THE HANDBOOK IN PICTURES

Digitalising the energy transition, explained

The short version in twelve pictures

As of 3 November 2026 · for handbook version 1.5

innobu GmbH

Online with current deadlines:
innobu.com/en/digitalising-the-energy-transition-explained.html

innobu

The handbook in twelve sentences

The handbook “Digitalising the Energy Transition” has eight chapters, and nearly every number in it carries a footnote. This short version tells the core of it in twelve pictures and assumes no specialist knowledge. Every technical term is explained where it first appears, and all of them are listed again at the end. Anything missing here is in the book, and next to each picture a link takes you to the matching chapter. Neither the book nor this short version is legal advice.

1. **Heat pumps, home chargers and solar panels are moving into the low-voltage grid, where grid operators long saw very little.** p. 4
2. **Since 2023 the dates for the smart meter rollout have been written into the law. Before that, everything hinged on a BSI finding.** p. 5
3. **A modern digital electricity meter on its own sends nothing. Only with a smart meter gateway does it become an intelligent metering system.** p. 6
4. **The gateway sits between the meters, the home network and the outside world, and lets through only what's allowed.** p. 7
5. **No gateway goes into a meter cabinet without two BSI certificates: one for security, one for interoperability.** p. 8
6. **Tariff use cases set what a gateway measures, how often and for whom. Only the gateway administrator can switch them on.** p. 9
7. **When readings show a threat to the grid, the grid operator may turn down a heat pump or home charger, never below 4.2 kW.** p. 10
8. **The grid operator decides, the metering point operator sends the command, and the gateway just passes it on.** p. 11
9. **Being controllable earns owners lower grid charges. Two of the three modules don't need an intelligent metering system.** p. 12
10. **On a dynamic tariff the price follows the exchange, which trades quarter hours. Price and consumption only meet on the bill.** p. 13
11. **Grid operators, suppliers and metering point operators exchange almost everything as standardised messages. Web services exist for just two purposes.** p. 14
12. **26.1 or 5.9 percent: both numbers describe the same rollout on the same day; they just count different things.** p. 15

Who's who

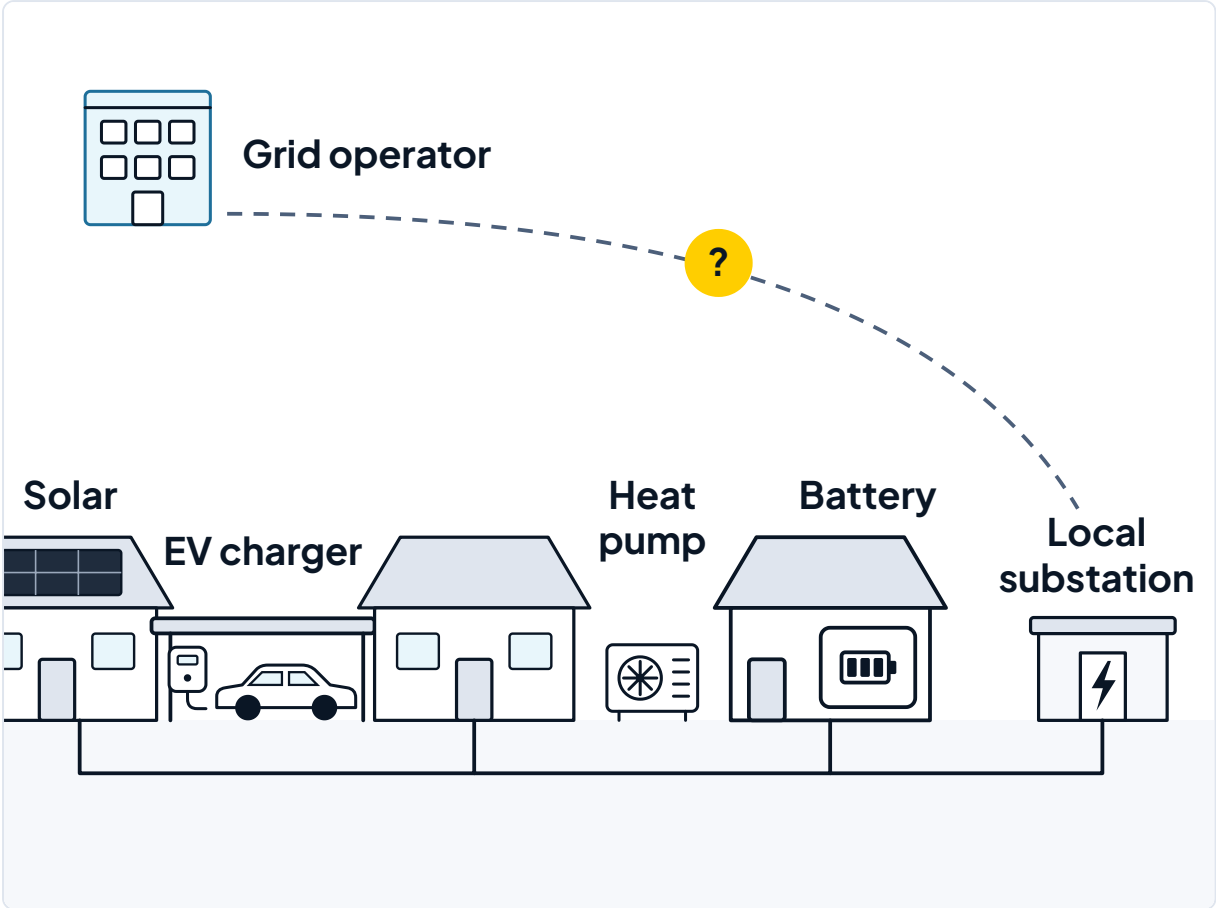
Four roles from the energy industry and two authorities act in the twelve pictures. Several roles often sit with one company, such as a municipal utility.

- The **grid operator** runs the power grid up to each house connection and makes sure it isn't overloaded.
- The **metering point operator** installs and runs the meter and the gateway (the communication computer next to the meter, picture 3), and sends the readings to the companies that need them. Each grid area has a local default metering point operator that carries the duty to install. Customers may hire a different one. If the default operator installed the system, they can switch only after two years at the earliest.
- The **gateway administrator** sets up the gateway and keeps it secure; the metering point operator does this itself or hires a service provider.
- The **supplier** sells the electricity and sends the bill.
- The **Federal Network Agency**, Germany's regulator, sets rules for power grids, grid charges and data exchange between companies, and checks they're followed.
- The **BSI**, the Federal Office for Information Security, decides how secure a gateway must be and what it must be able to do, and certifies it.

PICTURE 1 OF 12

New devices on the street

Heat pumps, home chargers and solar panels are moving into the low-voltage grid, where grid operators long saw very little.

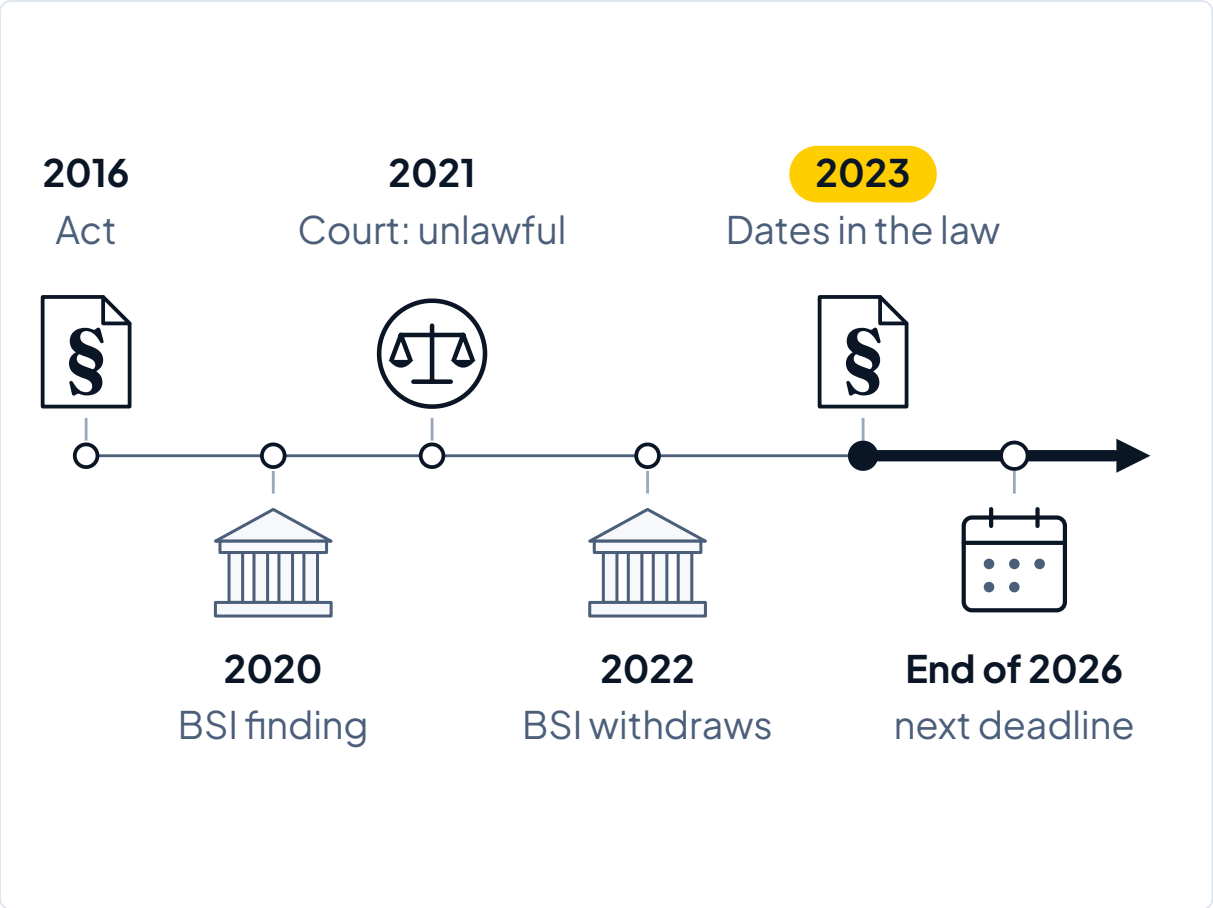


The low-voltage grid is the network on your doorstep. It runs from the local substation, the small transformer building at the end of the street, to each house. Home batteries now hang off it too, and solar modules cover many roofs. These devices draw or feed in a lot of power at once. That can overload a cable or push the voltage out of its permitted range. The grid operator usually had no idea how heavily a cable was loaded, because hardly anything was measured there. In November 2023 the Federal Network Agency put it bluntly: it called how little grid operators can see there “lamentably inadequate”[1].

In depth in chapter 5: §14a EnWG
innobu.com/en/book-14a-grid-oriented-control.html#in-scope

The law sets the pace

Since 2023 the dates for the smart meter rollout have been written into the law. Before that, everything hinged on a BSI finding.



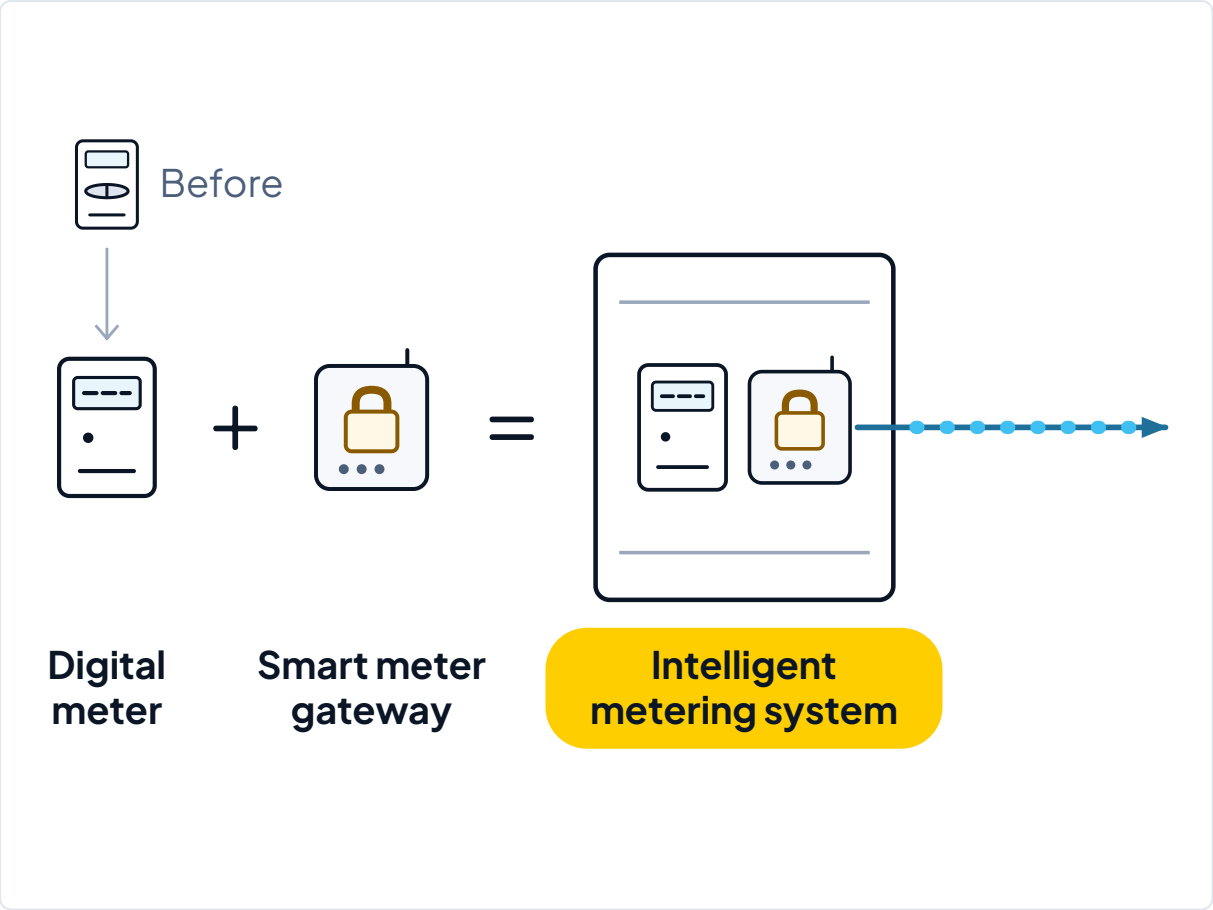
The smart meter rollout means installing intelligent metering systems: digital meters with a small computer that sends the readings out (picture 3). Under the 2016 act[2], metering point operators' duty to install only began once the BSI found that three manufacturers offered suitable devices. It did so in February 2020[3]. A year later the Higher Administrative Court of North Rhine-Westphalia held in urgent preliminary proceedings that the finding was manifestly unlawful[4]. Installations carried on anyway, because the decision only applied to the company that had sued. In May 2022 the BSI withdrew the finding[5]. On the same day it expressly kept four gateway types approved, so installations could continue[6].

Since 27 May 2023 the dates have been in the act itself[7,8]. It sets quotas: what share of mandatory cases must have an intelligent metering system by when. Mandatory cases are customers and devices that must get one under the law. They're mainly households and businesses using 6,000 to 100,000 kWh a year[9], plus controllable devices under § 14a such as heat pumps or home chargers (picture 7). Generating plants such as larger solar systems have their own quotas, which count the share of installed capacity rather than the number of plants. The quotas apply to each local default metering point operator separately. They were revised in February 2025[10], and since then there have been two kinds. By the end of 2025, 20 percent of all mandatory cases had to be equipped. Cases added since 25 February 2025 have their own

PICTURE 3 OF 12

Two devices, one metering system

A modern digital electricity meter on its own sends nothing. Only with a smart meter gateway does it become an intelligent metering system.



quotas: nine in ten of them must be equipped by the end of 2026[9].

In depth in chapter 1: Legal framework
innobu.com/en/book-legal-framework-msbg.html#dates-instead-of-a-determination

The old meter with its spinning disc counted kilowatt hours (kWh) but had no idea when the power flowed. Its successor, a modern metering device in legal terms, is digital and records the time too, yet it still sends nothing anywhere.

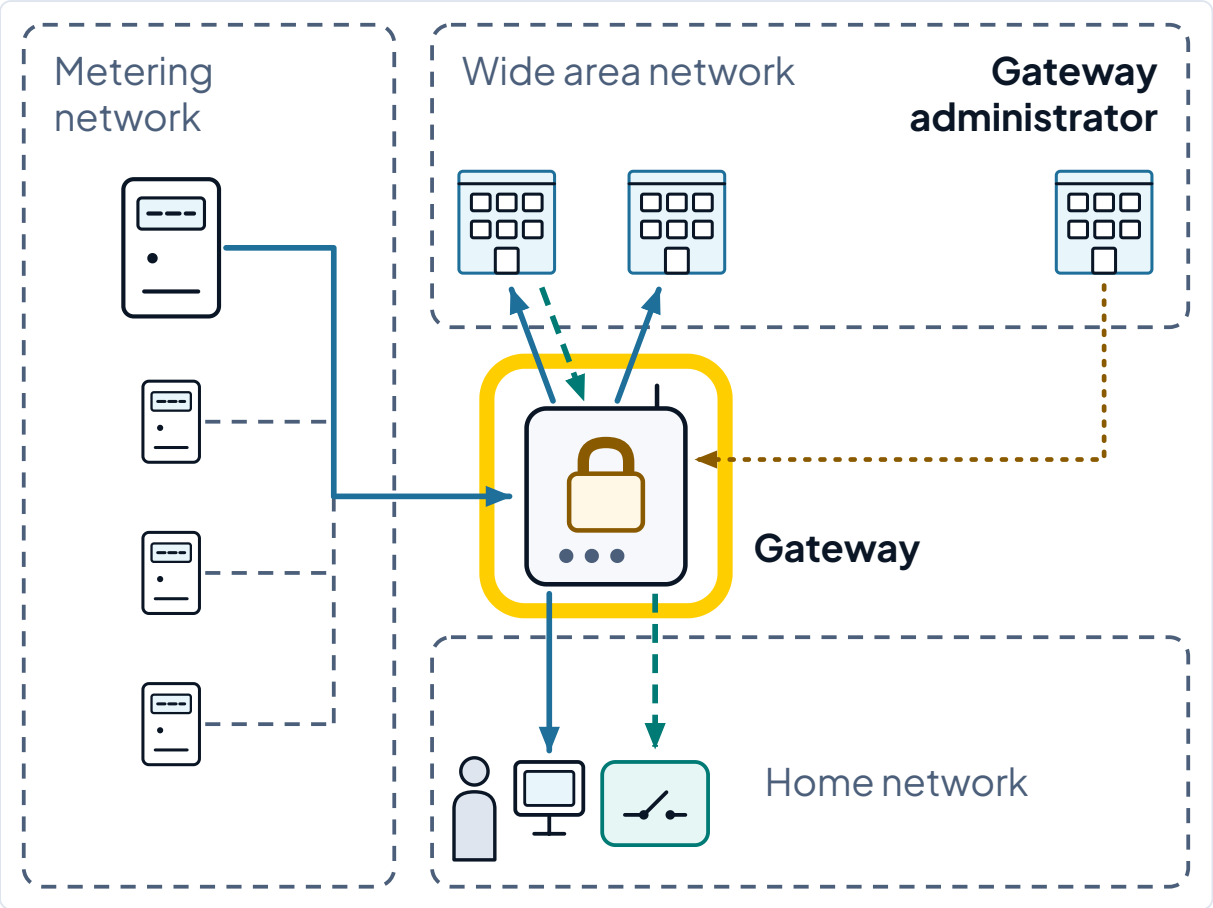
That's the job of the smart meter gateway, a small computer with its own security module. Only meter and gateway together form an intelligent metering system[11]. It's still the exception: in mid-2026, 5.9 percent of all metering locations had one[12]. A metering location is the point where a meter measures, usually a household, a business or a device such as a solar system. The point a supplier delivers to is called a supply point here; for a household both are usually the same.

In depth in chapter 2: SMGW architecture
innobu.com/en/book-smart-meter-gateway-architecture.html#stufen

PICTURE 4 OF 12

Three networks, one firewall

The gateway sits between the meters, the home network and the outside world, and lets through only what's allowed.



Think of a gatekeeper with three doors. Through the first come the meter readings: electricity and, under the BSI's guideline, gas, water and heat too. Behind the second lies the home network: a customer display, access for the service technician and controllable devices like the heat pump. The third leads outside to the companies allowed to receive data.

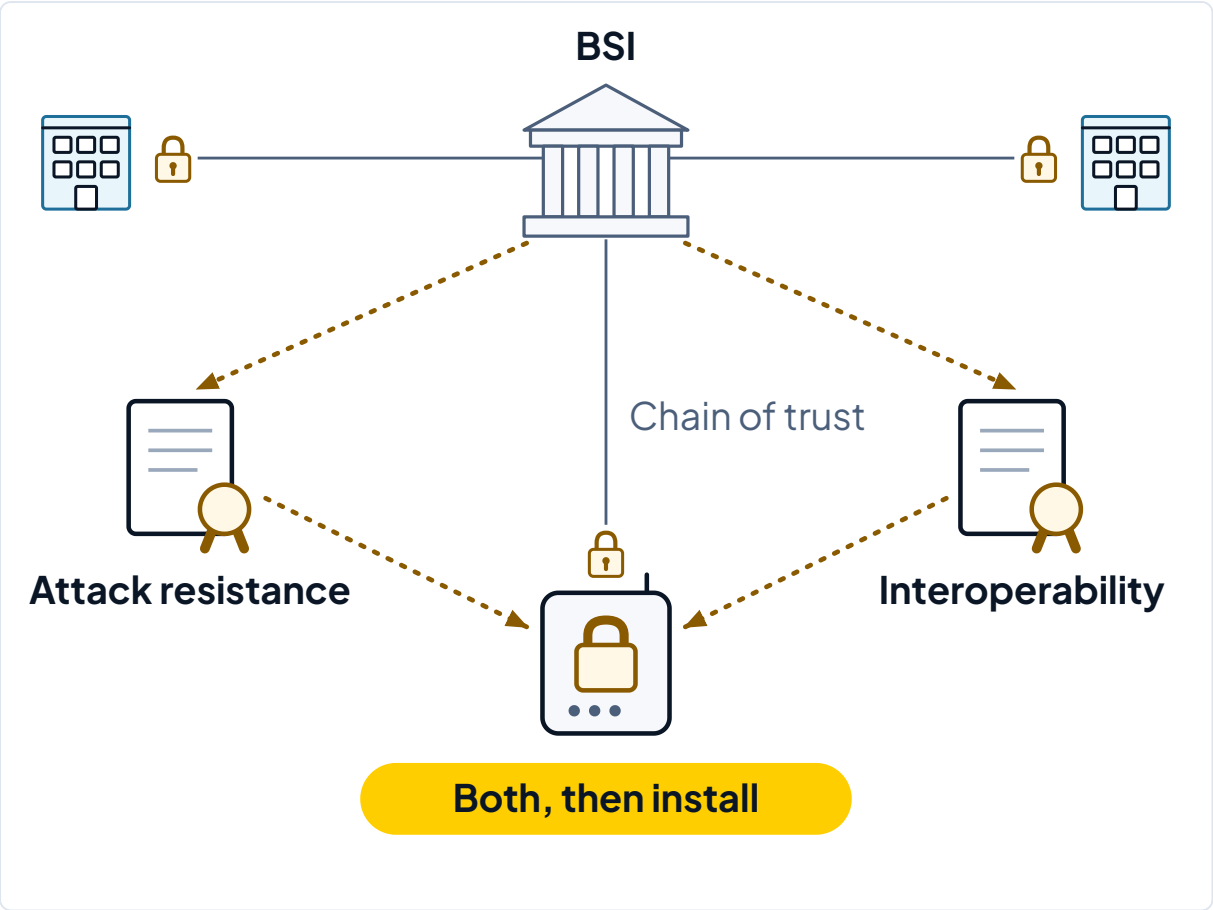
Only the gateway administrator may configure the gateway. Yet the BSI states plainly that the administrator cannot see the readings[13]. The comparison falls down in one place: a gatekeeper makes their own calls; the gateway follows rules others load into it.

In depth in chapter 2: SMGW architecture
innobu.com/en/book-smart-meter-gateway-architecture.html#drei-netze

PICTURE 5 OF 12

Checked twice

No gateway goes into a meter cabinet without two BSI certificates: one for security, one for interoperability.



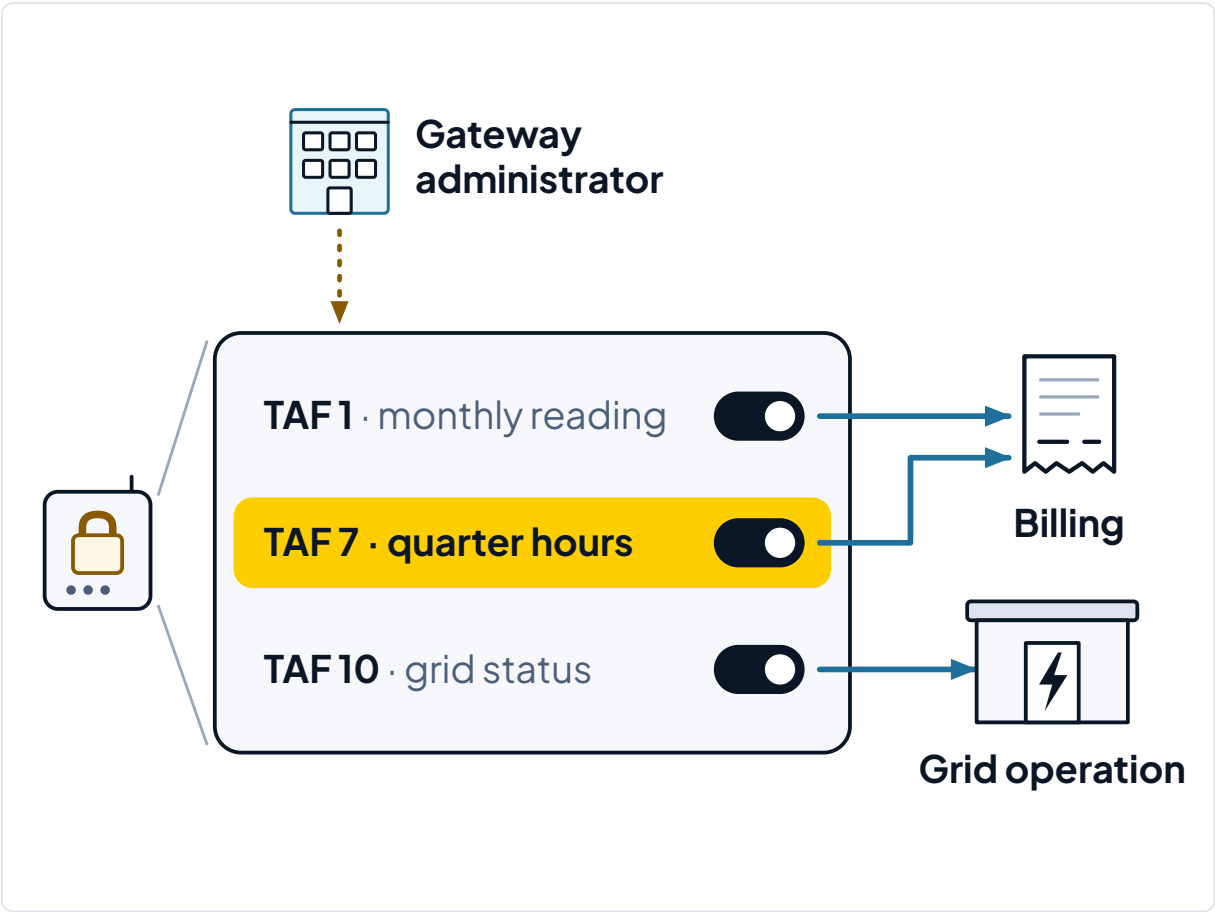
The first certifies under an international testing standard that the device withstands attacks, above all from outside. That matters because a single attack could hit a great many devices at once. The second confirms that the gateway meets the BSI's technical requirements and works with the other companies' systems. The law requires both[14]. A new function first needs a new version of the BSI requirements, then both certificates again, and finally an update to the devices already installed. That's why new functions take time to reach customers.

On top of that comes a digital ID card, which is different from the test certificates. Every gateway and every company involved identifies itself electronically with one. The IDs are issued by approved bodies, and at the top of this chain sits the BSI[15].

In depth in chapter 3: BSI and certification
innobu.com/en/book-bsi-tr-03109-certification.html#doppelte-zertifizierung

Functions to switch on

Tariff use cases set what a gateway measures, how often and for whom. Only the gateway administrator can switch them on.



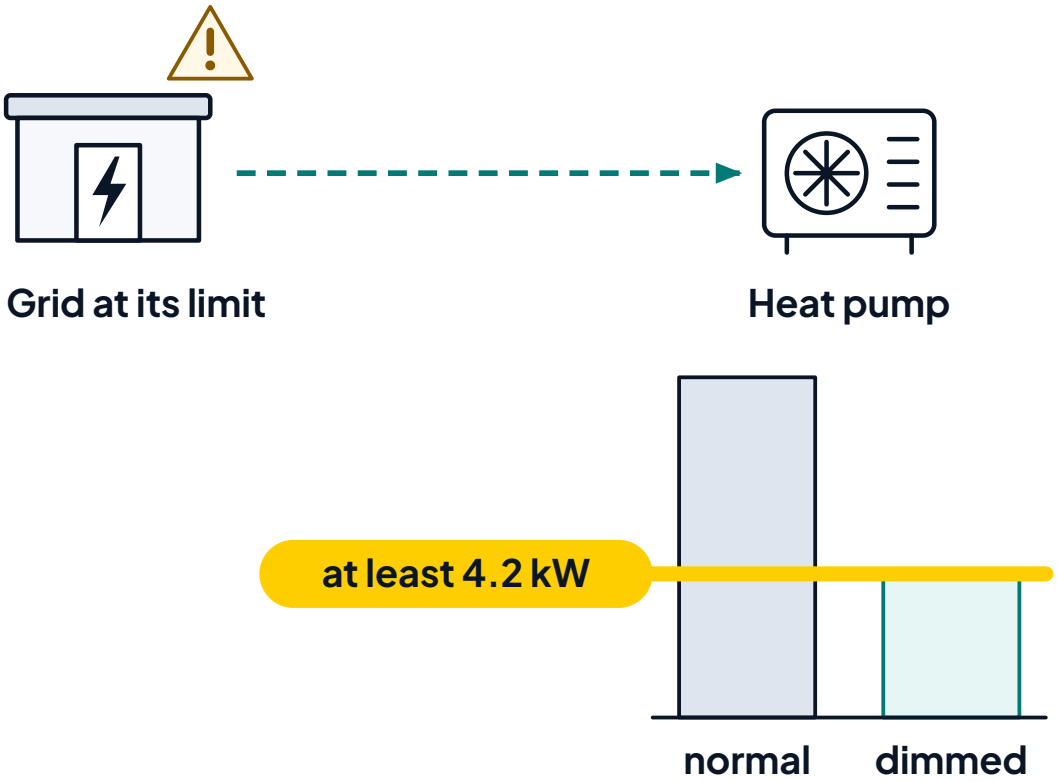
Tariff use case, or TAF after the German term, is a clunky name for a gateway function. Think of them as apps that only the gateway administrator may switch on. The most important is TAF 7: it records the meter reading every quarter hour and delivers the values daily. Companies need these quarter-hour values to settle who supplied and used how much electricity. As a rule, the dynamic tariff from picture 10 needs them too.

TAF 10 tells the grid operator how voltage and current look at the house connection. By default these are quarter-hour values sent once a day. Values by the minute are an extra service the grid operator has to order and pay for. They're available for at most a quarter of the connections that already have an intelligent metering system[16].

In depth in chapter 4: Tariff use cases
innobu.com/en/book-tariff-use-cases-taf.html#what-a-tariff-use-case-is

Dimming, not switching off

When readings show a threat to the grid, the grid operator may turn down a heat pump or home charger, never below 4.2 kW.



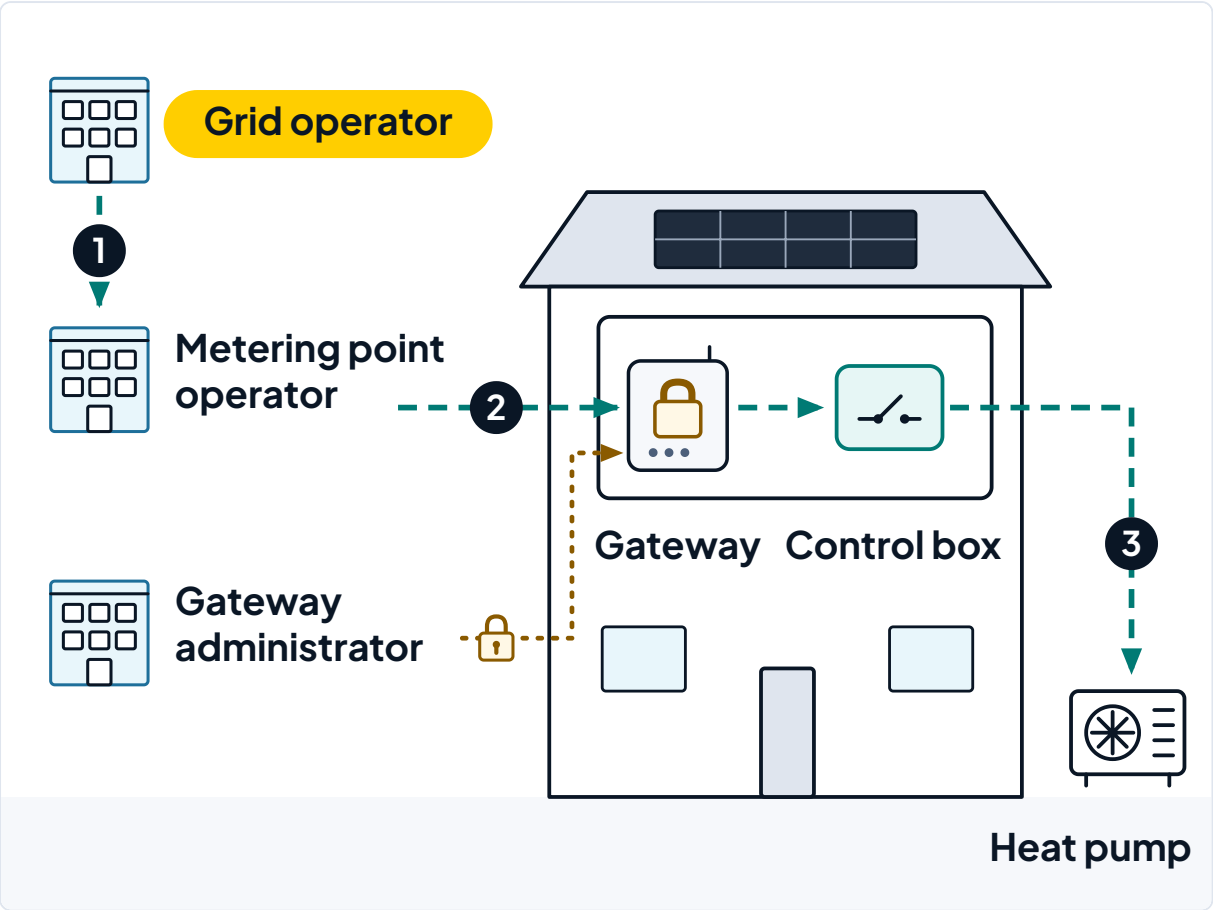
Since 2024 rules under § 14a of the Energy Industry Act have governed this[1]. In principle they cover every new heat pump, air conditioner, non-public charger and home battery on the low-voltage grid drawing more than 4.2 kW[17]. Throttling only starts when readings show a threat. Nothing is ever switched off completely. A device controlled on its own keeps at least 4.2 kW, and large heat pumps and air conditioners over 11 kW keep more[17]. Where several devices share one controller in the house (picture 8), they keep a joint minimum that grows with the number of devices. The 4.2 kW aren't arbitrary: it's roughly the least a home charger needs to charge at all on a standard three-phase connection[1].

Grid operators that can't yet measure continuously may, for now, throttle as a precaution, based on calculations rather than readings. Tight limits apply, among them at most two hours a day, at most 24 months per grid area, and only until the end of 2028[17]. Whoever runs such a device gets two things in return. The grid operator may not refuse or delay the connection for lack of capacity. And the grid charge, the part of the electricity price that pays for the grid, goes down (picture 9).

In depth in chapter 5: §14a EnWG
innobu.com/en/book-14a-grid-oriented-control.html#curative

How a control command travels

The grid operator decides, the metering point operator sends the command, and the gateway just passes it on.



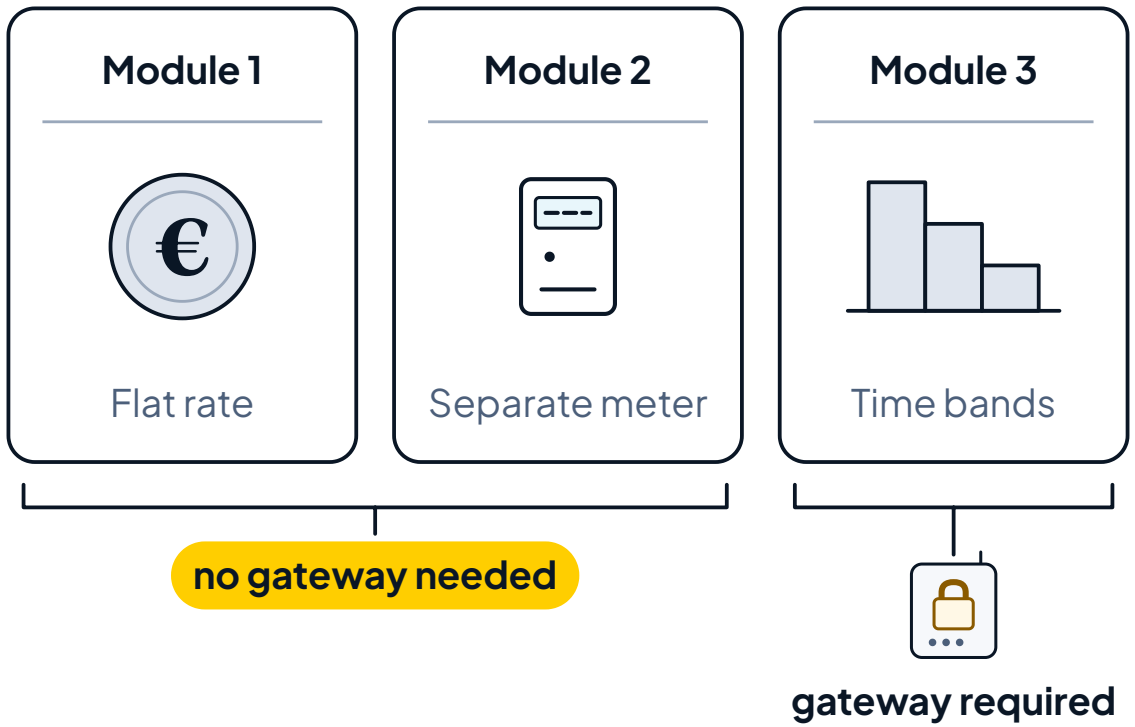
Once the grid operator detects a threat, it has five minutes at most to instruct the metering point operator[17]. That company sends the command through a secured channel in the gateway to the control box, a small switching device in the house. The box hands it to the heat pump or to an energy management system. That's a controller spreading the command across several devices in the house. The gateway administrator sets up the channel but doesn't send commands.

Whether it works with no box at all is still open. The BSI has described how the gateway itself could control devices. By early November 2026, though, it listed no device certified for this function[18]. Already in use are gateways with an extra control module in the same housing. The manufacturers say they're BSI-certified[19]. Control there runs through the built-in module. So the control box sits inside the gateway; it hasn't been abolished.

In depth in chapter 5: §14a EnWG
innobu.com/en/book-14a-grid-oriented-control.html#control-chain

What device owners get in return

Being controllable earns owners lower grid charges. Two of the three modules don't need an intelligent metering system.



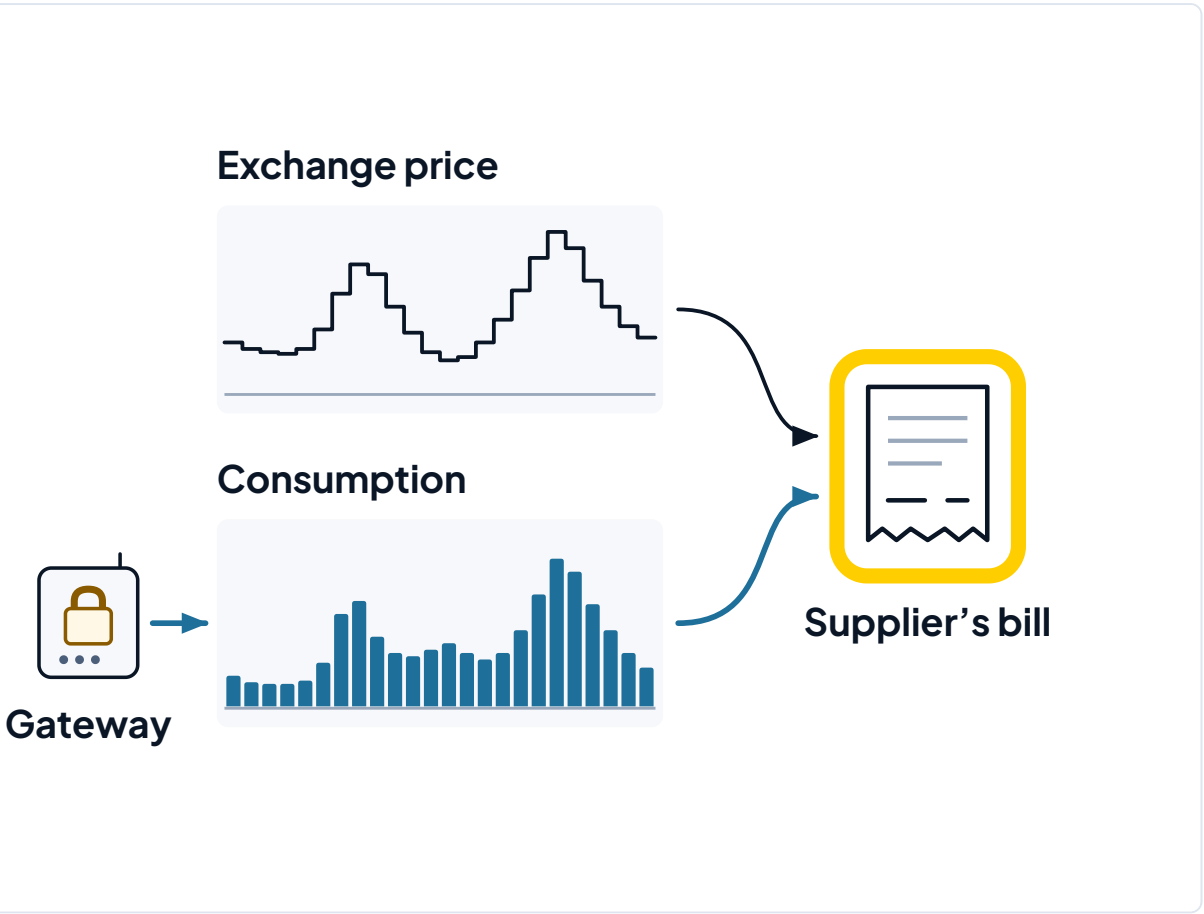
The grid charge is the part of the electricity price that pays for the power grid. It usually has a fixed annual amount, the standing charge, and an amount per kilowatt hour. Anyone whose device is controllable pays less of it, through one of three variants called modules.

Module 1 is a flat cut of 80 euros gross a year, plus a bonus whose size depends on the local grid operator's per-kWh amount[20]. Choose nothing and you get this one. Module 2 cuts the per-kWh amount to 40 percent, a 60 percent reduction, and drops the standing charge, but the device needs its own meter[20]. Module 3 adds three price bands across the day, only on top of Module 1 and only with an intelligent metering system. Module 3 runs through a chain of orders. The customer orders from the supplier, and the order goes via the grid operator to the metering point operator. That company sets up the time windows and delivers readings per price band. That process is where things get stuck. By early November 2026 the Federal Network Agency had threatened four grid operators with coercive fines, mainly for this reason[21]. A coercive fine isn't a penalty; it's meant to force a change in behaviour.

In depth in chapter 5: §14a EnWG
innobu.com/en/book-14a-grid-oriented-control.html#modules

A price that follows the exchange

On a dynamic tariff the price follows the exchange, which trades quarter hours. Price and consumption only meet on the bill.



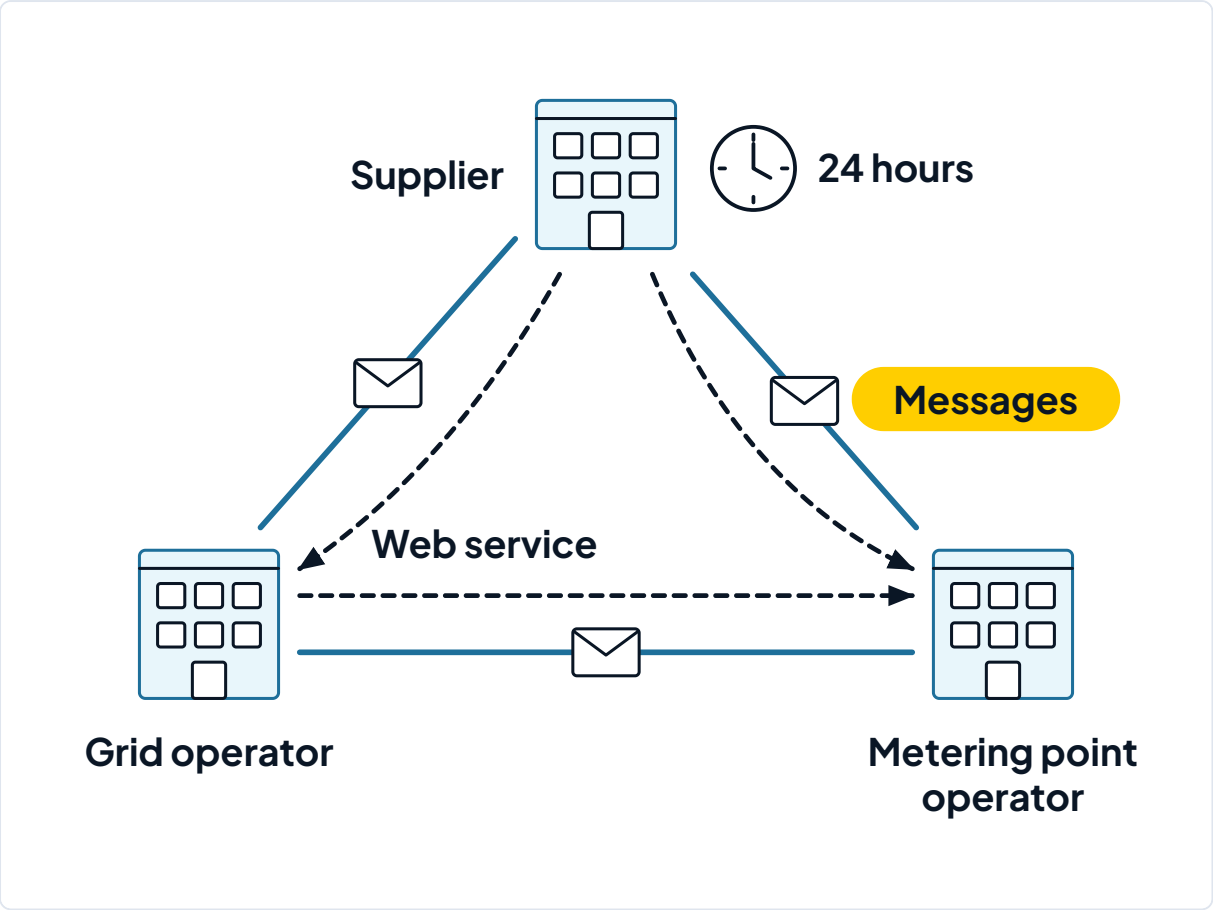
Since January 2025 every German electricity supplier has had to offer a dynamic tariff, though only to customers with an intelligent metering system[22]. The price follows the power exchange, where electricity for the next day has traded in quarter hours since October 2025[23]. That's 96 prices on a normal day. No authority has yet said explicitly whether a tariff that sticks to hourly prices meets the law.

The bill needs 96 consumption values a day to match. The gateway usually records them via TAF 7, and the metering point operator sends them to the supplier every day. Prices and consumption only meet in the supplier's billing. That's 35,040 values per supply point a year, where one annual reading used to do. A supplier's billing system has to be built for that.

In depth in chapter 6: Tariffs and grid charges
innobu.com/en/book-dynamic-tariffs-grid-charges.html#messung

How companies talk to each other

Grid operators, suppliers and metering point operators exchange almost everything as standardised messages. Web services exist for just two purposes.



When a customer switches supplier, they fill in a form. Behind the scenes the companies involved then send each other a chain of messages. Each is laid down as precisely as a form, only for machines rather than people. Since January 2026 the switch has had to work technically within 24 hours[24].

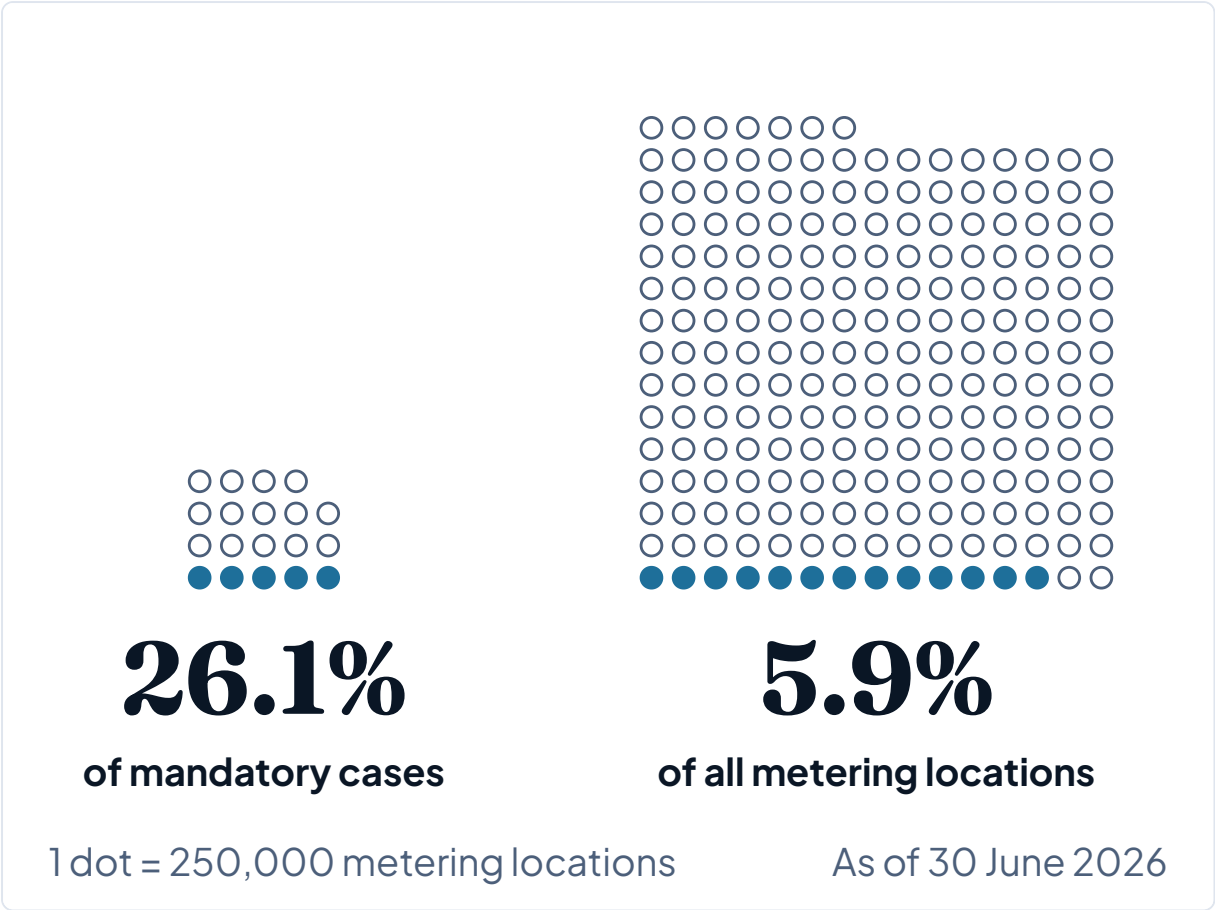
These messages work like letters to a mailbox, with fixed deadlines for the answer, often just a few hours. Web services, by contrast, query the other company's system directly, more like a phone call; they have an answer deadline too. So far they exist for two tasks only. With one, a supplier looks up the ID of a supply point. With the other, the grid operator places control commands with the metering point operator. A supplier can order control commands there too, but only for points it supplies itself. At the end of July 2026 the Federal Network Agency put up for discussion replacing one more message type with web services[25]. On 1 October it withdrew the proposal, so companies keep the existing messages for now[26]. Wrong master data is the real bottleneck anyway: basic records such as meter number or address. If they don't match between two companies, a 24-hour switch, for example, fails.

In depth in chapter 7: Market communication
innobu.com/en/book-market-communication-mako.html#mako-2026-messages-transport-web-services

PICTURE 12 OF 12

Two numbers, two denominators

26.1 or 5.9 percent: both numbers describe the same rollout on the same day; they just count different things.



On 30 June 2026, 26.1 percent of mandatory cases had an intelligent metering system[12]. This quota counts customers using 6,000 to 100,000 kWh a year plus controllable devices under § 14a, about 4.8 million mandatory cases in total. Across all 54.1 million reported metering locations it was 5.9 percent that day. The share across all metering locations is probably higher, the agency says, though it doesn't say by how much. Metering point operators other than the local default one report only voluntarily.

Quote only one and you paint a skewed picture. Even the 26.1 percent is only a national average. The 20 percent quota for the end of 2025 (picture 2) applied to each default metering point operator separately. The average doesn't show who missed it. Since March 2026 the Federal Network Agency has opened supervisory proceedings against 434 companies for missing it; 150 have since been closed[27]. Such proceedings can end in a coercive fine; none had been imposed by 11 September 2026[28].

In depth in chapter 8: Rollout practice
innobu.com/en/book-smart-meter-rollout-practice.html#pflicht-gesamt

What nobody knows yet

Some things nobody knows, because nobody collects them. Nobody publishes how many of the installed gateways actually deliver quarter-hour values or operate a control box. For dynamic tariffs the Federal Network Agency counts providers, 412 in 2024[29], but publishes no customer count. And nobody measures yet how long it takes from installation to the first quarter-hour bill.

The book collects such gaps under Open questions and negative findings, along with the points where sources contradict each other.

The whole journey

The twelve pictures look at the parts one by one; the model shows them together. The interactive model follows a quarter-hour reading from the basement to the bill, step by step. A control command travels almost the same route back, over a different channel. Click a station in the model to see what happens there, which chapter covers it and which deadline comes next.

For the next step in your own organisation: this short version works as an attachment to a board paper. The reading paths on innobu.com lead through each topic from the basics to the detail.

Terms

The technical terms in this short version, each with the first sentence of its explanation from the innobu.com glossary. The full explanation is online at innobu.com/en/glossary.html.

BSI
Germany's Federal Office for Information Security is the national cybersecurity authority.

Control box
The control box is the BSI-certified device that receives control commands via the smart meter gateway and passes them to controllable consumption devices or generation plants, for example dimming a heat pump to 4.2 kW under § 14a EnWG or curtailing a PV system under the solar peak law.

Default and competitive metering point operator (gMSB, wMSB)
The default metering point operator is usually the distribution system operator and carries the rollout obligations under MsbG with quotas of 20, 50 and 95 percent by 2025, 2028 and 2030.

Dynamic electricity tariff
A dynamic electricity tariff passes the exchange price through to the customer, so the energy price moves with the day-ahead market.

EnWG (Energy Industry Act)
The Energy Industry Act is the core law for grid-bound electricity and gas supply in Germany.

Federal Network Agency (BNetzA)
The Federal Network Agency in Bonn regulates, among other things, the German electricity and gas grids.

Intelligent metering system (iMSys)
An intelligent metering system combines a modern metering device (mME), a digital meter, with a smart meter gateway that transmits the readings securely.

Market location and metering location (MaLo, MeLo)
The market location is where energy is consumed or generated and billed; it carries an eleven-digit MaLo ID.

Tariff use case (TAF)
Tariff use cases are the functions of a smart meter gateway described in BSI TR-03109-1; they determine which measurements are transmitted to whom at which resolution, for example TAF 7 for meter reading profiles in 15-minute values for dynamic tariffs and balancing, or TAF 6 for readings on demand.

Sources

1. Federal Network Agency, Ruling Chamber 6: ruling BK6-22-300 of 27 November 2023 on integrating controllable consumer devices and controllable grid connections under § 14a EnWG, operative part and reasons, in particular pp. 3, 14 f., 20 f., 22, 25 f., 28 f., 32, 36 f., 40 f., 66 to 70 and 85 (German; quotations are our translation). bundesnetzagentur.de, retrieved 14 October 2026.
2. Metering Point Operation Act (MsbG), header data: signed 29 August 2016, BGBl. Part I p. 2034, in force under Article 16 GDEW on 2 September 2016, last amended by Article 17 of the act of 18 December 2025 (BGBl. 2025 Part I No. 347) (German). gesetze-im-internet.de, retrieved 14 October 2026.
3. Federal Office for Information Security (BSI): general ruling on the technical possibility of installing intelligent metering systems, ref. 610 01 04/2019_001, decided 31 January 2020, signed 7 February 2020, deemed notified 24 February 2020 (German). bsi.bund.de, retrieved 14 October 2026.
4. Higher Administrative Court of North Rhine-Westphalia, order of 4 March 2021, case 21 B 1162/20, operative part and paragraphs 2, 3, 5, 8, 10, 23, 34, 121, 124 and 126 (German). nrwe.justiz.nrw.de, retrieved 14 October 2026.
5. BSI: general ruling withdrawing the general ruling on technical possibility, ref. 610 01 04/2022_01, of 20 May 2022, with reasons (German). bsi.bund.de, retrieved 14 October 2026.
6. BSI: general ruling under section 19(6) MsbG, ref. 610 01 04/2022_02, of 20 May 2022, operative part nos. 1 and 2 and first part of the reasons (German). bsi.bund.de, retrieved 14 October 2026.
7. Federal Law Gazette 2023 Part I No. 133 of 26 May 2023, Act on Restarting the Digitalisation of the Energy Transition of 22 May 2023 (German). recht.bund.de, retrieved 14 October 2026.
8. Act on Restarting the Digitalisation of the Energy Transition (GNDEW), Article 2 (amendments to the MsbG), nos. 20, 21, 30 and 37, Bundestag enactment as Bundesrat printed paper 161/23; entry into force on 27 May 2023 per the footnote to sections 31 to 34 MsbG (German). bundesrat.de and gesetze-im-internet.de, retrieved 14 October 2026.

9. Section 45 MsbG, equipment duties of the default metering point operator, paragraphs 1 to 4 (German). gesetze-im-internet.de, retrieved 14 October 2026.
10. Federal Law Gazette 2025 Part I No. 51 of 24 February 2025, Act amending energy law to avoid temporary generation surpluses of 21 February 2025, Article 1 no. 2, Article 2 nos. 8, 9 and 14, Article 9 (German). recht.bund.de, retrieved 14 October 2026.
11. Section 2 Metering Point Operation Act (MsbG), definitions, nos. 7, 10, 13, 15, 19, 20 (German). gesetze-im-internet.de, retrieved 14 October 2026.
12. Federal Network Agency: iMSys rollout, results of the first half-yearly survey 2026 with FAQ, page as of 21 September 2026 (German). bundesnetzagentur.de, retrieved 14 October 2026.
13. Federal Office for Information Security (BSI): BSI TR-03109-1, interoperability requirements for the communication unit of an intelligent metering system, version 2.0 of 13 December 2024, sections 1.1, 2.2, 2.3, 3.3.5, 3.3.6, 3.7, 3.8 and 3.21 (German). bsi.bund.de, retrieved 14 October 2026.
14. Section 24 MsbG, certification of the smart meter gateway, paragraphs 1 and 4 (German). gesetze-im-internet.de, retrieved 14 October 2026.
15. Section 28 Metering Point Operation Act (MsbG), holder of the root certificates (German). gesetze-im-internet.de, retrieved 14 October 2026.
16. Section 34 Metering Point Operation Act (MsbG), standard and additional services of the metering point operator, paragraph 1 nos. 4 to 7 and paragraph 2 sentence 2 no. 6 (German). gesetze-im-internet.de, retrieved 14 October 2026.
17. Federal Network Agency, Ruling Chamber 6: Annex 1 to ruling BK6-22-300 of 27 November 2023, clauses 2.4, 2.6, 3, 4.1 to 4.8, 5, 7.3, 8.3, 8.4 and 10.1 to 10.7 (German). bundesnetzagentur.de, retrieved 14 October 2026.
18. BSI: Certified products under section 24 MsbG, smart meter gateway (German). bsi.bund.de, retrieved 3 November 2026.
19. Zeitung für kommunale Wirtschaft: digitalisation ticker, two items of 1 July 2026 on gateways with an integrated CLS module and on control directly from the gateway (German). zfk.de, retrieved 14 October 2026. Trade press, company statements.
20. Federal Network Agency, Ruling Chamber 8: ruling BK8-22/010-A of 23 November 2023, grid charges for controllable connections and consumer devices (NSAVER), operative clauses 1 to 7 and paragraphs 117, 120 and 135 (German; quotations are our translation). bundesnetzagentur.de, retrieved 14 October 2026.
21. Federal Network Agency, Ruling Chamber 8: publication of administrative enforcement measures to enforce the obligations under ruling BK8-22/010-A, as of 13 October 2026 (German). bundesnetzagentur.de, retrieved 3 November 2026.
22. Section 41a Energy Industry Act (EnWG), load-variable, time-of-day or dynamic and other electricity tariffs and fixed-price contracts, paragraphs 2 to 7 (German; quotations are our translation). gesetze-im-internet.de, retrieved 14 October 2026.
23. EPEX Spot: 15-minute products live on EPEX SPOT Day-Ahead markets, announcement of 30 September 2025. epexspot.com, retrieved 14 October 2026.
24. Section 20a Energy Industry Act (EnWG), paragraph 2 sentences 1 and 4 (German). gesetze-im-internet.de, retrieved 14 October 2026.
25. Federal Network Agency, ruling chambers 6 and 7: notice no. 57 on the data formats of 31 July 2026, consultation for the 1 April 2027 implementation date, section with the notes published at EDI@Energy's request (German). bundesnetzagentur.de, retrieved 14 October 2026.
26. Federal Network Agency, ruling chamber 6: notice no. 58 on the data formats of 1 October 2026, section on entry into force on 1 April 2027 and, among the notes published at EDI@Energy's request, sections on API web services and further results (German). bundesnetzagentur.de, retrieved 14 October 2026, rechecked 15 October 2026 (no later notice).
27. Federal Network Agency: press release "Bundesnetzagentur veröffentlicht halbjährliche Erhebung im Messwesen" (half-yearly metering survey published), 21 September 2026 (German). bundesnetzagentur.de, retrieved 14 October 2026.
28. German Bundestag: answer of the federal government to the minor interpellation "Verhältnismäßigkeit und Zwangsmaßnahmen im Rahmen des Smart-Meter-Rollouts" (proportionality and coercive measures in the smart meter rollout, printed paper 21/7751), printed paper 21/7996 of 11 September 2026, answers to questions 1 to 7, 14, 15 to 21 and 30 to 41 (German). dserver.bundestag.de, retrieved 14 October 2026.
29. Federal Network Agency and Federal Cartel Office: Monitoring Report 2025, published 26 November 2025, PDF version as of 26 January 2026, p. 5 and p. 163, figure 93; on 14 October 2026 the overview page lists no newer report (German). data.bundesnetzagentur.de, retrieved 14 October 2026.

This short version simplifies and is not legal advice. Evidence, exceptions and deadlines are in the handbook; the footnotes lead to the primary sources.

Suggested citation: innobu GmbH (2026): Digitalising the energy transition, explained. As of 3 November 2026. https://www.innobu.com/en/digitalising-the-energy-transition-explained.html

© 2026 innobu GmbH. You may pass on the unmodified PDF file and use individual figures and short excerpts in your own documents, credited as “innobu GmbH, Digitalising the Energy Transition, innobu.com”. You may resize or crop them, but not change their content.

innobu

innobu turns rulings of the German energy transition into running programmes for municipal and regional utilities, grid companies, metering operators and transmission system operators: interim programme and portfolio lead, enterprise architecture, regulatory implementation and prototypes. Energy and measurement technology since 2010, innobu GmbH since 2014.

QUESTIONS ABOUT THE BOOK OR YOUR PROJECT

info@innobu.com · innobu.com

HANDBOOK AND SHORT VERSION ONLINE

innobu.com/en/digitalising-the-energy-transition.html
innobu.com/en/digitalising-the-energy-transition-explained.html

innobu GmbH · Heidewinkel 1 · 24955 Harrislee · Germany