%C3%A9sei_2025.pdf/8b53c4c9-54e2-e572-b722-505c8582371a?t=1773654501289, accessed: 06 June 2025

42 Ibid.

43 https://rekk.hu/esemeny/362/a-magyarorszagi-villamosenergia-piac-elmult-evenek-attekintese ,

https://privatbankar.hu/cikkek/kozerdeku/veget-ert-a-napenergia-plusz-program-megvannak-a-nyertesek.html, accessed: 28 May 2026

44 kormany.hu/ottonienergiatarolo, accessed: 20 May 2026

battery storage installations in households with solar PV. The grant was suspended in March 2026 due to the depletion of funds.

For EVs, the main recent purchase subsidy targeted companies: a HUF 45 billion (~EUR 127 million) scheme offered HUF 2.8–4.0 million (~EUR 7,900–11,300) per vehicle, depending on battery capacity. Applications closed on April 15, 2026[45].

Heat pumps were eligible for support under both the **Home Renovation Program and the Rural Home Renovation Program** alongside other energy efficiency upgrades. The energy-focused Home Renovation Program was available nationwide for family homes built before the end of 2006. Requiring just a 5% self-contribution, applicants could receive up to HUF 10 million (~EUR 28,300), split 50-50 between an interest-free loan and a non-repayable grant, regardless of income. However, applications closed in late April 2026[46]. The Rural Home Renovation Program was open until the end of June 2026. This scheme was restricted to rural settlements with fewer than 5,000 inhabitants and targeted pensioners or parents under the age of 25, raising at least one child. Eligible applicants could access up to HUF 3 million (~EUR 8,500) as a direct grant, to reimburse 50% of material and labor costs[47].

In addition to the grants under these home renovation programs, heat pumps benefit from the reduced H-tariff, and EVs also enjoy certain tax incentives.

2.8. Technical enablers

According to data from the Hungarian Energy Efficiency Institute (MEHI)[48], there were around **600,000 smart meters installed in Hungary** at the beginning of 2025, and approximately 40% of these were associated with 'household-sized power plants' - defined as units connected to the low voltage grid with a maximum capacity of 50 kVa (typically residential solar systems). In addition, there are certainly residential smart meters without attached generation units, although their number is likely not particularly high; however, no precise public data is available on this specific segment. Based on these figures, the number of residential smart meters in Hungary is estimated to be around 300,000–350,000, corresponding to a **household penetration of roughly 7–8%**. In its NECP **Hungary aims to install at least 1 million smart meters by 2030[49]**. The achievement, and potentially overachievement, of this target may be boosted by a newly announced HUF 54 billion (~EUR 152 million) support scheme, under which grid companies can apply for grants to deploy smart meters. The initiative targets the installation of 947,368 smart meters by the end of 2030[50].

There is **no public dataset available for aggregate electricity consumption**. However, **consumers with smart meters can access their own historical data** - usually with a one-day delay - through the DSOs' online customer portals.

45 https://www.palyazat.gov.hu/programok/helyreallitasi-es-ellenallokepessegi-terv/rrf/rrf-rep-10101-24/alapadatok, accessed: 13 May 2026

46 https://www.palyazat.gov.hu/programok/szechenyi-terv-plusz/kehop-plusz/kehop_plusz-4.1.7-24/alapadatok, accessed: 13 May 2026

47 A Vidéki Otthonfelújítási Program keretében nyújtható otthonfelújítási támogatás - Magyar Államkincstár, accessed: 10 June 2026

48 https://mehi.hu/januartol-nem-kell-diktalniuk-az-okosmeros-aramfogyasztoknak/, accessed: 30 April 2026

49 Hungary - Final updated NECP 2021-2030 (submitted in 2024) - European Commission, https://commission.europa.eu/publications/hungary-final-updated-necp-2021-2030-submitted-2024_en

50 https://www.palyazat.gov.hu/palyazatok/tarsadalmi-egyeztetes?forum=rrf-tarsadalmi-egyeztetes&category=rrf&topic=rrf-6.7.1-okosmeres-elterjesztese&subjectFilter=all&order=-1&currentPage=1&pageSize=6, accessed: 26 June 2026

2.9. DSF in key documents

The Hungarian **NECP**[51] identifies DSR as an innovative solution to improve grid optimization, enhance security of supply, and help consumers reduce their energy costs by offering their consumption flexibility to the market. The plan **aims to unlock DSR primarily through energy communities and independent aggregators**. Although the NECP describes the development of a flexible tariff structure as an "obvious tool" for encouraging DSR, one of the plan's **explicitly stated goals is to maintain the current system of regulated household retail prices**, which are predominantly based on very low, flat rates, thereby acting as a significant constraint on DSR.

While the NECP stresses the importance of innovative technologies and the digitalisation of the electricity system, it also deems it **necessary to rely on the existing system-level load-control based on legacy infrastructure**-specifically, the long-standing ripple-control systems for appliances on dedicated circuits.

The **Ten-Year Network Development Plan**[52] of Hungary, which integrates the planning of both the TSO and DSOs, does not mention DSR.

The **National Clean Development Strategy 2020-2050**[53] only references DSR abstractly as a required innovative solution, without providing a concrete framework for its implementation.

Hungary is expected to finalise its Flexibility Needs Assessment on time.

3. Poland

3.1. Accessibility of DSF in ancillary services

DSF can participate in all TSO ancillary services; however, as smartEn notes in its 2025 market report, "high entry costs continue to deter meaningful engagement"[54].

The aggregator role was formally introduced into the Polish legal system in 2024[55], and as of June 2026, 22 entities are registered with the Energy Regulatory Office[56]. **Independent aggregation is legally permitted**, and electricity suppliers are explicitly prohibited from discriminating against clients who choose to work with independent aggregators.

Following the 2024 reform of the balancing market, **the minimum bid size has been reduced from 1 MW to 0.2 MW**. Aggregators may also combine multiple sites within a single portfolio, making it easier to meet the 200 kW minimum reduction threshold. However, for two DSR services, namely Emergency Load Increase applied in cases of oversupply and Emergency Load Reduction, the threshold remains 1 MW - aggregation is possible though[57].

51 https://commission.europa.eu/publications/hungary-final-updated-necp-2021-2030-submitted-2024_en

52 https://mavir.hu/documents/10258/239341965/A+magyar+VER+h%C3%A1l%C3%B3zatfejleszt%C3%A9si+terve_2025.pdf/45f21c60-7f4b-cd3e-d436-9c6f05848c65?t=1773654330434, accessed: 15 May 2026

53 https://cdn.kormany.hu/uploads/document/6/66/666/666e0310ef20606fba9f96f4fbf0d74bbaa1638e.pdf, accessed: 21 May 2026

54 https://smarten.eu/wp-content/uploads/2026/01/Market-Monitor-2025.pdf

55 https://www.sejm.gov.pl/sejm9.nsf/PrzebiegProc.xsp?nr=3237

56 https://bip.ure.gov.pl/bip/rejestry-i-bazy/wykaz-agregatorow/4713,Wykaz-agregatorow.html

57 http://shorturl.at/4irAe

Remuneration mechanisms and infrequent occasions to provide the service limit their popularity[58].

3.2. Accessibility of DSF in DSO services

The DSO services market is significantly underdeveloped compared with its TSO counterpart, with only initial market trials and pilots having taken place to date.

Tauron Dystrybucja, one of the four major Polish DSOs, has announced plans to procure flexibility services and has published a substation-level list of capacities to be contracted[59].

The Polish Power Exchange, Tauron Dystrybucja, and PSE - the Polish TSO, have signed a cooperation agreement to establish a trading platform for flexibility services. The aim is to create a single, shared platform enabling the effective management of generation flexibility and energy consumption across the national grid[60].

3.3. Accessibility of DSF in wholesale markets

Polish law gives DSR an explicit right to enter and participate in the electricity markets — including the day-ahead and intraday markets — without the consent of other market participants. The right of access is set out directly in the Energy Law (Art. 5b[3])[61]. In practice, however, wholesale participation is currently almost entirely implicit (through dynamic-price contracts) because the mechanism that would allow an aggregator to take over ownership of energy and offer it on the exchange does not yet exist[62].

3.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms

Poland introduced a capacity market in 2018. Regular auctions are held annually, with deliveries in Y+5 or, in particular quarters, in Y+1. Contract lengths range from one quarter to 17 years.

DSF plays an important part in the capacity market. Independent aggregation is allowed. DSR can be contracted for 1 or 5 years - though the latter is only possible if the bidder commits to “significant investments" related to DSR - in the latest auctions, the threshold was PLN 0.4 million (~EUR 0.094 million)/MW[63].

Bid sizes range from 2 to 50 MW. However, through aggregators, entities with a minimum demand reduction capacity of less than 2 MW may also participate in the capacity market, up to a maximum aggregated capacity of 50 MW.

The clearing price in the last main auction, held in December 2025, was PLN 465 (~EUR 110)/kW/year. A total of 6.9 GW of capacity obligations for 2030 were contracted, **including 1.3 GW in DSR[64], which has a de-rating factor of 100%**[65].

58 https://www.politykainsight.pl/_resource/multimedium/20391099

59 https://www.tauron-dystrybucja.pl/uslugi-dystrybucyjne/uslugi-elastycznosci

60 https://www.tge.pl/aktualnosci-tge-czytaj?cmn_id=92047&title=TGE,+TAURON+Dystrybucja+oraz+PSE+uruchomi%C4%85+platform%C4%99+us%C5%82ug+elastyczno%C5%9Bci

61 https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20230001681

62 https://www.politykainsight.pl/_resource/multimedium/20391099

63 https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20230001681

64 https://www.ure.gov.pl/pl/urzad/informacje-ogolne/komunikaty-prezesa-ure/13029,Informacja-nr-12026.html

65 https://www.forum-energii.eu/moce-za-wszelka-cene

3.5. Tariffs incentivising implicit flexibility - suppliers

Supplier tariffs with timeframes have been available for around 20 years and are offered by all the major players.

Tariffs with two bands (G12, G12W) are widely available; tariffs with three bands (G13) are available only in limited supply. Around 1.5 million households (10% of the total) use tariffs with more than one band[66,67].

Dynamic tariffs are much less popular in Poland. They were introduced in 2024. **By the end of 2025 4,836 consumers used dynamic tariffs**[68]. This is less than 0.03% of all the consumers.

Six suppliers offer dynamic tariffs[69]. It is mandatory for suppliers with at least 200,000 clients to offer dynamic tariffs since August 2024[70].

Poland has a competitive household retail market. Since 2010, over 800,000 private customers (5% of the total) have changed their supplier (in 2025 alone, over 18,000 consumers did so)[71]. Despite the growing number of heat pumps and EVs, **there are no heat pump or EV specific tariffs available.** No offers or pilot projects that explicitly mention and enhance DSF exist.

3.6. Network tariff design encouraging implicit flexibility

A variable, dynamic network tariff with time bands set at short notice (day-ahead) is offered by one of the four major DSOs, Tauron Dystrybucja. There are 4 bands, based on the TSO's "Energy compass" app: "Usage encouraged", "Normal usage", "Reduction encouraged" and "Reduction required". The per kWh rates range from PLN 0.028 (EUR 0.007) under "Usage encouraged" to PLN 2.92 (EUR 0.69)[72].

Static timeframe tariffs with two time bands defined much further in advance are more widely available.

There are no network tariffs with a variable capacity-based component. However, Enea Operator and Energa-Operator (two of the major DSOs) have introduced an "Emergency Active Power Supply" service, under which participating entities are permitted to exceed their active power consumption limits during periods of high generation from variable renewables. There is no remuneration; the DSO announces, a week in advance, the dates when participating entities can exceed the limit. **There are no network tariffs with a locational component (locational grid charges)**.

There is no publicly available information about the uptake of dynamic distribution tariffs.

Since March 2026, DSOs have been legally allowed to offer Flexible Connection Agreements (non-firm connections) to network users.

66 https://www.ure.gov.pl/pl/urzad/informacje-ogolne/aktualnosci/13002,Prezes-Urzedu-Regulacji-Energetyki-zatwierdzil-taryfy-na-sprzedaz-i-dystrybucje-.html

67 https://www.ure.gov.pl/pl/urzad/informacje-ogolne/aktualnosci/12327,Rynek-energii-elektrycznej-Prezes-URE-zatwierdzil-taryfy-dystrybucyjne-na-2025-r.html;

68 https://www.ure.gov.pl/pl/urzad/informacje-ogolne/aktualnosci/13308,Juz-ponad-48-tys-gospodarstw-domowych-korzysta-z-umow-z-cenami-dynamicznymi.html

69 https://wysokienapiecie.pl/116334-ceny-dynamiczne-pstryk-ujawnia-ceny-klientow-panstwowi-obnizaja-koszty/

70 https://www.ure.gov.pl/pl/urzad/informacje-ogolne/aktualnosci/12134,dok.html

71 https://www.ure.gov.pl/pl/energia-elektryczna/ceny-wskazniki/4776,Zmiana-sprzedawcy-monitoring.html

72 https://www.tauron-dystrybucja.pl/grupa-taryfowa-g14dynamic

3.7. DSF potential and electrification rates

According to the EHPA data, at the end of 2024, approximately 745,000 heat pumps were installed in Poland[73].

The share of electric heating in households in 2024 reached 7% (heat pumps 2.4%).

There are over 120,000 fully electric passenger BEVs in Poland. They constitute 0.5% of the total registered vehicles. At the end of 2025, there were 9,445 fully electric LDVs in Poland. They constituted 0.38% of all registered N1[74].

The installed capacity of batteries in Poland as of the end of 2025 is 836 MW (small household batteries account for 585 MW[75]). This translates to 3% and 2% of the peak national demand of ~30 GW, respectively.

Subsidy schemes for batteries and heat pumps are available. As of April 2026, there are no national-scale EV subsidies available.

3.8. Technical enablers

Smart meter rollout stands at 48% as of the end of 2025[76] - around 10 million units, with significant differences between DSOs.

Consumers will eventually be able to access their historical and real-time data on energy consumption and energy generation (for prosumers) through the Central Energy Market Information System, which is still not fully implemented.

3.9. DSF in key documents

DSF is mentioned in Poland's NECP. The roles of sector coupling, DSR, aggregators and dynamic tariffs are stressed. In the WEM and WAM scenarios, it is assumed that the available capacity of DSR units (all the installations providing DSR) will amount to 2,810 MW in 2030 and 3,625 MW in 2040. As of 2025, the available capacity is 1,908 MW[77].

DSF is also mentioned in Poland's 2021 National Energy Policy[78]. The document states that to ensure better operating conditions for the transmission and distribution networks, selected services – including DSR and system services – shall be developed and procured. The document also refers to enabling customers to play an active role and the development and promotion of aggregation services, including in the context of DSR and dynamic tariffs.

Polish TSO's 2025 strategy mentions DSR in the context of a non-fossil flexibility mechanism that pursues the objectives set out in several EU regulations[79].

Poland is yet to publish its Flexibility Needs Assessment.

73 https://ehpa.org/market-intelligence/?platform=free; 2025 number based on sales data is likely to be around 900 thousand

74 https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/poland/vehicles-and-fleet

75 As of Q3 2025;

76 https://www.ure.gov.pl/pl/urzad/informacje-ogolne/aktualnosci/13308,Juz-ponad-48-tys-gospodarstw-domowych-korzysta-z-umow-z-cenami-dynamicznymi.html

77 https://www.gov.pl/web/energia/krajowy-plan-w-dziedzinie-energii-i-klimatu-przyjety-przez-rade-ministrow-dokument-opracowalo-ministerstwo-energii

78 https://isap.sejm.gov.pl/isap.nsf/download.xsp/WMP20210000264/O/M20210264.pdf

79 https://strategia.pse.pl/Strategia_PSE_2040.pdf

4. Slovakia

4.1. Accessibility of DSF in ancillary services

Participation of DSF in ancillary services is subject to compliance with the technical, operational, and certification requirements defined by the Operating Rules of SEPS - the Slovak TSO, and the relevant national legislation. SEPS procures ancillary services through competitive tenders that are open to all market participants meeting the prescribed qualification and certification criteria. **The regulatory and technical framework also allows the participation of aggregated resources (blocks)**, provided they fulfil the applicable requirements for certification, metering, communication, and operational performance[80]. **An aggregation block (the minimum bid size) is defined as the pooling of two or more devices capable of adjusting consumed, supplied, or stored power, with a minimum regulating capacity of ±1 MW[81].**

Although the legislative framework envisages the participation of independent aggregators, **the necessary implementation framework has not yet been fully established as of mid-2026**. DSF is currently facilitated through the Energy Data Centre (EDC), operated by OKTE, the Slovak electricity market operator, since October 2023[82].

While the EDC enables independent aggregators to participate in DSF, their access to aFRR and mFRR remains limited to configurations combining batteries with conventional physical generation (heavy spinning machinery). **Standalone BESS are currently not being certified by the TSO for aFRR and mFRR services[83]**.

4.2. Accessibility of DSF in DSO services

Slovak DSOs have not yet introduced market-based flexibility procurement through open auction platforms. Consequently, they do not regularly procure flexibility services from third-party providers to manage local network constraints. As a result, a commercial market for demand-side flexibility at the distribution level has not yet emerged.

4.3. Accessibility of DSF in wholesale markets

DSF providers may participate in **the day-ahead and intraday electricity markets**, provided they comply with the technical, metering, and settlement requirements established by OKTE and the applicable national market rules. The regulatory framework[84] enabling such participation is fully in place and supported by the EDC, which facilitates data exchange and market processes for flexibility services.

80 https://www.sepsas.sk/engine/wp-content/uploads/2025/06/Strategia-zabezpecenia-PpS-na-2026_final.pdf

81 https://www.sepsas.sk/engine/wp-content/uploads/2025/09/Rozhodnutie-0009_2025_E-TP_zmena-Dokumentu-B_od-01.10.2025.pdf

82 https://www.sepsas.sk/tlacove-spravy/energeticke-datove-centrum-je-v-plnej;-prevadzke-prinasa-nove-funkcionality-pre-trh-v-roznych-oblastiach-elektroenergetiky

83 https://www.sepsas.sk/engine/wp-content/uploads/2025/09/Rozhodnutie-0009_2025_E-TP_zmena-Dokumentu-B_od-01.10.2025.pdf

84 The regulatory framework is defined primarily by the Act No. 251/2012 Coll. on Energy, Act 250/2012 on the Regulation of Network Industries, the Electricity Market Rules (207/2023 Coll.) and the Decree on Price Regulation in Electricity (154/2024 Coll.) and other related regulations.

4.4. Accessibility of DSF in Capacity Markets and Resource Adequacy Mechanisms

Slovakia does not operate a dedicated capacity remuneration mechanism. Security of supply is instead maintained through the energy-only market, supported by balancing services, cross-border market integration, and operational measures implemented by the TSO. To monitor the long-term security of supply, SEPS regularly performs resource adequacy assessments and publishes demand and generation adequacy forecasts, providing the analytical basis for identifying potential supply risks and future system needs.

4.5. Tariffs incentivising implicit flexibility - suppliers

Static time-of-use tariffs, typically based on peak and off-peak pricing periods, remain the predominant retail tariff structure for Slovak households. These tariffs provide limited incentives for implicit demand-side flexibility, as the pricing schedule is fixed and does not reflect short-term wholesale market conditions.

The regulatory framework for dynamic electricity price contracts is still under development. In January 2026, the Slovak Regulatory Office for Network Industries (ÚRSO) announced its intention to prepare secondary legislation supporting their wider introduction. However, as of mid-2026, no draft implementing regulation had been published and dynamic pricing products were not yet commercially available on a significant scale[85].

The limited uptake of dynamic commodity tariffs is primarily driven by weak economic incentives. Following the 2022 energy crisis, the Slovak government concluded an agreement with the dominant electricity producer, Slovenské elektrárne, to cap the commodity component of household electricity prices. In parallel, the Ministry of Economy introduced a compensation scheme for electricity suppliers to offset the resulting revenue shortfalls[86]. As a consequence, regulated retail prices remained well below wholesale market prices, substantially reducing the financial benefits of responding to dynamic price signals.

As of 1 January 2026, approximately 27,000 consumers (~1%) concluded dynamic electricity price contracts, of which only 2,541 were households, illustrating very limited penetration of dynamic pricing in the residential sector[87].

Slovakia has introduced several technology-specific network tariffs, although these are not designed to incentivise DSF. **Household customers using heat pumps may benefit from the dedicated DD6 tariff. In addition, the X2–N tariff applies to dedicated high-voltage delivery points supplying publicly accessible EV charging infrastructure**[88]. However, eligibility is restricted to dedicated connection points and does not extend to mixed-use residential or commercial premises equipped with EV chargers.

At present, electricity suppliers do not offer residential pilot programmes or tariff products that explicitly reward demand-side flexibility or active participation in flexibility markets.

85 https://www.urso.gov.sk/dynamicke-tarify-budu-dobrovolne

86 The subsidy scheme was adopted on the basis of Article 9 of the EU Council Regulation 2022/1854 on emergency intervention to address high energy prices.

87 https://zive.aktuality.sk/clanok/unmacX2/stat-chysta-pri-cenach-elektriny-velku-novinku-komu-sa-to-oplati/

88 https://www.ssd.sk/sk/aktuality/od-1.-januara-pribudnu-nove-distribucne-sadzby-vyhradne-pre-nabijacie-stanice-elektromobilov?page_id=6890

4.6. Network tariff design encouraging implicit flexibility

Slovakia's network tariff design provides little incentive for dynamic pricing or demand-side flexibility. While electricity suppliers may offer dynamic pricing for the commodity component of the electricity bill, distribution network charges remain entirely static. Network tariffs consist of a fixed component based on the customer's reserved capacity and a variable component calculated from electricity consumption within predefined peak and off-peak time bands. Neither the Energy Act nor ÚRSO's distribution tariff methodology provides for network charges that vary in real time according to network conditions or congestions.

Flexible Connection Agreements (non-firm connections) are not yet available to electricity consumers and currently apply only to generation facilities, primarily renewable energy sources, and battery energy storage systems. As of mid-2026, distribution system operators are elaborating detailed conditions for their implementation.

Similarly, Slovakia has not introduced locational network tariffs that would encourage electricity consumption close to the point of generation or relieve local network constraints. Although local distribution networks operate within specific geographic areas, they remain subject to the same regulated tariff methodology as regional distribution networks and therefore do not provide additional locational price incentives.

4.7. DSF potential and electrification rates

Slovakia ranked second-to-last in heat pump penetration among the 19 European countries tracked by the EHPA, recording only 37 units per 1,000 households and representing a total stock of 64,000 at the end of 2024[89].

As of end 2025, Slovakia's passenger BEV fleet reached 18,895 units (category M1), accounting for 0.68% of the country's total M1 fleet. Concurrently, the total stock of light utility electric vehicles (category N1) grew to 1,420 units, representing 0.42% of the overall N1 segment[90].

Although official data for cumulative residential BESS capacity remains unavailable, the Slovak Association of Sustainable Energy (SAPI) estimates it has likely surpassed 130 MWh by the end of 2025. Slovakia's total installed BESS capacity reached approximately 247 MW of power at year-end 2025, representing roughly 6% of the country's 2025 peak grid demand[91].

The Home Renovation program (“Obnov dom”) provides financial subsidies for the installation of photovoltaic (PV) systems with integrated battery storage[92].

There is no direct support for BEVs for households in Slovakia.

89 According to the Slovak Association for Cooling, Air-Conditioning and Heat Pumps (SZCHKT), the 2025 sales reached 10,617 heat pumps; EHPA Market Report 2025: https://www.ehpa.org/wp-content/uploads/2025/07/EHPA-Market-Report-2025-executive-summary.pdf

90 https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/slovakia/vehicles-and-fleet

91 https://www.sapi.sk/files/SAPI_MarketOutlook-2026_light.pdf;
https://www.sepsas.sk/engine/wp-content/uploads/2026/02/Mesacna-sprava-ES-SR_12_2025_na_zverejnenie.pdf

92 https://obnovdom.sk/media/vyzva6/%C5%BDoP%20dokumenty/V06_Prirucka_pre_prijimatela_v_1.0_20250414.pdf

Since 2015, the Slovak Innovation and Energy Agency (SIEA) has provided funding for heat pump installations under the **Green for Households subsidy scheme** ("Zelená domácnostiam")[93]. SIEA announced plans to launch a new call in autumn 2026[94].

4.8. Technical enablers

According to OKTE data, **there were 515,000 intelligent metering systems (so-called smart meters, IMS) installed in Slovakia as of May 2026**, thereof 241,000 in Western Slovakia (ZSD), 160,500 in Central Slovakia (SSD), 113,500 in East Slovakia (VSD). **The IMS rollout is currently at 19% on country level**, with regional deployment rates amounting to 19.5% for ZSD, 20.3% for SSD, and 16.6% for VSD[95].

Aggregated data is publicly available on the OKTE Metered Data and Statistics Portal[96], whereas granular IMS data is restricted only to authorized market participants.

EDC, operated by OKTE, serves as the central platform enabling electricity sharing and flexibility aggregation. It provides comprehensive support for independent aggregation, allowing smaller generation sources and consumers to pool their capacities into unified blocks to provide ancillary services. Moreover, the EDC automates the commercial settlement of shared electricity and generates automated reports for suppliers to ensure accurate customer billing[97].

4.9. DSF in key documents

The National Energy and Climate Plan establishes the principle of non-discriminatory access to all electricity markets for renewable energy sources, BESS, and DSR, including participation through aggregation.

The importance of demand-side flexibility is also recognised in SEPS's 2023 Mid-term Adequacy Forecast, which identifies **DSR as a key future source of system flexibility**. However, its contribution is neither quantified in the adequacy assessment nor modelled as a significant source of available capacity, indicating that its practical role in the Slovak electricity system remains limited.

Looking ahead, SEPS is required to submit Slovakia's first **Flexibility Needs Assessment by July 2026 in accordance with the EU Electricity Market Design reform**. Based on the national assessments, the Agency for the Cooperation of Energy Regulators (ACER) is expected to publish an EU-wide report by July 2027, estimating flexibility needs across Member States and providing recommendations on cross-border issues[98].

93 https://zelenadomacnostiam.sk/podmienky-podpory/podporovane-zariadenia/#fotovolticke-panely

94 https://zelenadomacnostiam.sk/projekt-zelena-domacnostiam-bude-pokracovat-na-jesen-posilni-sa-o-20-milionov-eur-a-prinesie-jednoduchsie-pravidla/

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5. Summary

This paper is a high-level overview of demand-side flexibility in Czechia, Hungary, Poland and Slovakia.

Even this preliminary review highlights the similarity of challenges across the region.

- **While aggregation is legally permitted everywhere, it does not fully work anywhere yet,** as implementing rules are missing. In Czechia, independent aggregation awaits the full operation of the Electricity Data Centre; in Hungary, aggregators still depend on BRPs.
- **Smart meter rollout is far from complete.** Infrastructure decides what is even possible: Poland leads at 48 %, Slovakia 19 %, Czechia ~10 % and Hungary ~7–8%. Without smart meters, there can be no dynamic tariff, which makes rollout acceleration a precondition for household participation in demand-side flexibility.
- **Dynamic tariffs are either non-existent or unpopular.** Where they exist as a commercial product offered by energy suppliers, almost nobody uses them: ~1% of customers in Czechia, under 0.03% in Poland (4,836 consumers) and just ~0.1% in Slovakia (2,541 households), while Hungary has no dynamic tariffs at all. The root cause is regulated or capped prices, sharpest in Hungary (the energy component of the universal tariff at ~12 EUR/MWh, and a single household supplier) and Slovakia (a cap on the commodity component).

A more in-depth analysis of these and other issues will be published in December 2026, followed by a modelling exercise showing how resolving these challenges and introducing targeted measures would unlock the benefits of demand-side flexibility.

Explanations and abbreviations

ACER	Agency for the Cooperation of Energy Regulators
aFRR	Automatic Frequency Restoration Reserve
BEV	Battery Electric Vehicle
BESS	Battery Energy Storage Systems
BRP	Balance Responsible Parties
DSF	Demand-Side Flexibility
DSO	Distribution System Operator
DSR	Demand-Side Response
EDC	Slovak Energy Data Centre
EHPA	European Heat Pump Association
EHV	Extra High Voltage
EV	Electric Vehicle
FCR	Frequency Containment Reserve
HEA	Hungarian Energy and Public Utility Regulatory Authority
HV	High Voltage
IMS	Intelligent Metering Systems
LDV	Light Commercial Vehicles Category N1
MEHI	Hungarian Energy Efficiency Institute

mFRR	Manual Frequency Restoration Reserve
NECP	National Energy and Climate Plan
PSE	Polish Transmission System Operator
SEPS	Slovak Electricity Transmission System Operator
SIEA	Slovak Innovation and Energy Agency
SSD	Central Slovakia DSO
TSO	Transmission System Operator
ÚRSO	Slovak Regulatory Office for Network Industries
VSD	Eastern Slovakia DSO
ZSD	Western Slovakia DSO