BOOK

Digitalising the Energy Transition

Metering and control in the low-voltage grid: smart metering, the smart meter gateway and §14a EnWG

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innobu GmbH, Harrislee, Germany

Online edition with current deadlines and the interactive model:
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Note	This book is not legal advice and does not assess any individual case. The wording of the relevant determination or law prevails; the footnotes lead to the primary sources. All retrieval dates refer to the stated review date.

Contents

How to read this book 4

PART I: FRAMEWORK

1 The legal framework: from the GDEW to today's MsbG 6

PART II: TECHNOLOGY

2 Devices and architecture: what an intelligent metering system is 20

3 BSI standards, certification and the smart metering PKI 33

PART III: FUNCTIONS AND CONTROL

4 Tariff use cases: TAF 1 to 16 and version 2.0 46

5 Grid-oriented control under §14a EnWG 57

6 Dynamic tariffs and grid charges in transition 70

PART IV: MARKET AND PRACTICE

7 Market communication: how meter readings become processes 83

8 Rollout practice: figures, supervision and what nobody measures 101

APPENDIX

The model: from the meter to the billing system 116

Open questions and negative findings 126

Terms and abbreviations 131

Deadline calendar 134

How to read this book

Reviewed: 3 November 2026

On 31 July 2026 the Federal Network Agency put a draft out for consultation under which a market communication message called UTILTS was to be replaced by web services[1]. Two months later, on 1 October, it took that back[2]. If you had written a plan for the switch to web services in August, you could shelve it. In this field a reversal like that is nothing unusual, which is why every statement in this book says where it comes from and how firm it is.

The subject is the core of the digital energy transition: metering and control in the low-voltage grid. Eight chapters lead from the legal framework through the smart meter gateway, its certification and the tariff use cases to control under § 14a, then to tariffs and grid charges, market communication and, last, the state of the rollout. Heat planning, generation, power markets, redispatch and cybersecurity only come up at the edges. Gas is left out entirely, market communication included: chapter 7 covers it for electricity and maps which process is described where. innobu.com has articles on those edge topics, and the reading paths put them in an order that starts with the basics.

Who this book is for

It's written for managing directors, heads of grid and IT, and programme leads at utilities, grid operators and metering point operators who have a deadline to implement and need more than a press release for it. Regulatory management and IT architecture teams will use it too.

The book doesn't replace legal advice. When your organisation has a decision to make, the wording of the determination is what counts, and the footnotes take you there.

How evidence is marked

Every figure, date and file reference has a footnote with a retrieval date. Where an authority, the legislator or a court has published something, we cite that first; where a statement rests on manufacturer information or trade press, the footnote says so.

Each coloured box in the text carries one of eight labels, depending on how solid the statement inside it is:

Label	What it means
Legally binding	written in the law or in a determination
Technical standard	technical guideline, protection profile or norm
Industry practice	how the market does it, without being required to
Recommendation	innobu's assessment, marked as such

Label	What it means
Forecast	expected development, not decided
Not firmly established	thin or ambiguous sources
Negative finding	searched for and not found
Conflicting sources	two sources say different things, both are cited

Why it also lists what doesn't exist

Nobody has published a figure for how many gateways in the field actually deliver grid status data, and there's no BSI certification yet for control straight from the gateway. Both are in the book anyway, because a gap with a name on it does less harm than an estimate that shows up as fact in the next slide deck. These points are collected in the appendix "Open questions and negative findings".

How the book stays current

The deadlines for all chapters are in the appendix, as of the date of printing. Online, the book reads them in again from the deadline calendar every night, as it does the articles in the reading paths. The nightly run leaves the chapter text alone. Every change to it is checked against the sources and signed off, which is why each chapter carries its own review date. The whole book gets a review once a year, by 31 January. By the end of 2028 larger parts of it will be history, and that's when a second edition gets decided on.

Sources

1. Federal Network Agency, ruling chambers 6 and 7: notice no. 57 on data formats, 31 July 2026, consultation for the 1 April 2027 implementation date (German). bundesnetzagentur.de, retrieved 14 October 2026.
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The legal framework: from the GDEW to today's MsbG

GDEW 2016, the failed market declaration, the GNDEW and the quotas under section 45 MsbG: how the rollout's legal framework came about and what applies today.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-legal-framework-msbg.html

SUMMARY

No authority gets to decide any more whether Germany's smart meter rollout may begin. That changed on 27 May 2023, and the dates have sat in the statute ever since. Before, everything hinged on one determination by the BSI, the Federal Office for Information Security. In March 2021 the Higher Administrative Court of North Rhine-Westphalia found that very determination manifestly unlawful, in interim proceedings.

What's left is a law of deadlines, the Metering Point Operation Act: section 29 says who installs, section 30 at what price, and section 45 how much by when. Most of the section 45 quotas count periods rather than the installed base, and the first of those period quotas closes on 31 December 2026.

Dates instead of a determination

"zu den in § 45 genannten Zeitpunkten": at the dates set out in section 45. That short German phrase has stood in section 29(1) of the Metering Point Operation Act, the MsbG, since 27 May 2023. In the same stroke the words "technically possible and under section 31" disappeared[1]. With that swap the legislature replaced what triggers the rollout.

Until then, the duty to install intelligent metering systems (iMSys) waited for the BSI. Only when the agency declared, by administrative act, that installation was technically possible did the duty start, and with it a ban on installing metering systems that fell short of the new requirements[2]. The 2016 act already had time frames such as "from 2017 within eight years", but they bound no one before the BSI had made its finding[3]. Since 2023 the statute's own dates are all it takes.

A whole way of working follows from that: the deadline decides which systems a company needs, which processes it sets up and who answers for what. Date first, architecture second: this book calls it deadlines as the sector's operating system. You'll find the ones running now at the end of the chapter, pulled live from the deadline calendar.

2016: a law with a built-in condition

It began with the Act on the Digitalisation of the Energy Transition, the GDEW: signed on 29 August 2016, in force on 2 September 2016. Its first article created the MsbG. The most recent amendment dates from 18 December 2025[4].

The logic had two steps. On paper the default metering point operator had to fit an iMSys for final consumers above 6,000 kilowatt hours a year, for consumers with a § 14a agreement and for generation plants above 7 kilowatts, but only "where this is technically possible under section 30 and economically justifiable under section 31". At 95 percent of the affected metering points, the duty counted as met[3].

Technically possible meant this: three independent companies offer suitable systems, and the BSI confirms it. The agency's own name for that finding is the market declaration[5].

The government bill asked for systems meeting the "requirements in protection profiles and technical guidelines". In June 2016 the Bundestag's committee for economic affairs and energy replaced that with a reference to "section 24(1)", the provision on gateway certification[6]. Five years later the court built the first of its two grounds against the market declaration on that cross-reference.

The market declaration in court

The BSI took the decision on 31 January 2020, signed it on 7 February and deemed it notified on 24 February 2020; it is cited as the general ruling "of 7 February 2020"[7,2]. It found that three manufacturers offered suitable gateways, for a narrow group: low-voltage final consumers up to 100,000 kilowatt hours, without interval metering and without a § 14a agreement. Immediate enforcement was ordered, and the mandatory rollout was on.

The BSI's reasoning was pragmatic. Each of the three gateways had its Common Criteria security certificate, while interoperability rested on the manufacturers' own declarations for the "Basis" device profile[2]. For a start, the agency thought, that was enough.

Around 50 metering point operators and private companies disagreed, according to the BSI. They objected and applied for interim relief[8]. One case went through two instances. The Administrative Court of Cologne describes the applicant as a full-service smart metering provider with its own gateways, a competitive metering business and a gateway administrator certificate; it lost there on 21 July 2020[9] and won on appeal.

The 21st Senate of the Higher Administrative Court of North Rhine-Westphalia ruled on 4 March 2021, case 21 B 1162/20, and restored the suspensive effect of the applicant's action. Manifestly unlawful ("offensichtlich rechtswidrig"), the court called the general ruling, and it gave two grounds, each sufficient on its own[2]:

- No three gateways met section 24(1). A manufacturer's declaration, the senate wrote, was "not comparable" to certification by the BSI. Annex VII to the technical guideline, where the "Basis" profile came from, it held unlawful in form and substance, because the Gateway Standardisation Committee that must be heard before such changes had

never been set up. The BSI itself had pressed the ministry to set it up back in January 2019.

- Section 30 gave the agency no power to limit its finding to selected case groups. Leaving out plant operators on the grounds that generation plants lacked functions was a restriction the BSI had "created itself".

The order was final, and in paragraph 124 the senate handed the question on: "Should the minimum requirements in fact be impossible to meet, it is, where appropriate, for the legislature to change them."[2]

It took the BSI a little over a year to withdraw the ruling, on 20 May 2022 and with retroactive effect. The committee existed by then, the guideline had been revised, and by 31 January 2022 the BSI had managed to certify gateways from three manufacturers under the new procedure[8]. A second ruling issued the same day rested on section 19(6): four gateway types could stay in use and could still be newly installed[10]. The legislature had added that provision in summer 2021, after the court order, for the case of a determination that later turns out unlawful[11,8]; it had been in force since 27 July 2021[12].

A new market declaration never came, because the legislature took the route paragraph 124 had pointed to, in two steps: 2021 brought grandfathering and the basis for a staged rollout, 2023 did away with the determination altogether and introduced the agile rollout under section 31.

NOT FIRMLY ESTABLISHED

What the order was not

The court restored the suspensive effect of one single action, case 9 K 3784/20 before the Administrative Court of Cologne[2]. It never ordered a nationwide stop on installations. The legal basis for devices already installed only fell away with the withdrawal in May 2022, and then retroactively, as the BSI itself puts it[10]. No decision in the main proceedings could be found in public sources.

Measured against the statute as it stood, the court was right. Still, the BSI had named a real problem: in 2020 there weren't three gateways with certified interoperability.

THE LESSON OF 2021

A rollout that hangs on an agency's determination is only as stable as that determination in court. Since 2023 it hangs on statutory deadlines instead, and there's no general ruling left that a company could attack in interim proceedings.

2023 and 2025: restart, then retune

On 20 April 2023 the Bundestag passed the Act on Restarting the Digitalisation of the Energy Transition, the GNDEW[13]. Signed on 22 May, promulgated in Federal Law Gazette 2023 Part I No. 133, in force since 27 May 2023[14,1]. The 12 May 2023 printed on the Bundesrat paper is the Bundesrat's deadline, not the date of entry into force.

Four changes defined the restart, the first being the end of the market declaration: section 29 has pointed to section 45 ever since. Section 30 took over the price caps and split them between grid operator and connection user, at first 80 and 20 euros a year for 6,000 to 10,000 kilowatt hours. Section 31 brought the agile rollout: devices could go in with functions missing, to follow by update "from 2025 at the latest". Last, section 45 set pure installed-base quotas, 20 percent, then 50, then 95[1].

Less than two years later came the act of 21 February 2025 on avoiding temporary generation surpluses, in force since 25 February 2025. It rewrote section 45, raised several price caps and gave section 31 an end date, 31 December 2025[15]. That's where the "25 February 2025" in the current statutory text comes from; the 95 percent by 2030 that still gets quoted belongs to the 2023 version.

Politically, though, 2030 is back on the table. On 2 July 2026 the coalition committee resolved to complete the rollout "for all relevant metering points" to more than 90 percent by the end of 2030, and announced a "Smart Meter Light" for customers outside the mandatory rollout[16]. No bill putting that into law could be found by early November 2026.

December 2025 brought the next change: one article with 39 numbered amendments, in the act of 18 December 2025 on strengthening consumer protection in the energy sector. For the quota arithmetic in chapter 8, one of them matters most. Optional installations, it's now clear, also reduce the number of metering points to be equipped[17]. Others added new market roles in section 2, an exemption from the control unit for plants that feed in nothing (section 29(5)) and a power to regulate the wide area connections of plants by ordinance (section 19(2)).

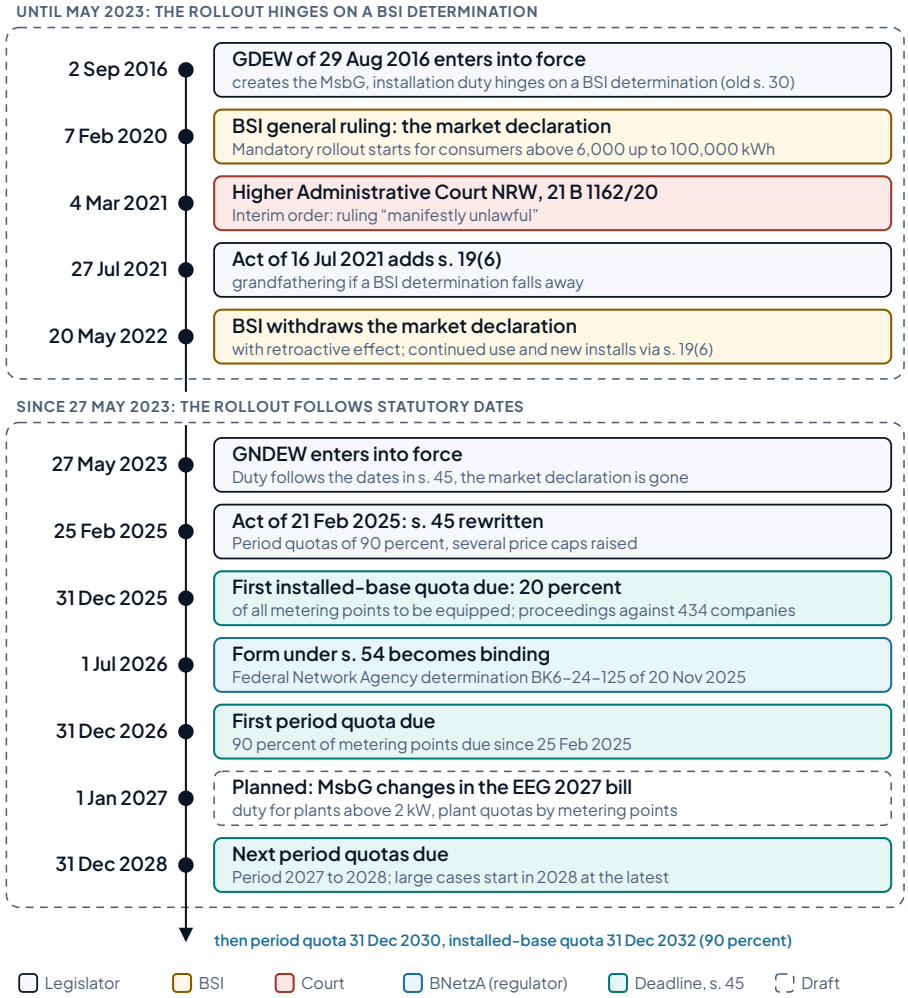

Figure 1: From the GDEW to the next quota. Until May 2023 the rollout legally hinged on a BSI determination, which no longer existed after the 2022 withdrawal. Since 27 May 2023 it has followed the dates in section 45 MsbG: first an installed-base quota of 20 percent on 31 December 2025, then three period quotas of 90 percent up to 2030, and an installed-base quota of 90 percent at the end of 2032.

CONFLICTING SOURCES

May 2023 or May 2024?

According to the BSI's archive page on the market analysis, the determination requirement went with the "Gesetz zum Neustart der Digitalisierung der Energiewende (GNDEW) vom Mai 2024"[5]. The Federal Law Gazette says 22 May 2023 for the signing, the MsbG itself 27 May 2023 for entry into force[14,1]. 2023 is right, and the practical rule follows: for dates in the legal framework, trust the gazette over the agency's website.

The MsbG today: who must install and what it may cost

Section 29 now sorts the cases like this[18]. Above 6,000 kilowatt hours, a final consumer gets an iMSys. With a § 14a agreement, a final consumer gets an iMSys plus a control unit, whatever the consumption. Plants above 7 kilowatts get the same, but only as far as needed to reach the capacity shares in section 45; an operator who permanently feeds in nothing and declares so needs no control unit. Everything else is an optional installation case. Where no iMSys is planned, at least a modern metering device has to go in: where economically justifiable by the end of 2032, in new buildings and major renovations by completion.

The cost side sits in section 30, not 31. The two are easy to mix up, because before 2023 section 30 covered technical feasibility and section 31 economic justifiability.

Case under section 30	Annual gross cap	of which grid operator	of which connection user
above 100,000 kWh or above 100 kW	reasonable charge	at most 80 euros	remainder
50,000 to 100,000 kWh or 25 to 100 kW	220 euros	80 euros	140 euros
20,000 to 50,000 kWh or 15 to 25 kW	190 euros	80 euros	110 euros
10,000 to 20,000 kWh, § 14a case or 7 to 15 kW	130 euros	80 euros	50 euros
6,000 to 10,000 kWh	120 euros	80 euros	40 euros
optional installation	60 euros	30 euros	30 euros

These caps apply "for the period from 1 January 2025" and came with the act of 21 February 2025[19,15]. For 6,000 to 10,000 kilowatt hours the connection user now pays 40 euros instead of the 20 from 2023, twice as much, while the grid operator's share has stayed at 80.

A control unit adds up to 50 euros a year, charged once to the connection owner and once to the grid operator. The Federal Network Agency may change the caps by determination. The user share, though, it may raise no more than once every four years[20].

NOT FIRMLY ESTABLISHED

An expired date

Section 31(1) allows the rollout to start, in the low-voltage grid up to 100,000 kilowatt hours and for plants up to 25 kilowatts, with systems whose logging, remote controllability or master data transmission can be delivered by an application update "by the end of 31 December 2025 at the latest"[21]. That date has passed, and the provision hasn't changed. How the Federal Network Agency treats devices that got no update by then isn't publicly documented.

Under section 54, any contract that triggers data communication through the gateway needs an "easily understandable form": who receives which data from whom, how often, for what purpose[22]. The GNDEW struck the word "standardised" from that provision[1], yet the form is standardised anyway: since 1 July 2026 the Federal Network Agency has prescribed the form nationwide, through determination BK6–24–125 of 20 November 2025. The same decision covers the metering point operator framework contract and two new metering contracts, one for connection users and one for suppliers; chapter 7 takes a closer look[23].

How the section 45 quotas work

In 2026 every default metering point operator is measured against one sentence. It demands at least 90 percent of the metering points newly due for equipment in the period from 25 February 2025 to the end of 2026[24].

Period quota is this book's term for a quota under section 45 MsbG that only counts the metering points falling due for equipment within a given period. The installed-base quota counts all of them.

For final consumers between 6,000 and 100,000 kilowatt hours and for the § 14a cases, number 4 applies, with letters a to e:

Letter	Deadline	Basis	Type
a	31 Dec 2025	20 percent of all metering points to be equipped	installed base
b	31 Dec 2026	90 percent of those falling due from 25 Feb 2025 to 31 Dec 2026	period
c	31 Dec 2028	90 percent of those falling due in 2027 and 2028	period
d	31 Dec 2030	90 percent of those falling due in 2029 and 2030	period
e	31 Dec 2032	90 percent of all metering points to be equipped	installed base

Two installed-base quotas frame three period quotas, with an awkward consequence: a company with a high overall equipment rate can still miss letter b if it lets the cases due since February 2025 pile up, while one with a weak base can make it.

For plants, section 45 counts kilowatts, and the yardstick is the installed capacity behind equipped metering points. Periods close on 30 September and measurement follows on 31 December, a three-month lag. Only one quota looks backwards, for plants up to 100 kilowatts: by the end of 2028 another 50 percent of the capacity commissioned between 1 January 2018 and 25 February 2025 has to be covered. Plants above 100 kilowatts and consumers above 100,000 kilowatt hours start in 2028 at the latest[24].

FORECAST

What may come in 2027

The government's EEG 2027 bill also amends the MsbG, in its Article 3. The duty to fit an iMSys with a control unit would cover every plant above 2 kilowatts instead of above 7, without the current proviso about capacity shares, and the 130 euro price cap would accordingly apply to plants above 2 kilowatts. The plant quotas in section 45 would no longer count kilowatts but metering points to be equipped; for the quota due on 31 December 2026 the default operator could choose. Planned entry into force: 1 January 2027[25]. On 25 September 2026 the Bundesrat asked for the new 2 kilowatt threshold to be dropped; the government refused[26]. First reading was on 24 September, the hearing on 5 October 2026[27]; nothing has been passed. What the EEG already requires today for controlling generation units is in chapter 5.

The statute sets no order for which street comes first. It does require the default operator to coordinate with the grid operators and to take due account of their operational needs, and it offers a route for doing so.

LEGALLY BINDING

The underrated provision: section 45(3)

Default metering point operators must coordinate the rollout regularly with the distribution and transmission system operators in their area. They may also sign binding agreements with them, on which installations come first in time or place and on duties beyond section 29. If a Federal Network Agency determination under section 33 allows it, such agreements may even set different metering charges and higher total price caps[24].

That gives both sides a lever to steer the rollout to where the grid needs readings.

The result can't be hidden either, because paragraph 4 has the Federal Network Agency publish progress figures, company by company too; chapter 8 goes through them.

Who works with whom: the market roles

Default metering point operator (gMSB) is, under section 2 no. 4 MsbG, the operator of the energy supply grid, a fallback metering point operator, or a third party to which basic responsibility was transferred in a procedure under sections 41 and 43[28].

Gateway administration belongs, by law, to the metering point operator. It can run it in-house or contract it out[29,28].

Role	Task	Legal basis
gMSB, default metering point operator	metering in the grid area, equipment duties and quotas	ss. 3, 29, 45 MsbG
wMSB, competitive metering point operator (in the act: a third party)	takes over metering at the connection user's request (s. 5; after the gMSB has installed an iMSys, no earlier than two years on) or at the connection owner's choice for the whole property (s. 6)	ss. 5, 6 MsbG[30]
GWA, gateway administrator	runs the gateway, as the metering point operator or on its behalf; certified security management	s. 2 no. 20, s. 25 MsbG[31]
VNB (DSO), distribution system operator	receives load and meter reading profiles; by law the gMSB unless it transfers basic responsibility	s. 2 no. 4, s. 60 MsbG[32]
ÜNB (TSO), transmission system operator	receives readings, also as balancing coordinator	s. 60 MsbG
LF, supplier	receives its customers' readings for billing	s. 60 MsbG

Role	Task	Legal basis
aEMT, active external market participant	may communicate with and act on devices at the customer's premises through the gateway's TLS proxy (CLS channel); a passive EMT only receives data	TR-03109-1, section 2.2.4[33]
Meter value processor (Messwertweiterverarbeiter)	processes billing-relevant readings once a Federal Network Agency determination assigns this task to a market player; receives load and meter reading profiles for it	s. 2 no. 14a, s. 60(3) no. 4 MsbG[32]
Party responsible for aggregation (Aggregationsverantwortlicher)	aggregates quarter-hourly or profile values into summed time series once a Federal Network Agency determination assigns this task to a market player	s. 2 no. 1, s. 60(3) no. 5 MsbG

The last two roles have only been in the act since 23 December 2025[17].

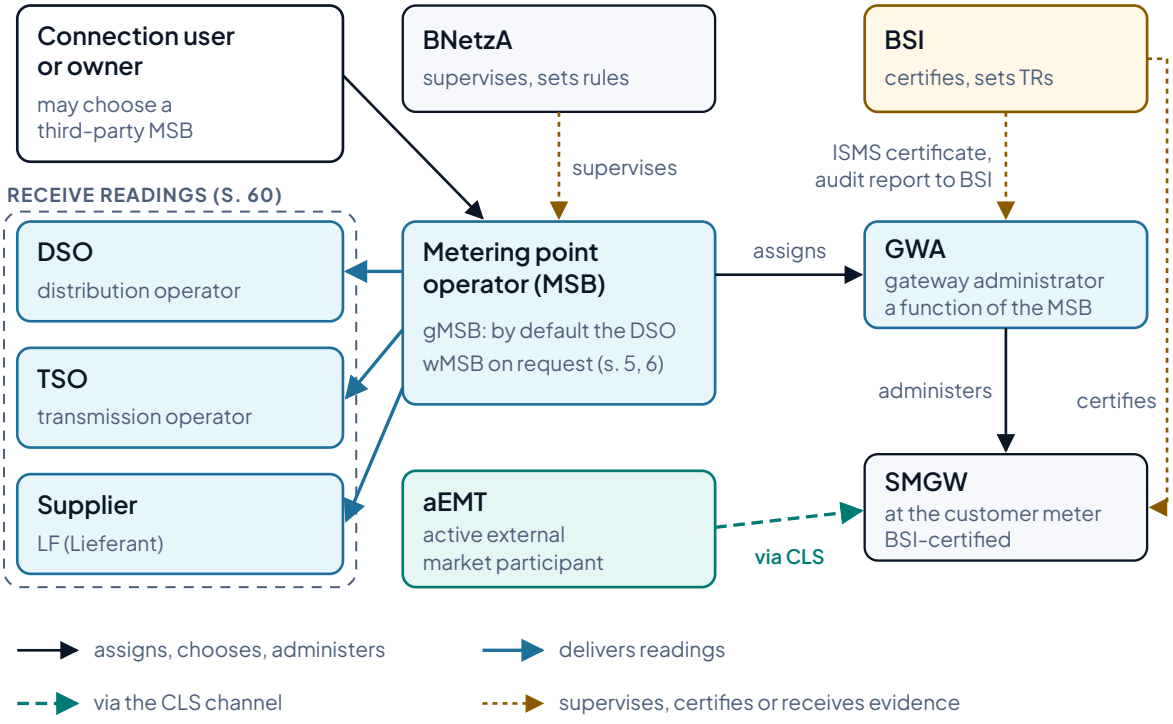

Figure 2: Who works with whom in metering. Gateway administration is a function of the metering point operator, which assigns the gateway administrator or acts as one. It delivers readings to grid operators and suppliers. The Federal Network Agency supervises, the BSI certifies.

Besides supervision, the Federal Network Agency sets standard contracts and market processes and enforces duties; the BSI certifies gateways under section 24 and specifies what they must be able to do[34]. Configuring a gateway is for the gateway administrator alone. Its service technician on site works within narrow limits, and only those the administrator has enabled[35,33]. Certification is chapter 3, the metering functions are chapter 4.

When a quota is missed

A default metering point operator that fails its duties faces measures under section 76; section 45(2) opens that door for the Federal Network Agency[24]. The agency can order conduct to stop, prescribe remedies and even declare an infringement after it has ended. For procedure, section 76(4) points to the Energy Industry Act, the EnWG[36]. That's where the penalty payment lives: at least 1,000 euros, at most ten million[37].

Section 12(2g) EnWG, added in February 2025, goes further: it lets the agency strip a default metering point operator of its basic responsibility and put in a fallback operator, by one of two routes. In one, the equipment duty for cases with a control unit is undershot by at least 25 percent, and this could "contribute materially to a not insignificant threat to or disruption of the security or reliability of the electricity system in at least one control area". In the other, nobody can tell, because the operator has failed its annual review and reporting duty or its duty to contribute to the overall report. The transmission system operators file that report every year by 30 November, the first one in 2025[38].

The bar is high, but since 2025 badly missing the quota for controllable cases puts basic responsibility at risk. One section 45 quota is already history: the 20 percent due on 31 December 2025. Since March 2026 the Federal Network Agency has opened supervisory proceedings against 434 companies that missed it; at 77 of them the quota stood at zero percent, and 150 proceedings have since been closed[39]. Chapter 8 goes through these proceedings in detail.

The EU level: plenty of strategy, few obligations

Brussels started 2026 with strategy. The Commission's Strategic Roadmap for Digitalisation and AI in the Energy Sector, COM(2026) 501, reached the Council on 3 June 2026: a communication, not legislation. Its third flagship action promised a legislative proposal for 2026 to speed up the smart meter rollout, with minimum coverage for each member state[40].

Six weeks later the proposal was on the table. COM(2026) 600 of 17 July 2026 would add an Article 18b to the Electricity Market Regulation (EU) 2019/943. Smart metering systems would have to cover at least 50 percent of all final customers by the end of 2030 and at least 75 percent by the end of 2033. A member state below 30 percent at entry into force gets one extra year for each step. A cost-benefit assessment would only apply to deployment above 75 percent[41]. That's a proposal in the legislative process, not law.

Binding EU law does exist, in cybersecurity. The Network Code on Cybersecurity, Delegated Regulation (EU) 2024/1366, has been in force since 13 June 2024. Member states were to designate a competent authority by 13 December 2024. ACER's count on 14 October 2025: ten notifications out of 27, none from Germany[42]. German law has caught up since. Under section 54c EnWG, in force since 28 November 2025, the Federal Ministry

for Economic Affairs and Energy is the competent authority, with individual tasks assigned to the Federal Network Agency and the BSI[43]. Whether the notification to ACER has followed could not be verified.

NEGATIVE FINDING

CEEDS and the demand response code: not law yet

The roadmap never mentions a "Common European Energy Data Space" or "CEEDS". What it talks about is simplified cross-border energy data exchange[40]. A Network Code on Demand Response doesn't exist yet either. ACER recommended a draft on 7 March 2025, and the Commission still describes the code as under development[44,45]. For German grid operators, neither creates deadlines so far.

For the German rollout the MsbG is what counts for now, and how an EU quota over all final customers would relate to a German quota over mandatory cases is an open question. For scale: on 30 June 2026, only 5.9 percent of reported metering locations had an iMSys[39].

1. **Calculate your own period quota**
   Count the mandatory cases that have newly fallen due since 25 February 2025, and keep them apart from the installed base. On 31 December 2026, letter b depends on that number and nothing else. A good overall equipment rate won't help.
2. **Keep plants in kilowatts and in metering points**
   For generation plants, section 45 currently counts installed capacity per commissioning period, with 30 September as the cut-off. The government's EEG 2027 bill would switch to counting metering points from 2027. Track both until the bill is passed.
3. **Consider an agreement under section 45(3)**
   Metering point and grid operators can bindingly agree which feeders get equipped first. The statute prescribes no form; put the agreement in writing anyway.
4. **Check contracts against BK6-24-125**
   Since 1 July 2026 the metering point operator framework contract, the metering contracts and the section 54 form apply in the version set by this determination.

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CHAPTER 2 · PART II: TECHNOLOGY

Devices and architecture: what an intelligent metering system is

From the Ferraris meter to the intelligent metering system: LMN, HAN, WAN and CLS, the control box, the WAN question and how multi-utility metering works.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-smart-meter-gateway-architecture.html

SUMMARY

Under Germany's Metering Point Operation Act, an intelligent metering system is two devices: a digital electricity meter, called the modern metering device, and the smart meter gateway, a communication computer with a security module inside. Without the gateway, the meter stays a meter that sends nothing.

Three networks meet at the gateway: the meters sit on the local metrological network; customer, service technician and controllable devices on the home area network; the gateway administrator and the market participants out on the wide area network. Between them the gateway acts as a firewall, and the channel later used for control runs through the home network.

No guideline says which medium carries the gateway's traffic to the outside world. The guideline puts heat meters on the metrological network, while the publicly described projects connect them through an adapter on the home network.

From spinning disc to metering system

Section 2 no. 7 of the Metering Point Operation Act (MsbG) defines the intelligent metering system in a single sentence of 77 words, not counting the term itself or the section signs[1]. For practical purposes a single line will do: modern metering device plus smart meter gateway.

Intelligent metering system (iMSys) is a modern metering device, or a meter with registering power measurement, that is linked into a communication network through a smart meter gateway, reflects at least consumption and generation along with time of use, and meets the specific requirements of sections 21 and 22, in the agile rollout read together with section 31(1). The BSI's protection profiles and technical guidelines spell these requirements out[1].

First came the Ferraris meter: an aluminium disc turns in a magnetic field, and a mechanical register adds up the turns as kilowatt-hours. The device knows how much electricity went through, but not when.

Electronics replaced the disc in the modern metering device (mME after its German name). By law it has to reflect consumption and time of use, generation where needed, and to be **capable** of being linked in through a smart meter gateway[1]; as long as no gateway is installed, it sends nothing at all. The connection user still gets to see consumption and time of use, plus daily, weekly, monthly and yearly values for the past 24 months, and making that happen is the metering point operator's job[2].

Besides the intelligent one, the act also knows a plain metering system: any meter "linked into a communication network", such as a meter with its own modem[1]. Since the start of 2026, one that doesn't meet the requirements of sections 21 and 22 may only be installed and used under narrow conditions. For consumption above 100,000 kilowatt-hours and plants above 100 kilowatts, that cut-off comes in 2029[3]. Besides meters, the gateway itself can link in other technical equipment, a PV system for instance.

Section 29 decides who gets what. Final consumers above 6,000 kilowatt-hours a year must have an iMSys. Consumers with a § 14a agreement and plants above 7 kilowatts get one with a control unit, and the government's EEG 2027 bill would lower that plant threshold to 2 kilowatts[4]. Every other metering point gets at least an mME, where economically reasonable by the end of 2032, new buildings by completion[5]. Quotas and exceptions are in chapter 1.

On 30 June 2026, 3.17 million of 54.1 million reported metering locations had an iMSys, or 5.9 percent[6], so the typical meter cabinet still holds a meter without a gateway.

A further stage has been announced politically: for customers outside the mandatory rollout, the coalition wants a "Smart Meter Light" that lets them optimise their electricity bills "at low cost and in a cyber-secure way"[7]. What that would be technically, no bill has defined yet.

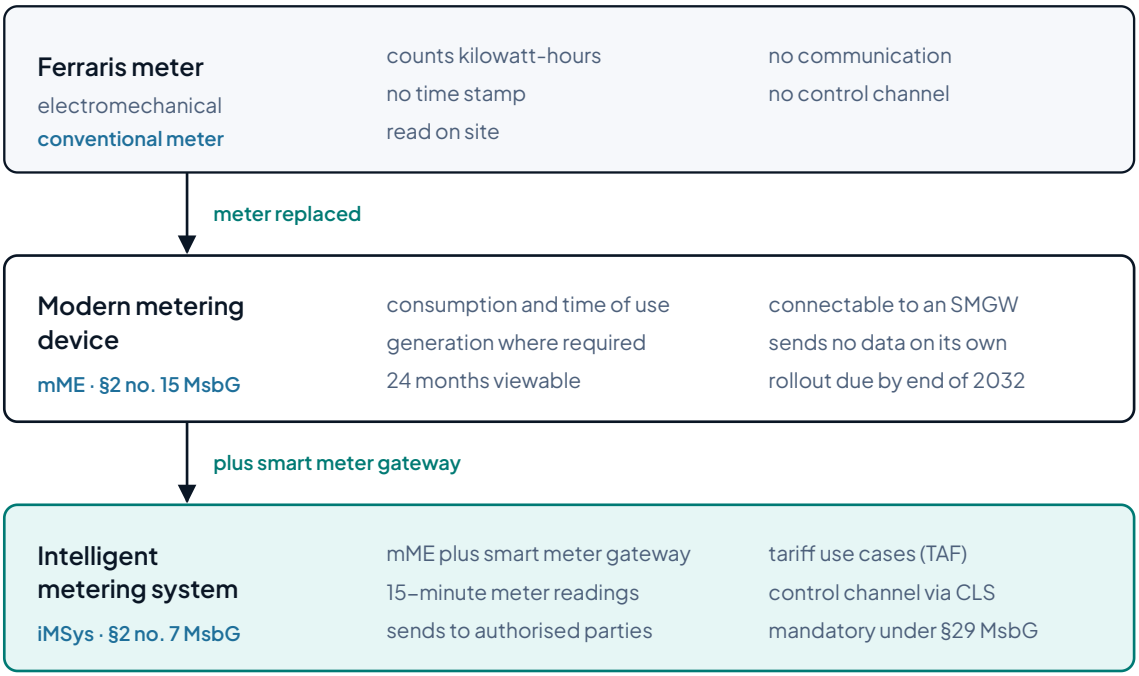

Figure 1: Three stages of metering. The Ferraris meter counts kilowatt-hours with no time reference, the modern metering device records consumption and time of use and can be connected, and only the smart meter gateway turns it into an intelligent metering system with remote transmission and a control channel. It supplies quarter-hour values once TAF 7, the 15-minute meter reading profile, has been set up.

One gateway, three networks

The BSI's technical guideline TR-03109-1 describes the gateway through its neighbours. Version 2.0, dated 13 December 2024, knows three communication areas: LMN, HAN, WAN[8].

TECHNICAL STANDARD

Version 2.0 applies, version 1.1 is in the field

By the BSI's account, version 2.0 set the new state of the art when it was published on 27 February 2025, but its predecessor wasn't retired overnight: gateways built to version 1.1 and protection profile 1.3 may still be installed until 31 December 2027, and migration by software update is possible. From 2027, certifications under version 2.0 must also cover the MUSS+ requirements, among them the WAN API and interval metering over the LMN[9,10]. New in version 2.0 are, among other things, a mandatory HAN API and multi-utility metering, submetering included, over the LMN[8]. Which of these a given gateway in the field can do depends on its certification.

Network	Who is on it	How it connects	Who sets the rules
LMN, local metrological network	meters for electricity, gas, water, heat	wired over RS-485, two-way; wireless over Wireless M-Bus, one-way only	the gateway administrator, who registers each meter with a profile
HAN, home area network	connection user (role CON), service technician (SRV), controllable devices and adapters (CLS)	TLS, with a certificate or, for end customers, also with user name and password	the gateway administrator, who assigns each participant a role
WAN, wide area network	gateway administrator, external market participants such as metering point operator, grid operator, supplier	IP connections secured through the smart metering PKI; the physical medium is left open	the PKI certificates and the administrator's profiles

The table draws on sections 2.3 and 4 of the guideline[8,11].

Between the three networks the gateway is a firewall that keeps them apart[8]. Most of the time it does unglamorous work. Readings come in from the LMN, get a time stamp, are processed by the rules loaded into the device and go out to authorised recipients in the WAN. Time stamps and billing-relevant values put it under German weights and measures law[8].

Configuration belongs to one party only, the gateway administrator, GWA for short[12]. It loads profiles and firmware, monitors the device and, if needed, wakes it with a signed data packet. The readings, though, are out of its reach. The guideline puts it bluntly: "The GWA has no insight into the meter readings."[8] A party that may configure everything and read nothing is an odd role for a box in the basement, and the guideline keeps to it consistently.

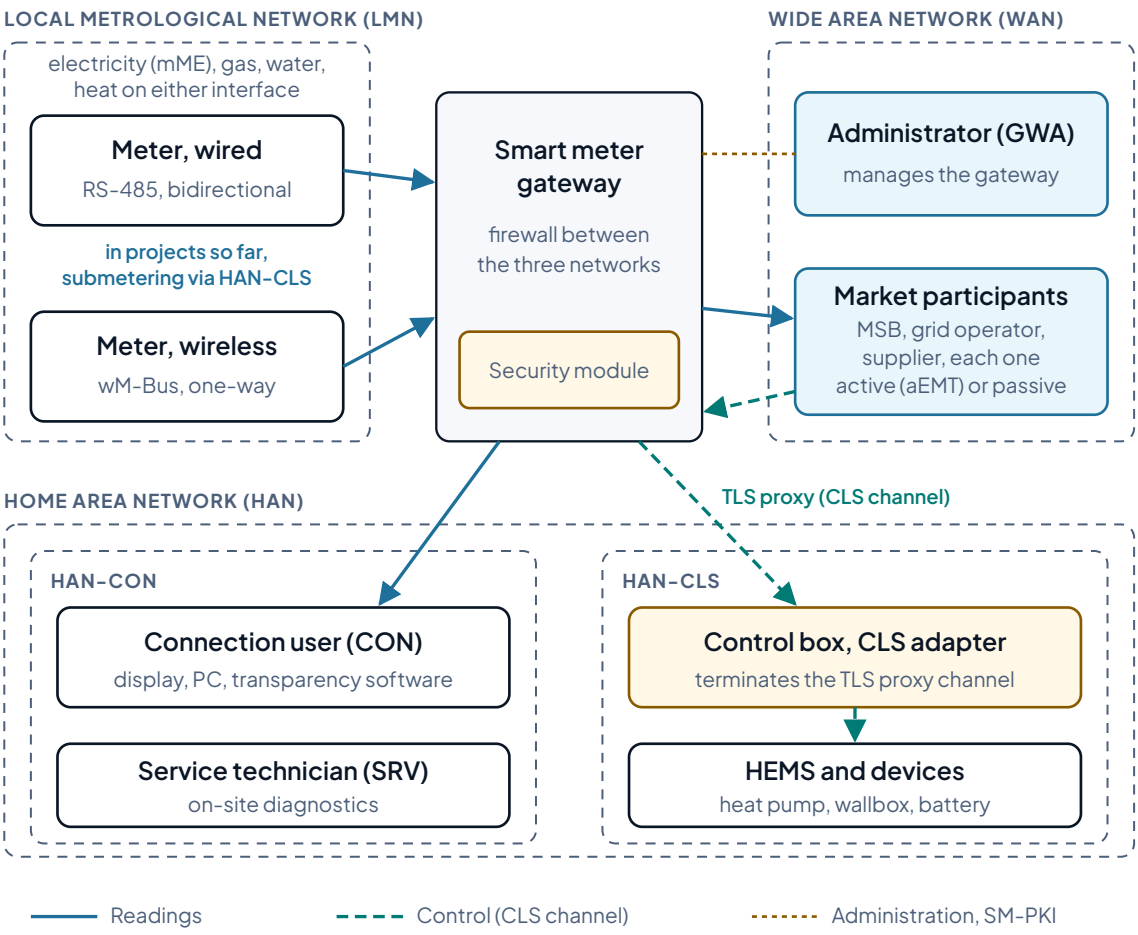

Figure 2: The three networks of the smart meter gateway. Meters deliver over the LMN, while in the publicly described projects submetering arrives through an adapter in the HAN-CLS. The gateway sends readings to the market participants in the WAN and to the customer in the HAN. The gateway administrator manages the device through the smart metering PKI. Only an active external market participant sends control commands, and they pass through the gateway's TLS proxy to the control box in the HAN-CLS.

LMN: where the meters connect

Readings reach the gateway through two physical interfaces, and the gateway must have both[11].

The wired one runs over RS-485, with HDLC as transport protocol and TLS on top, and the gateway polls the meter actively[11]. The wireless one runs Wireless M-Bus under EN 13757-4, in one direction only: the meter transmits, the gateway listens, and it ignores packets from any meter the administrator hasn't set up a profile for[11].

The gateway has to keep the meters of different connection users apart, so that several customers in an apartment block can share one device[8]. German law goes a step further: several metering points in one property may hang off one gateway, even metering points on different grid connections, provided they sit on the same grid node at the same voltage level[12]. One device can thus serve a whole building, possibly several buildings on one node.

HAN: customer, technician, control channel

Three roles meet on the home network. Connection users (CON) check meter readings and their personal log, on a display, a PC or through an energy management system. Then there's the service technician (SRV), who works for the gateway administrator. On site the technician reads the system log and may adjust the device within narrow limits, using rights the administrator has set up in the gateway beforehand[8].

For control, the third role is the one that counts. CLS, Controllable Local System, covers anything in the building that is to be controlled or read without belonging to the metering system: a heat pump or a wallbox, a battery, an inverter, even a data concentrator for heat cost allocators[8].

For these devices the gateway acts as a TLS proxy. One encrypted channel arrives from the WAN, another leads into the home network, and both end inside the gateway, which hands the data across without processing it[8]. Only an active external market participant (aEMT) may use the proxy; a passive one just receives data.

TECHNICAL STANDARD

Two home networks are a recommendation

Word for word, the guideline says: "To increase the protection of the CLS, splitting the HAN into two networks, HAN-CON and HAN-CLS, is recommended."[8] Not mandatory, then, though the IP address ranges should be separate. In future the guideline will require the split, with separate MAC and IP addresses; it announces as much itself[11]. Whether display and control box share a segment in a given house comes down to the device and the installation.

Direct access from the internet to the gateway's services, say via the customer's router, is not provided for[11]. Control runs through the proxy channel: for control under § 14a the act names data communication "via the smart meter gateway and a control unit connected to it"[13]. How a command gets from grid operator to heat pump, and why TAF 11 has nothing to do with it, is for chapters 4 and 5.

KEY POINT

Treat the CLS channel as a network of its own, with its own role and its own certificate. Put the customer display and the control box in one segment and you give away the protection the guideline recommends.

Hardware in the field

In the field, more equipment joins the gateway, and at least one piece of it changes its name depending on who you ask.

Inside the gateway sits a **security module**. Keys and random numbers come from it; it signs, checks signatures and keeps the key material[8]. Physically it's part of the gateway, yet the protection profile treats it as a product of its own, certified separately[14]; chapter 3 explains how that fits together.

The act calls the next device the **control unit** and makes installing and running it, the link to the gateway and to an energy management system included, a standard service of the metering point operator[13]. The industry says control box, Steuerbox. VDE FNN writes its specification, currently version 1.5 of August 2025[15].

For the **CLS adapter**, BSI TR-03109-5 has applied since 1 January 2024. It covers communication adapters in the home network that use the gateway's TLS proxy channel and terminate it on their side[16]. Inside that channel, back end and adapter speak whatever protocol the application needs; IEC 61850, EEBUS and OpenADR are the guideline's examples[16]. The BSI list now holds 26 certificates[17].

The customer's **energy management system** is not part of the metering system. On the home network it shows up as CON when it displays consumption and as CLS when it controls something[8].

For the component between gateway and device, Germany's energy agency dena lists four labels in use: CLS unit, CLS communication adapter, HAN communication adapter and (FNN) control box. According to dena, the terms reflect the range of implementations, because the component comes in several designs. The FNN control box is the standardised variant, with digital interfaces via EEBUS and analogue ones via relay contacts, and it passes the signal either straight to the device or to an energy management system[18]. A tender only becomes unambiguous once it names the guideline or specification the component is built to.

The WAN question

"The protocols below the network layer are not specified by this technical guideline."[11] That one sentence, in a note on figure 4.2, makes the WAN the operator's problem: whether the gateway uses LTE, a 450 MHz network, powerline over the power cable or fibre, the guideline doesn't choose.

The legal bar is low. Besides the route in use, the gateway only has to be open to one more kind of remote communication, arranged by the administrator[12], which makes a second medium an option rather than a duty.

In the other direction, the state can draw lines, and has been able to since December 2025. Section 19(2) authorises the economics ministry to set requirements by ordinance for the own wide area connections of controllable consumption devices, storage and renewable

plants, and in certain cases to ban connections that bypass the gateway outright or allow them only through it[3]. No such ordinance could be found by early November 2026. The act also leaves the ministry a second route: by ordinance it can transfer the power to the Federal Network Agency or make the rules the subject of the agency's determinations (section 19(2) sentence 4)[3].

That one medium falls short was known early. In mid-2020 the Barometer for Digitalising the Energy Transition counted around 14 percent of households with fibre, and at the end of 2020, 96.5 percent of the land area had LTE, which says nothing yet about reception at a meter cabinet in the basement. The report concluded: "With only one of the communication technologies available to date, sufficient coverage and availability cannot be guaranteed. Hybrid solutions would be needed."[19]

The protection profile doesn't close the gap either, and that's by design: its subjects are confidentiality, integrity and authenticity, and it says plainly: "The availability of the SMGW is not addressed by the PP."[14]

For a blackout, an expert report by BET and WIK-Consult for the federal economics ministry, dated 28 June 2024, notes that public telecom networks aren't blackout-proof across all their components. For the customer installation, blackout robustness is enough, meaning an orderly restart once the voltage returns; to connect the iMSys, the report recommends the 450 MHz radio network[20]. German law does list an "uninterruptible, blackout-proof, dedicated wide area communication connection" as an additional service, but ties it to a statutory ordinance[13], and none had turned up by early November 2026.

NOT FIRMLY ESTABLISHED

How far the 450 MHz network has got

450connect, which runs the network, reported 90 percent land coverage on 8 October 2025, along with its 1,000th radio site and 72 hours of blackout resilience. Full coverage was announced for the end of 2025[21]. By 27 August 2026 the company was talking about 100,000 active SIM cards and a nationwide network, but gave no percentage. Smart meter gateways appear there as a device category, without a number of their own[22].

NEGATIVE FINDING

No figure for the WAN mix

No published figure could be found for how many gateways connect via LTE, 450 MHz, powerline or fibre. The Federal Network Agency's half-yearly survey doesn't report the transmission technology[6].

How often the connection fails in the field can only be read indirectly. A PwC survey of default metering point operators, reported by the trade press in October 2026, gives a first-visit success rate of 74 percent and names a missing WAN connection among the reasons appointments fail. How many companies answered, the report doesn't say[23].

The Federal Network Agency now says that installing an iMSys alone is not enough; the devices must reliably record quarter-hourly values and transmit them to the authorised parties[6], and without a working WAN connection neither happens.

What the guideline does offer for the WAN is a network diagnostics service, through which the gateway reports its modem's signal quality and connection data to the administrator or a market participant. It's optional, and the manufacturer merely declares whether a device implements it[8]. With such a device, weak connections can be found in operation, but the service doesn't replace a second medium.

Gas, water, heat: two ways into the gateway

On paper the route is clear: on the LMN, the guideline explicitly lists meters for gas, water, thermal energy and electricity[8], and the act requires the iMSys to receive readings securely from meters of all four utilities, heat metering devices included[12].

In the publicly described projects, submetering, the consumption metering inside multi-occupancy buildings, enters the gateway through the home network instead. A data concentrator or adapter collects the values of heat meters and heat cost allocators and talks to the gateway as a CLS, through the TLS proxy. As early as 2023 a metering point operator was rolling out 500 such "CLS adapters for submetering", close to 200 of them already running[24]. The BSI list now includes a "CLS Adapter Submetering 2" certified under TR-03109-5[17]. For submetering and existing installations, the BDEW wrote in October 2024, the route via CLS channel and control unit "will continue to be necessary"[25].

The specification doesn't contradict itself here: the same guideline that puts heat meters on the LMN counts data concentrators for heat cost allocators among the CLS on the home network[8]. Both routes are specified, although the LMN route for submetering only arrived with version 2.0 of the guideline[8].

For the other utilities, the law demands less than many slide decks claim:

Utility	What the law requires	Basis
Electricity	mandatory iMSys in the cases of section 29(1) MsbG, at least an mME by the end of 2032	section 29 MsbG[5]
Gas	new gas meters must be connectable; new meters with registering power measurement must be connected to an existing gateway from 1 July 2028 at the latest, the rest once it's technically possible and costs the connection user nothing extra; since 1 July 2026 an iMSys at a gas metering point can be ordered as an additional service, to be installed within four months	sections 20, 34, 40 MsbG[26,13,27]
Heat and hot water in multi-occupancy buildings	since 1 December 2022 only devices that can be securely connected to a gateway; non-remote-readable legacy devices to be retrofitted or replaced by 31 December 2026	section 5 HeizkostenV[28]
District heating	meters installed after 5 October 2021 must be remotely readable, older ones by 31 December 2026; a gateway is allowed but not required	section 3 FFVAV[29]

LEGALLY BINDING

Connectable isn't connected

Since 1 December 2022 the Heating Costs Ordinance has only required new remotely readable devices to be **capable** of connecting to a smart meter gateway. Remotely readable devices installed up to that date must meet this requirement after 31 December 2031[28]. A real duty to connect arises only when the building owner picks a bundled offer under section 6 MsbG for space heating: electricity plus at least one other utility over one gateway, at no extra cost compared with separate metering[30]. Mandatory iMSys installation under section 29 MsbG is about electricity only[5]. Gas has its own conditional connection duty in section 40, and it covers only new meters at existing gateways[27].

How connectable the field really is, a consultancy source from June 2026 puts briefly: the systems are meant to be interoperable and connectable, but "in practice they often aren't". CLS connections work in pilot projects, it says, while productive rollout is still to come[31]. A named multi-utility project over the gateway with published production figures for 2026 could not be found, even though two services already sit on the act's list of what metering point operators must offer: transmitting submetering data via the gateway, and connecting the main meter of another utility[13].

Who may receive the data

Section 49 MsbG names, in a closed list, who may process personal data from metering devices and metering systems: metering point operators, grid operators, balance coordinators, balance responsible parties, direct marketers, suppliers, aggregation managers and meter data processors. Plus any party holding the connection user's consent under the rules of the General Data Protection Regulation. Processing these data under other federal or state rules is not allowed, while processors acting on behalf are[32].

Even the entitled parties can't do everything. Without consent, section 50 permits processing only where it's needed for a contract with the connection user, for pre-contractual steps the user initiated, for duties under the energy acts and their rulings, or for the grid operator's sovereign tasks[33].

Any new offer built on meter data, an app or a flexibility product, therefore needs a contract or consent before it gets access. The customer must also be able to read on a standard form which data goes to whom and how often; chapter 7 covers that.

Where the data goes

Readings leave the gateway either directly, in a star pattern, to each authorised recipient in the WAN, or indirectly via a market actor[8]. If the route runs through the administrator, the gateway encrypts the content with the recipient's key[11], so the administrator carries the data but can't read it.

For processing, the act has a target picture. Plausibility checks and substitute values happen inside the gateway, and the values go straight to authorised parties, once the BSI deems that technically feasible and the Federal Network Agency sets it out in a determination. Until then, the Federal Network Agency's determinations let processing and sending run fully or partly outside the gateway: at the metering point operator, and for gas permanently and at other authorised parties too[34]. For now, then, the work stays in the back end, with meter data management and dispatch in the formats of market communication, which chapter 7 describes.

The grid operator also receives the actual feed-in from TAF 9 and grid status data from TAF 10[8], the subject of chapter 4, and without a control system for the low-voltage grid all of that just fills an archive. The BET and WIK-Consult report reaches the same point from another direction: for control in system-critical situations, distribution system operators' control systems would have to be extended so they observe the grid state, detect congestion automatically and send control commands to very large numbers of devices at once[20].

Four checks are worth running on your own installed base:

1. **Document the home network topology per device type**
   Find out, for every gateway model you use, whether HAN-CON and HAN-CLS are separated physically or logically. Then write the separation into new tenders, because the guideline only recommends it.

2. **Set a WAN strategy per site class**
   Basement location, metal cabinet, mobile coverage, distance to the local substation: group your meter sites by features like these and set a primary and a fallback medium for each class. Openness to a second medium is required by law anyway. Where your gateway model offers the network diagnostics service, use it to check your assumptions in operation.

3. **Tie component names to guidelines**
   Write "CLS communication adapter under TR-03109-5" or "control box under the FNN specification" into your specifications, not just "control box".

4. **Plan multi-utility metering via CLS**
   If you want to read heat or water through the gateway, expect the CLS route for now, with a certified adapter, and look at the bundled offer under section 6 MsbG as a business model.

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BSI standards, certification and the smart metering PKI

TR-03109 in all parts, protection profiles PP-0073 and PP-0077, dual certification, gateway administration and the smart metering PKI, status 2026.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-bsi-tr-03109-certification.html

SUMMARY

A smart meter gateway needs two BSI certificates before anyone may mount it in a meter cabinet. One, issued under the Common Criteria, says the device can withstand attacks. The other confirms it meets technical guideline TR-03109-1 and works with the systems of everyone else in the market. The gateway administrator behind it needs two proofs as well, and every party hangs off a public key infrastructure whose root certificates are held by the BSI, Germany's Federal Office for Information Security.

This rulebook grew over more than a decade: its guideline for the security module dates from 2014, the one for the gateway from 2024, and nothing yet requires post-quantum methods in smart metering.

On the deadline for gateway administrators, the Federal Gazette and the BSI seem to disagree, but each source gives only one of two dates, and both are right.

Six parts, ten years apart

The umbrella document of the BSI technical guideline TR-03109, version 2.0.1 of 8 December 2025, carries two dates ten years apart: the part on the security module is in force in its version of 15 December 2014, the part on the gateway in its version of 13 December 2024[1].

TR-03109 is a family of six parts, each covering one component or role, each with its own version[1]:

Part	Subject	Current version	Transition or note
TR-03109-1	interoperability of the gateway, including the tariff use cases	2.0 of 13 Dec 2024	1.1 remains valid until 31 Dec 2027
TR-03109-2	security module inside the gateway	1.1 of 15 Dec 2014	plus annex B on the Smart Meter Mini-HSM, version 1.0 of 23 June 2017, protection profile PP-0095[2]

Part	Subject	Current version	Transition or note
TR-03109-3	cryptographic requirements	1.1 of 17 Apr 2014	points to TR-03116-3, updated every year according to the umbrella document; edition in force: Stand 2025
TR-03109-4	smart metering PKI	1.2.1 of 9 Aug 2017	none stated
TR-03109-5	communication adapters in the home network	1.0 of 24 Nov 2023	in force since 1 Jan 2024[3]
TR-03109-6	gateway administration	2.0 of 28 Nov 2025	1.0 remains valid until 31 Dec 2028

Part 3 is younger than it looks. It refers to TR-03116-3, which the umbrella document says is updated every year[1]. The edition in force is still "Stand 2025" from December 2024[4]; no 2026 edition had appeared by early November 2026[5]. Part 4, the PKI, has no such shortcut; its text really is from 2017.

The law is tied to this list of versions. Under section 22(2) of the Metering Point Operation Act (MsbG), a gateway is presumed to meet the state of the art if it complies with the BSI's protection profiles and guidelines in the version currently in force. Which version that is, the Federal Gazette announces by pointing to the BSI's website[6]. Legally, then, what counts in the end is a web page, and that produces a false alarm this chapter returns to in the section on the gateway administrator.

One gateway, two certificates

Protection profile is a requirements document, itself certified under the Common Criteria, for a whole class of products. It sets out threats, security objectives and security functions[6] and, through its assurance package, fixes how deeply a product is examined[7]. The manufacturer then writes the security target for its specific device and has the device evaluated against it[7].

For the gateway, the protection profile is BSI-CC-PP-0073. Version 2.0 is dated 13 December 2024, and its certificate, issued on 19 December 2024, runs until 18 December 2034. It is evaluated at EAL 4, augmented by AVA_VAN.5 and ALC_FLR.2[7].

Behind the acronyms lies a compromise, the toughest penetration testing with middling depth everywhere else, and the profile argues it openly. AVA_VAN.5 demands resistance against attackers with high attack potential; EAL 4 was picked "to keep evaluations according to this PP commercially feasible", the profile says, because it is the lowest level at which AVA_VAN.5 is possible at all[8].

Most of the weight lies on the wide area network, and the threat model says why. Someone who has to get physically at a device compromises one at a time. An attack from the WAN may hit a great many[8].

Two things the profile expressly leaves out. Availability isn't a security objective, since under section 25 MsbG reliable operation is the gateway administrator's job[9]. And the security module that holds the keys is a separate product with its own protection profile, even though it sits inside the gateway[7]. Version 2.0 also brings two functional packages: "Power Limitation" for gateways that control devices themselves, and "Multiple grid connection points" for gateways that bundle meters of several grid connections at the same grid node[7]. For control, the BSI followed up with a non-binding implementation note on 16 September 2025[10]. Chapters 4 and 5 deal with what that means.

The protection profile is only half the story, though. TR-03109-1 adds functional requirements and has a procedure of its own, with test specification 2.0 of 10 June 2025 as the basis for testing[1]. Section 24 MsbG demands both: security certification by the BSI under the Common Criteria or the European EUCC scheme, and conformity certificates for the guidelines[11]. EUCC has applied since 27 February 2025[12]. Procedures under the national scheme had to be completed by 27 February 2026[13], and new security certificates for gateways have carried an EUCC number since then[14]. Metrology law adds a third check: for the functions relevant to legal metrology, the PTB issues a type-examination certificate[15].

For EFR's Secure Smart Grid Hub, version 2.00, the BSI product list shows an EUCC certificate of 20 March 2026 and a TR certificate of 24 March 2026, listed separately[14]. As with all five gateways on the list, both still belong to the old state: the EUCC certificate names version 1.3 of the protection profile[16], the TR certificate names TR-03109-1 version 1.1 as its test basis[17]. As of early November 2026 the BSI lists no certificate against protection profile 2.0 or guideline 2.0. Without a valid certificate shown to the administrator, a gateway may not form part of an intelligent metering system[11].

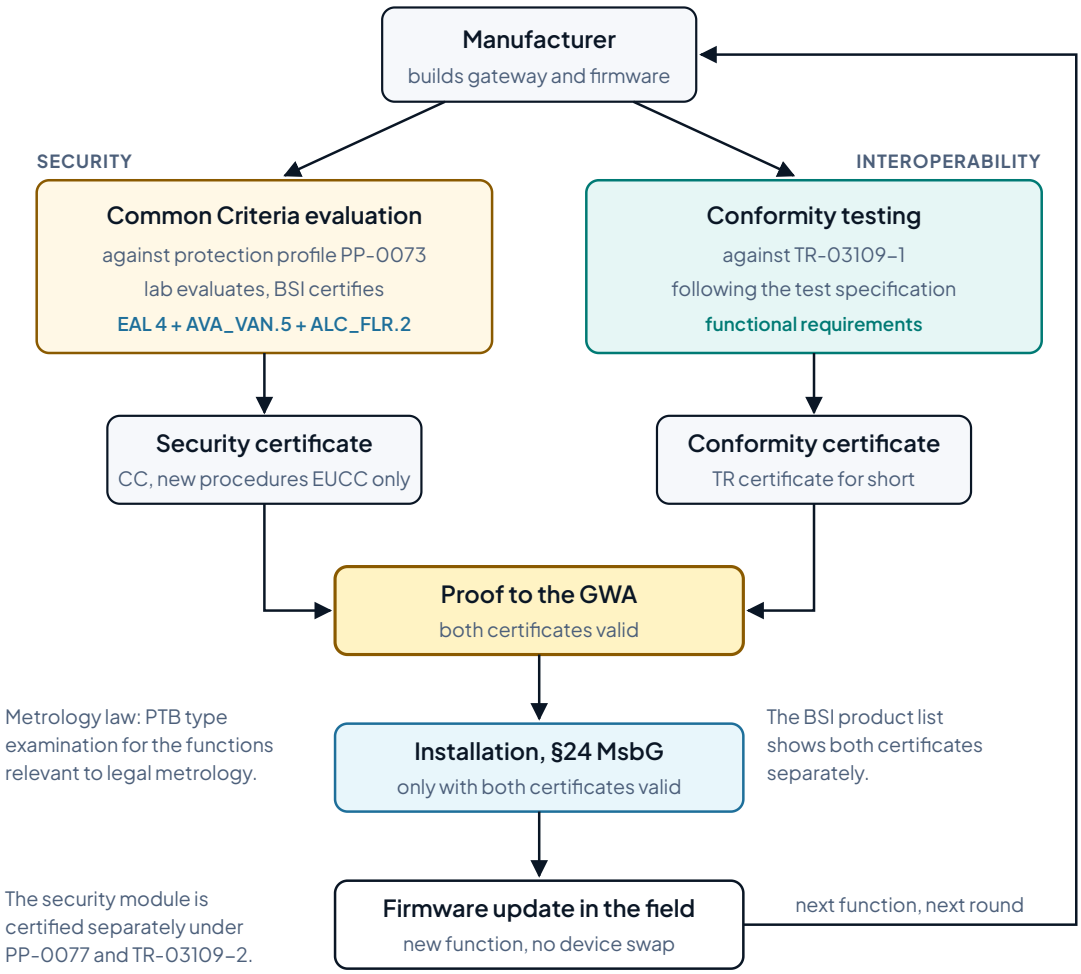

Figure 1: Two checks, one installation. The gateway needs a security certificate against protection profile PP-0073, with new procedures only under EUCC since 27 February 2026 while existing CC certificates are still maintained, and a conformity certificate against TR-03109-1, called a TR certificate in the BSI product list. Only both together, shown to the gateway administrator, allow installation. A PTB type examination covers the functions relevant to legal metrology, and every new function sends the cycle round again.

Initial certification against protection profile 1.3 and guideline 1.1 is over. Applications for recertification on the old basis are possible until 31 December 2027 at the latest, and for the protection profile since 27 February 2025 only with a security target moved to CC:2022. Such gateways may be installed until then. Devices already in the field can migrate to the new state through a software update. From 1 January 2027, certifications against version 2.0 must also prove the MUSS+ requirements, which the BSI sums up as "u.a. WAN-API, RLM über LMN & Werksreset durch SRV": among others a WAN API, load profile metering over the local metrological network and a factory reset by the service technician[12].

TECHNICAL STANDARD

The security module is checked against an older profile

The protection profile for the security module, BSI-CC-PP-0077 version 1.03, was certified on 19 January 2015 under Common Criteria 3.1 R4. Its certificate expired on 18 January 2025[18]. The BSI still lists this version as current[2], and that isn't a legal flaw: according to the BSI, the expiry of a protection profile certificate does not necessarily affect product certificates that refer to it[7]. Still, the gateway profile was evaluated under CC:2022 and the profile for the key store under the previous edition. No new version has been announced.

The gateway administrator: two proofs, no single deadline

Once a year the auditor turns up and picks a sample. Within three years, every requirement of TR-03109-6 has to have been checked at least once[19].

That is the audit rhythm for the gateway administrator, the party that commissions gateways and manages them remotely. Section 25 MsbG requires it to run an information security management system and to have a security concept, both audited regularly by auditors the BSI has certified for the purpose. Proof comes from a certificate issued by the BSI or by a body accredited under ISO/IEC 27006, and the audit report goes to the BSI[9].

TR-03109-6 turns this into two separate proofs. An administrator's management system under ISO/IEC 27001 or IT-Grundschutz is examined in its own ISMS certification, while the TR-03109-6 audit checks nothing but the guideline's own minimum requirements[19].

Version 2.0 is dated 28 November 2025. Consent from the economics ministry followed on 9 December 2025, and on 17 December the BSI announced publication[20]. New items include rules for remote workplaces and cloud providers, a zero trust concept and the operation of the administrator's time servers. Those requirements used to sit in PTB requirements 50.8 and a PTB information sheet; now they are part of a BSI guideline[19]. Legal time still comes from the time servers of the PTB, the national metrology institute.

Version 2.0 applies from 1 January 2027 with the next initial certification or recertification of the administrator's system, and may be used voluntarily before that[19]. Version 1.0 stays valid until the end of 31 December 2028[1].

So there's no single cut-off date. Each administrator has its own, set by its own certification calendar. One that recertifies under version 1.0 in 2026 can work with that until the end of 2028 at most. If the next date falls in 2027, the audit is against version 2.0 straight away. Until the end of 2028, certificates under both versions coexist in the market.

NEGATIVE FINDING

No conflict between the Federal Gazette and the BSI

Put the Federal Gazette next to the BSI announcement and the deadlines seem to contradict each other. Notice BAnz AT 22.12.2025 B6 of 9 December 2025 announces version 2.0 of TR-03109-6 and gives a single date: version 1.0 remains valid until 31 December 2028. For the versions in force it points to the BSI's website[21], just as section 22(2) sentence 2 MsbG provides[6]. The announcement of 17 December 2025 says "spätestens ab 2027", from 2027 at the latest, and leaves out 2028[20]. So each source gives one of the two dates, and both are right. The guideline and the umbrella document give both. Adding to the confusion, the transition rules for gateways have a second cut-off on 1 January 2027, aimed at entirely different parties[12].

The smart metering PKI: one anchor, many branches

A gateway knows it is talking to the right administrator through a certificate whose chain ends at a single root.

Under section 28 MsbG, the BSI itself holds the root certificates[22]. The Root CA has been in live operation since 1 March 2015, run by a certification service provider under BSI supervision. The BSI's page doesn't say who[23]. Below it sit eleven registered Sub-CAs, run by IT service providers, manufacturers, gateway administration service providers and grid operators[24]. They issue the certificates of the end users: external market participants, gateway administrators, gateway manufacturers and the gateways themselves[25].

Each end user gets three certificates with separate keys, one for TLS, one for encryption, one for signatures. Because readings can travel through the administrator rather than straight to their recipient, the connection is secured with TLS and the content is also encrypted and signed for the final recipient[25]. The administrator then carries data it can't read.

At the factory, the security module already receives so-called seal certificates. With these the gateway proves it is genuine when it is commissioned, after which operational certificates take over. The gateway checks a certificate chain against the trust anchor in its security module, but without a revocation list; revocation status is the administrator's job[25]. Whether a revoked certificate gets caught therefore depends on the administrator's back end, not on the device.

Connections initiated from outside in the WAN aren't accepted at all. When the administrator needs it right away, it sends a wake-up, a signed message after which the gateway opens the connection itself, either to the administrator or to an external market participant together with a device in the home network. Replayed messages must be detected[8].

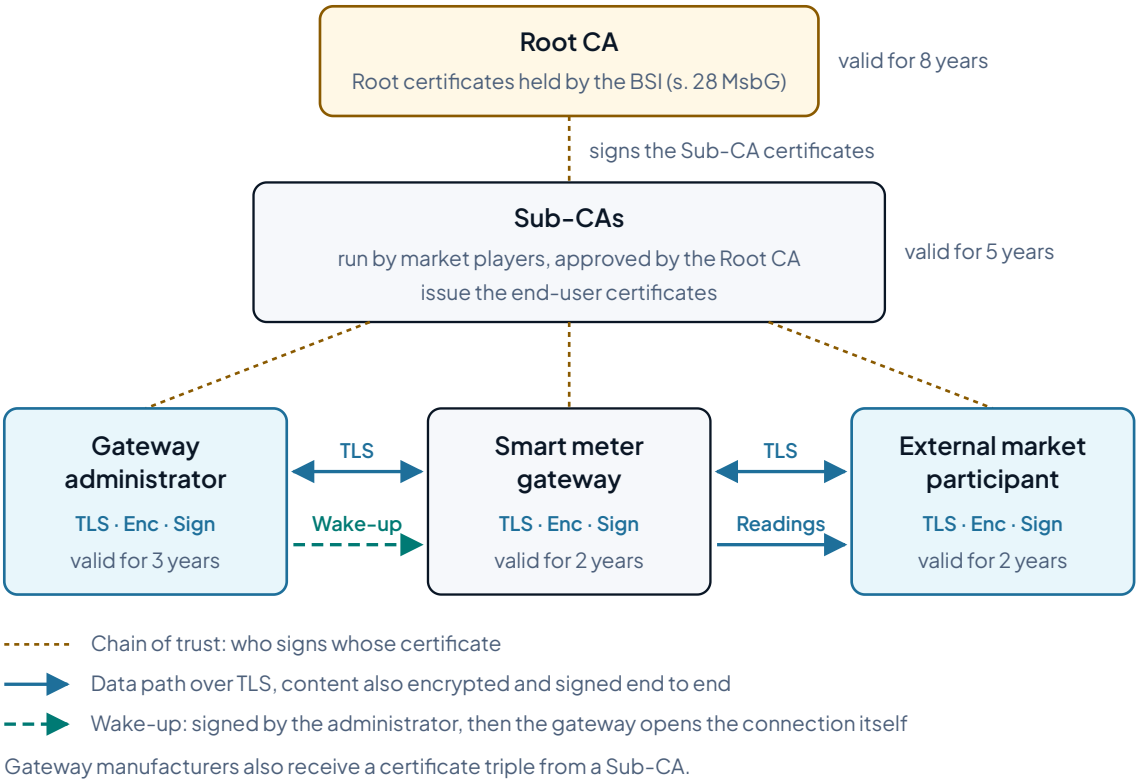

Figure 2: The chain of trust in the smart metering PKI. Under section 28 MsbG the BSI holds the root certificates; the Root CA certifies the Sub-CAs, which issue each end user a certificate triple. The root certificate is valid for eight years, Sub-CA certificates for five, the administrator's for three, and those of the gateway and all other end users for two. Data travels over TLS and is additionally encrypted for its recipient, even when it passes through the administrator. From outside, the administrator reaches the gateway through a signed wake-up or over a connection that the gateway itself opened and kept open.

Renewal as a permanent state

The certificates expire, and quickly. The root certificate is valid for eight years, but its key may only sign for three. Sub-CA certificates run for five years, the administrator's for three, those of the gateway and all other end users for two[25]. The certification authorities change their own certificates even sooner: under the certificate policy, the Root CA every three years and each Sub-CA every two[26].

By 30 June 2026, intelligent metering systems were installed at 3,172,579 metering locations[27]. If each had its own gateway, three new certificates per device would be due every two years, some 4.8 million a year before a single new installation. That's our own estimate and an upper bound, since one gateway can serve several meters[7]. How many gateways there actually are, the statistics don't say.

Then there's the change at the root. After three years at most, the Root CA needs a new key pair and publishes a link certificate signed with the old key. Only once that has been checked against the old anchor may the new root certificate act as anchor, and when the

old one expires the new one replaces it entirely[25]. With every new certificate the administrator sends the gateway the whole chain down to the anchor it has stored, link certificates included[25].

NEGATIVE FINDING

Not a word about scale

TR-03109-4 dates from 2017, before the mandatory rollout. A full-text search for scaling, mass renewal, millions or throughput finds nothing[25]. How Sub-CAs and administrators cope with mass operation isn't something the guideline addresses.

Post-quantum: the threat is in the text, the method isn't yet

On 11 February 2026 the BSI recommended an end date for classical asymmetric encryption for the first time. By the end of 2030, such methods should no longer be used on their own for the most sensitive applications, by the end of 2031 not on their own for any application, and for signatures the end of 2035 is planned. The way forward is hybrid: classical methods stay, post-quantum ones are added on top[28].

On 12 October 2026 the interior ministry, the digital ministry and the BSI followed up. Their joint guideline implementing the EU roadmap is addressed expressly to operators of critical infrastructure as well. Preparation should be complete by the end of 2026, high-risk use cases should be quantum-safe by the end of 2030 and medium-risk ones by the end of 2035. Besides "store now, decrypt later", the guideline names the long migration times of devices with a long service life as a reason[29].

Little of this has reached smart metering. TR-03116-3, "Stand 2025", forecasts the security of its methods six years ahead to 2030 and marks them "2030+". It prescribes elliptic-curve schemes such as ECDSA and names no post-quantum method at all[4].

Yet the threat itself is already written into a guideline. Version 2.0 of TR-03109-6 lists the cryptographically relevant quantum computer as threat B.GWASYS.13. Because public key infrastructures, hardware crypto modules and non-updatable firmware on constrained devices take so long to migrate, it says, the threat must be met "unmittelbar und nicht erst bei Verfügbarkeit von CRQC", immediately and not only once such a machine exists[19].

The guideline doesn't stop at that sentence: the administrator must record the cryptographic methods and key lengths of its system in a crypto inventory, should derive a prioritised migration concept from it and must carry out its measures[19]. All of this, though, applies only to the administrator. The protection profile for the device doesn't contain the word "quantum" once[8], and the guideline for the security module, which holds the keys, is from 2014[1].

NOT FIRMLY ESTABLISHED

Whether 2030, 2031 and 2035 apply to gateways

The February 2026 deadlines are general recommendations from the TR-02102 update[28]. The October 2026 guideline works by risk level, and the classification happens in each organisation's own risk management[29]. No BSI publication could be found that expressly assigns smart metering to one of these deadlines or risk levels. Nor could it be established whether installed security modules could take on post-quantum methods by update. The deadlines would bite through a new edition of TR-03116-3 or of the TR-03109 parts. For the administrator this has begun with the crypto inventory in TR-03109-6[19]; for the gateway, the security module and the PKI no new edition exists as of 14 October 2026.

Counterpoint: where does a communication adapter end?

To control a heat pump under § 14a EnWG, a device in the home network terminates the gateway's secured channel. Since 2024 that device falls under TR-03109-5, and industry and the BSI argued over its scope before it took effect[3].

On 13 October 2023 the association of the new energy industry, bne, wrote that the draft made the connection far more complicated than necessary. Because the housing defined the boundary, a heat pump, charger or storage unit with an integrated adapter would fall under the guideline as a whole. Practically all such devices have a back-end connection or further IT interfaces and would therefore need the accelerated security certification, the BSZ, at market launch and with every software update. It wanted testing limited to the adapter and recertification only for updates that touch it[30].

The BSI held its line in the final version of 24 November 2023. The boundary is "die gesamte Hardware, die in ihrem Gehäuse integriert ist", all the hardware inside the housing, and the whole physical component is tested. Security certification, however, is only mandatory where the assessment under section 2.9 calls for it. For the agile rollout, a manufacturer's self-declaration sufficed during 2024[3]. Its FAQ goes further: the object of evaluation is always a stand-alone physical product, software-only certification doesn't exist, and changed versions usually need recertification[31].

The reason is in the protection profile. An attacker might first take over a device in the home network and then attack the gateway from there[8]. An adapter inside a connected heat pump would be such a device.

By early November 2026 the BSI lists 26 certificates under TR-03109-5, in a list titled "certified CLS components with communication adapter". Only a few of the certified items carry a generic name such as Steuerbox (control box), control module, CLS adapter or Smart Reader CLS; most carry a product name such as STBF24B, SELEXA, STB-142 or

SwiSBox. Not one is a heat pump, a wallbox or a storage unit[32]. That fits the bne's warning without proving it, since device makers may have other reasons to leave the connection to a separate box.

The BSI draws the line where an attacker gets into the home network, the bne where a manufacturer can still certify at a reasonable cost, and the two lines don't coincide. A year later the BDEW and the BSI clashed in a similar way over control directly in the gateway, as chapter 4 describes[33].

The certification cycle as a planning factor

A new gateway function takes three steps. First comes a new version of the guideline: the BSI drafts it on behalf of the economics ministry, in agreement with the PTB and the Federal Network Agency. For major changes the Gateway Standardisation Committee, where associations of consumers, manufacturers and users sit too, is then heard under the ministry's chair, and publication follows only once the ministry consents[34]. Then every manufacturer has its device tested, twice. Last, the administrator pushes the update into the field, and only firmware the BSI has released[19].

LEGALLY BINDING

What MUSS+ stands for

Version 2.0 of TR-03109-1 adds a level called MUSS+ next to the plain MUSS (must), for requirements that have to be in place "spätestens ab dem 01.01.2027", by 1 January 2027 at the latest. Two tariff use cases fall under it: a redefined TAF 8, load profile formation with maximum values, and a TAF 15 that processes readings from registering meters. TAF 1, 2, 7, 9, 10 and 14 are mandatory as well, and readings on demand (formerly TAF 6) have become a general function. A gateway may implement further cases if supplementary BSI documents describe them[35]. TAF 3, 4, 5, 11, 12 and 13 have been missing from the guideline since version 1.1 of September 2021, which made only seven cases binding[36]. The familiar count of TAF 1 to 14 therefore reflects the state before 2021.

A single gateway model shows how tight the cycle runs: for Theben's CONEXA 3.0 the product list records five conformity checks in not quite four years, with TR certificates dated 31 January 2022, 31 May 2023, 16 February 2024, 5 May 2025 and 14 October 2025[14].

Further development used to follow the BSI's staged model of energy-sector use cases, system use cases and function blocks, last in version 2.1 of November 2021[37]. No newer version has been published, the BSI's roadmap page on the staged model is marked as archive and was last updated in May 2022[38], and development now visibly runs through the guidelines themselves. Chapter 4 places the tariff use cases in those stages.

KEY POINT

For every new gateway function, reckon with three clocks: the guideline version, recertification at the manufacturer and the update in your own field. The slowest one sets the date.

Four checks for grid and metering point operators:

1. **Find the date of your own administrator certification**
   If the next initial certification or recertification of your administrator system falls in 2027 or later, the audit is against version 2.0 of TR-03109-6. Start the gap analysis on remote workplaces, service providers and time servers before the audit date. If you buy in gateway administration, ask your provider for its date.

2. **Ask about the certification status of each gateway model**
   Against which versions of the protection profile and TR-03109-1 is the model certified, and can an update bring it up to the new state? The BSI table doesn't show this, but the page for each certificate does: it names the protection profile with its version and the test basis of the TR certification[16,17].

3. **Plan around the installation window up to the end of 2027**
   Gateways on the old state may only be installed until 31 December 2027. As of early November 2026, no gateway on the new state is certified[16,17]. Ask your manufacturers when they expect certification under version 2.0, and plan procurement and rollout for 2027 and 2028 around those dates.

4. **Check certificate renewal as an operational process**
   Ask your Sub-CA and your gateway administrator to show you how expiring certificates are monitored, revocation lists are checked and the next Root CA changeover is prepared. Two-year lifetimes across millions of metering points leave no room for manual work.

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Tariff use cases: TAF 1 to 16 and version 2.0

Every tariff use case of the smart meter gateway: what TAF 1 to 16 do, what versions 1.1 and 2.0 changed, and why §14a control doesn't need TAF 11.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-tariff-use-cases-taf.html

SUMMARY

A tariff use case, TAF for short after the German Tarifanwendungsfall, is a function the gateway administrator switches on in the smart meter gateway; it decides what gets measured, how often the gateway stores it and who receives the readings. For a long time the catalogue ran from TAF 1 to 14, and version 1.1 of the guideline left seven of them in 2021. Version 2.0, from December 2024, rebuilt it once more and requires TAF 1, 2, 7, 9, 10 and 14, from 2027 also a redefined TAF 8 and a new TAF 15, while the prepaid case, control and four other use cases are missing from it. A BSI note from September 2025 describes an event-based TAF 5 and a TAF 16 on top.

Heat pumps under § 14a EnWG are dimmed over the CLS channel today, not through TAF 11; the BSI has described the route directly from the gateway, but no device is certified for it yet. Quarter-hourly grid status data is part of the metering point operator's standard service, while minute-level data costs extra and covers a quarter of the equipped connections at most.

No authority publishes which function is actually switched on in how many gateways.

What a tariff use case is

"Gateway with TAF 1, 2, 6, 7, 9, 10 and 14." That is roughly how manufacturers and metering point operators describe the devices[1,2], and the line says nothing about what the device measures; anyone who knows the guideline reads that from the numbers.

Tariff use case (TAF) is a configurable function in the smart meter gateway that sets the interval at which readings are captured and stored, and which authorised parties receive them. The TAF are described in the BSI technical guideline TR-03109-1[3], and the gateway administrator configures them through evaluation profiles[4].

The term is older than the rollout: the first version of the guideline, dated 18 March 2013, already had the list, TAF 1 to 10 mandatory and TAF 11 to 14 optional[5]; the idea was one device that does it all.

On 16 January 2019 the BSI added an Annex VII. Its device profile "Basis" kept only TAF 1, 2, 6 and 7 mandatory and made everything else optional[5]. The mandatory rollout started on this profile in 2020, and a year later the Higher Administrative Court of North Rhine-Westphalia held the same profile to be unlawful[5] (chapter 1 tells the story).

A TAF is a certified software function and reaches the field through a firmware update. What a given gateway can do today therefore depends on the version of the guideline it was last certified against. The hardware alone tells you little, which makes any inventory at a metering point operator harder than it looks.

TECHNICAL STANDARD

Newer terms, old list

Since 2020 the BSI has ordered the functions in its staged model by energy-sector use cases, system use cases and function blocks[6]. Market overviews still count TAF 1 to 14[2], and since the market uses that count, so does this chapter.

Every tariff use case at a glance

Market overviews still list the catalogue in the old numbering; what version 2.0 of the guideline of 13 December 2024 has made of it is in the right-hand column[4]. "Mandatory from 2027" there means the level MUSS+: gateways certified against the new version from 1 January 2027 must support the function[7], which doesn't mean it is switched on in the field.

TAF	What the gateway does	Purpose	In version 2.0
1	meter readings without a time series, in version 2.0 monthly plus at start and end, data-minimising	Billing	mandatory
2	tariff levels in fixed time windows, such as peak and off-peak	Billing	mandatory
3	tariff switch once a load threshold is exceeded	Billing	no longer included
4	tariff levels by cumulative consumption	Billing	no longer included
5	tariff levels linked to events	Billing	not included, BSI note 2025
6	readings on demand, for example when a customer moves	Switching processes	as a general retrieval function
7	meter readings every 15 or 60 minutes, the series of register readings	Billing, settlement	mandatory
8	power peaks; in version 2.0 newly defined as "load profile formation with maximum values"	Billing	redefined, mandatory from 2027

TAF	What the gateway does	Purpose	In version 2.0
9	current feed-in of a generation plant	Grid operation	mandatory
10	grid status data such as voltage, current and frequency	Grid operation	mandatory
11	control of interruptible consumption and generation devices	Control	no longer included
12	prepaid energy amount with a signal at a threshold	Prepaid billing	no longer included
13	readings for display over the WAN instead of the home network	Customer information	no longer included
14	high-frequency readings for value-added services	Energy monitoring	mandatory
15	processing of readings from registering meters	Billing	new, mandatory from 2027
16	capture when an event occurs instead of a fixed interval	Billing	not included, BSI note 2025

The descriptions draw on both versions of the guideline and on one metering point operator's overview[4,8,2]. Older overviews assign some numbers differently; in 2019 the FfE, for instance, filed TAF 9 under controllable devices[9].

Version 2.0 also lets a gateway implement tariff use cases it doesn't describe itself, provided supplementary BSI documents do[4]; the note on TAF 5 and 16 is such a document.

CONFLICTING SOURCES

TAF 15 exists, but only since December 2024

The older versions of the guideline have no TAF 15; their catalogue ends at 14[5,8]. Version 2.0 of 13 December 2024 does define it: "TAF15: Verarbeitung von Messwerten aus registrierenden Messeinrichtungen", the processing of readings from registering meters, at level MUSS+[4]. The BSI note on TAF 5 and 16 from September 2025 also lists it next to TAF 1, 2, 7 and 8[10]. The gateway doesn't register these values itself; it takes them over from a registering meter. The claim that there is no TAF 15 describes the state before version 2.0.

Billing: the workhorses and the prepaid case

Four functions carry billing, and they are the same four that became mandatory in the "Basis" profile in 2019.

TAF 1 is the leanest case. The gateway sends only single meter readings, in version 2.0 once a month plus at the start and end of the validity period, for electricity as well as gas, water and heat[4]; nothing more leaves it. The guideline justifies this by saying nobody should be able to read consumption behaviour from these values[4]. Metering is finer all the same, because for final customers with an intelligent metering system and up to 100,000 kWh a year, the law requires a series of register readings or, where available, quarter-hourly registering load profile metering[11], and the Metering Point Operation Act of 2016 already provided for the series of register readings[12]. In the gateway that is usually TAF 7 (chapters 6 and 7).

TAF 2 adds fixed time windows, peak rate by day and off-peak at night: basically the old two-rate meter gone digital. A dynamic electricity tariff needs more, because its price follows the exchange and the exchange doesn't care what time it is.

TAF 6 fetches readings on request, typically when a customer moves or switches supplier.

The real workhorse is TAF 7; without it an intelligent metering system would be an expensive digital meter. It delivers meter readings for consumption and generation every quarter hour (the guideline also allows 60 minutes), and it does so every day. Quarter-hour settlement hangs on it, and dynamic tariffs under § 41a EnWG are usually billed on this same series of register readings. For the time-variable grid charge under module 3, though, TAF 7 is only one of two routes; the other runs through TAF 2, and chapter 5 explains why.

TAF 3, 4 and 8 built tariffs on load thresholds, consumption volumes and power peaks. They have been missing from the guideline since version 1.1 of 2021[8], and version 2.0 reassigns number 8, to load profile formation with maximum values, required from 2027[4].

That leaves TAF 12, the prepaid tariff: a prepaid energy amount counts down, and at a threshold a signal goes out[2]. The prepaid case has been gone from the guideline since version 1.1 of 2021[8], and version 2.0 hasn't brought it back[4].

TAF 12 has nothing to do with feed-in management or redispatch: the current feed-in comes from TAF 9, and redispatch follows § 13a EnWG and isn't a tariff use case at all; under section 34(1) no. 7 MsbG its data travels via the gateway and a connected control unit[13].

Grid: TAF 9 and TAF 10

A distribution system operator rarely had measurements from the low-voltage grid, and TAF 9 and TAF 10 now provide them.

TAF 9 reports what a generation plant is feeding in right now, a PV system for instance. Billing has no use for the value; it's there for grid operation.

Without data like this a grid operator can't see which feeder is running up against its voltage limit right now. TAF 10 delivers it at the grid connection, namely voltage, current, active power, phase angle and frequency[4], and one manufacturer calls the gateway with TAF 10 the most important sensor in the grid[14].

How often the data comes is for the Metering Point Operation Act, the MsbG, to decide.

LEGALLY BINDING

Quarter-hourly is standard, by the minute costs extra

Section 34(1) no. 4 MsbG lists among the standard services of the metering point operator the collection of grid status data at quarter-hour precision and its daily transmission to the grid operator. Minute-by-minute transmission, by contrast, sits in section 34(2) sentence 2 no. 6 among the additional services, and it is limited to up to 25 percent of the grid connections the metering point operator has equipped with intelligent metering systems in the grid area concerned[13].

For planning and analysis, quarter-hour values that arrive once a day are fine. You can't react to a bottleneck while it builds up with them; that takes the minute values from the additional service. Because the law caps those at a quarter of the equipped connections, every grid operator has to pick the feeders it wants to see minute by minute, and blanket minute-level TAF 10 isn't something the law foresees.

Grid operators need grid status data for § 14a as well, because the Federal Network Agency allows grid-oriented control in principle only on the basis of a grid status assessment, and preventive control based on grid planning only as a transition until the end of 2028 at the latest[15]. Chapter 5 shows how tightly that ties measurement to control.

Control: why TAF 11 is not the route

"Control of interruptible consumption devices and generation plants" is how the catalogue describes TAF 11[2], and it would seem obvious to dim a heat pump under § 14a through it, but that isn't how control works.

Back in 2021 the Higher Administrative Court of North Rhine-Westphalia found that TAF 11 was only optional even in the original guideline, missing from the "Basis" profile and implemented by none of the gateways on the market. For remote control, according to the BSI's own assessment, only the CLS proxy channel came into question[5].

At the core nothing has changed, except that TAF 11 has vanished altogether: it hasn't been in the guideline since version 1.1 of September 2021, and version 2.0 doesn't name it either[8,4]. Commands travel over the CLS channel, a secured channel the gateway brokers between an active external market participant in the WAN and a controllable device in the home network[16]. At the end of it, in the home network, sits a control box that passes the command on to the device or to an energy management system.

The law knows only this route as well: section 34(1) no. 6 MsbG speaks of data communication "via the smart meter gateway and a control unit connected to it"[13], and a tariff use case doesn't appear in the provision at all.

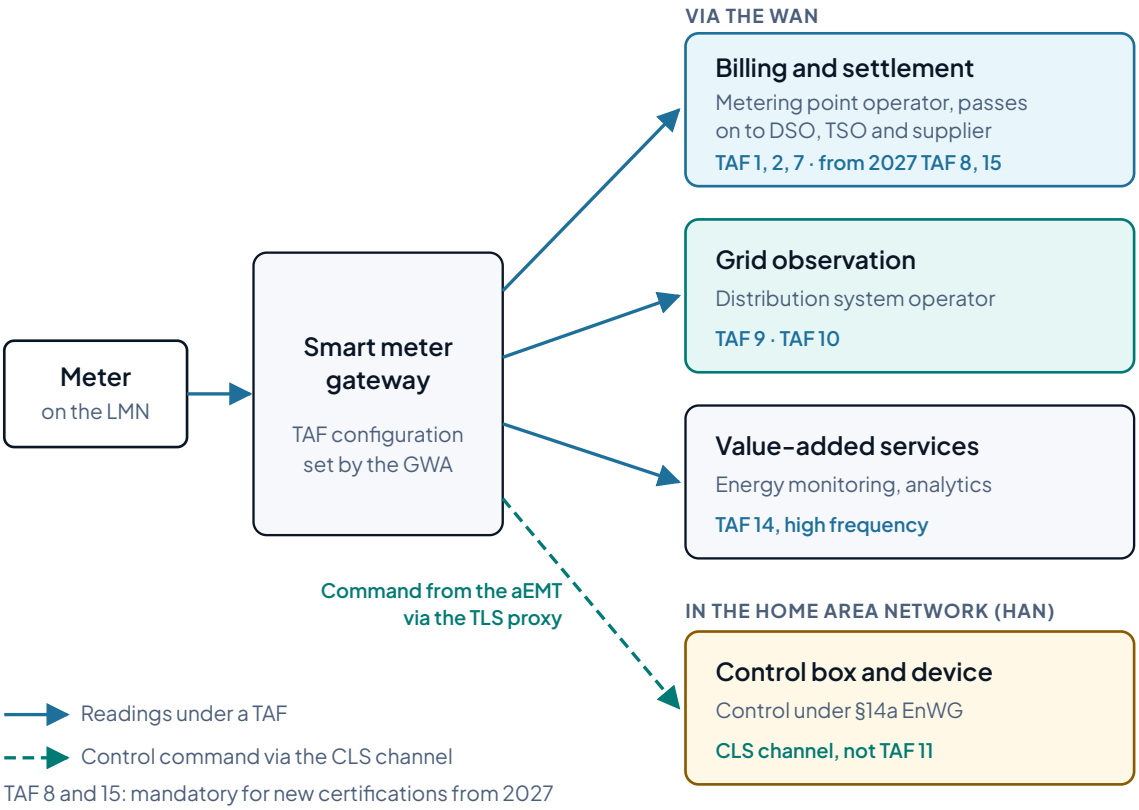

Figure 1: Where the tariff use cases deliver. Billing and settlement, grid observation and value-added services run over TAF. Billing values go to the metering point operator, which passes them on to the grid operator, the transmission system operator and the supplier under section 60 MsbG. Quarter-hourly grid status data under TAF 10 is standard, minute values are an additional service. Control under § 14a runs over the CLS channel to the control box, not over TAF 11. The command comes from an active external market participant.

KEY POINT

A specification for § 14a control doesn't need TAF 11. Specify the CLS channel, the control box and the protocol behind it; the grid data for the decision comes from TAF 9 and TAF 10.

Control in the gateway or in the box: two positions

Since 13 December 2024, version 2.0 of the gateway protection profile, BSI-CC-PP-0073, has included the functional package "Power Limitation" for the case where the gateway controls devices itself[16], and the control box would then be redundant. Whether it should be is what the BSI and the BDEW disagree about.

In August 2024 the BSI put out a discussion paper on control directly via the gateway. Integrated control was to be voluntary for manufacturers and the classic route via the control box would stay; with the integrated solution, though, the customer installation would need TR-03109-5 certification, because the box no longer acts as a tested counterpart[17].

The BDEW, the German Association of Energy and Water Industries, pushed back in the consultation in September 2024 and reported on it on 4 October. Both routes should share one interface to the customer installation, and metering point operators shouldn't carry a double burden. The TR-03109-5 requirement for the integrated route should go: with it, the association warned, the solution would in effect never be implemented in the market because of the effort ("faktisch nicht umgesetzt"), and dropping it would not impair the security level[17]. Many metering point operators were building CLS management right then, it added, and that route stays necessary anyway for submetering and existing installations.

The discussion paper has since become an implementation note. On 16 September 2025, the same day as the note on TAF 5 and 16, the BSI published "Steuerung mit Nachweisführung im SMGW", control with verification in the gateway. In it the gateway uses EEBUS to limit consumption and feed-in of controllable devices and logs every instruction along with its acknowledgement. The note is not binding but is meant to move into TR-03109-1 later. On the point in dispute it says only: "Der TLS-Proxy ist im zu steuernden Produkt eine optionale Funktion. Ein Produkt mit implementiertem TLS-Proxy unterliegt dem Anwendungsbereich der [TR-03109-5]." The TLS proxy is optional in the controlled product, and a product that has one falls under TR-03109-5. The note names no certification duty for devices without a TLS proxy[18].

In a trial the technology works: in September and October 2025 Bayernwerk and Power Plus Communications sent around 1,100 control commands over EEBUS straight from the gateway to generation, storage and consumption devices, no control box involved, and 99.63 percent went through[19]. At the time Bayernwerk expected certification at the manufacturers to start in early 2026 and control from the gateway to be widely usable from mid-2026[19].

NOT FIRMLY ESTABLISHED

Tested does not mean approved

The certification reported on 14 September 2026 covered a CLS adapter from Power Plus Communications, issued by EEBUService GmbH[20]. That is an interoperability test, not a BSI security certification of the gateway. The BSI product list shows no certificate against version 2.0 of the protection profile, which describes control inside the gateway as the "Power Limitation" function, as of early November 2026[21]. The announced schedule has slipped. What has reached the field so far is a different kind of integration: on 1 July 2026 one competitive metering point operator reported 10,000 installed gateways with the control module housed in the same device, BSI-certified according to the manufacturer, and a second one announced a contract for software to control devices directly from the gateway[22]. The reports don't say against which version they were certified.

The BSI wants no untested counterpart in the home network, the BDEW wants no second certification route for the same goal, and the implementation note answers the question only for products with a TLS proxy. The dispute isn't settled. As long as no gateway is certified against the new protection profile, metering point operators control through the box, and an architecture planned today should be able to replace it later.

How new functions get into the device

Before a new tariff use case reaches a customer, the guideline has to be extended, the gateway recertified and the firmware in the field updated.

Certification happens twice along the way: a gateway needs a Common Criteria security certificate against protection profile PP-0073 and a second certificate against TR-03109-1 that confirms interoperability; the BSI list carries the two separately[21]. For the functions relevant to legal metrology, a PTB type-examination certificate is added[5]. Chapter 3 walks through the procedure.

First came the "Basis" profile with TAF 1, 2, 6 and 7. For TAF 14, an errata to the guideline followed in December 2019, which the court dates to the 12th and the BSI download page to the 16th[5,23]. In early 2021 TAF 9 and 10 only existed in the optional "Netz" profile[5] and became mandatory again with version 1.1 of September 2021[8]; they reached devices through recertification, which Power Plus Communications received for its gateways as early as 30 October 2020[1].

Any source that says today that TAF 9 and 10 are only arriving now is at least five years old.

In the BSI's staged model[6] the first stage includes, among other things, updating the metering system, communication with controllable devices via an active external market participant and the series of register readings (TAF 7), the second time-variable tariffs (TAF 2), grid status data (TAF 10), actual feed-in (TAF 9) and high-frequency readings (TAF 14).

TECHNICAL STANDARD

Stage 3 is described but never updated

The staged model is available in version 2.1 from November 2021[6]. A separate part of it already describes the third development stage, covering control, further grid status data, submetering, multi-utility metering and charging infrastructure, among other things. For control it adds a control unit that receives its commands over the CLS proxy channel and can also sit directly inside a gateway[24]. The BSI hasn't updated the model since, and the roadmap page that belongs to it is marked as an archive[25]. Development now runs through new versions of the guidelines themselves.

The BSI is announcing new cases all the same: its implementation note of 16 September 2025 describes a planned extension with event-based tariffing in TAF 5 and event-based registration in a new TAF 16[10], expressly as a note with "keinen verpflichtenden Charakter", no binding character[10].

For existing devices a transition rule applies: gateways under protection profile 1.3 and guideline 1.1 may still be installed until the end of 2027, while certifications under the new versions must show additional mandatory requirements from 1 January 2027[7], TAF 8 and TAF 15 among them[4].

What runs in the field, and what nobody measures

That the gateways support TAF 1, 2, 6, 7, 9, 10 and 14 is more than a market claim[1,2]: these seven cases have been normative since version 1.1[8], and all five gateways on the BSI list hold a conformity certificate against that version[26]. No statistic, however, says whether the functions are switched on in the field.

NEGATIVE FINDING

No figure on adoption

No authority publishes how many installed gateways actually have TAF 9, 10 or 14 switched on. The Federal Network Agency's rollout statistics count metering systems, not functions. For TAF 3, 4, 5, 8, 11, 12 and 13 there is no reliable indication of broad productive use. Version 2.0 of the guideline doesn't even mention six of them any more.

The catalogue describes what an intelligent metering system should be able to do. What it actually does in a particular grid sits in the gateway administrator's configuration, and nobody publishes that.

Four checks help close the gap between catalogue and reality in your own organisation:

1. **Establish the certification status of your gateways**
   For every device model in use, ask which versions of the protection profile and guideline it was last certified against. The BSI table doesn't show this, but the page for each certificate names the protection profile and the test basis[26].
2. **Record the TAF configuration as an inventory**
   Record which tariff use cases run at which metering points, and since which firmware. Without that list, every statement about grid transparency is a guess, your own included.

3. **Plan minute-level grid status data deliberately**
   Treat the 25 percent from section 34 MsbG as a budget and spend it where grid calculation expects bottlenecks. Where gateways happen to be installed first is no criterion.

4. **Specify control via CLS**
   The specification needs the CLS channel and the control box, because TAF 11 isn't in any current version of the guideline.

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Grid-oriented control under §14a EnWG

§14a without the myths: curative control, the 4.2 kW minimum, the control chain via CLS, modules 1 to 3 and generation under sections 9 and 10b EEG.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-14a-grid-oriented-control.html

SUMMARY

In two rulings four days apart, Germany's Federal Network Agency set out when a grid operator may dim heat pumps, wallboxes, air conditioners and battery storage (BK6–22–300) and what their owners save on grid charges in return (BK8–22/010–A); the two run on separate deadlines.

Dimming is curative: it may only start once a threat to the grid has been established on the basis of real-time readings, and even then the owner keeps a right to at least 4.2 kW. Preventive control based on grid planning survives only as a transition (until the end of 2028 at the latest). The grid operator passes the command via the metering point operator and the gateway's CLS channel to a control box.

Modules 1 and 2 don't need an intelligent metering system (iMSys), module 3 does, and module 3 above all is why the agency has been threatening penalty payments since May 2026.

Two rulings, two chambers

On 23 November 2023 Ruling Chamber 8 of the Federal Network Agency decided what controllable consumer devices save on grid charges[1], and four days later Ruling Chamber 6 decided when the grid operator may dim them in exchange[2]. Both have applied since 1 January 2024.

In the statute it's one deal. Section 14a(1) of the Energy Industry Act (EnWG) lets the agency require agreements on grid-oriented control "in return for grid charge reductions"[3], and yet the agency spread the exchange over two chambers: control, including the guaranteed minimum power and documentation, in BK6–22–300, and the three modules of the charge reduction in BK8–22/010–A.

So a question about the control box goes to BK6, one about the price sheet to BK8. Even the penalty proceedings over module 3 carry BK8 case numbers.

Controllable consumer device in the sense of the ruling is an electric vehicle charging point that isn't publicly accessible, a heat pump heating system including its backup heater, a room cooling system, or a battery storage unit while it charges, in each case with a grid connection rating above 4.2 kW and connected at low voltage[4].

NEGATIVE FINDING

BK6-24-242 is not a § 14a case number

The agency's proceedings page on § 14a lists only BK6-22-300 and BK8-22/010-A. Ruling Chamber 6's list of 2024 decisions, its pending proceedings and its current notices contain no case BK6-24-242 (as of 14 October 2026)[5,6,7,8]. If that number turns up in a document on § 14a, ask for the source.

Who has to take part

All four groups share one threshold, and heat pumps and cooling systems behind one grid connection are added up per group, so three small heat pumps in a cascade count as one device once their combined rating exceeds 4.2 kW[4].

Every device commissioned after 31 December 2023 has to take part, with exactly two exceptions: charging points run by bodies with special road traffic rights, such as police and fire services, and heat pumps and cooling systems that don't heat or cool homes, offices or other rooms people spend time in, in particular units serving essential commercial purposes or critical infrastructure. A company fleet's wallbox is still in, and so is a business's battery. A grid without congestion is no excuse[4], and commissioning doesn't have to wait until the iMSys and control box are in[2].

Besides the money, the owner gets a guaranteed connection: a grid operator may not delay or refuse the connection of a controllable consumer device by pointing to a lack of grid capacity[4].

Charging technology is where the 4.2 kW come from. Chamber 6 had consulted on 3.7 kW, but a charging point needs at least 6 amperes per phase, around 4.1 kW on three phases, and a technical safety margin made it 4.2 kW[2]. The same number is both threshold and minimum power.

Curative: when dimming is allowed

LEGALLY BINDING

Strictly curative, in the ruling's words

"It is moreover a purely curative measure. This means that grid-oriented control may not be used preventively by the grid operator." On triggering, control takes place "exclusively on the basis of a grid status assessment including real-time readings", so that the grid operator acts "exclusively where there is an acute need for action for a current reason, and not preventively"[2].

Annex 1 turns this into a procedure. The trigger is a current- or voltage-related threat or disruption in a network section, which the grid operator establishes through the grid status assessment; it then passes the reduction to the metering point operator without undue delay, and under the annex's presumption that means five minutes at most. Every controllable device in the section is treated alike. Dimming goes only as far as needed, and the way back is in steps[4]. Upstream grid operators have no role under § 14a[2].

VDE FNN, the forum within the electrical engineering association VDE that writes the technical rules for grid operation, confirmed the five minutes in April 2025. It also reads them as the maximum validity of a grid status assessment, so an older one no longer counts[9].

Curative doesn't mean waiting for the fuse to blow. Under the FNN recommendation a grid operator may set its power limit at 80 percent of the permissible continuous current rating or of the permissible voltage drop, which leaves the rest as room to check and react[10].

4.2 kW
are guaranteed to every directly controlled device during an intervention
Annex 1, clause 4.5.1[4]

5 minutes
may pass between the assessment and the trigger
clause 4.2, confirmed by FNN in 2025[4,9]

2 hours
a day is the cap on transitional preventive control
clause 10.5, until 31 December 2028[4]

There's an upward exception for directly controlled heat pumps and cooling systems rated above 11 kW: their minimum is the connected load times a scaling factor, presumed appropriate at 0.4 until a different recommendation exists, which is roughly 4.2 divided by 11[4,2]. In April 2025 VDE FNN recommended sticking with it[11]. Storage units and wallboxes keep their 4.2 kW, even where that's less than 40 percent of their rating[2].

So the 40 percent rule covers only two of the four groups: per device under direct control, and as the base of the overall calculation under an EMS[4].

LEGALLY BINDING

The exception: preventive until the end of 2028

Clause 10.5 of Annex 1 allows preventive control if grid planning data lead the operator to expect a threat and the operator can't yet meet the requirements for grid-oriented control. The limits: until 31 December 2028 at the latest, no more than 24 months per network section from the first use, no more than two hours a day, and the minimum power stays[4]. The chamber justifies the cap by noting that this kind of control "as a rule" doesn't rest on real-time data[2].

"There is no preventive dimming" therefore only holds without a footnote from 2029. Until then two regimes run side by side. Since 1 March 2025 grid operators have had to report both each month, per network section, on the VNB-Digital platform[4,12].

The control chain

Once a metering point has an iMSys, control has to run through the smart meter gateway. That's in the statute, with a single exception for the agile rollout that ends with the application update[3]. In the mandatory rollout the default metering point operator installs the control unit, and the data traffic through it is one of its standard services under the Metering Point Operation Act (MsbG)[13,14].

The ruling splits responsibility across three roles: the grid operator assesses the grid and hands over the order, the metering point operator gets it into the metering system, and making the device follow is the owner's job[2].

Inside the gateway only one party has write access, the gateway administrator. It configures which connections the CLS channel allows, and through that channel the active external market participant (aEMT in German shorthand) talks to the control box; the gateway secures the link without reading the traffic[15]. What the control box has to do is set out in a VDE FNN requirements document, currently version 1.5 of August 2025[16]. Since 2025 manufacturers have, as a rule, proved through a BSI certification that it meets BSI TR-03109-5[17,18,19]. From the box, the setpoint goes to the device or to an energy management system.

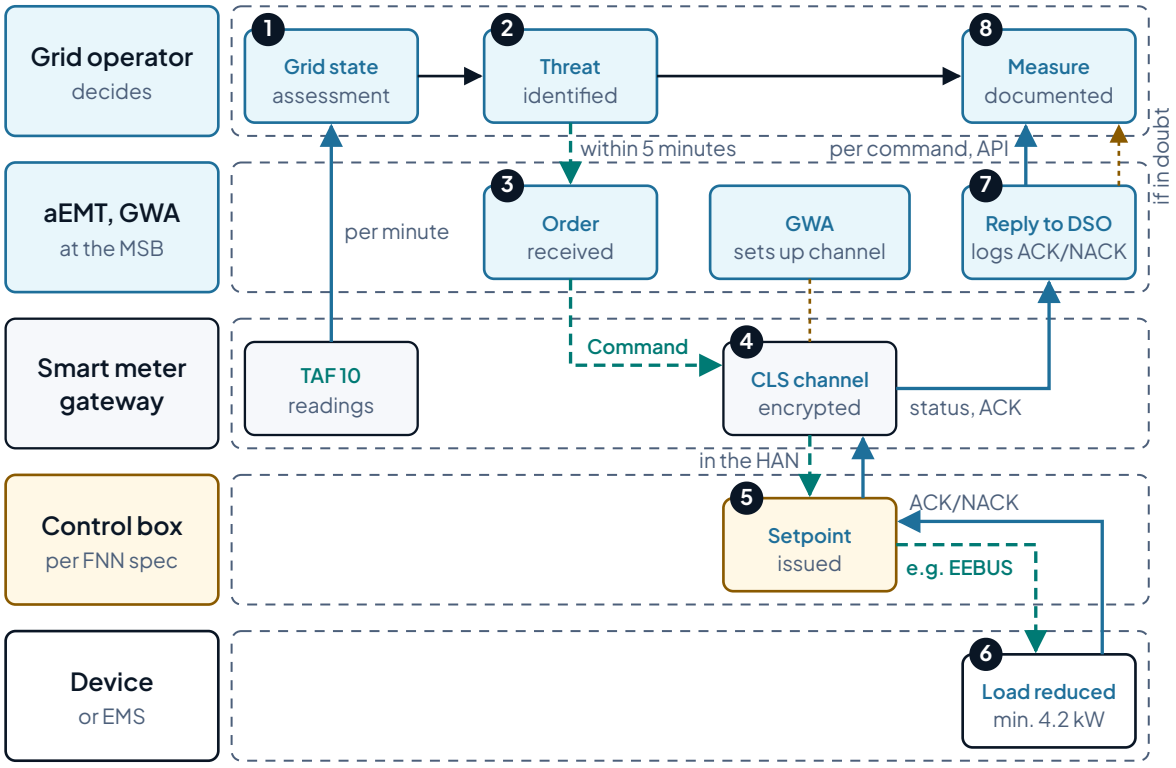

Figure 1: Simplified flow diagram, not BPMN notation. The numbered steps run from the grid status assessment through the control command to the answer the metering point operator sends the grid operator for every command, and on to the grid operator's documentation. Dashed: control command; solid blue: readings, acknowledgement and answer; solid in the text colour: steps at the grid operator; dotted: the gateway administrator sets up the CLS channel, and logs are requested if in doubt. Minute values under TAF 10 are an additional service under section 34 MsbG.

Whether a device is controlled directly or through an energy management system is the owner's call, device by device[4]. Under direct control each device gets its own setpoint and keeps at least 4.2 kW. An EMS instead gets one total value that the owner allocates freely, and the minimum is then 4.2 kW plus (number of devices minus one) times a simultaneity factor times 4.2 kW; the factor falls from 0.8 for two devices to 0.45 from nine. If a heat pump or cooling system above 11 kW is part of it, 0.4 times the combined rating of all heat pumps replaces the 4.2 kW base, and likewise for cooling systems. With both groups present, the larger of the two values applies[4].

To check the maths with three devices below 11 kW, a wallbox, a heat pump and a storage unit: direct control leaves $3 \times 4.2 = 12.6$ kW, while an EMS gets $4.2 + 2 \times 0.75 \times 4.2 = 10.5$ kW, so less guaranteed power, but a free hand in how it's spread.

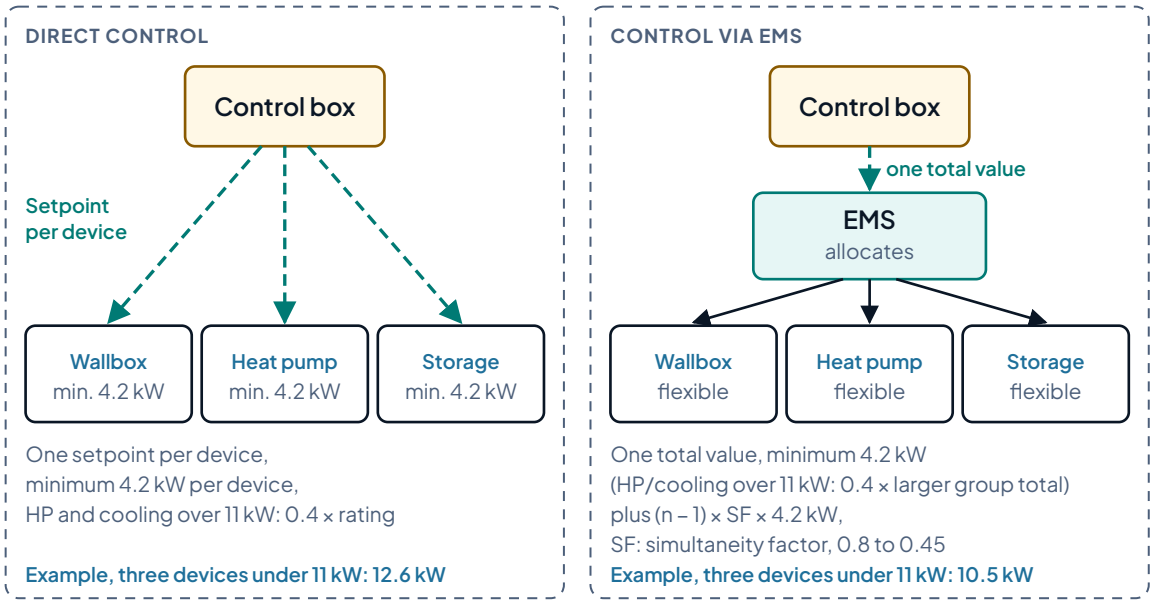

Figure 2: Direct control and control via an EMS side by side. On the left every device gets its own setpoint from the control box (dashed). On the right the EMS receives one total value (dashed) and allocates it to the devices as the owner decides (solid). Both examples assume three devices under 11 kW.

The digital interface on the last stretch to the device now has a minimum standard. Back in 2023 the chamber considered EEBUS fit to carry both the command and the proof of execution, without ruling out other interfaces[2]. FNN's recommendation describes EEBUS as the "industry-wide favoured solution for a minimum standard". The agency, though, still considers other variants possible in principle, to be settled between the parties involved[20].

The ruling doesn't assume the control box stays a separate device: in 2023 it had already asked that the recommendations anticipate the control function moving elsewhere, into the gateway for example[2]. In that case the box would disappear and the rest of the chain would stay. Chapter 4 covers where protection profile and field tests stand, along with the open question of which certification basis some competitive metering point operators rely on for the gateways with integrated control they already use.

The supplier gets no balancing compensation for the energy that dimming removes. It gets a message through electronic market communication, for every grid-oriented control action and at the start of preventive control[4]. Under notice no. 58 the API web services will probably stay limited, until further notice, to market location identification and control[21]. Chapter 7 covers the processes behind them, including where a command is addressed in market communication: a controllable resource or the grid location.

From readings to grid status

Between a reading and a command sits a calculation, which the ruling calls the grid status assessment: the loading of a network section derived from current measurements and grid models[4].

Until a recommendation arrived, a presumption set how much metering is enough: minute-level real-time values from at least 15 percent of all connections in a network section, or 7 percent plus measurements at the transformer feeders[4]. The recommendation came in April 2025, and on 14 April the agency recommended it for use[22]. The FNN guidance works out, per grid topology, what share of suitable connections needs an iMSys delivering TAF 10 data, and it assumes communication never fails[23].

Measurement in the substation	Radial grid	Meshed grid, one transformer	Meshed grid, two or more transformers
per low-voltage feeder	15 %	5 %	0 %
transformer total only	30 %	10 %	0 %
none	70 %	40 %	25 %

For the grid operator this is an investment decision: in a radial grid, measuring each feeder in the substation cuts the share of gateways that must deliver grid status data from 70 to 15 percent. Then there's the cap in section 34 MsbG, under which minute-level grid status data is an additional service, limited to a quarter of the connections the metering point operator has equipped with an iMSys in the grid area[14]. The two percentages use different bases, yet for planning they point the same way, to the substation first.

Where the calculation runs, the ruling doesn't say. On the market the layer is called a low-voltage control system or DERMS, for distributed energy resource management system. A pilot that GWAdriga announced on 5 February 2026 shows what it can look like: at Westfalen Weser Netz a control system from envelio is coupled directly to CLS management, TAF 10 data feeds a digital twin, and when congestion appears, control commands go out automatically through CLS management. Twenty low-voltage grids are part of the pilot[24].

Three modules, two metering worlds

BK8–22/010–A sets the reward. If the owner doesn't choose, the grid operator bills module

1[25].

Feature	Module 1	Module 2	Module 3
What	EUR 80 gross a year plus an operator-specific stability bonus[1]	energy price cut to 40 percent, no standing charge[1]	time-variable grid charge with high, standard and low tariff levels[1]
Combination	default module	instead of module 1	only on top of module 1
Metering	no iMSys needed, it can come later[26]	separate metering at its own market location, quarter-hour metering not required[1]	iMSys mandatory, no interval metering of the RLM type[1]
Tied to the rollout	no	no	yes
Applies since	1 Jan 2024	1 Jan 2024	price sheet for 2025, billing from 1 Apr 2025[1]

For modules 1 and 2 it's enough that the owner has asked the metering point operator or the grid operator to make the device controllable: that meets the owner's duty, and the reduction doesn't wait for the hardware[3,2]. If a grid operator grants module 1 only once a gateway is installed, it's holding back money the customer is owed.

Module 3 rests on the economic incentives that section 14a(1) sentence 2 names explicitly as a form of grid-oriented control[1,3], and it has nothing to do with section 14c EnWG, which governs market-based procurement of flexibility services and expressly leaves § 14a untouched[27]. (Dynamic tariffs and the grid charge reform follow in chapter 6.)

CONFLICTING SOURCES

TAF 2 or TAF 7 for module 3?

Ruling BK8-22/010-A of 23 November 2023 states that TAF 2 does "not yet allow 3 tariff levels" and that TAF 7 "may not so far be used for billing"[1]. The BDEW application guide to module 3 of 17 July 2026 names both routes: time windows via TAF 2 in the gateway, or the TAF 7 series of register readings, which the metering point operator converts into values per tariff level in its back end while respecting calibration law[26]. So ask your metering point operator which route it takes. Either way, the grid operator receives values per tariff level.

Usually the order runs through the supplier. The customer orders from the supplier, the supplier orders the configuration from the grid operator, the grid operator orders the time windows in the metering system from the metering point operator, and only after a positive confirmation do the billing data follow[25]. Four roles in a row, and if one stalls, the customer waits.

On 28 May 2026 the Federal Network Agency threatened two grid operators with penalty payments, after complaints from market participants and consumers that "especially" concerned module 3, and gave them until 30 September 2026 to fix the shortcomings[28]. As of 13 October 2026 the enforcement list shows four proceedings against distribution system operators, all at the stage of a threatened penalty, none imposed[29]. The introduction on the same page still speaks of two companies, so if you need the current number, count the rows in the table.

KEY POINT

Modules 1 and 2 belong on the price sheet and in billing, whatever the rollout status. Module 3 is a process project made of configuration orders, time windows in the gateway or the back end and values per tariff level, and that process is where the regulator's penalty proceedings start.

Generation under sections 9 and 10b EEG

Section 14a dims consumption. The other direction, feed-in, is governed by the Renewable Energy Sources Act (EEG), and that route also leads into the gateway.

Under section 9(1) EEG, plant operators have to prepare their installation so that the metering point operator can fit an intelligent metering system and a control unit. The grid operator must then be able to retrieve the actual feed-in at any time and control the feed-in power remotely. Plug-in solar devices up to 2 kilowatts and 800 volt-amperes of inverter output are exempt[30].

Until both are installed and the grid operator has controlled the plant successfully once, a transitional rule applies by size[30]:

Plant	Duty until the first successful test
100 kW and above	actual feed-in retrievable, feed-in power reducible by remote control
25 to under 100 kW	feed-in power reducible by remote control; with a feed-in tariff or tenant electricity premium, also capped at 60 percent of installed capacity at the grid connection point
under 25 kW, with a feed-in tariff or tenant electricity premium	capped at 60 percent of installed capacity at the grid connection point

The 60 percent applies to plants commissioned since 25 February 2025. That's the day the act to avoid temporary generation surpluses came into force, known as the solar peak act (chapter 1). Plants commissioned between the start of 2023 and that day are exempt[31]. Plug-in solar devices are exempt from the cap[30].

The test happens at the latest during the next trial switching after installation, which section 12(2b) of the Energy Industry Act requires of every grid operator once a year; plants under 100 kilowatts have been included since 1 January 2026[30,32]. If the test doesn't happen after installation, or fails, the grid operator pays the plant operator 100 euros gross for every year begun from 2028, to compensate for the old equipment that has to keep running. The payment only lapses if the grid operator isn't responsible for the failure[30]. A hundred euros isn't much, but it comes due every year until control through the gateway works.

A second deadline hits direct marketing. For plants above 25 kilowatts, the direct marketer must be able to retrieve the actual feed-in at any time and control output remotely. From 1 January 2028, and as soon as an intelligent metering system is installed, this has to run through the smart meter gateway[33]. Until then other equipment is enough if it reflects the state of the art, which is presumed when the BSI's standards have been taken into account. The direct marketer's control may not restrict the grid operator's measures under section 13 of the Energy Industry Act[33].

So another market player reaches the plant through the CLS channel, and grid operators were supposed to agree among themselves on uniform proof for it that works at scale by 1 March 2026[33].

Counterpoint: how much transition is enough?

The fiercest dispute was over clause 10.5, and it came late: the 24-month clock only appeared in the draft of the second consultation, which closed on 27 July 2023[5,2]. Grid operators rejected the limits (24 months, two hours a day, the 4.2 kW floor) outright or wanted them relaxed considerably. One distribution system operator even saw grid stability at risk. The energy industry association BDEW feared that operators might skip their first control actions just to keep the clock from starting, and proposed case-by-case reviews with possible extensions[2].

The chamber held its ground. The call to carry on "as before" could "in no way" be reconciled with the growth in heat pumps and electric vehicles, it wrote on 27 November 2023; the "lamentably inadequate state of observability of the low-voltage grid" had long been known, and the BDEW proposal was "not suitable"[2]. Each grid operator had to act on its own responsibility, with service providers if need be.

Pressure from the other side came from building technology, and it worked. The air conditioning association FGK, the building services federation BTGA and the heat pump association BWP called for a minimum power proportional to the rating of large heat pumps. The chamber agreed, and that's where the 0.4 factor comes from[2].

A third group came away empty-handed. Under slogans such as "no § 14a without § 14c" and "introduce preventive congestion management", numerous consultation participants wanted the devices' flexibility to be used through markets first. The chamber refused: § 14a governs last-resort control in an emergency and doesn't pre-empt the competition over market-based flexibility[2].

Preventive, by the way, means two different things in this dispute. The consultation participants wanted flexibility bought on a market before congestion builds up; clause 10.5 allows dimming based on grid planning, without real-time data and only for a while. Whether the chamber's bet on the 24-month clock pays off will show on 1 January 2029.

Deadlines and legacy devices up to 2029

Date	What applies
1 Jan 2024	BK6-22-300 and BK8-22/010-A in effect, modules 1 and 2 apply[4,1]
1 Mar 2025	first publication of control actions per network section[4]
1 Apr 2025	billing of module 3[1]
31 Dec 2026	end of the exemption for new devices that demonstrably can't be controlled[4]
31 Dec 2028	end of preventive control and of the old charge rules for legacy devices[4,1]
1 Jan 2029	controllable legacy devices with an earlier § 14a discount move under the new ruling[4]

For legacy devices, what counts is whether a reduced grid charge was actually billed before 1 January 2024[1]. Night storage heaters keep their old reduced charge for as long as they run unchanged[1]. Controllable legacy devices without an earlier discount aren't covered at all, though their owners may switch voluntarily at any time, just not back[4]. Owners who use the exemption for devices that can't be controlled lose the guaranteed connection under clause 5[2].

There's no amendment: the list of notices on BK6-22-300 ends with no. 6 of 14 April 2025, and Ruling Chamber 6's current notices up to 2 October 2026 contain nothing on § 14a[5,8]. The only built-in review is a duty on grid operators to revisit their recommendations at least every three years. The recommendations were due by 1 October 2024 and 1 January 2025[2], and the final versions date from March and April 2025[34,9]. Depending on whether you count from the submission or from the final version, the first review falls due between autumn 2027 and spring 2028, just before or already in the last year of preventive control.

Four checks for grid and metering point operators:

1. **Know the clock in each network section**
   Record for every network section whether, and since when, it has been under preventive control. Each section's 24 months start with the first use; on 31 December 2028 they end everywhere, however much of them would be left.

2. **Test your metering concept against the FNN table**
   For every network section with foreseeable control needs, record the topology, any measurement in the substation and the share of gateways delivering TAF 10. Only then can you tell whether substation measurement or minute-level gateway data is cheaper. The cap from section 34 MsbG belongs in that sum.

3 **Decouple modules 1 and 2 from the rollout**

Grant the reduction from the moment controllability has been ordered, not from the day the gateway is installed.

4 **Test the chain up to the acknowledgement**

Run one command from the control system to the device, with timestamps at every hand-over. The five minutes run from the grid status assessment to the trigger at the metering point operator; after that the device has to follow without undue delay[4]. Market communication counts the hand-over to the metering point operator in seconds: the instruction has to reach it at least 60 seconds before the effective period starts, it replies within 30 seconds, and it confirms or rejects the set-up at the latest one second before the start[35,36]. That reply covers the chain up to the control box. Whether the device followed only shows in its acknowledgement, which exists only over a digital interface. If it has justified doubts, the grid operator can request the metering point operator's logs[34]. Keep the documentation for at least two years[4].

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Dynamic tariffs and grid charges in transition

Section 41a EnWG for every supplier, which TAF a dynamic tariff needs, energy sharing and shared building supply, AgNes from 2029 and MiSpeL.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-dynamic-tariffs-grid-charges.html

SUMMARY

Since 1 January 2025 every electricity supplier in Germany has had to offer a dynamic tariff. The old threshold of 100,000 customers is still in the statute but no longer does anything. The catch lies elsewhere: the duty only covers customers with an intelligent metering system, and in mid-2026 just under 6 percent of metering locations had one.

Such a tariff is usually billed on TAF 7, the series of register readings in a 15-minute grid. The price comes from the day-ahead auction, which has also traded quarter hours since October 2025, and the two series only meet in the supplier's billing.

The bigger rebuild is under way on grid charges. The § 14a modules are an interim step, AgNes is due to apply from 2029, and MiSpeL gives storage and charging points rights that, until the end of September 2027, only work with the consent of grid and metering point operators. Which time series types market communication needs for this, the determination leaves open.

A duty for every supplier

"The obligation under sentence 1 applies to all electricity suppliers from 1 January 2025." That one sentence in section 41a(2) EnWG disposed of the threshold in front of it without deleting a word[1].

Sentence 1 is still there, threshold and all: 100,000 final customers on 31 December of a given year. A second threshold of 50,000 final customers, also in paragraph 2, had already been struck out in 2023 by the Act on the Restart of the Digitalisation of the Energy Transition (GNDEW)[2].

Electricity supply contract with dynamic tariffs is, under section 3 no. 95 EnWG, a contract with a final customer "in which price fluctuations on the spot markets, including the day-ahead and intraday markets, are reflected at intervals at least equal to the settlement intervals of the respective market"[3].

Paperwork comes with the duty: explaining costs, benefits, drawbacks and risks, plus a contract summary. Since 2025 the tariff must also be available without grid use and metering if the customer wants it that way and has contracted grid use or metering directly[1].

Since the end of 2025 the same section has had a counterpart: suppliers with more than 200,000 final customers must also offer a fixed-price contract, running for at least twelve months with the supplier's share of the price guaranteed for that term. Suppliers that sell only dynamic tariffs are exempt[1,4].

Many suppliers offered them before they had to. In 2022 the Federal Network Agency counted 52, a year later 90 and in 2024 412[5]. How many households actually signed up, the report doesn't say.

Which leaves the condition in sentence 1: the offer is only mandatory for final customers "who have an intelligent metering system within the meaning of the Metering Point Operation Act"[1]. On 30 June 2026 that was 3,172,579 out of 54,135,202 metering locations, or 5.9 percent[6]; for everybody else, the duty is an offer nobody can take up.

Suppliers still have a lever. Since 1 January 2025, the same start date as the tariff duty, final customers, and energy suppliers acting for their customers, can ask the metering point operator to fit an intelligent metering system (iMSys) early, within four months. With the default metering point operator, a one-off charge of up to €100 gross is presumed reasonable, plus up to €30 a year in optional installation cases[7]. For a supplier this is the shortest route to a metering system at the customer's premises.

The default metering point operator may, however, defer such orders for a while, as far and as long as that doesn't put its statutory installation duties at risk, and then has to give reasons in writing and a binding schedule. It may refuse, for instance, as long as installation isn't technically possible[8].

NEGATIVE FINDING

No enforcement, no contract figures

No supervisory action by the Federal Network Agency against a supplier over section 41a could be found up to early November 2026. A monitoring report for 2026 had not been published by 14 October 2026[5]. Nobody has published how many such contracts existed in 2025 or 2026.

The price comes in quarter hours

At 13:08 on 30 September 2025, EPEX Spot published the day-ahead auction results for 1 October, for the first time covering 96 quarter hours[9]. Hourly contracts stayed available.

A dynamic tariff hangs on this series. The regulator describes it as tying procurement costs to the EPEX Spot market and calculates its own model prices from day-ahead results[5]. The exchange offers suppliers a dedicated licence for this, valid per country where the customers are[10]; passing exchange prices on means holding a data contract too.

NOT FIRMLY ESTABLISHED

Is an hourly price still enough?

The statute requires price swings to be reflected at intervals "at least equal to the settlement intervals of the respective market"[3]. Since 1 October 2025 the day-ahead auction has run on quarter hours. Whether a tariff that keeps passing on only hourly prices still fits the definition, no authority had explicitly said by early November 2026. A tariff system built today should therefore cope with 96 prices a day.

What metering the tariff needs

A price per quarter hour is useless while consumption only exists as a yearly total, because each price needs a quantity.

The Metering Point Operation Act is blunt about it: once a final customer using up to 100,000 kWh a year has an iMSys, consumption is measured as a series of meter readings[11]. As standard, the metering point operator sends that series to the supplier daily for the previous day, billing being one of the purposes[12]. In the gateway the function is TAF 7 (Chapter 4): meter readings every 15 minutes, transmitted daily.

TAF 2, by contrast, is a multi-rate meter gone digital. The gateway adds up consumption in tariff levels whose time windows are fixed in advance; for the three levels of module 3 that's an option, according to the BDEW application guide (Chapter 5)[13]. It won't work for an exchange price, which is only known the day before, for each quarter hour separately, and a window configured weeks ago knows nothing about it.

TAF 7 has a caveat too. In November 2023 ruling chamber 8 noted, with reference to legal metrology rules, that TAF 7 "may not yet be used for billing"[14]. Chapter 5 shows how metering point operators deal with that for module 3 today.

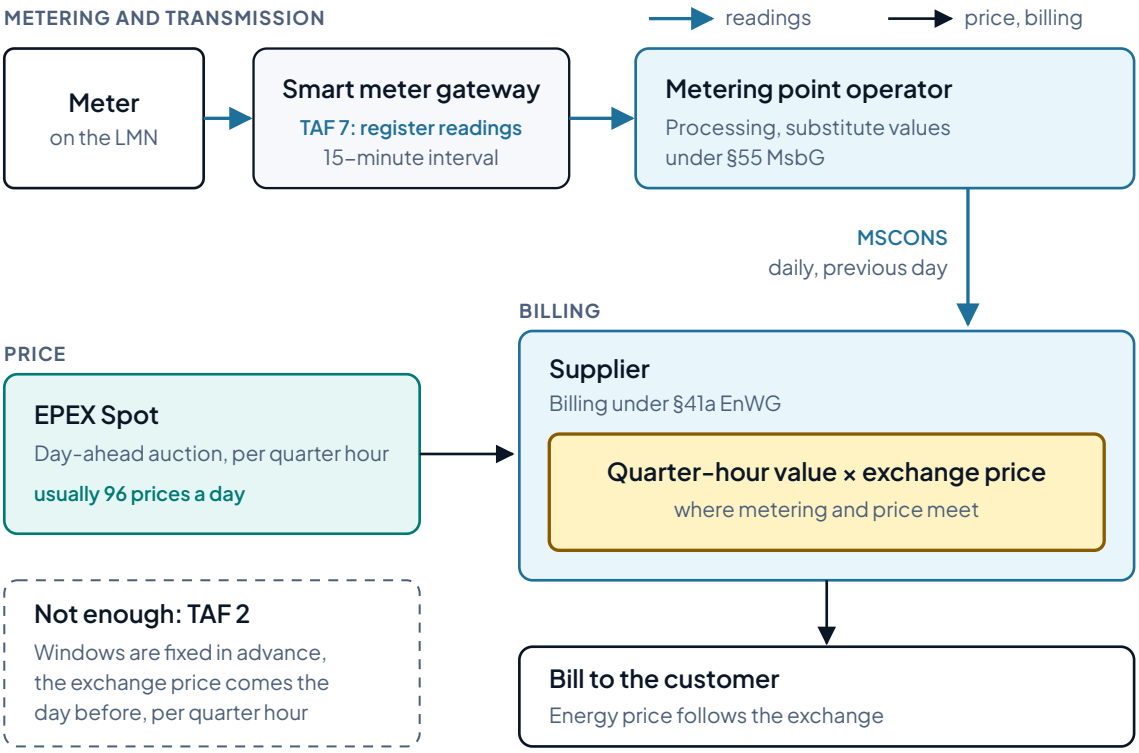

Figure 1: Where quarter hour and price meet. The gateway usually records the series of register readings through TAF 7, and the metering point operator sends it to the supplier every day as an MSCONS message. Usually the day-ahead auction supplies 96 prices a day. Only the supplier's billing brings the two series together. Grid charges, also time-variable under module 3, are not shown.

KEY POINT

A dynamic tariff under section 41a usually runs on TAF 7 at the metering point and on billing that can handle 96 values a day. The act itself doesn't prescribe a TAF, but TAF 2 won't do, however finely its windows are cut.

Supply models that need the quarter hour

Since 1 June 2026, distribution system operators have had to make energy sharing possible within their balancing area, and from 1 June 2028 also with the directly adjacent grid in the same control area[15]. The operator of a renewable plant, or of storage holding only renewable power, then shares its electricity with other final consumers over the public grid. One condition leaves no room: every supplied consumption point and the plant itself are recorded with meter reading series or quarter-hourly registering power metering[15].

With shared building supply, the power stays in the building and never passes through a grid. Here too the quarter hour is written into the law: each participating consumer's offtake is metered quarter-hourly[16].

Tenant electricity with a virtual sum meter also depends on the metering system. Section 20(1d) of the Energy Industry Act allows the sum meter at the grid connection point to be calculated rather than physically installed, but only if every metering device whose readings go into the netting is an intelligent metering system[17].

A supplier or plant operator offering any of these models therefore needs the metering system at the customer first. For the metering point operator, that's demand that doesn't come from the rollout obligation.

What billing has to cope with

96 values a day make 35,040 quarter-hour values per market location per year, plus as many prices; a customer read once a year produces one reading in the same period.

The transport is settled: quarter-hour values go from the metering point operator to the supplier as MSCONS messages, the "load profile for the previous day" in the application handbook's words[18]. Since 6 June 2025 these series have been transmitted under determination BK6-24-174, with the details in Chapter 7[19].

What the systems behind it must do is spread across the statute. The supplier may process readings for billing, tariff calculation included, and normally has to delete them within three years after the end of the year of recording[20]. Where no true value is available, the metering point operator forms a substitute or provisional one[11]. Because time series are versioned for this, a quarter hour can come back with a different value after the bill has gone out[18].

Pair a dynamic tariff with module 3 under § 14a, and two time-variable prices end up on one bill: the exchange price in the energy component and a three-level grid charge. The supplier then has to show grid charges per tariff level separately[14].

The weak spot lies between installation and the first bill, and the Federal Network Agency says so itself. In September 2026 it made clear that "mere installation" of a metering system isn't enough. Only once it reliably records and transmits quarter-hour values is the groundwork for time-variable tariffs laid, the agency said[6]. In July 2025 its ruling chamber 8 had described the same pattern for module 3: implementation appeared to be slow "even when the customer can show an intelligent metering system as the prerequisite"[21].

NEGATIVE FINDING

Nobody measures how long it takes

No one publishes how long it takes from installing an iMSys to the first bill based on quarter-hour values. The agency's rollout statistics count installed systems, not delivered values.

Grid charges today: the § 14a modules

Grid charges have acquired a clock too, at least for controllable consumption devices. On 23 November 2023 the agency's ruling chamber 8 set three modules, covered in depth in Chapter 5[14].

Modules 1 and 2 have applied since 1 January 2024: either a flat €80 gross a year plus a stability bonus, or 40 percent of the energy rate for a separately metered device with no standing charge[14]. Neither needs an iMSys, which may also come later[13].

Module 3 is the time-variable grid charge: three tariff levels, first on the price sheet for 2025, billed since 1 April 2025, only on top of module 1 and only with an iMSys. Market communication release cycles were the chamber's reason for the later billing start[14]. Which level applies when, and in which quarters, is fixed in advance on the price sheet, unlike the exchange price[14]. Grid operators have to publish it by 15 October for the following year, as expected charges if need be[22].

Even these three fixed levels, known long in advance, cause trouble. The Federal Network Agency started enforcing in 2026, and as of 13 October 2026 it lists four distribution system operators over shortcomings "in particular in connection with module 3"[23].

The 2027 price sheets were due on 15 October 2026. The transmission system operators published their provisional charges on 1 October 2026: 3.54 cents per kWh on average at extra-high voltage and its transformation level, up from 2.86 cents in 2026. That includes a federal subsidy of €5.525 billion, almost €1 billion less than for 2026[24]. The law behind it, a new section 24d EnWG, had been before the Bundestag as a government bill since 28 September[25] and hadn't been passed by 1 October. Without legal certainty by 7 December 2026, the TSOs expect higher final charges[24].

AgNes: the framework from 2029

"The date of publication is set as 1 January 2027." That's how the operative part of the draft ends, at item 20, in the agency's own English version[26].

AgNes stands for Allgemeine Netzentgeltsystematik Strom, the general structure of electricity grid charges. It sits with the agency's Grand Ruling Chamber Energy, file number GBK-25-01-1#3, not with ruling chamber 8 of the modules[27]. Published on 6 August 2026, the draft was open for comments until 18 September. A decision is planned for 2026, follow-up determinations for 2027[28].

The hurry comes from the Electricity Grid Charges Ordinance (StromNEV): it lapses at the end of 31 December 2028, and from 1 January 2029 grid charges are to be set and billed under the new determination[26]. Around €37 billion a year is at stake, which the agency puts at roughly 30 percent of a household's electricity costs[28]. No decision had been adopted by 14 October 2026, so what follows comes from the draft.

Households on low voltage using up to 100,000 kWh keep a standing charge plus an energy rate. New is a prosumer surcharge for withdrawal points with generation behind the same grid connection: 70 to 90 percent of the standing charge, plug-in solar exempt. From 1 April 2028 suppliers are to show prosumer status on the bill, and by then grid operators must identify the withdrawal points concerned and report them through market communication[26]. For grid operators that means a new attribute in their master data, due in eighteen months.

Today, feeding in carries no grid charge at all[29]. Under the draft, plants above 30 kW would pay a nationwide feed-in charge per kW; a worked example lands at roughly €5 per kW and year. Plants running before publication, or with a final investment decision by then and connection by 4 August 2029, would pay only once 20 years have passed since commissioning[26].

Dynamic grid charges will come late, and not for households. Storage at grid and transformation levels 1 to 5 would pay them from 2030 at the earliest and 2033 at the latest, generation between 2032 and 2035, each only if the chamber spells out the design two years ahead. For final consumers the agency "has decided not to set or settle dynamic network tariffs ... at this time", as its own English version puts it[26].

Feature	Today	AgNes draft, from 2029
Household, low voltage	standing charge and energy rate[30]	standing charge and energy rate, standing charge bringing in 20 to 40 percent of revenue
Household with own generation	same as any household	surcharge of 70 to 90 percent on the standing charge
Controllable consumption device	module 1, module 2, or module 1 plus 3	module 3 unaffected, no prosumer surcharge under module 2, nothing on module 1
Generation above 30 kW	no grid charges for feed-in	feed-in charge per kW, existing plants only 20 years after commissioning
Dynamic grid charge	none	storage 2030 to 2033, generation 2032 to 2035, final customers not for now

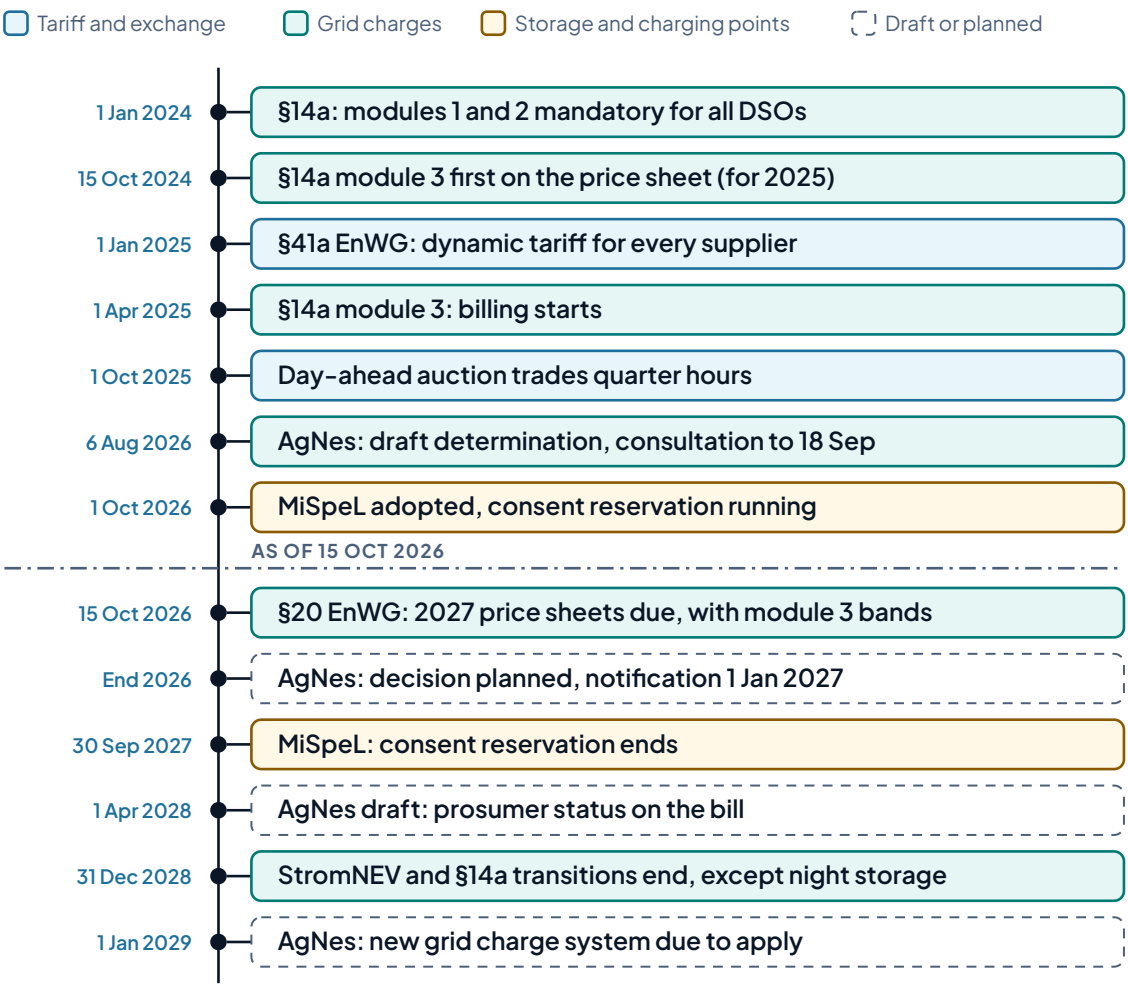

Figure 2: Documented key dates for tariffs and grid charges. Dashed frames mark drafts or plans, the dash-dot line the status date of this chapter. On 31 December 2028 the transition rules for older § 14a arrangements end, night storage heaters excepted.

What becomes of the modules

The short answer is item 12.5 of the draft: "The levying and further development of time-of-use network tariffs pursuant to section 14a EnWG ('module 3') remain unaffected"[26]. So module 3 survives, and under the draft it's the only time-variable grid charge households will see for now.

Module 2 gets a side remark in the reasoning: where module 2 means no standing charge, there's no prosumer surcharge either[26]. Module 1 isn't expressly mentioned in the draft.

Chamber 8's own determination sets no end date for the modules in its operative part. A 2024 to 2028 time limit was still in the key points paper of the first consultation but didn't make it into the decision. Only the transition rules for older § 14a arrangements run until 31 December 2028, night storage heaters excepted[14].

How module 3 will develop is open. That's despite many consultation submissions proposing exactly this instead of dynamic grid charges, some with five to six time windows[26]. The draft has no concrete proposals on it, the Federation of German Consumer Organisations (vzbv) complains[30].

NOT FIRMLY ESTABLISHED

Open until the decision

The draft of 6 August 2026 may still change before the decision. What happens to modules 1 and 2 from 2029 is not expressly settled by either the draft or chamber 8's determination.

MiSpeL: a year on consent

On 1 October 2026 the Federal Network Agency adopted its determination on the market integration of storage and charging points, MiSpeL for short, file number 618–25–02. It appeared in the agency's official gazette on 7 October[31]. It sets out how green power and grid power in a storage unit or bidirectional charging point are told apart, so that EEG support and levy privileges land on the right quantities. There are two new routes, the delimitation option with formula sets and the flat-rate option with a single bidirectional meter. The second only applies where the solar systems behind the feed-in point add up to no more than 30 kWp[31].

Both new options require the plant operator to assign the renewable plants, storage units and bidirectional charging points behind the feed-in point to direct marketing (operative item 5). With a fixed feed-in tariff only the exclusivity option remains; statements that wanted to change this were rejected with reference to the wording of section 19 EEG[31]. The determination took effect on notification (operative item 8), two weeks after the gazette, on 21 October 2026[32].

Both options work in quarter hours, because the determination defines simultaneity explicitly as a 15-minute interval[31]; without quarter-hour values MiSpeL can't be applied. On grid charges the determination works only indirectly until the end of 2028: section 118(6) sentence 3 EnWG refers to section 21 EnFG, and the Federal Network Agency reads that reference as including the MiSpeL rules[31,32]. The AgNes draft builds on this: it treats MiSpeL's bidirectional charging points like co-located storage and exempts grid power fed back from energy rates, as far as metering can separate it[26].

For the first year, item 9 a) decides: "Until 30 September 2027, the provisions of the determination are only applicable if the claims under items 1 to 4 and the allocation under item 5 are asserted with the consent of the respective grid operator and metering point operator"[31].

At the same time item 7 obliges exactly these grid and metering point operators to make the claims possible[31]. So they have to cooperate, but until then only those with their consent can invoke the determination.

The transition period is meant to let the industry adapt its market communication processes, which, however, are "not part of the subject matter of this determination"[31]. The question of suitable time series types, raised among others by the new-energy association

bne (Bundesverband Neue Energiewirtschaft), the German Association of Energy and Water Industries (BDEW) and the storage association BVES, is explicitly left open. Even the agency calls its period of just under a year "tight"[31].

One year of transition, one format cycle: Market communication data formats normally change twice a year, on 1 April and 1 October[19]. On 1 October 2026, the very day of the MiSpeL decision, ruling chamber 6 announced that the EDIFACT formats need no adjustment for 1 April 2027[33]. If the regular cycle holds, 1 October 2027 is the earliest date for amended format descriptions, the day after the consent reservation expires.

NOT FIRMLY ESTABLISHED

The simple option waits for Brussels

The flat-rate option only applies from the month after the European Commission grants state aid approval for section 19(3c) EEG[31]. No such approval could be found by 3 November 2026, and the agency's MiSpeL page gives no date. Until then, only the more demanding delimitation option is open.

Counterpoint: prosumer surcharge, processes, pace

Comments on the AgNes draft were due by 18 September 2026. The agency intends to publish them but hadn't done so by early November[27]. Two points keep coming up in what the associations have published themselves: the prosumer surcharge, which hits households, and the feed-in charge[34,35,30].

The German Renewable Energy Federation (BEE) wants the surcharge scrapped. Its president Ursula Heinen-Esser calls it "neither cost-reflective nor good for the system", and for the feed-in charge the federation wants a fixed cap of €4.5 per kW and year[34]. The vzbv, in its submission of 16 September 2026, wants the surcharge graded by plant size[30].

In the draft itself, the agency answers: "Lower, volume-based use of the grid does not mean that costs in the grid are saved as well"[26].

For digitalisation another objection weighs more. The bne misses a binding roadmap for data requirements and market processes: "New payment obligations must not take effect before prices and billing processes are firmly established."[36] In its submission of 18 September 2026 the BDEW writes that the draft "is not yet a reliable basis for implementation in the industry" and calls the implementation period "tight" even if work starts right after the decision[35]. Agency president Klaus Müller had named two years of implementation time as the goal[28], and the timetable to 1 January 2029 has no room for more.

It isn't a new argument. Even for module 3, as the draft itself records, several submissions said eighteen months of implementation time had fallen short[26].

With MiSpeL the agency recorded the same split in the decision. bne and BVES wanted it applied at once, if need be before market communication was ready. BDEW and the municipal utilities' association VKU wanted to wait until the processes worked at mass-market scale. The agency went for what it calls a "middle way": the consent reservation[31].

With that, the agency postponed the dispute by a year and pushed it down into every single grid area: until the end of September 2027, grid and metering point operators there decide whether the determination applies.

What grid and metering point operators should check now

Tariffs, module 3, AgNes and MiSpeL all hang on the same quarter-hour values, so the checks start with whether those values arrive.

1. **Measure delivery, not installation**
   Rollout statistics count installed metering systems; for tariffs and module 3, what counts is whether the series of register readings reaches the supplier complete every day. Track the share of metering locations with gap-free previous-day values as a KPI of its own.
2. **Bill module 3 end to end**
   Four distribution system operators are already on the agency's enforcement list[23]; check that every module 3 metering location of yours runs from price sheet to bill.
3. **Prepare the prosumer flag**
   Under the draft, identification is required by 1 April 2028. Check whether your master data shows today which grid connection has a generation plant behind it, tenant electricity and shared building supply included.
4. **Don't sit on MiSpeL requests**
   Until 30 September 2027 you have a say in whether the determination applies. Decide who in your organisation gives consent, and document how you exchange quantities without a defined format.

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Market communication: how meter readings become processes

MaKo 2026 with EDIFACT, AS4 and APIs, locations and resources, the 24-hour switch, WiM, balance settlement, the MaBiS hub and a map of all processes.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-market-communication-mako.html

SUMMARY

Since 1 October 2026, electricity market communication in Germany has run on a new set of message descriptions. These EDIFACT messages travel over AS4 and carry registrations, meter readings and settlement data between the market roles; API web services exist alongside them for only two jobs, identifying a market location and passing on control commands. In July 2026 the market was still consulting on replacing UTILTS entirely with web services, and the Federal Network Agency took that off the table with its notice no. 58 of 1 October.

Since January 2026 a supplier switch has had to work technically within 24 hours, and for the central MaBiS hub the BDEW proposes a 2029 start (the Federal Network Agency has decided neither the date nor the first block of the procedure). Neither works without master data that is right.

A process map at the end of the chapter shows whether and where this book covers each electricity process; the gas processes are not covered.

What market communication is and where it came from

The application handbook for a single message, UTILMD for electricity in version 2.2, binding since 1 October 2026, runs to 1,397 pages[1,2]. Each case in it, from a termination between suppliers to a master data change, has its own check identifier.

The Metering Point Operation Act (MsbG) requires metering and master data to flow in a uniform national format set by the Federal Network Agency[3]. Writing the formats falls to the expert group EDI@Energy, led by the BDEW; ruling chamber 6 consults on them and puts them into force by notice[1].

Market communication (MaKo) is the standardised electronic data exchange between the market roles of the electricity sector, chiefly grid operator, supplier, metering point operator and transmission system operator. Which message goes to whom and when is decided by the Federal Network Agency's rulings, what the message looks like by the EDI@Energy documents[4].

Market communication owes its current set-up to a problem in 2018. Under the law, readings from intelligent metering systems (iMSys) were to be processed in the device and sent from there, star-shaped, to everyone entitled to them. First-generation gateways couldn't do that, and the interim model of 2016, which routed readings through the grid operator, rested on a legal basis that expired at the end of 2019[5].

On 20 December 2018 ruling chamber 6 settled the matter with its "MaKo 2020" ruling. From 1 December 2019 the metering point operator handles all readings and distributes them star-shaped, from its own IT system until suitable gateways exist[5]. Two years later BK6-20-160 brought "MaKo 2022", whose process documents applied from 1 October 2022[6].

The law still envisages the gateway as sender, but only once the BSI rates processing in the device as technically feasible and the Federal Network Agency bases a ruling on that[7]. Until then, star-shaped means: from the metering point operator's back end.

Four rulebooks, one of them dissolved

The processes sit in rulings with their own acronyms, the oldest being the GPKE, adopted on 11 July 2006 and in force since 1 August 2007[8].

Rulebook	What it covers	Original ruling	Typical messages
GPKE	supplier switch, assignment, configurations, control commands, master data, grid usage billing	BK6-06-009	UTILMD, UTILTS, INVOIC, API MaLo ident, API control
WiM	change of metering point operator, installation and device change, transmission of readings, billing for metering	BK6-09-034	UTILMD, MSCONS, IFTSTA, INVOIC
MaBiS	balancing and balance group settlement	BK6-07-002	MSCONS with aggregated time series, UTILMD, ORDERS
MPES	feed-in points	merged into the GPKE	none of its own

Sources for the table are ruling BK6-24-174, which amended all three rulebooks, the handbooks and the overview of check identifiers[9,2,10,11,12,13].

Since 6 June 2025 the current GPKE has applied, parts 1 to 3 as amended by BK6-24-174 and part 4 as amended by BK6-22-024[8]. MPES disappeared the same day; its rules for feed-in points now live in the GPKE[14].

So a PV system runs through the same assignment processes as a household, with its own deadlines once direct marketing is involved[11]. One rulebook fewer doesn't mean less to read: part 2 of the GPKE alone runs to 115 pages[11].

Locations and resources

If a customer replaces their heat pump or wallbox, the device keeps its number in market communication. The GPKE lists it as a technical resource, with an ID that doesn't change when the device is swapped[15]. Household and meter sit separately in the data model.

The model knows six such objects[15]:

Object	What it represents	Who assigns the ID
Market location	the point of withdrawal or feed-in where energy is consumed or generated	grid operator
Measuring location	the place of measurement including its equipment; its ID is the metering point designation	grid operator
Grid location	the grid connection that links one or more market locations to the grid over exactly one line	central code registry, assigned by the grid operator
Technical resource	a single device, such as a heat pump or a wind turbine	central code registry, assigned by the grid operator
Controllable resource	one or more technical resources that can be controlled	central code registry, assigned by the grid operator
Location bundle	everything measured together: measuring and market locations, grid locations, resources where present	none, it groups the others

Grid usage is billed at the market location alone, and measured at the measuring location[15]. Control happens at a resource or at the grid location, with different consequences.

A target set for a controllable resource applies one to one to every device assigned to it, and no other device may make up for it. A target set for a grid location only has to be met by the assigned devices together, so they can balance each other out. For § 14a, the GPKE says explicitly, compensation and the simultaneity factor are mapped through the grid location; redispatch works differently[15]. Chapter 5 introduced the simultaneity factor for control via an energy management system; direct control doesn't have one.

The model works the same way for generation: a controllable resource may group technical resources from consuming or from generating market locations, just not both[15]. What the EEG requires for controlling generation units is in chapter 5.

A control command is always addressed to exactly one location, a controllable resource or a grid location for example. The grid operator instructs it at the metering point operator, and the supplier orders it there, but only if it is assigned to every market location the command affects. If several suppliers share the feed-in of one market location, ordering is ruled out[16]. Ruling chamber 6 introduced these routes with the universal ordering process, ruling BK6–22–128 of 21 November 2022[17]. Today they sit in GPKE part 3[16].

Location bundle is the set of measuring locations needed to measure one or more market locations, together with those market locations, the assigned grid locations and, where present, technical and controllable resources. For a flat-rate installation without metering it consists at most of market location, grid location and the two resources[15].

Without a message from the grid operator, the metering point operator doesn't know an object. Under the GPKE, the grid operator is responsible for the metering point operator knowing the whole bundle at all times, at registration and with every change[15]. If a grid location is missing there, no command can reach it.

MaKo 2026: messages, transport, web services

MaKo 2026 is an industry label. This year's formats rest on two notices from ruling chamber 6. The first put new versions into force on 1 April 2026[18]. The second has applied since 1 October 2026 and brings UTILMD electricity 2.2, MSCONS 3.2, UTILTS 1.1, APERAK 1.1 and a new AS4 profile, among others[1]. The chamber consults on the formats twice a year[19].

UTILMD handles registrations and master data[2]. MSCONS carries readings, from a single meter reading to a load profile, and for settlement also aggregated time series[10]. UTILTS transmits calculation formulas and the definitions of metering times, switching times and power curves[20].

Every EDIFACT file is acknowledged twice, with the AS4 delivery receipt and with a CONTRL as a syntax check. If the file can't be processed, the recipient also sends an APERAK[4].

Since 1 April 2024 these files may travel only over AS4 in the electricity market. Ruling chamber 6 prescribed the web service standard on 31 March 2022, secured by the BSI's smart metering PKI. After a staged introduction from October 2023, e-mail and AS2 were allowed until 31 March 2024 at the latest[21]. By the chamber's own account, the market didn't implement it across the board, and in individual cases the chamber has threatened coercive fines[22].

Web services exist for exactly two use cases. Since 6 June 2025 a supplier has queried the identifier of a market location, the MaLo ID, from the grid operator via web service[11]. Grid operators and suppliers can also instruct or order control commands at the metering point operator via web service, where they can't send them to the metering system themselves. This applies to locations in the low-voltage grid with an iMSys and a control device[12]. In the meantime the specifications have moved from Swagger to GitHub[23]. Anyone looking there will find a release 2.0.0 next to the production version, which was the subject of the consultations of February and July 2026 and isn't in force: notice no. 56 expressly left it out, and no new web API documents were published for 1 October 2026[1,24].

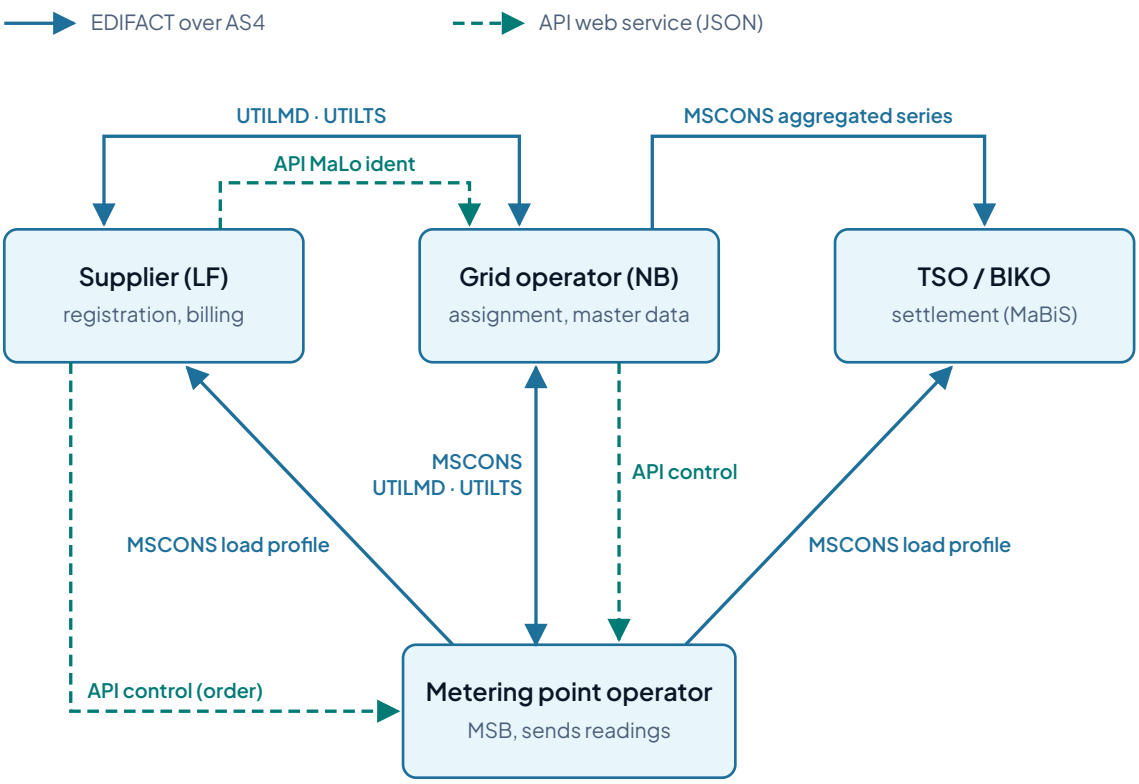


Figure 1: Channels of electricity market communication, as of 14 October 2026, main flows rather than every single message. API web services exist only for MaLo ident and control commands. The grid operator instructs the metering point operator to carry out control commands, and the supplier can order them there as well. The web service carries only the order; the metering point operator sends the switching command to the device over the CLS channel (chapter 5).

UTILTS stays

For cases where the standard falls short, the current UTILTS handbook has code Z34: "calculation formula must be requested from the sender"[20]. If the formula that derives a market location's values from its measuring locations won't fit into the message, the grid operator sets this code and names a contact person. The formula then travels bilaterally, outside the standard.

On 31 July 2026 a consultation set out to get rid of that, with web services instead of UTILTS. Several calculation formulas per location were to become possible, tranches included. Metering times, switching times and power curves were to move into the new structure, and location bundles would come via web service as well[19].

Two months later the web services were off the table; the goal of carrying every formula within the standard remained.

CONFLICTING SOURCES

Two notices, opposite directions

Notice no. 57 of ruling chambers 6 and 7, 31 July 2026: "UTILTS will be replaced entirely by API web services."[19]

Notice no. 58 of ruling chamber 6, 1 October 2026: "UTILTS is thereby retained." In the original: "Die UTILTS bleibt damit erhalten." The consulted web services for calculation formula and location bundle won't be introduced, and the API guideline stays at its production version for the time being. "All possible location bundles and calculation formulas" are to travel via UTILMD and UTILTS, and a future consultation will present the changes this needs[24].

Both sentences sit in the part of each notice that the Federal Network Agency publishes at EDI@Energy's request. What's binding is what the agency puts into force, and for 1 April 2027 that includes no new web API documents[19,24].

Both pages are still online, and in practice the later one counts: an API integration for calculation formulas started in August currently has nothing to connect to. Work on the content, several formulas per location and complete location bundles, is still needed, just in EDIFACT.

Web services thus stay with MaLo ident and control, "expected until further notice". The two BDEW application guides of 18 August 2026, written to explain the planned web services, are coming off the MaKo platform[24].

For the U-turn the notice names one link: the MaBiS hub procedure doesn't foresee any further expansion of API web services. As with earlier releases, the comments were discussed with representatives of grid operators, grid users, the software industry and the Federal Network Agency. Which of them tipped the balance, the notice doesn't say[24].

NEGATIVE FINDING

1 October 2027 was never decided

The date of 1 October 2027 for the API switch comes from notice no. 57. The EDI@Energy project group proposed giving the market twelve months to implement instead of the usual six, so that the MiSpeL ruling could still feed into the calculation formula[19]. It was a committee proposal rather than a chamber decision, and since notice no. 58 it has nothing left to refer to.

Little is left for 1 April 2027. The ActivationDocument for redispatch 2.0 in version 1.1g becomes binding, along with the change history of the XML formats and version 1.11 of the transmission path rules, which mainly concern certificates for mTLS. An existing S/MIME

certificate with the client authentication EKU can matter here too. There are no new EDIFACT documents, no new web API documents and no new decision trees on that date, and despite its subheading the notice says nothing of its own about the code lists[24].

KEY POINT

Keep planning calculation formulas, metering times, switching times and location bundles via UTILMD and UTILTS. For now you need API web services for MaLo ident and control commands, and nothing else.

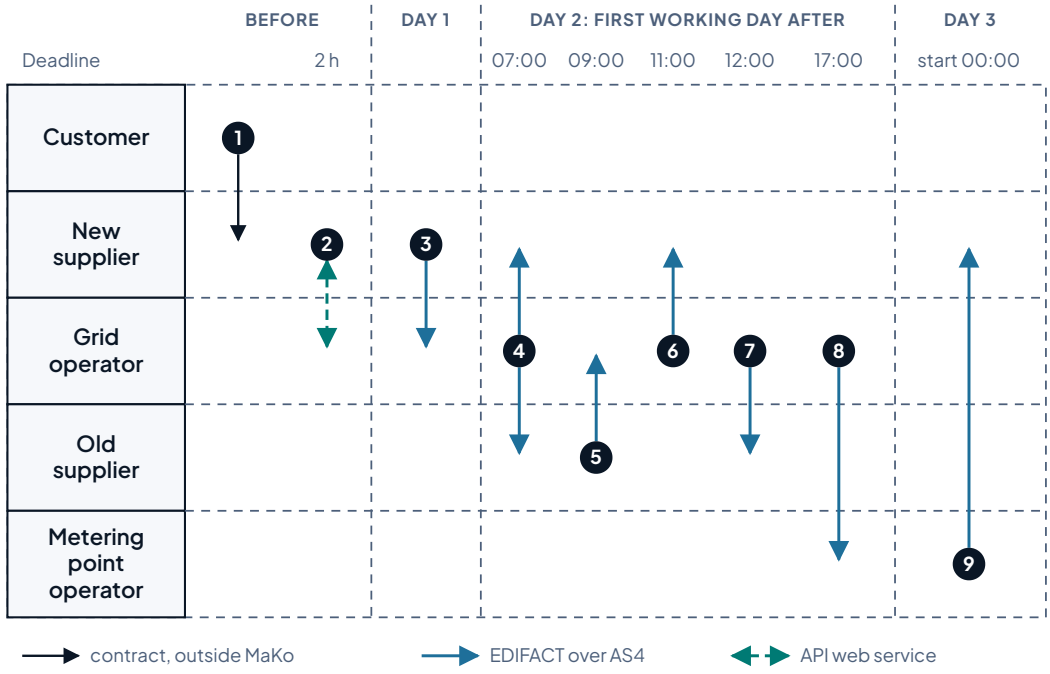
Switching supplier in 24 hours

"From 1 January 2026, the technical process of switching energy supplier must be completed within 24 hours and be possible on every working day." That's section 20a(2) of the Energy Industry Act (EnWG). Three sentences earlier sits the older limit, and it still applies: the switching procedure as a whole may not take longer than three weeks from the grid operator's receipt of the registration[25].

In ruling BK6–22–024 of 21 March 2024 the Federal Network Agency built the processes, and they've been live since 6 June 2025[26].

The GPKE breaks the switch into deadlines a few hours apart[11]. First the new supplier queries the MaLo ID, and the grid operator has two hours to answer. Then the supplier registers, at the latest on the day before the last working day before supply starts. On the first working day after the registration, by 7 am, the grid operator tells the new supplier about any existing assignment and asks the old supplier whether it will end it. By 9 am the answer has to be in, and silence counts as confirmation. By 11 am the grid operator assigns the new supplier or rejects the registration, and by noon it ends the old assignment.

The metering point operator gets the configurations to set up from the grid operator, by 5 pm on the working day before supply starts at the latest, and must have them in place by 10 pm. After that it delivers the readings to the new supplier[12].



1. Customer signs the supply contract and authorises the new supplier.
2. New supplier queries the MaLo ID via API, the grid operator answers within 2 hours.
3. Registration via UTILMD, at the latest the day before the last working day before start.
4. By 07:00: notice to the new supplier, request to the old one whether it ends the assignment.
5. By 09:00: answer from the old supplier, silence counts as confirmation.
6. By 11:00: grid operator assigns the new supplier or rejects the registration.
7. By 12:00: grid operator ends the old supplier's assignment.
8. By 17:00 on the working day before start: configurations to the MSB, set up by 22:00.
9. MSB sends the readings from 00:00 on the start day via MSCONS to the new supplier.

Figure 2: Simplified sequence based on the GPKE, not BPMN notation, for a consuming market location with the earliest possible supply start. Since 1 January 2026, section 20a EnWG has required the technical switching process to be completed within 24 hours, and the deadlines in GPKE parts 2 and 3 put that into practice. Day 2 is the first working day after the registration. The figure shows the case where the old supplier is still assigned at the start of supply. The recommended termination between the suppliers beforehand is left out; if the old supplier has already deregistered after it, steps 4, 5 and 7 do not apply.

A registration on Monday therefore allows supply from Wednesday, midnight, at the earliest[11].

INDUSTRY PRACTICE

The start in June 2025

The Federal Association of Energy Market Service Providers (BEMD) measured how bumpy the start was. Its figures are on public record only through the trade press. On the first full working day, 10 June 2025, about 10 percent of roughly 250 grid operators tested could successfully answer the new MaLo ident requests. By 13 June it was about 80 percent of the test group, which included all the larger grid operators[27].

Going from 10 to 80 percent in three days is fast for an interface the whole market switches on at once, but the start wasn't over. After two weeks the association saw "clear instability in market data exchange", and the share of successful switches was still well below the average of the preceding months[27].

The quarter hour instead of the profile

On 25 October 2020 the day had 100 quarter hours instead of 96. The MSCONS handbook still uses that clock-change day as its example, and for the spring change it's 92[10]; any software that processes load profiles has to get both right.

Which market location is balanced by profile and which by measured quarter hours, the GPKE settles in three sentences[4]:

Metering at the market location	Balancing
conventional meter without load profile metering, or modern metering device	by profile
conventional meter with recording load profile metering	as a rule by quarter-hourly values
iMSys throughout	by quarter-hourly values from daily meter reading series

The last row needs two things. First, the gateway has to capture meter readings every quarter hour, which the law calls meter reading series measurement and the device world calls TAF 7, see chapter 4[28]. Second, the metering point operator has to send the series daily for the previous day to the grid operator, the transmission system operator and the supplier[7]. In market communication that's an MSCONS with the load profile of the measuring or market location[10].

Ruling BK6-24-174 of 24 October 2024 brought the change. Grid and metering point operators had to start preparing quarter-hour balancing for market locations fully equipped with iMSys no later than 1 December 2024[9]. Since 6 June 2025 their meter reading series have been sent throughout[26].

Once every measuring location of a market location previously balanced by profile has an iMSys, the grid operator has to order quarter-hour balancing from the metering point operator[12]. So the standard load profile doesn't end on a set date; it disappears meter by meter, at the pace of the rollout described in chapter 8.

When a grid operator steers a heat pump for grid purposes under § 14a, it has to tell the supplier about every such intervention, and it does so through electronic market communication[29]. How the command itself runs through gateway and control box is the subject of chapter 5. What quarter-hourly values mean for time-variable grid charges is covered in chapter 6.

Metering under the WiM

Before the default metering point operator installs an intelligent metering system in an existing measuring location for the first time, it has to inform grid operator and supplier at least three months ahead, so October for an installation in January. From the announced date it then has eight weeks[30].

If a competitive metering point operator runs the metering point, it hears about it three working days earlier. It can claim grandfathering under section 19(5) MsbG or upgrade the site itself. If it waives grandfathering in its reply, it can't claim it later. If it doesn't upgrade, the default operator takes over the metering point, and the incumbent has no right to refuse[30].

After installation, the metering point operator reports the device change as a master data change. Next, the grid operator checks whether the market location switches its balancing method and whether it has to report it to the transmission system operator for aggregation[30]. Only then does the quarter hour from the previous section start for that market location. An installation at the customer's request doesn't go through this process[30].

The rest of the WiM is day-to-day metering business: termination, start and end, device takeover, fault clearance, the transmission of readings[30,31].

On payment, the WiM assumes by default that the default metering point operator invoices the connection user directly. If it learns of a new supplier and has no exclusive contract with the customer, it has to offer that supplier to take over the charge, and if the supplier accepts, billing runs through the supplier[30]. This rests on the metering contract with the supplier, in its standardised form since 1 July 2026[32]. A price change for the same scope of service has to reach the supplier three months ahead, through the price sheet[30].

The grid operator's share of the price cap, broken down in chapter 1, is billed through a separate use case with its own price sheet[30]. Electronically, price sheets go as PRICAT, invoices as INVOIC with separate check identifiers for WiM and metering invoices, and the reply as REMADV[33,13].

CONFLICTING SOURCES

Two sections for one price cap

WiM part 1, reading version under BK6–24–174, applicable since 6 June 2025: "Die Ermittlung der POG nach § 31 MsbG erfolgt durch den gMSB." (The default metering point operator determines the price cap under section 31 MsbG.)[30]

The Metering Point Operation Act as it stands today: price caps are in section 30, while section 31 governs the agile rollout and the application update[34].

The process description apparently still quotes the state before the 2023 restart, when the two sections were the other way round (chapter 1). For the amount, the Act counts; the reference doesn't change the process.

Invoices, quantities and cut-off dates

The grid operator invoices grid usage to the supplier as INVOIC, and the supplier confirms or disputes it with a REMADV[35,33]. As a rule, corrections take a cancellation invoice and a new invoice. The GPKE allows a separate correction invoice to the annual bill only in a few cases, such as after an auditor's certificate on the concession fee or with individual grid charges[35].

For profile customers, a difference is left over after the year. For each of them the grid operator sets an annual consumption forecast, usually based on the previous year. Whatever the measurement shows above or below counts as supplied or taken by the grid operator: it pays the supplier for a surplus quantity and invoices a shortfall, at a uniform price derived from monthly market prices[36]. This invoice, too, has its own check identifier in the INVOIC[33].

If a market location has no supplier, the grid operator assigns it to the default or substitute supplier, retroactively if need be, for grid usage and balancing at once. Every consuming market location has to be assigned to exactly one balance group at every point in time[35].

Balance group settlement itself follows the MaBiS, 292 pages with a fixed calendar[37]:

Step	Deadline after the end of the balancing month
First delivery of balance group aggregated time series	working days 1 to 12
Clearing phase	working days 13 to 30
Settlement, data as of working day 30	working day 42
Correction settlement	clearing until the end of month 7, settlement at the end of month 8

In clearing, the supplier works with a supplier clearing list it requests from the grid operator, the balance responsible party with a balance group assignment list, both ordered via ORDERS[37,13]. This whole calendar is what the Federal Network Agency wants to rebuild with the MaBiS hub.

The MaBiS hub

Since October 2024 ruling chamber 6 has been reworking balance group settlement. Procedure BK6-24-210 is to bundle the data at a central actor, the MaBiS hub, and make the processes compliant with data protection law by 2030 at the latest[38]. In May 2025 the chamber split the procedure into two blocks, first meter value processing and pseudonymisation, later balancing and settlement[38,39].

In law the roles already exist, as meter value processor and aggregator[40]. On formats, the direction has flipped: in September 2025 the Federal Network Agency still intended to connect market partners' systems to the hub via API web services[41], whereas since 1 October 2026 the line is that the new use cases from the hub ruling will come in EDIFACT too[24].

The Federal Network Agency hasn't set a start date, and the ruling on the first block is still pending[24]. What the market quotes as the timetable is a BDEW proposal. In September 2025 the chamber put it out for consultation with its content unchanged and pointed out that it may still change[42].

FORECAST

The timetable is an association proposal

The BDEW introduction scenario foresees identification of all market partners from 1 April to 30 June 2028, test systems at all parties from 1 July 2028, interface tests by 30 September 2028 and parallel operation from 1 January 2029. From 1 October 2029 only the new processes apply. The precondition is that the hub then holds close to 100 percent of the relevant master data, calculation formulas and readings. The BDEW itself calls the timeframe "extremely demanding"[43].

Counterpoint: does the market need a central hub?

Ruling chamber 6 assumes that a central actor is the best way to reach its goals, including noticeable relief for market partners[38].

The VKU, the association of municipal companies, disagrees. In its position paper of 4 July 2025 it calls the hub model "by no means without alternative". The data protection argument doesn't convince it, since encrypted data transfer, segmented processing or temporary IDs could suffice. Distribution system operators would lose direct access to raw

data while still carrying the financial risks, and checking the hub's results would take a kind of shadow balancing. A production system by 2028 strikes the VKU as "extremely ambitious"[44].

On pace, the associations aren't far apart. The BDEW wrote the scenario and calls it extremely demanding, while the VKU already finds the goal extremely ambitious[43,44].

On data protection the obligation is clear: the law explicitly requires pseudonymisation of load profiles and meter reading series in a whole range of transmissions[3]; the route there is open. The timetable depends on data quality, because a hub that needs almost all master data on day one won't start before the master data is ready.

The process map

EDI@Energy keeps the complete list in its overview of check identifiers: 86 pages in which every process step from GPKE, WiM and MaBiS gets its message[13]. For electricity it fits into seventeen rows, each saying whether and where this book covers the process.

Process	Rulebook	Messages	In this book
Identify the MaLo ID	GPKE part 2	API web service	Switching supplier in 24 hours
Termination, start and end of supply	GPKE part 2	UTILMD	Switching supplier in 24 hours
New connection, default and substitute supply	GPKE part 2	UTILMD	Invoices, quantities and cut-off dates
Disconnection and reconnection on the supplier's instruction	GPKE part 2	ORDERS, ORDRSP	not covered
Grid usage billing, grid operator price sheets	GPKE part 2	INVOIC, REMADV, PRICAT	Invoices, quantities and cut-off dates
Definitions and configurations	GPKE part 3	UTILTS, ORDERS	UTILTS stays; The quarter hour instead of the profile
Control commands	GPKE part 3	API web service	Locations and resources; chapter 5
Master data change	GPKE part 4	UTILMD	Contracts and master data
Change of metering point operator	WiM part 1	UTILMD	Metering under the WiM
First installation and device change	WiM part 1	IFTSTA, UTILMD	Metering under the WiM
Billing for metering	WiM part 1	INVOIC, REMADV, PRICAT	Metering under the WiM
Fault clearance at the measuring location	WiM part 2	INSRPT	not covered
Processing and transmission of readings	WiM part 2	MSCONS	The quarter hour instead of the profile

Process	Rulebook	Messages	In this book
Balance group settlement, clearing lists	MaBiS	MSCONS, UTILMD, ORDERS	Invoices, quantities and cut-off dates; The MaBiS hub
Annual surplus and shortfall quantities	GPKE part 1	INVOIC, REMADV	Invoices, quantities and cut-off dates
Change of grid operator	application guide	UTILTS among others	not covered
Redispatch 2.0	separate rulings	separate XML formats	only the 1 April 2027 date

Sources for the table: the process descriptions and the overview of check identifiers[8,15,35,16,30,31,37,13,24].

This book leaves out disconnections, faults and a change of grid operator because they barely touch metering and control; redispatch 2.0 appears only with its date because it belongs to grid operation.

Gas is ruling chamber 7's territory. Its GeLi Gas goes back to ruling BK7-06-067 of 20 August 2007 and was last amended with "GeLi Gas 3.0", adopted on 12 September 2025 (BK7-24-01-009)[45,46]. The same expert group, EDI@Energy, writes the formats: the documents for notice no. 56 include a UTILMD for gas next to the one for electricity, and the overview of check identifiers lists GeLi Gas and WiM Gas alongside GPKE and WiM for electricity[1,13].

This book doesn't cover the gas processes because they depend on the overhaul of gas network access: GeLi Gas 3.0 itself refers to the new KARLA Gas 2.0 ruling (BK7-24-01-007)[46]. The articles on innobu.com follow where it goes next: GeLi Gas 2.0, WiM Gas 2.0 and the replacement of the GasNZV.

Contracts and master data: the bottleneck

Since 1 July 2026, a breach of essential duties between grid operator and metering point operator can cost ten cents per day and per metering point affected. That's little per case, but the total grows with every metering point and every day[47,48].

Ruling BK6-24-125 of 20 November 2025 revised the framework contract for metering point operators and set standard metering contracts for the first time, one with the connection user or connection owner (MSV-AN) and one with the supplier (MSV-LF)[48]. The metering contracts bind only the default metering point operator and cover modern metering devices and iMSys. Attached is the form under section 54 MsbG[32]. By law it has to be easily understandable and list who gets which data from whom, how often and for what purpose[49].

Section 4 links the framework contract to market communication by referring to WiM and GPKE for processing. If one party fails to implement essential requirements from them, the other can claim the contractual penalty once the WiM and GPKE clearing processes have

run[47].

The standard ends where the master data is wrong, and no ruling can change that on its own. For the MaLo ID request the GPKE knows exactly one error case: if the market location can't be identified (or not unambiguously), supplier and customer go into bilateral clearing[11]. In UTILTS the same exit is called code Z34.

For the MaBiS hub this weighs more. Notice no. 57 contained two steps explicitly meant to prepare for the hub: a grid location ID for every grid location, and a flat-rate measuring location for every flat-rate market location, so that each market location has at least one measuring location[19]. They aren't in an EDIFACT release for 1 April 2027, because there isn't one[24]. Working on your own data still pays off now, because the hub needs close to all master data from the start.

For grid and metering point operators this leads to five checks:

1. **Measure the deadlines on the first working day**
   Find out how many registrations your system answers by 11 am on the first working day and how many requests to the old supplier go out before 7 am. After 9 am, silence counts as confirmation.
2. **Keep maintaining UTILTS**
   Don't start an API project for calculation formulas, but expect changes to UTILMD and UTILTS: notice no. 58 announces them for a future consultation, without a date.
3. **Clean up master data before the hub**
   List the market locations for which you still send calculation formulas with code Z34, the flat-rate market locations without an assigned measuring location, and the grid locations kept without an ID. That list says more about your start in the MaBiS hub than any project plan. Add your controllable devices under § 14a and check whether the metering point operator knows their controllable resources, IDs included.
4. **Align contracts with BK6-24-125**
   As default metering point operator you need MSV-AN and MSV-LF, form included. Settle who documents clearing cases before the first penalty arrives.
5. **Check certificates for 1 April 2027**
   From then on, the transmission path rules 1.11 apply to mTLS. Check whether your S/MIME certificate carries the client authentication EKU.

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Rollout practice: figures, supervision and what nobody measures

The smart meter rollout in figures and on site: BNetzA statistics, 434 supervisory proceedings, the meter panel under VDE-AR-N 4100, missing data.

Reviewed: 3 November 2026 · Online: innobu.com/en/book-smart-meter-rollout-practice.html

SUMMARY

Three sets of figures are in circulation for 31 December 2025. The Federal Network Agency first reported 5.5 percent of all metering locations with a smart metering system. In September 2026 it corrected that to 4.4 percent, and for the same date it had put the share of mandatory installation cases equipped at 23.3 percent. Only the first number is wrong today. The other two measure different things.

By mid-2026 the rollout stood at 26.1 percent of the mandatory cases that count towards the quota and 5.9 percent of the total stock. 434 companies have faced supervisory proceedings since March, and by mid-September not one coercive fine had been imposed. Politically, more has been announced than decided: the coalition wants more than 90 percent by the end of 2030, and a draft regulation from the European Commission proposes targets for all final customers.

Nobody publishes how many of the devices actually deliver quarter-hour values or operate a control box.

Three figures for one reference date

On 21 September 2026 the Federal Network Agency (BNetzA) swapped two numbers on its rollout page. For 31 December 2025 it now lists 2,406,454 metering locations with an intelligent metering system (iMSys), 4.4 percent of the stock[1]. In spring the figures had been 3,094,346 devices and 5.5 percent[2,3], so close to 700,000 devices have vanished on paper.

The press release of the same day says the totals were flawed and double-counted, for instance at metering locations with a PV system above 7 kW and consumption above 6,000 kWh[4]. A connection like that sits in two installation groups. The current survey form explicitly allows one metering location to be assigned to several groups, which is why it asks for the total number of devices in a separate question[5]. Add up the groups and you count twice.

The correction left the mandatory-case quota untouched: "The quotas on which the ongoing supervisory proceedings are based are not affected by this," the agency writes[4]. Ten days earlier the federal government had put a number on that base: 4,709,487

mandatory installation cases[6].

Reference date	What is counted	iMSys	Base	Share
31 Dec 2025	total stock, first release	3,094,346	56,464,984	5.5 %[2,3]
31 Dec 2025	total stock, corrected	2,406,454	not stated	4.4 %[1]
31 Dec 2025	mandatory cases	1,095,715	4,709,487	23.3 %[6]
30 Jun 2026	mandatory cases	1,259,270	4,831,178	26.1 %[1]
30 Jun 2026	total stock	3,172,579	54,135,202	5.9 %[1]

CONFLICTING SOURCES

Two totals for the same day

First version, as of 27 March 2026: 5.5 percent of 56,464,984 metering locations[3,2]. The agency's version since 21 September 2026: 4.4 percent[1]. Older articles and slide decks don't get corrected. As late as 17 September 2026 the Bundestag's own news service wrote that households were "5.5 percent equipped with smart meters", citing a government answer that doesn't contain the figure[7,6]. Whenever you see a figure for the end of 2025, check which month the source is from and what the quota refers to.

Mandatory cases versus total stock

For 30 June 2026 the agency gives both 26.1 and 5.9 percent, on the same page[1].

26.1 %
of mandatory cases had an iMSys by mid-2026
reference date 30 June 2026

5.9 %
of all metering locations were equipped on that date
a factor of 4.4 below the mandatory quota

434
companies have faced supervisory proceedings since March 2026
150 closed by 21 September 2026[4]

0
coercive fines had been imposed by 11 September 2026
threatened: 5,000 to 500,000 euros[6]

The mandatory quota only counts final customers using 6,000 to 100,000 kilowatt hours a year, plus controllable consumer devices under § 14a EnWG[1]. The total quota takes in every metering location, the many households below that threshold included, which is why it sits lower by a factor of 4.4.

Quote only one of them and you distort the picture: at 26.1 percent the rollout looks well under way, at 5.9 percent it has barely begun, and neither impression is true.

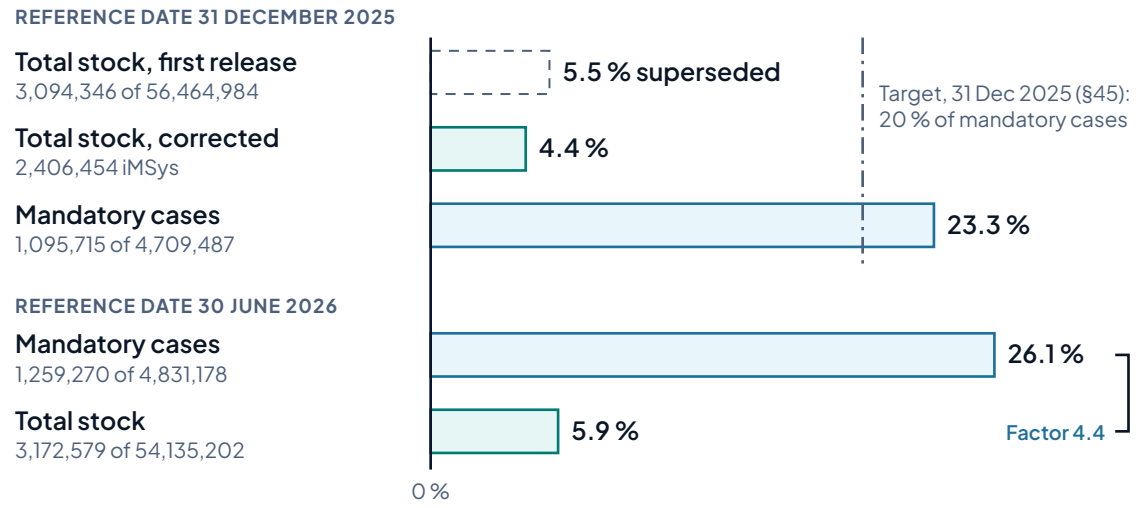

Figure 1: The three sets of figures for 31 December 2025 and the status on 30 June 2026. Blue for mandatory cases, turquoise for the total stock, dashed for the superseded first release (as of March 2026). The vertical line marks the target of 20 percent of mandatory cases on 31 December 2025 under section 45 MsbG. It applies to each default metering point operator individually, not to the average and not to the total stock. The next target, due on 31 December 2026, covers 90 percent of the metering points that have fallen due for equipment since 25 February 2025. It is a period quota and cannot be compared with the bars.

Behind the average there's a gradient by size. The 19 operators with more than 500,000 metering locations reach an unweighted average of 29.7 percent; the 591 with fewer than 30,000, 19.2 percent[1]. That smallest class makes up almost three quarters of all 803 default metering point operators.

The total stock is fuzzy too. Competitive metering point operators report voluntarily, many have stopped sending data, and for them the agency plugs in historical values[1]. So the real total quota is probably higher, it says, without saying by how much.

How the period quota is measured

From the end of 2026 a different count matters. Chapter 1 covers the mechanics; this is about measurement. Under section 45(1) no. 4(b) MsbG, at least 90 percent of the metering points that have needed equipping since 25 February 2025 must be equipped by 31 December 2026[8]. A second quota falls due on the same date, for generation plants, and it counts capacity: the equipped metering points must cover at least 90 percent of the capacity commissioned between 25 February 2025 and 30 September 2026, under no. 2(a)[8]. The government's draft for the EEG 2027 wants to switch the later plant quotas to metering points (chapter 1). For the end-2026 quota, the default operator would get to choose whether capacity or metering points count[9].

The agency's survey form spells out what falls under the period quota: existing metering locations that become mandatory cases through higher consumption or a new § 14a device, plus metering locations in new buildings or newly commissioned connections[5]. For § 14a cases the form sets two hurdles: the case only counts with a control unit, and the unit

only counts once it's integrated into the operator's systems and ready for operation; a box that's installed but not integrated counts as not equipped[5]. That's strict, but consistent, since a box that isn't connected controls nothing.

The agency isn't consistent about how often it measures: half-yearly, says the top of the page; quarterly, says the FAQ below it[1]. The law just says "regularly"[8].

Supervision under section 76: 434 proceedings, no fine

On 27 March 2026 the agency opened 77 proceedings against companies that, by its figures, hadn't started the rollout yet, and called it a first step[10]. Six months later the count stood at 434 companies, and 150 proceedings had been closed, for instance because the quota had since been met or the default responsibility had been transferred[4]. The government's answer of 11 September gives 108 closures, but counts to 31 August, so the two don't contradict each other[6].

Chapter 1 deals with the provision itself. In practice a proceeding moves in stages: a hearing with the chance to comment[10], then an order to remedy the breach and the threat of a coercive fine, and finally the fine itself[1]. Section 94 EnWG, to which section 76(4) MsbG refers, sets the range at 1,000 euros to ten million euros[11,12]. The amounts threatened so far lie between 5,000 and 500,000 euros. "No coercive fines have been imposed so far," the government replied[6].

A coercive fine isn't a penalty. Its job is to force compliance, and it can be repeated and raised[1]. That's how an authority can run hundreds of proceedings without collecting a single euro, and whether the pressure works shows only in the closures. The government puts the delays down to operators' IT migrations, scarce hardware and an overstretched electrical trade[6].

NOT FIRMLY ESTABLISHED

The number 77: three readings, probably one group

In trade articles, 77 stands for the proceedings opened on 27 March 2026[10], for the companies with a quota of 0 percent among the 434[4], or for default operators said not to have installed a single device by the end of 2025. The agency's table for 31 December 2025 lists exactly 77 companies at 0 percent, in both columns[13]. Its FAQ refers to supervisory proceedings "for the 0% companies"[1]. So the same group is probably meant all three times. The agency hasn't confirmed that, and "not a single device" goes further than the table, which only shows the quota for the mandatory group. By 30 June 2026, 41 companies were still at 0 percent[14], not necessarily 41 of the 77. Arithmetically, 284 of the 434 proceedings were still open on 21 September; the agency itself doesn't state that difference.

Counterpoint: what a quota should count

Optional installation case is, under section 29(2) MsbG, any metering point outside the mandatory cases that the default metering point operator equips with an iMSys anyway. Under section 45(1) sentence 4, such installations reduce the number of mandatory cases the operator has to equip, as do early installations at a customer's request under section 34(2) sentence 2 no. 1[15,8].

Until the fourth quarter of 2025 the agency published one quota per company, the one without optional installations. Only that quota showed the installation of the mandatory cases "clearly and transparently", it argued. Then the act of 18 December 2025 made clear that optional installations count towards compliance[1].

Since then the table has had two columns. The supervisory proceedings use the quota with optional cases. Yet that quota "does not represent the actual state of installation in this group", the agency adds[1]. Some companies just get "n/a" in that column, for instance because the calculation would land above 100 percent or below zero.

Our own analysis of the table as of 18 September 2026 shows how far optional installations shift the quota[14]. For 743 of the 803 companies both quotas appear as numbers; the median gap is only 1.3 percentage points, and 19 companies show a gap of 20 points or more. The gap still matters for 66 companies that sit below 20 percent without optional installations and above it with them: for them, the counting method decides whether they clear the mark.

What speaks for the new count is that an iMSys in a household below the threshold is a full device: its customer can sign up for an exchange-linked tariff with it, and the law credits it to the operator. Against it: as a progress measure for the mandatory cases the quota loses precision, and the agency says as much itself. So give both values in reports, and name the column.

The barometer that never came back

"In the coming years, the progress barometer will express how the digitalisation of the energy transition has developed compared with the previous year or years." That promise was made in the edition for the reporting year 2020[16], and it turned out to be the last one.

It was published on 3 June 2021[17], with indicators frozen on 31 January 2021, overall score 44 out of 100, up from 36 the year before and 22 in the 2018 base year[16]. EY had rated eight key factors for what was then the Federal Ministry for Economic Affairs, from certification status to the customer view. Some sub-scores now read like a trailer for chapter 5: availability of the control unit got 25 points[16].

NEGATIVE FINDING

No edition after reporting year 2020

No edition for 2021 or later could be found, neither at the ministry nor at the Clearingstelle EEG|KWKG. Nobody declared the series discontinued, either. For five years now there has been no annual progress measure that captures more than the installation rate.

The successor is the report under section 48 MsbG. From 30 June 2024 the ministry submits it at least every four years[18]; the first came out on 22 July 2024[19]. It has no scoring system, and the next one isn't due until mid-2028: four years without an interim reading, while the next quotas fall due at the end of 2026 and the end of 2028.

Acceptance: what the evidence shows

The most recent survey commissioned by the ministry is more than five years old. For the barometer, Prolytics polled 1,000 households and 400 businesses in February and March 2021. 61 percent of households supported the rollout of modern metering devices, up from 52 percent in the survey before; among businesses, approval of smart meter installation rose from 52 to 64 percent. 43 percent of households felt poorly informed[16].

Newer figures come from an industry association. Bitkom Research polled 1,002 households in April and May 2026: 69 percent said they use a smart meter or could imagine doing so, and 8 percent said they already have one. Among the households without one, 77 percent felt poorly informed[20]. Earlier waves polled the population rather than households, so the figures can't be compared.

Then there are the complaint statistics. In 2025 the Schlichtungsstelle Energie, the energy ombudsman, received 19,074 applications, 601 of them citing "modern metering devices", roughly 3.2 percent, with more than one reason possible per application[21]. iMSys aren't listed separately. For providers installing nationwide alongside the default operators, the ombudsman sees "in some cases still considerable processing and communication problems", right through to transmitting readings to the supplier[21].

In the government's view, acceptance grows mainly with access to dynamic tariffs, though the same answer gives no figures to back that up[6].

NEGATIVE FINDING

No statistics on objections or savings

There is no right to object to a mandatory installation. No central statistics are kept on complaints or objection letters received by local operators, and the agency's consumer service doesn't distinguish between enquiries and complaints[6]. How much households save with an iMSys is, according to the government, "not recorded statistically at a central level"[6]. And no survey could be found on how many customers actually use portals or apps to view their consumption.

At the meter panel

To install anything, the default metering point operator needs access, and the law covers that in four sentences. It announces the appointment at least two weeks ahead, in writing to the connection user or by a notice in the building, and offers at least one alternative date. Connection owner, connection user and plant operator then have to let it in and make sure the metering point is accessible[22].

What has to fit in the meter cabinet isn't in any law. Two application rules from VDE FNN cover it. VDE-AR-N 4100, the technical connection rules for low voltage, deals among other things with meter panels and meter cabinets, direct metering up to 63 amperes and semi-indirect metering via current transformers up to 1,000 amperes, plus control, data transmission and communication equipment. The 2026-04 edition adds a new arrangement for a further distribution field in the meter panel and adjustments to the § 14a ruling BK6-22-300[23]. An amendment A1 has been out as a draft since June 2026[23].

For generation units and storage, VDE-AR-N 4105 comes on top. Its 2026-03 edition extends monitoring of the agreed feed-in power at the grid connection point down to zero export, simplifies the requirements for units up to 800 volt-amperes and sets requirements for bidirectional charging equipment[24].

Both rules apply to new connections and to extensions and changes; for an existing, unchanged part of an installation they require no adaptation, as long as supply stays safe and free of disturbance[23,24]. For fitting modern metering devices and intelligent metering systems into existing customer installations, the 4100 refers to a separate FNN note[23]. Since the rollout largely upgrades existing metering points, that note is the everyday document at the meter panel.

TECHNICAL STANDARD

What comes from the standards here

Both application rules are paid documents. This section only uses what VDE-Verlag publishes about scope, content and changes. Dimensions, field layout and transitional rules are in the text of the standards[23,24].

Make or buy

For the 591 smallest default operators the question comes up early: what to do in-house, what to buy[1]. Responsibility stays put either way, because the gateway administrator isn't a market role of its own; it's a function of the metering point operator[25].

Building block	What the rules require	What sticks when you buy it in
Gateway administration	The GWA meets BSI TR-03109-6 and proves its certification to the sub-CA[26]; version 2.0 of the guideline applies from 2027 with the next certification[27]	Neither the FNN note nor TR-03109-6 describes a process for switching service provider; TR-03109-1 covers only the gateway side[25,27,28]
CLS management as an active external market participant	ISO/IEC 27001 certification, or proof that a certified third party provides the service[26]	A provider serving several clients must separate them technically or organisationally[26]
Metering at individual metering points	The connection user may choose a third party, but not until two years after the default operator installed an iMSys[29]	Competitive operators have no quota and report voluntarily[1]
Default responsibility	Transfer or cooperation; in a cooperation the metering points of all areas count together[8]	Transfers were one of the reasons for the 150 closed proceedings[4]

A more radical answer to that last row comes from outside, from an interested party. The Smart-Meter-Initiative was founded in January 2024 by three electricity suppliers that sell dynamic tariffs and need metering systems for them; a fourth joined in March 2024[30]. It sees the fragmented structure of more than 800 metering point operators as the real obstacle and calls for consolidation[2]. For households outside the mandatory cases it promotes a simpler "smart meter light", meant to complement the mandatory rollout rather than replace it[31].

Chapters 3 and 5 cover the gateway administrator and the control box. How announcing and installing an intelligent metering system runs through market communication is in chapter 7.

The gateway administrator change

How much hangs on a change shows in an October 2024 note from FNN, the VDE's forum for network technology and operation[25]. It covers the case where the metering point operator changes and the new one takes over the installed gateways. In simplified form, as in figure 2, it runs like this: the old administrator fetches the new one's certificate triple from the LDAP directory, loads its public keys into the gateway's security module and sets up the new administrator's connection profiles in a separate area called "gwapre". Only then does the gateway accept the switchGWA command[32,28]. It connects to the new administrator, which acknowledges receipt, technically with an HTTP 200 according to the FNN note[25]. Under the technical guideline, though, the switch isn't complete until the new administrator has authenticated to the security module[32,28]. The note already hands over full control with the HTTP 200, but only the guideline is binding.

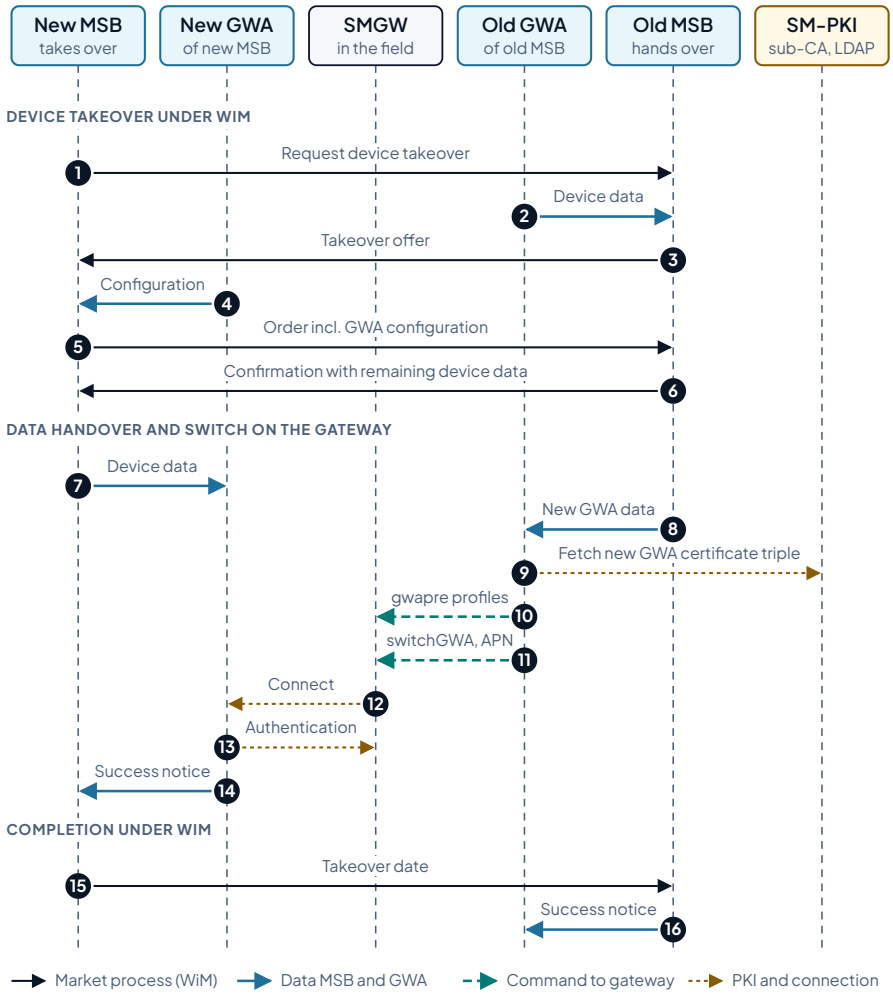

Figure 2: The gateway administrator change when the metering point operator changes and takes over the devices under WiM Strom, simplified from the VDE FNN note of October 2024. Related steps are sometimes merged into one arrow, and the SM-PKI lane is added. The preparation in the gwapre area (step 10) and authentication as the final step (step 13) follow TR-03109-1 and its annex VI. Like the source, the figure shows only the success case, not a change of the gateway administration service provider alone.

The preconditions are tough: every configuration of an external market participant on the gateway has to be ended first. Authorised market partners then order their readings again, this time from the new operator[25]. LTE450 has only one provider, and without separate framework contracts between it and both operators nothing works technically. Taking over SIM cards has no standard, and the note doesn't describe the error case at all. The gateway itself has a fallback: if the new administrator doesn't authenticate within the period set with the switch command, 24 hours by default, it aborts and carries on with the old administrator's keys[32].

The APN, the access point into the mobile network, is switched by the old administrator only after the switch command, and only if one is used, according to the note[25]. In the guideline, a change of access network is a separate process in which old and new access data both stay on the gateway so it can fall back[28]. That makes two fallback levels, and if something fails, both switches have to be reversible, the note says[25].

Revoking certificates isn't part of either sequence, the note's or the guideline's[25,28]. All the smart metering PKI's certificate policy settles is who may revoke: until the new administrator has replaced the gateway's operational certificates with ones it requested itself, only the old one can revoke them[26]. For the exit contract, that means the old administrator stays involved until the certificates have been swapped.

As of October 2024 the change could not yet be handled fully automatically through market processes[25]. There is no newer version of the note as of October 2026. In February 2025 FNN renewed the tasks of its project group on gateway administrator system integration, which has existed since 2021; one of them is establishing the change process end to end and extending it to downstream components[33]. Whether the market processes now carry it fully automatically couldn't be verified.

The case that matters most for make or buy is missing from the note: WiM doesn't provide for an operator that merely switches its gateway administration provider, and the note expressly leaves it out[25]. By contrast, the guideline describes the gateway side with or without a change of metering point operator. For a change of access network it advises testing the sequence and agreeing the handover of all necessary data by contract[28], and that clause belongs in the contract with the service provider.

KEY POINT

If you buy in gateway administration or CLS management, settle the exit at the same time: handover of configuration data, certificate change, WAN contracts, time windows. The FNN note on the gateway administrator change doesn't cover a change of service provider.

What nobody measures

The agency's survey form asks about metering locations by consumption and capacity class, about optional installations and about control units[5]. What it leaves out tells you more about the rollout.

NEGATIVE FINDING

Gaps in the official statistics

The form doesn't ask which tariff use cases the gateways have switched on, and the rollout page gives no figure for it[5,1]; chapter 4 explains the consequences. Mandatory cases with a control unit are recorded on the form, but the agency doesn't publish a separate number, and the government's answer of 11 September 2026 doesn't give one either[6]. How many quarter-hour values actually reach their recipients isn't asked, nor which WAN technology connects the gateways. A minor interpellation in the Bundestag explicitly asked about fault reports, replacement numbers and failure rates since 2023. The answer gives none of these figures[6].

The agency demands that the devices record and transmit quarter-hour values reliably[4], but it doesn't publish whether they do. So the official statistics know whether a device hangs on the wall; whether it sends values, and whether it controls anything, each operator knows only for itself.

What comes next

First, the targets themselves are moving, in Berlin and in Brussels.

FORECAST

Announced, not yet law

On 2 July 2026 the coalition committee decided to tighten the targets: "By the end of 2030 the rollout is to be more than 90 percent complete for all relevant metering points." Customers outside the mandatory rollout are to get a low-cost "smart meter light"[34]. The government says it is examining further changes to the Metering Point Operation Act[6]. According to the trade press, the economics ministry has announced the amendment for the fourth quarter of 2026[35]. No draft could be found by early November.

Brussels adds a second yardstick, so far only as a draft. Under the Commission's proposal for a regulation of 17 July 2026, at least 50 percent of all final customers are to have a smart metering system by the end of 2030 and 75 percent by the end of 2033. A member state below 30 percent when the regulation enters into force gets one more year for each target[36]. That would count all final customers, not the mandatory cases. Of all figures, the total quota would become the yardstick, the one that at home only serves transparency[1] and stood at 5.9 percent of metering locations in mid-2026. Final customers and metering locations aren't the same thing, though. The Bundesrat's committees recommend rejecting the draft's plan to drop the cost-benefit analysis up to the 75 percent mark[37].

Beyond that, three building sites reach past the mandatory electricity rollout.

Since 1 July 2026 customers can demand early equipment at gas metering points as well, to be carried out within four months[38]. And a connection owner may pick a different metering point operator for an entire property if that operator bundles electricity with gas, water, district heating or space heating via the gateway at no extra cost[39]. Chapter 2 explains how multi-utility metering is connected technically.

In submetering a deadline is running out. Heat meters and heat cost allocators that can't be read remotely must be retrofitted or replaced by 31 December 2026. Since 1 December 2022 only devices that can be connected securely to a smart meter gateway may be installed. Under the Heating Costs Ordinance, though, they only have to be connected if the owner has chosen the bundled offer for space heating[40].

Charging infrastructure has a clear mandatory case: a charge point with a § 14a agreement makes the metering point a mandatory case for an iMSys with a control unit[15]. What's open is the separation of energy flows. How electricity from storage and bidirectional charge points is determined and proven is set out in the agency's MiSpeL determination of 1 October 2026, and until 30 September 2027 it only applies if the grid operator and the metering point operator agree[41].

Much of this chapter ends up among the open questions and negative findings the book collects at the end. For your own planning, four steps will do:

1. **Pull both quotas from the agency's table**
   Note your company's quota with and without optional installations, each with its reference date and table version. The agency may still change reported values after checking them[14].

2. **Recalculate the period quota yourself**
   Count the metering locations that have needed equipping since 25 February 2025, using the survey form's definition. § 14a cases only count with an integrated control unit that's ready for operation.

3. **Check the exit clause in your service contract**
   Does your contract with your GWA or CLS provider say how configuration and certificates are handed over if you switch, and who takes on the WAN contracts?

4. **Close your own gaps**
   TAF configuration, control boxes in operation, the share of quarter-hour values received: record them yourself. The official statistics deliver none of these figures.

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APPENDIX

The model: from the meter to the billing system

Interactive model of the metering chain: how a reading, grid status data and a control command travel through meter, gateway, administrator and market roles.

Reviewed: 3 November 2026

A quarter-hour reading travels a long way before it shows up on an electricity bill. It passes a device in the basement, a radio or wired network, at least two companies and a message in EDIFACT format. A control command under § 14a covers almost the same distance, just in the other direction and over a different channel.

The grid operator learns that it has to step in from grid status data. The gateway delivers it under TAF 10, the metering point operator passes it on, and measurements in the local substation come on top. That is the third path, and it ends where the control command begins.

The model shows all three paths, step by step. In the online edition, clicking a node shows what happens there, which chapter covers it and which deadline comes next. Here the graphic is followed by the text version, node by node. "Business" shows roles and tasks, "Technical" the interfaces behind them.

What the model shows and what it leaves out

The model simplifies to one meter, one gateway and one device. In the field a gateway often serves several meters, and the control channel can reach more than one device; chapter 2 explains how that fits together.

The roles are pulled apart too, even though in practice they often sit in one company. The local grid operator is also the default metering point operator unless it has handed that task over, and gateway administration is in turn handled by the metering point operator, either itself or through a service provider. As the active external market participant it also sends the control commands. Four boxes in the model can be a single company.

The transmission system operator, balancing groups, the planned MaBiS hub, redispatch and anything to do with gas, water or heat are left out, because they would have made the picture unreadable; the reading paths cover them. The local substation has no box of its own either, although chapter 5 advises measuring there first for the grid status. It appears in the text on the grid operator.

The order of the steps is there to explain, not a process standard. Anyone who wants to fix a procedure in a contract should read the Federal Network Agency's determination, not this graphic.

How the model stays current

Nobody types the deadlines at each node in by hand: they come from the deadline calendar, in this PDF as of the date of printing, online refreshed every night. Which chapters belong to a node is recorded in the book's chapter register. When a deadline changes in the calendar, it changes in the online model the next morning.

The node texts, on the other hand, are handwritten. They are checked together with the chapters, most recently on the date shown above.

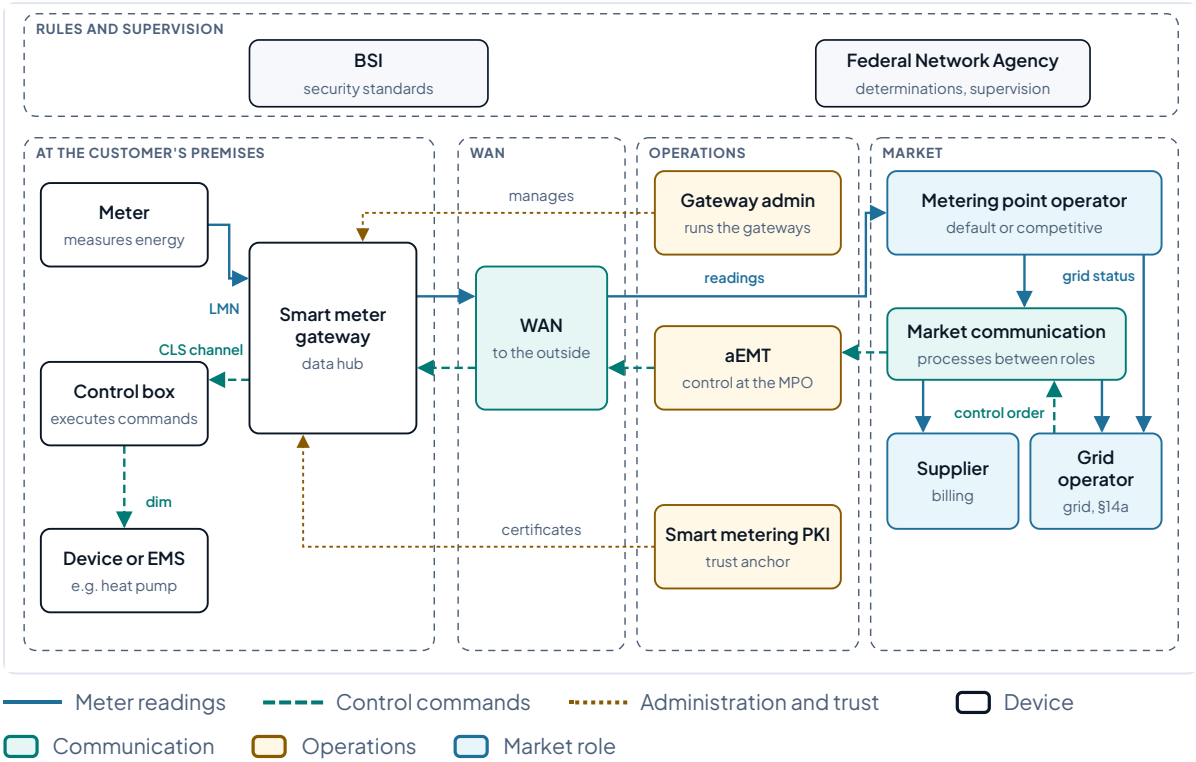

Figure: the model in the business view. Solid lines are meter readings, dashed lines control commands, dotted lines administration and trust. The text version names the interfaces behind each node under “Technical view”.

The model as text

The same content as the graphic, node by node. This version works without JavaScript and in print.

The three paths

A meter reading on its way to the bill

1. Meter: The meter measures and passes the reading to the gateway over the local metrological network.
2. Smart meter gateway: The gateway turns them into values according to the tariff use case that is switched on, for billing usually quarter-hour values under TAF 7, then signs and encrypts them.
3. WAN: The values leave through the WAN. Only recipients configured as authorised in the gateway can receive them.

4. Metering point operator: The metering point operator checks the values, fills gaps with substitute values and prepares distribution.
5. Market communication: As MSCONS messages, the values travel through market communication to the grid operator and the supplier.
6. Supplier: The supplier bills. Under a dynamic tariff, this is where every quarter hour meets its price.

Grid status data for the grid operator

1. Smart meter gateway: Under TAF 10 the gateway delivers grid status data from the grid connection: voltage, current, active power, phase angle and frequency.
2. WAN: The values leave the house through the WAN, encrypted like any other reading.
3. Metering point operator: The metering point operator passes them to the grid operator. Quarter-hour values, sent once a day, are a standard service under section 34 MsbG. Minute values cost extra and cover a quarter of the equipped connections at most.
4. Grid operator: With measurements in the local substation and its grid model, the grid operator works out the grid status. Control needs real-time values: quarter-hour values that arrive once a day come too late. If the grid status shows an acute risk, the control command begins.

A control command under §14a

1. Grid operator: The grid operator detects an acute risk to its grid from real-time measurements. Preventive control is only allowed as a transition, for no more than 24 months per network section and until the end of 2028 at the latest.
2. Market communication: Through the API web service of market communication it instructs the metering point operator, without undue delay, which is presumed to mean five minutes at most after the grid status assessment.
3. aEMT: The metering point operator sends the command over the control channel as the active external market participant, itself or through a service provider.
4. WAN: The command reaches the gateway over the WAN, secured and authenticated.
5. Smart meter gateway: The gateway passes it into the home network through the CLS channel, which the gateway administrator has set up.
6. Control box: The control box executes the command, via relay or a digital interface such as EEBUS.
7. Device or EMS: The device or energy management system reduces consumption, but not below the guaranteed minimum power.

Four roles, often one company

Behind four boxes there is often one company, the local grid operator. It is the default metering point operator unless it has handed that task over. It runs gateway administration itself or through a service provider, and as the active external market participant it sends the control commands.

Meter

BUSINESS VIEW

Measures the energy. On its own it is a modern metering device: digital, with a display, no outside connection. Only together with the gateway does it become an intelligent metering system.

TECHNICAL VIEW

Passes its readings to the gateway over the local metrological network (LMN), wirelessly via wireless M-Bus or by cable. The meter itself knows nothing about tariff use cases. Those run in the gateway.

IN THE BOOK

- Chapter 2: Devices and architecture: what an intelligent metering system is
- Chapter 8: Rollout practice: figures, supervision and what nobody measures

NEXT DEADLINES

- 31 December 2026: Smart meter rollout: 90 percent of the installation cases since February 2025
- 31 December 2026: Smart meter rollout: 90 percent of new generation capacity from plants above 7 and up to 100 kilowatts

Smart meter gateway

BUSINESS VIEW

The node where everything is decided. Based on the tariff use cases that are switched on, the gateway determines which readings go to whom and at what interval. It also opens the channel through which control commands reach the house.

TECHNICAL VIEW

Three networks: LMN to the meter, HAN into the house (for the customer, service technicians and controllable devices via CLS), WAN to the outside. A security module holds the keys. Certified against protection profile BSI-CC-PP-0073 and technical guideline TR-03109-1.

IN THE BOOK

- Chapter 2: Devices and architecture: what an intelligent metering system is
- Chapter 3: BSI standards, certification and the smart metering PKI
- Chapter 4: Tariff use cases: TAF 1 to 16 and version 2.0
- Chapter 5: Grid-oriented control under §14a EnWG

NEXT DEADLINES

- 1 January 2027: BSI TR-03109-1 v2.0: gateway certificates only with MUSS+
- 1 January 2028: Smart meter gateways: installation only to version 2.0 of protection profile and TR-03109-1

Control box

BUSINESS VIEW

Receives the control command from the gateway and passes it to the device. Whether the box is needed in the long run is open. Version 2.0 of the protection profile already describes a gateway that controls devices itself. One manufacturer cites BSI certification for its gateways with an integrated CLS module, but as of mid-October 2026 the BSI product list shows no certificate against that version (chapters 4 and 5).

TECHNICAL VIEW

Sits in the home network on the gateway's CLS channel. Switches via relay contacts or talks to the device digitally, for example over EEBUS.

IN THE BOOK

- Chapter 2: Devices and architecture: what an intelligent metering system is
- Chapter 5: Grid-oriented control under §14a EnWG

NEXT DEADLINES

- 30 November 2026: Controllability: TSOs' overall report under Section 12(2c) EnWG
- 31 December 2026: Smart meter rollout: 90 percent of the installation cases since February 2025

Device or EMS

BUSINESS VIEW

Heat pump, wallbox, air conditioner or storage. As a controllable consumption device under §14a it may be dimmed, and its operator pays a reduced grid charge in return (chapter 5).

TECHNICAL VIEW

Controlled directly or through an energy management system that groups several devices in the house. Even when dimmed, a minimum power is guaranteed.

IN THE BOOK

- Chapter 5: Grid-oriented control under §14a EnWG

NEXT DEADLINES

- 30 November 2026: Controllability: TSOs' overall report under Section 12(2c) EnWG
- 31 December 2026: AgNes: framework ruling on electricity grid charges

WAN

BUSINESS VIEW

Connects the gateway with the gateway administrator and the authorised market participants. Which medium works depends on where the device is installed, and in a basement that isn't always mobile radio.

TECHNICAL VIEW

Every connection is TLS-secured and authenticated with certificates from the smart metering PKI. The metering point operator chooses the medium: mobile radio, 450 MHz radio, powerline or fixed line.

IN THE BOOK

- Chapter 2: Devices and architecture: what an intelligent metering system is

NEXT DEADLINES

- 1 January 2027: BSI TR-03109-1 v2.0: gateway certificates only with MUSS+

Gateway admin

BUSINESS VIEW

The gateway administrator sets up the gateways, installs profiles and firmware and switches tariff use cases on. The role belongs to the metering point operator, which either takes it on itself or hands it to a service provider.

TECHNICAL VIEW

Administers over the WAN and also sets up the CLS channel for control commands. It needs two proofs: an ISMS certificate under ISO/IEC 27001 or IT-Grundschutz and an audit against TR-03109-6 (chapter 3).

IN THE BOOK

- Chapter 3: BSI standards, certification and the smart metering PKI
- Chapter 5: Grid-oriented control under §14a EnWG

NEXT DEADLINES

- 1 January 2027: BSI TR-03109-6 v2.0 for gateway administrators
- 1 January 2027: BSI TR-03109-1 v2.0: gateway certificates only with MUSS+

aEMT

BUSINESS VIEW

The active external market participant talks to devices in the house through the gateway. Under §14a this is usually the metering point operator or its service provider, because that is where the grid operator triggers control, through an API web service of market communication (chapters 5 and 7).

TECHNICAL VIEW

Talks to the control box through the gateway's TLS proxy and needs a certificate from the smart metering PKI to do so. The gateway sets up the channel itself, triggered for example via the gateway administrator, because it can't be reached from outside.

IN THE BOOK

- Chapter 5: Grid-oriented control under §14a EnWG

NEXT DEADLINES

- 31 December 2026: Smart meter rollout: 90 percent of the installation cases since February 2025

- 1 April 2027: Section 23c EnWG: publish network structural data by 1 April

Smart metering PKI

BUSINESS VIEW

Makes sure every gateway and every market participant knows who it is talking to. Without a valid certificate, no connection is established.

TECHNICAL VIEW

Under section 28 MsbG the BSI holds the root certificates, and a certification service provider runs the root instance under its supervision. Below it, sub-CAs issue certificates for gateways, gateway administrators, gateway manufacturers and external market participants, as described in TR-03109-4.

IN THE BOOK

- Chapter 3: BSI standards, certification and the smart metering PKI

NEXT DEADLINES

- 1 April 2027: MaKo format release, notice no. 58

Metering point operator

BUSINESS VIEW

Responsible for installation, operation and measurement. By default this is the local grid operator, unless it has transferred the task, and only the default operator has to meet the rollout quotas. Customers can commission a competitive metering point operator.

TECHNICAL VIEW

Receives the readings from the gateway, validates them, fills gaps with substitute values and distributes them to grid operator and supplier through market communication. Grid status data under TAF 10 goes to the grid operator as quarter-hour values once a day, a standard service under section 34 MsbG.

IN THE BOOK

- Chapter 1: The legal framework: from the GDEW to today's MsbG
- Chapter 4: Tariff use cases: TAF 1 to 16 and version 2.0
- Chapter 6: Dynamic tariffs and grid charges in transition
- Chapter 7: Market communication: how meter readings become processes
- Chapter 8: Rollout practice: figures, supervision and what nobody measures

NEXT DEADLINES

- 31 December 2026: Smart meter rollout: 90 percent of the installation cases since February 2025
- 31 December 2026: Smart meter rollout: 90 percent of new generation capacity from plants above 7 and up to 100 kilowatts

Market communication

BUSINESS VIEW

The prescribed processes through which readings, master data and switches flow between market roles: supplier switching, balancing, billing (chapter 7). The grid operator's control order to the metering point operator passes through here as well.

TECHNICAL VIEW

EDIFACT messages such as MSCONS for readings, UTILMD for master data and UTILTS, which stays in place under BK6 notice no. 58, transmitted over AS4. Plus API web services, so far only for MaLo identification and control commands.

IN THE BOOK

- Chapter 7: Market communication: how meter readings become processes

NEXT DEADLINES

- 15 November 2026: Federal Network Agency quarterly survey: report supplier switches and disconnections (15 February, May, August, November)
- 1 April 2027: MaKo format release, notice no. 58

Grid operator

BUSINESS VIEW

Needs readings for balancing and grid charges, and grid status data to see its low-voltage grid at all. Under §14a it controls curatively, when real-time measurements show an acute risk; preventive control is only allowed as a transition, for no more than 24 months per network section and until the end of 2028 at the latest (chapter 5).

TECHNICAL VIEW

The metering point operator sends it grid status data under TAF 10 once a day as quarter-hour values, which is a standard service. Minute values are only an additional service, for at most a quarter of the equipped connections (chapter 4). Measurements in the local substation come on top (chapter 5). It triggers control commands at the metering point operator through an API web service; from there they run via the aEMT and the CLS channel.

IN THE BOOK

- Chapter 4: Tariff use cases: TAF 1 to 16 and version 2.0
- Chapter 5: Grid-oriented control under §14a EnWG
- Chapter 6: Dynamic tariffs and grid charges in transition
- Chapter 7: Market communication: how meter readings become processes

NEXT DEADLINES

- 30 November 2026: Controllability: TSOs' overall report under Section 12(2c) EnWG
- 31 December 2026: AgNes: framework ruling on electricity grid charges

Supplier

BUSINESS VIEW

Bills the customer. A dynamic tariff needs quarter-hour values from an intelligent metering system, usually the series of register readings under TAF 7 (chapter 6).

TECHNICAL VIEW

Receives the readings from the metering point operator as MSCONS via market communication and bills them against the tariff, quarter hour by quarter hour for a dynamic tariff.

IN THE BOOK

- Chapter 4: Tariff use cases: TAF 1 to 16 and version 2.0
- Chapter 6: Dynamic tariffs and grid charges in transition
- Chapter 7: Market communication: how meter readings become processes

NEXT DEADLINES

- 15 November 2026: Federal Network Agency quarterly survey: report supplier switches and disconnections (15 February, May, August, November)
- 20 November 2026: Price change on 1 January 2027: notice deadline in default supply

BSI

BUSINESS VIEW

The Federal Office for Information Security specifies how gateway, administration and PKI must be secured, and certifies the devices.

TECHNICAL VIEW

Technical guideline TR-03109 with its parts, protection profile BSI-CC-PP-0073, supervision of the root instance of the smart metering PKI (chapter 3).

IN THE BOOK

- Chapter 3: BSI standards, certification and the smart metering PKI

NEXT DEADLINES

- 1 January 2027: BSI TR-03109-6 v2.0 for gateway administrators
- 1 January 2027: BSI TR-03109-1 v2.0: gateway certificates only with MUSS+

Federal Network Agency

BUSINESS VIEW

Sets the market processes and the rules for §14a (chapters 5 and 7) and supervises the rollout (chapters 1 and 8).

TECHNICAL VIEW

Determinations of ruling chamber 6, including GPKE, WiM, MaBiS and BK6-22-300 on control under §14a, plus BK8-22/010-A of ruling chamber 8 on grid charges under §14a, and supervisory proceedings under §76 MsbG.

IN THE BOOK

- Chapter 1: The legal framework: from the GDEW to today's MsbG

- Chapter 8: Rollout practice: figures, supervision and what nobody measures

NEXT DEADLINES

- 15 November 2026: Federal Network Agency quarterly survey: report supplier switches and disconnections (15 February, May, August, November)
- 31 December 2026: Smart meter rollout: 90 percent of the installation cases since February 2025

APPENDIX

Open questions and negative findings

What this book could not settle: data nobody collects, contradictions between sources, and terms that circulate in the industry but cannot be verified.

Reviewed: 19 October 2026

Some questions stayed open while the eight chapters were being written, either because nobody collects the data or because two sources disagree, sometimes two publications by the same authority. Then there are terms that turn up in slide decks and specifications with no source behind them at all. This appendix collects them as of 15 October 2026; each gets more room in the chapter named.

Data nobody collects

NEGATIVE FINDING

Which functions run in the field

The Federal Network Agency counts installed intelligent metering systems, not functions[1]. Its survey form doesn't ask which tariff use cases the gateways have switched on. It does record mandatory cases with a control device, but the agency publishes no figure for them[2]. Nobody publishes how many gateways actually deliver grid status data under TAF 10, or high-frequency values under TAF 14 (chapters 4 and 8).

Until 2021 an annual progress monitor put a score on all this, the "Barometer Digitalisierung der Energiewende". Its last edition came out on 3 June 2021[3], covered the year 2020 and stood at 44 out of 100[4]; there has been none since. Its place went to the digitalisation report under section 48 MsbG, first published in July 2024[5]. It has no scoring, and the law only requires it at least every four years, so the next one is due by mid-2028[6]. Anyone measuring progress in 2026 therefore has individual statistics but no running overall picture.

Dynamic tariffs are no better documented. The monitoring report counts 412 suppliers offering one in 2024[7]. How many households use such a tariff isn't recorded anywhere, and the 2026 report hadn't appeared by early November (chapter 6).

NEGATIVE FINDING

No coercive fine actually imposed

Since March 2026 the Federal Network Agency has opened supervisory proceedings against 434 companies for missing rollout quotas and closed 150 of them again[8]. It threatened coercive fines of between 5,000 and 500,000 euros and, according to the federal government, had imposed none by 11 September 2026[9]. No fine had been publicly documented by early November either. The § 14a grid charges show the same picture: as of 13 October 2026, ruling chamber 8's enforcement list names four proceedings against distribution system operators, all at the stage of a threatened fine[10] (chapters 5 and 8).

Where sources contradict each other

CONFLICTING SOURCES

UTILTS: replacement consulted on, then kept

On 31 July 2026 ruling chambers 6 and 7 put a draft out for consultation in notice no. 57: "Die UTILTS wird vollständig durch API-Webdienste ersetzt", UTILTS would be fully replaced by API web services[11]. On 1 October 2026 notice no. 58 reversed that: "Die UTILTS bleibt damit erhalten", UTILTS stays[12]. The newer notice applies, but slide decks and project plans from August and September 2026 often still carry the old position (chapter 7).

Two rollout figures for 31 December 2025 are going round. The Federal Network Agency's first report said 3,094,346 intelligent metering systems, or 5.5 percent of all metering locations. On 21 September 2026 the agency corrected this to 2,406,454 systems and 4.4 percent, because the totals had counted some locations twice[8,1]; trade articles from spring 2026 still carry the first figure[13].

An old state lives on in the catalogue of tariff use cases, too. The full list of TAF 1 to 14 stopped applying with version 1.1 of the guideline in September 2021, which keeps only TAF 1, 2, 6, 7, 9, 10 and 14[14]. Version 2.0 of 13 December 2024 adds a TAF 15 and reassigns number 8[15], and the BSI note on TAF 5 and 16 of September 2025 lists TAF 15 as well[16]. Anyone reading "TAF 1 to 14" is reading the state before 2021 (chapter 4).

A smaller case concerns the errata to the guideline on TAF 14: the Higher Administrative Court of North Rhine-Westphalia dates them 12 December 2019[17], the BSI download page the 16th[18], so the book only says December 2019.

NOT FIRMLY ESTABLISHED

The number 77

Reports on rollout supervision keep coming back to the number 77. In March 2026 the Federal Network Agency opened 77 proceedings against metering point operators that, according to its figures, had not yet started the rollout[19]. By September 2026 there were 434 proceedings in total, and 77 of those companies stood at zero[8]. The agency's table for 31 December 2025 lists exactly 77 companies at 0 percent[20], so the same group is probably meant each time. "77 proceedings" as the total is wrong, and "77 operators without a single device" goes further than the table (chapter 8).

Terms without evidence

Term	What can be found
BK6-24-242	Not traceable as the file number of a § 14a determination. The determination that governs control is BK6-22-300[21].
CEEDS as an EU legal framework	Neither "CEEDS" nor "Common European Energy Data Space" appears in the Commission's digitalisation roadmap, COM(2026) 501. The text speaks of a framework for simplified cross-border energy data exchange[22].

What hasn't been decided yet

AgNes, the new grid charge system, is a matter for the Federal Network Agency's Grand Ruling Chamber for energy. It published the draft on 6 August 2026, and the system is meant to apply from 2029[23]. Nothing had been decided by early November; the chamber still intends to decide in 2026[24]. The draft leaves Module 3 under § 14a untouched and doesn't say explicitly what happens to modules 1 and 2 (chapter 6).

Whether the gateway may replace the control box is open too, although the idea isn't new: version 2.1 of the BSI's staged model, from November 2021, describes a control unit for a third development stage, and that unit may sit directly inside a gateway[25]. The BSI hasn't updated the model since, and its page is marked as an archive[26]. Gateways with an integrated CLS module are already in the field, BSI-certified according to the manufacturer[27]. Yet as of early November 2026 the BSI product list shows no certificate against version 2.0 of the protection profile, the version that describes control from the gateway[28] (chapters 4 and 5).

On the rollout itself, too, more has been announced than decided. The coalition wants tighter targets, more than 90 percent of the relevant metering points by the end of 2030, and a "smart meter light" for customers outside the mandatory cases[29]. A draft regulation from the European Commission would require at least 50 percent of all final customers to

have a smart metering system by the end of 2030 and 75 percent by the end of 2033, with one extra year for member states below 30 percent at entry into force[30]. None of it is law as of early November 2026 (chapter 8).

At EU level, the network code on demand response hasn't been adopted. ACER recommended it on 7 March 2025[31], and the Commission still lists it as under development[32], so German grid operators currently have no obligation under it (chapter 1).

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APPENDIX

Terms and abbreviations

The terms from the innobu.com glossary that appear in this book, each with the first sentence of its explanation. The full explanation and the related articles are online at innobu.com/en/glossary.html.

AgNes (grid charge reform)
AgNes is the Federal Network Agency's ruling procedure for a new electricity grid charge system that replaces the StromNEV from 2029.

API
An application programming interface through which software systems exchange data and functions in a structured way.

AS4
AS4 is the transport channel for market communication messages, a standard built on ebMS3 and web services with signing and encryption.

Balancing group
A balancing group is a virtual energy account in which a market participant's injections and withdrawals are netted per quarter hour.

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

CLS management
CLS management bundles the processes by which an active external market participant sends control commands to control boxes, heat pumps, wallboxes and storage via the CLS channel (Controllable Local Systems) of the smart meter gateway.

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.

Controllable consumer device (SteuVE)
Under section 14a EnWG, controllable consumer devices are heat pumps, private wallboxes, air conditioners and battery storage above 4.2 kW that went into operation from 1 January 2024.

Customer installation (Kundenanlage)
A customer installation is an energy installation behind the grid connection that supplies several final consumers without being regulated as a grid, for example in apartment buildings or business parks.

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.

Direct marketing
In direct marketing, a direct marketer sells the output of an EEG plant on the exchange, and the plant operator additionally receives the market premium.

Distribution system operator (DSO)
A distribution system operator runs the electricity or gas grid at medium and low voltage or on the lower pressure tiers, the grid right up to the service connection.

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.

EDIFACT
EDIFACT is the message format German market communication has run on for years.

EEG (Renewable Energy Sources Act)
Since 2000 the Renewable Energy Sources Act has supported power from solar, wind, biomass and hydro, through a fixed feed-in tariff or the market premium in direct marketing.

Energy data space (CEEDS, energy data-X)
An energy data space is a federated infrastructure under Gaia-X principles in which market actors share energy data sovereignly without handing it over centrally.

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.

Gateway administrator (GWA)
The smart meter gateway administrator operates and manages the smart meter gateways on behalf of the metering point operator: configuration, certificates, firmware, tariff use cases and secure communication under BSI TR-03109.

GDPR
The EU's General Data Protection Regulation has governed the processing of personal data since 2018.

GPKE
GPKE (business processes for supplying customers with electricity) is the Federal Network Agency's determination covering start of supply, end of supply, master data changes and network usage billing for electricity.

Grid-oriented control
Grid-oriented control is the form of control under § 14a EnWG that becomes binding from 2029: the distribution system operator intervenes only in an actually measured congestion, based on grid state data from the low-voltage grid.

Home energy management system (HEMS)
A home energy management system controls heat pump, wallbox, storage and PV system in a building and receives the grid operator's § 14a EnWG limits via EEBUS and the CLS channel of the smart meter gateway.

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.

ISMS (information security management system)
An ISMS is the set of rules an organisation uses to plan, implement, review and improve information security, under ISO 27001 and, for the energy sector, supplemented by ISO 27019.

MaBiS hub
The MaBiS hub is the central platform for electricity balancing settlement defined by the Federal Network Agency, replacing today's decentralised aggregation at distribution system operators.

Market communication (MaKo)
Market communication is the standardised electronic data exchange between the market roles of the German energy sector, such as grid operator, supplier and metering point operator, for processes like supplier switching, balancing and meter data transfer.

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.

Metering Point Operation Act (MsbG)
Since 2016 the Metering Point Operation Act has governed who installs and operates meters, what that may cost and how fast the rollout of intelligent metering systems must go.

MiSpeL
MiSpeL is the Federal Network Agency's ruling on the market integration of storage and charging points.

Redispatch 2.0 and 3.0
Redispatch is the grid operator's intervention in the output of generation plants to avoid grid congestion.

Section 14a EnWG
Section 14a of the German Energy Industry Act (Energiewirtschaftsgesetz) regulates the grid-oriented control of controllable consumption devices such as heat pumps, wallboxes and battery storage.

Smart Meter Gateway
The central communication unit of an intelligent metering system (iMSys) that enables secure data exchange between electricity meters, market participants and grid operators.

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.

Transmission system operator (TSO)
Germany's four transmission system operators, 50Hertz, Amprion, TenneT and TransnetBW, run the extra-high-voltage grid and are each responsible for one control area.

WiM (metering switch processes)
WiM governs how metering point operators switch, how devices are taken over and how meter readings reach grid operators and suppliers.

APPENDIX

Deadline calendar

The deadlines on this book's topics from 3 November 2026 onwards, taken from the innobu.com deadline calendar with data as of 1 November 2026. These are the deadlines the chapters and the model name. The online edition reads in the full calendar every night.

Date	Deadline	Affected	Status
15 November 2026	**Federal Network Agency quarterly survey: report supplier switches and disconnections (15 February, May, August, November)** Electricity and gas DSOs send the Federal Network Agency monthly data on supplier switches and disconnections via MonEDa, for each quarter by the 15th of the second following month at the latest; for the third quarter of 2026 by 15 November 2026, then 15 February, 15 May and 15 August. The survey form is filled in on a rolling basis and earlier quarters' values stay in it. If missed: The page sets no specific consequence. Under Section 35(2) EnWG the powers of Section 69 apply to monitoring: the agency can demand the information by decision (Section 69(1) no. 1 and (7)) and enforce it with coercive fines under Section 94 EnWG; breaching an enforceable order under Section 69(7) sentence 1 is an administrative offence under Section 95(1) no. 3(a) EnWG (fine of up to EUR 100,000, Section 95(2) no. 5).	Electricity grid operator, Gas grid operator	fixed
20 November 2026	**Price change on 1 January 2027: notice deadline in default supply** Default suppliers changing their general prices on 1 January 2027 must publish the change at least six weeks in advance, notify customers by letter and post it online. For household customers on special contracts, Section 41(5) EnWG sets a one month notice period. If missed: Under Section 5(2) StromGVV and GasGVV a change to general prices only takes effect after public notice at least six weeks in advance; with later notice the new price does not apply from 1 January 2027. For household customers on special contracts Section 41(5) EnWG requires one month's notice but states no express consequence. The Federal Network Agency takes up breaches of Section 41(5) EnWG under Section 65 EnWG: on 29 August 2025 it ordered one electricity supplier that had not informed final customers in a simple and understandable way (Section 41(5) sentences 1 and 3, not the one month period) to reverse price changes (case 522–4.07.01/8#1) and then imposed coercive fines of EUR 100,000 (31 March 2026) and EUR 175,000 (31 July 2026); the decisions are not yet final.	Supplier	fixed

Date	Deadline	Affected	Status
30 November 2026	**Controllability: TSOs' overall report under Section 12(2c) EnWG** The transmission system operators submit the overall report on network operators' controllability tests and on the equipment status reported by default metering operators to the Federal Network Agency and the Federal Ministry for Economic Affairs by 30 November. Under the TSOs' guidelines the checked results must reach them by 31 October; tests and reports run until 30 September. If missed: If a default metering operator fails its check or contribution duty and it therefore cannot be established whether the deployment obligations are missed by at least 25 percent in a way that could significantly endanger system security in a control area, the Federal Network Agency can withdraw its default responsibility under Section 12(2g) no. 2 EnWG. It can order network operators to comply under Section 65 EnWG.	Electricity grid operator, Transmission system operator, Default metering point operator	fixed
31 December 2026	**AgNes: framework ruling on electricity grid charges** Under the draft of 6 August 2026, low-voltage connections up to 100,000 kWh keep a standing charge and an energy charge; those generating behind the connection pay a prosumer surcharge of 70 to 90 percent of the standing charge, plug-in solar devices excepted. Above that, and above low voltage, a capacity price applies, and generation plants above 30 kW pay a feed-in charge, existing plants and plants with an investment decision before notification and commissioning by 4 August 2029 only 20 years after commissioning. The draft provides dynamic grid charges only for storage (2030 at the earliest, 2033 at the latest) and generation (2032 to 2035), not for final customers for now. Follow-up rulings in 2027, effect from 2029. If missed: The date is the Federal Network Agency's. Its notification, set for 1 January 2027 in the draft (operative point 20), starts other cut-offs, such as grandfathering for storage and generation plants with an investment decision before notification, to be proven to the network operator by 31 March 2027.	Electricity grid operator, Supplier	planned
31 December 2026	**Heating costs ordinance: retrofit remote reading** Building owners retrofit or replace heat and hot water meters and heat cost allocators that cannot be read remotely and were installed up to 1 December 2021, or later as a replacement or addition within a system that is not remotely readable (Section 5(2) sentence 4 HeizkostenV), by the end of 2026 (Section 5(3) HeizkostenV). The same duty applies to a heat supplier that bills occupants directly by their share of total consumption (Section 1(3) HeizkostenV). If missed: Where remotely readable equipment is missing contrary to Section 5(3) HeizkostenV, occupants may cut their share of the costs by 3 percent under Section 12(1) sentence 2 HeizkostenV. Sections 4 to 11 HeizkostenV are consumer protection laws under Section 2(2) no. 40 UKlaG, so associations can seek injunctions against breaches.	Heat network operator, Company-wide, several roles	fixed

Date	Deadline	Affected	Status
31 December 2026	**Delete or anonymise personal metering data (MsbG maximum periods)** Metering point operators must delete or anonymise personal metering data no later than three years after the end of the year of collection, i.e. data from 2023 by the end of 2026 (Section 60(6) MsbG). Network operators keep data used for network operation, planning and forecasts and for the concession fee for at most one year after the end of the year of collection (Section 66(3) sentence 2 no. 1), suppliers likewise for energy volume forecasts (Section 69(3) sentence 2 no. 1); for data collected in 2025 this period ends on 31 December 2026. For other purposes three years apply unless a Federal Network Agency determination provides otherwise. If missed: The MsbG sets no administrative offence. The Federal Network Agency can order measures under Section 76 MsbG and enforce them with coercive fines under Section 94 EnWG (Section 76(4) MsbG).	Electricity grid operator, Default metering point operator, Competitive metering point operator, Supplier	fixed
31 December 2026	**Smart meter rollout: 90 percent of the installation cases since February 2025** For final consumers in the cases of Section 30(1) nos. 2 to 5 and (2) MsbG, i.e. with annual consumption above 6,000 up to 100,000 kWh, with an agreement under Section 14a EnWG or with a control unit at the grid connection point, default metering point operators must have equipped at least 90 percent of the metering points that have fallen due since 25 February 2025 by the end of 2026 (Section 45(1) sentence 1 no. 4(b) MsbG). For final consumers above 100,000 kWh the quota only starts in 2028 (no. 3). According to its press release, the Bundesnetzagentur collects progress twice a year; its supervisory proceedings since March 2026 concern the 20 percent quota for the end of 2025 (no. 4(a)). If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If the rollout of control units falls short by at least 25 percent and this contributes significantly to a possible threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Default metering point operator	fixed

Date	Deadline	Affected	Status
31 December 2026	**Smart meter rollout: 90 percent of new generation capacity from plants above 7 and up to 100 kilowatts** By the end of 2026 default metering point operators must have equipped at least 90 percent of the capacity of plants above 7 and up to 100 kilowatts that came online between 25 February 2025 and 30 September 2026. The yardstick is installed capacity, not the number of metering points. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If equipping under Section 29(1) no. 2 MsbG (smart metering systems with control units) falls short of the quotas by at least 25 percent and this could contribute significantly to a threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Electricity grid operator, Default metering point operator	fixed
1 January 2027	**Report the revenue cap adjustment and the network charge adjustment (Section 28 ARegV)** Network operators report to the regulator on 1 January the adjustment of the revenue cap under Section 4(3) ARegV with the underlying changes in cost shares, and the adjustment of network charges (Section 28 sentence 1 nos. 1 and 4 ARegV); operators with investment measures under Section 23 report their status on the same day (no. 6). In 2027 the date falls on New Year's Day. If missed: Section 28 ARegV sets no specific administrative offence. The regulator can order the report under Section 65(2) EnWG and enforce it with coercive fines under Section 94 EnWG. For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Gas grid operator	fixed
1 January 2027	**Fallback metering operator: publication for 2027** At the start of the calendar year the Bundesnetzagentur publishes the name, address and website of the fallback metering operator responsible under Section 11(3) sentence 1 no. 3 MsbG, i.e. the operator with the most smart metering systems nationwide, together with the operators that declared readiness under sentence 1 nos. 1 and 2. The basis is the monitoring data under section 35 EnWG. If missed: Publication under Section 11(3) sentence 2 MsbG is a duty of the Federal Network Agency. It shows who takes over emergency operation if a default metering point operator drops out, loses its certificates or lacks approval (Section 11(2) MsbG).	Default metering point operator	fixed

Date	Deadline	Affected	Status
1 January 2027	**Section 14a: exemption for non-controllable devices ends with 2026 commissioning** For controllable consumption devices that demonstrably cannot be controlled and cannot be made controllable at reasonable cost, paragraphs 3 to 5 of determination BK6-22-300 only do not apply if they are commissioned by 31 December 2026 (Annex 1 para. 10.6). For commissioning from 2027 participation in grid-oriented control and the ban on refusing or delaying the connection for lack of grid capacity apply without this exemption. If missed: BK6-22-300 sets no specific sanction. The regulator can order compliance under Section 65(2) EnWG and enforce it with coercive fines under Section 94 EnWG. For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Plant operator (generation)	fixed
1 January 2027	**BSI TR-03109-1 v2.0: gateway certificates only with MUSS+** Anyone certifying a smart meter gateway against version 2.0 of the protection profile and TR-03109-1 must also prove the MUSS+ requirements from 1 January 2027. According to the BSI these include a WAN API, registering power metering over the local metrological network and factory reset by the service technician, plus TAF 8 in its new form and TAF 15. According to the BSI, gateways under TR v1.1 and protection profile v1.3 may still be installed until 31 December 2027 as a transitional measure. If missed: Without MUSS+ proof there is no version 2.0 certificate from that date; under the BSI transitional rule, gateways under TR v1.1 and protection profile v1.3 may still be installed until 31 December 2027. Without a valid certificate, a smart meter gateway may not be used as part of a smart metering system under Section 24(4) MsbG, and under Section 25(1) MsbG the gateway administrator may only use gateways with valid certificates.	Default metering point operator, Competitive metering point operator	fixed
1 January 2027	**BSI TR-03109-6 v2.0 for gateway administrators** Gateway administrators have their GWA system assessed against version 2.0 at the next certification or recertification from 1 January 2027. Version 2.0 covers remote workplaces, cloud service providers, zero trust, time servers and penetration tests, among other things. Version 1.0 stays valid until 31 December 2028. If missed: Conformity with TR-03109-6 is proven by certification. If the default metering point operator lacks the certificates required under Section 25 MsbG, the fallback metering operator takes over in emergency operation (Section 11(2) no. 2 MsbG) and, six months later, the default responsibility (Section 11(4) MsbG).	Default metering point operator, Competitive metering point operator	fixed

Date	Deadline	Affected	Status
1 January 2027	**Federal subsidy for transmission network costs 2027 to 2029** Under the government bill, transmission system operators receive a subsidy of EUR 5.525 billion a year for 2027 to 2029 (Section 24d draft EnWG) that lowers transmission network charges; the Bundesrat calls for EUR 6.5 billion, so the amount is open. Transmission system operators publish their charge with and without the subsidy, distribution system operators also publish a notional network charge without it, and suppliers point out the subsidy on the bill (Section 118(5b) draft EnWG). If missed: The bill does not provide for a specific administrative offence. The regulator can enforce the publication duties by order under Section 65 EnWG, backed by coercive fines under Section 94 EnWG.	Electricity grid operator, Transmission system operator, Supplier	planned
1 April 2027	**Section 23c EnWG: publish network structural data by 1 April** Every year by 1 April, electricity and gas network operators publish their network's structural data on their website, mostly as of 31 December of the previous year or for that year: line lengths, energy withdrawn, number of withdrawal points (gas: exit points), for electricity the area supplied, and further network data (Section 23c(1) and (4) EnWG). Electricity network operators also report the number of smart metering systems, of agreements under Section 14a(1) sentence 1 EnWG and of grid connections that, in the previous year, remained uncompleted for more than three and more than six months after receipt of the connection request, broken down by voltage level (subsection 1 nos. 4a to 4d). If missed: Section 95 EnWG does not mention Section 23c expressly. The Federal Network Agency can order publication under Section 65(2) EnWG and enforce it with coercive fines under Section 94 EnWG; failing to comply with an enforceable order under Section 65(1) or (2) is an administrative offence under Section 95(1) no. 3(a) EnWG. For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Gas grid operator, Transmission system operator	fixed

Date	Deadline	Affected	Status
1 April 2027	**MaKo format release, notice no. 58** On 1 April 2027 ActivationDocument AWT version 1.1g and transport rules version 1.11, including the changes to certificate use with mTLS, become binding. The previously consulted replacement of UTILTS by API web services is off the table. If missed: The versions are binding under the market communication rulings. The Federal Network Agency can have breaches remedied under Section 65 EnWG, or Section 76 MsbG for metering point operators, and enforce this with coercive fines of up to EUR 10 million (Section 94 EnWG). If a secure connection fails because certificates are missing or invalid, the party that did not provide them or used them incorrectly bears the consequences (transport rules, chapter 12). For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Transmission system operator, Default metering point operator, Supplier	fixed
1 April 2027	**VDE-AR-N 4100:2026-04: end of the transition period** Projects already in planning or under construction on the cut-off date may be completed under the old edition until this day. After that, only the 2026-04 edition applies to customer installations on the low-voltage grid, including instrument transformer installations with semi-indirect metering up to 1,000 A and the meter-position field for communication modules and control units. If missed: The rule is not a statute and carries no penalty of its own; according to VDE FNN it has been a technical safety rule since the procedure under Federal Network Agency determination BK6-23-037 (Section 49(2) sentence 2 EnWG), and complying with it creates a presumption of compliance with recognised engineering standards (Section 49(2) sentence 1 EnWG). Under Section 20 sentence 2 NAV, technical connection conditions must reflect generally accepted engineering standards; the regulator can have breaches of the NAV stopped under Section 65 EnWG. For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Default metering point operator	open

Date	Deadline	Affected	Status
29 September 2027	**Revenue cap 2028: TSO report on the adjustment and provisional network charges** Transmission system operators report to the Federal Network Agency two working days before 1 October, in 2027 by 29 September, on the adjustment of their 2028 revenue cap and how they set provisional network charges. The basis is determination BK8–19/0001–A of 11 September 2019. If missed: The reporting duty rests on a determination under Section 29(1) EnWG. If a transmission system operator fails to comply, the Federal Network Agency can order compliance under Section 65(2) EnWG and enforce it with coercive fines. For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Transmission system operator	fixed
30 September 2027	**MiSpeL: end of the transition period** Until the end of September 2027 the demarcation option and the flat-rate option can be used only with the consent of the grid operator and the metering operator; the flat-rate option also only after state aid approval for Section 19(3c) EEG. Both use that period to set up metering, data delivery and billing for the two options. If missed: From 1 October 2027 grid and metering operators must enable the demarcation and flat-rate options even without their consent (MiSpeL, operative point 7). The flat-rate option (operative points 2 and 4) applies at the earliest from the month after the European Commission grants state aid approval for Section 19(3c) EEG (operative point 9 b). If they do not, the Federal Network Agency can order remedies under Section 85(3) EEG with Section 65 EnWG; breaching the enforceable order is an administrative offence under Section 86(1) no. 3 EEG (up to EUR 200,000).	Electricity grid operator, Default metering point operator, Storage operator	fixed

Date	Deadline	Affected	Status
30 September 2027	**Controllability check: network operators' tests and reports by 30 September via the TSOs' portals** Every electricity network operator carries out test adjustments under Section 13a(1) EnWG and retrievals of actual feed-in every year, since 2026 also for plants below 100 kW; every default metering operator checks the deployment status of smart metering systems and control units every year and sends it to the network operator (Section 12(2b) EnWG). Under the TSOs' guidelines, tests and data submission via their portals must be completed by 30 September; upstream network operators check the data from 1 to 31 October. If missed: If a default metering operator fails its checking duty and compliance with the deployment obligations therefore cannot be established, the Federal Network Agency can withdraw its default responsibility under Section 12(2g) no. 2 EnWG. It can order network operators to comply under Section 65 EnWG.	Electricity grid operator, Default metering point operator	fixed
15 October 2027	**2028 network charges: publication by 15 October** Electricity and gas distribution grid operators publish their 2028 network charges online. If the charges are not yet calculated on the cut-off date, operators publish the expected level derived from the revenue cap. If missed: Section 20 EnWG sets no penalty of its own for late publication. The regulator can order publication under Section 65(2) EnWG and enforce it with coercive fines under Section 94 EnWG; breaching the enforceable order is an administrative offence under Section 95(1) no. 3(a) EnWG (up to EUR 100,000). For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Gas grid operator, Supplier	fixed
31 October 2027	**Default metering point operators: publish services and price sheets by 31 October 2027** By 31 October 2027, default metering point operators publish the scope of their installation duties under Section 29 MsbG, their standard and possible additional services, and price sheets with expected annual prices for at least three years (Section 37(1) MsbG). If missed: The MsbG sets no penalty of its own for a missing publication. The Federal Network Agency can order it under Section 76(2) MsbG and enforce the order with coercive fines under Section 94 EnWG (Section 76(4) MsbG); whether breaching such an order can also be fined as an administrative offence under Section 95 EnWG is unsettled: Section 76(4) MsbG does refer to Part 8 of the EnWG and thus to Section 95, but Section 95(1) no. 3(a) EnWG only lists orders under the EnWG, such as Section 65, and none under the MsbG.	Default metering point operator	fixed

Date	Deadline	Affected	Status
31 December 2027	**AgNes: follow-up rulings that fill in the detail** After the framework ruling at the end of 2026, the Bundesnetzagentur plans to fill in the new system in follow-up rulings during 2027. Distribution system operators plan billing and systems against this detail. If missed: The Federal Network Agency issues the follow-up rulings. If they slip, less time remains to convert price sheets, billing and systems before the new system applies from 2029.	Electricity grid operator, Supplier	planned
1 January 2028	**EEG: control via the smart meter gateway from 2028** From 1 January 2028, and once a smart metering system is installed, plants above 25 kW in direct marketing must be readable and remotely controllable via the smart meter gateway (Section 10b(2) EEG). From 2028, after a smart metering system and control device have been installed, grid operators pay the plant operator EUR 100 gross for each year begun until the controllability test has succeeded (Section 9(2a) EEG). If missed: Until the test succeeds, the grid operator pays the plant operator EUR 100 gross for each year begun from 2028 under Section 9(2a) EEG, unless it is not responsible for the failed test. Plant operators in breach of Section 10b EEG pay the grid operator up to EUR 10 per kilowatt and calendar month under Section 52(1) no. 4 and (2) EEG.	Electricity grid operator, Default metering point operator, Direct marketer, Plant operator (generation)	fixed
1 January 2028	**Hydrogen meters: only devices that connect to the smart meter gateway** From 1 January 2028 new hydrogen meters may only be installed if they can be securely connected to a smart meter gateway (Section 20(3) with (1) MsbG). If missed: The MsbG sets no administrative offence. The Federal Network Agency can order measures under Section 76 MsbG and enforce them with coercive fines under Section 94 EnWG (Section 76(4) MsbG).	Default metering point operator, Competitive metering point operator	fixed
1 January 2028	**Metering point operators: data communication for the balancing market via the gateway on request** From 1 January 2028 metering point operators must, on request, offer as an additional service the data communication needed to take part in the balancing market via the smart meter gateway, including the IT connection (Section 34(2) sentence 2 no. 5 MsbG). They may only refuse while the service is technically impossible or while they are exempt from it under Section 31(1) MsbG, and only with comprehensible reasons in text form (Section 34(2) sentences 3 and 5 MsbG). If missed: The MsbG sets no administrative offence. The Federal Network Agency can order measures under Section 76 MsbG and enforce them with coercive fines under Section 94 EnWG (Section 76(4) MsbG).	Default metering point operator, Competitive metering point operator	fixed

Date	Deadline	Affected	Status
1 January 2028	**Smart meter gateways: installation only to version 2.0 of protection profile and TR-03109-1** Under the BSI transition rules, gateways certified to protection profile PP-0073 version 1.3 and TR-03109-1 version 1.1 may only be installed until 31 December 2027, and recertification to that standard can be requested until that date at the latest. After that, version 2.0 applies to newly installed gateways. Devices already in the field can move to the new standard by software update. If missed: Under Section 19(2) MsbG, only systems that meet Sections 21 and 22 may be used for billing, balancing and grid-related metering and control; the yardstick is the protection profiles and technical guidelines in the version in force, which the BSI publishes under Section 22(2). The Federal Network Agency can act against breaches under Section 76 MsbG.	Default metering point operator, Competitive metering point operator	fixed
1 January 2028	**Avoided network charges: 75 per cent cut from 2028** Electricity DSOs cut the avoided upstream costs underlying the charges for decentralised feed-in in stages: by 50 per cent from 1 July 2026 and from 1 January 2027, and by 75 per cent from 1 January 2028 (GBK-25-02-1#1, operative point 2). If missed: The ruling sets no specific consequence. The regulator can order compliance under Section 65 EnWG and enforce it with coercive fines under Section 94 EnWG. For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Plant operator (generation)	fixed

Date	Deadline	Affected	Status
1 April 2028	**AgNes: network operators identify prosumers and notify suppliers** For the prosumer base price surcharge from 2029, network operators first identify metering points with prosumer status by 1 April 2028 and provide the information to suppliers via market communication (AgNes draft ruling, operative point 17.8). If missed: The draft ruling sets no specific consequence. Once adopted, the regulator can order compliance with the ruling under Section 65 EnWG and enforce it with coercive fines under Section 94 EnWG. Once adopted, a breach is also, for network operators, an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Supplier	planned
1 July 2028	**MaBiS hub: test systems of all market partners ready (BDEW scenario)** Under the BDEW introduction scenario, the test systems of all market partners and of the MaBiS hub are available from 1 July 2028. Every interface to the hub has to pass at least one test by 30 September 2028. Parallel operation starts on 1 January 2029. If missed: There is no decision yet in proceeding BK6-24-210, and the date comes from the industry's introduction scenario. It only becomes binding and enforceable under Section 65 EnWG once a ruling sets it.	Electricity grid operator, Supplier	planned
1 July 2028	**Metering Act Section 40: new gas meters with load profile metering on the smart meter gateway** New gas meters with interval (load profile) metering must be connected to existing smart meter gateways from 1 July 2028 at the latest. Other new gas meters follow once connection is technically possible and causes no extra cost. If missed: Section 40 MsbG sets no penalty of its own. The Federal Network Agency can order compliance under Section 76(2) MsbG and enforce it with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG).	Gas grid operator, Default metering point operator, Competitive metering point operator	fixed

Date	Deadline	Affected	Status
1 October 2028	**AgNes: TSOs adjust network charges by 1 October** Under the AgNes draft, TSOs adjust their network charges for the following year by 1 October, DSOs by 15 October (operative point 14.4 sentence 1). If missed: The draft ruling sets no specific consequence. Once adopted, the regulator can order compliance with the ruling under Section 65 EnWG and enforce it with coercive fines under Section 94 EnWG. Once adopted, a breach is also, for network operators, an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Transmission system operator	planned
6 December 2028	**BSIG §39: first evidence for critical installations** Operators of critical installations must prove their security measures through an audit, review or certification, then every three years. The BSI sets the date, at the earliest three years after the installation counts as critical; for existing KRITIS operators at the earliest three years after their last audit under the former Section 8a(3) BSIG (Section 39(3) BSIG). If missed: Section 39 BSIG does not apply to energy networks and energy installations under Sections 5c to 5e EnWG (Section 28(5) BSIG); for them Section 95(1) nos. 3c and 3d EnWG penalise missing or late documentation. For other critical installations, failing to provide the evidence under Section 39(1) BSIG, or providing it late, is an administrative offence under Section 65(2) no. 10 BSIG, with fines of up to EUR 1 million.	Company-wide, several roles	open
14 December 2028	**AgNes: explain a late adjustment of network charges for 1 January** If network operators adjust their network charges again for 1 January because of significant later deviations, they explain this to the regulator at least 10 working days before 1 January (AgNes draft ruling, operative point 14.4 sentences 2 and 3). For 1 January 2029 that is 14 December 2028 (working days Monday to Friday). If missed: The draft ruling sets no specific consequence. Once adopted, the regulator can order compliance with the ruling under Section 65 EnWG and enforce it with coercive fines under Section 94 EnWG. Once adopted, a breach is also, for network operators, an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Transmission system operator	planned

Date	Deadline	Affected	Status
31 December 2028	**Smart meter rollout: 90 percent of the 2027 to 2028 installation cases** By the end of 2028 default metering point operators must have equipped at least 90 percent of the metering points that fall due for installation in 2027 and 2028. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If the rollout of control units falls short by at least 25 percent and this contributes significantly to a possible threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Default metering point operator	fixed
31 December 2028	**Smart meter rollout: 90 percent of new generation capacity by the end of 2028, for the first time also above 100 kilowatts** By the end of 2028 default metering point operators must have equipped, for systems above 7 and up to 100 kilowatts, at least 90 percent of the capacity commissioned from 1 October 2026 to 30 September 2028 and at least 50 percent of the capacity commissioned from 1 January 2018 to 25 February 2025. For systems above 100 kilowatts equipping starts in 2028 at the latest, and by the end of 2028 the equipped metering points must cover 90 percent of the capacity commissioned from 1 October 2027 to 30 September 2028. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If the equipping of installations with control units falls short by at least 25 percent and this contributes significantly to a possible threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Electricity grid operator, Default metering point operator	fixed
31 December 2028	**Smart meter rollout: 90 percent for final consumers above 100,000 kWh by end of 2028** For final consumers with more than 100,000 kWh annual consumption (Section 30(1) no. 1 MsbG), default metering point operators start installing smart metering systems in 2028 at the latest and equip at least 90 percent of the metering points to be newly equipped per installation case group in that period by the end of 2028 (Section 45(1) sentence 1 no. 3(a) MsbG). Further milestones follow at the end of 2030 and 2032. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG).	Default metering point operator	fixed

Date	Deadline	Affected	Status
1 January 2029	**§14a EnWG: end of the transition period** Preventive control is only allowed until 31 December 2028; from 2029 grid operators control solely on a grid-oriented basis using grid state assessment, which has applied to new installations since 2024. The old §14a rules end on the same date: legacy installations above 4.2 kW with a reduced network charge move into the new rules, night storage heaters keep the old arrangement, and the rest lose the reduction. If missed: From 1 January 2029 ruling BK6-22-300 no longer permits preventive control (Annex 1 item 10.5), and the new rules apply to legacy installations above 4.2 kW with the old §14a reduction (item 10.2). The Federal Network Agency can order a breach to stop under Section 65 EnWG and enforce this with coercive fines under Section 94 EnWG. For network operators a breach is also an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Default metering point operator	fixed
1 January 2029	**AgNes: submit network charge review data and charge report by 1 January** Operators of public electricity networks send the regulator, by 1 January each year, the data needed to review network charges together with a report on how the charges were calculated: basis and process under operative point 14, the documented allocation keys and other relevant aspects, so that an expert third party can follow the calculation without further information (AgNes draft ruling, operative point 16). The duty replaces the data and reporting duties under Section 28 StromNEV and Section 28 ARegV. If missed: The draft ruling sets no specific consequence. Once adopted, the regulator can order compliance under Section 65 EnWG. Once adopted, a breach is also, for network operators, an abuse of their market position (Section 30(1) sentence 2 no. 1 EnWG). The regulator can require it to stop (Section 30(2)) and can also establish it after the fact (Section 30(3)); for distribution system operators with fewer than 100,000 customers whose network does not extend beyond one federal state, the state regulatory authority is responsible (Section 54(2) no. 8). Section 95(1) nos. 4 and 3(b) EnWG threaten fines of up to EUR 1 million for the abuse and for breaching an order to stop it (Section 95(2) no. 3). Those affected can apply for abuse proceedings (Section 31) and claim removal, injunctive relief or, where there is fault, damages (Section 32 EnWG).	Electricity grid operator, Transmission system operator	planned

Date	Deadline	Affected	Status
1 January 2029	**AgNes: new grid charge system takes effect** StromNEV expires on 31 December 2028; the BNetzA rulings replace the ordinance. If missed: Under the draft ruling (operative point 1.2), only grid charges under the AgNes system are permitted from 1 January 2029. A network operator that bills otherwise can be ordered by the regulator to comply under Section 65 EnWG.	Electricity grid operator, Supplier	planned
1 January 2029	**MsbG Section 19(5): non-compliant metering systems above 100,000 kWh or 100 kW only under conditions** From 1 January 2029, metering systems that do not meet smart metering system requirements may only be installed and used at metering points above 100,000 kWh annual consumption or at plants above 100 kW if a smart metering system installation has been announced or ordered, there are no disproportionate risks, and either the connection user has consented or the installation was made on the basis of a BSI determination under the old law (version of 26 May 2023). For all other metering points this limit has applied since the end of 2025. If missed: The MsbG has no administrative fine provision of its own. The Federal Network Agency can order the conduct to stop under Section 76 MsbG and enforce the order with coercive fines under Section 94 EnWG (Section 76(4) MsbG). Whether breaching such an order can be fined as an administrative offence under Section 95 EnWG is unsettled, because Section 95(1) no. 3(a) EnWG only lists orders under the EnWG, such as Section 65, and none under the MsbG.	Default metering point operator, Competitive metering point operator	fixed
4 August 2029	**Electricity storage: commissioning deadline for the grid fee exemption under Section 118(6) EnWG** Electricity storage commissioned within 18 years from 4 August 2011 is exempt for 20 years from grid fees on electricity drawn for storage. The exemption only applies to the extent the stored electricity is fed back into the same grid with a time delay. If missed: Storage commissioned after the deadline is not exempt from grid fees under Section 118(6) sentence 1 EnWG; commissioning means the first draw of electricity for trial operation (sentence 6). Under the AgNes draft (operative point 17.5) the exemption is also to require an investment decision before the ruling is notified, to be proven by 31 March 2027.	Electricity grid operator, Transmission system operator, Storage operator	fixed
1 October 2029	**MaBiS hub: go-live (BDEW scenario)** Under the BDEW introduction scenario, parallel operation ends on 1 October 2029 and only the new process landscape with the MaBiS hub applies from then on. Block 1 of the ruling (BK6-24-210-1) was open for comment until 17 November 2025; block 2 on balance group settlement follows. If missed: The go-live date so far only appears in the industry's introduction scenario; there is no decision yet in proceeding BK6-24-210. Only a ruling would make the date binding and enforceable under Section 65 EnWG.	Electricity grid operator, Supplier	planned

Date	Deadline	Affected	Status
31 December 2030	**Smart meter rollout: 90 percent of the 2029 to 2030 installation cases** Third period quota of the statutory rollout: at least 90 percent of the metering points that fall due in 2029 and 2030. The target year for the full stock is 2032. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If the rollout of control units falls short by at least 25 percent and this contributes significantly to a possible threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Default metering point operator	fixed
31 December 2030	**Smart meter rollout: 90 percent of new generation capacity by the end of 2030** By the end of 2030 default metering point operators must have equipped at least 90 percent of the generation capacity commissioned from 1 October 2028 to 30 September 2030, separately for systems above 7 and up to 100 kilowatts and systems above 100 kilowatts. The yardstick is installed capacity, not the number of metering points. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If the equipping of installations with control units falls short by at least 25 percent and this contributes significantly to a possible threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Electricity grid operator, Default metering point operator	fixed
31 December 2030	**Coalition committee: smart meter rollout above 90 percent of all relevant metering points by end of 2030** The coalition committee wants the rollout for all relevant metering points more than 90 percent complete by the end of 2030, two years ahead of the current MsbG target year 2032. A low-cost "Smart Meter Light" is planned for customers outside the mandatory rollout. No draft bill has been published yet. If missed: The target is a coalition decision without legal effect. The binding quotas remain those in Section 45 MsbG, which the Federal Network Agency can enforce under Section 76 MsbG.	Default metering point operator	planned
1 January 2031	**Redispatch 2.0: move controllable resources into the plan-value model** By 1 January 2031, distribution system operators, in coordination with the TSOs, are to move at least all controllable resources that can improve the efficiency of congestion management in the transmission grid into the plan-value model (BK6-23-241, annex BilAReM, section 2.3.1). If missed: The ruling frames the target as a "should" requirement. The Federal Network Agency can order implementation of rulings under Section 65 EnWG.	Electricity grid operator, Transmission system operator, Direct marketer	fixed

Date	Deadline	Affected	Status
31 December 2032	**Modern metering devices: equip all remaining metering points by end of 2032** Where no smart metering system is planned, default metering point operators equip metering points of final consumers and plant operators at least with modern metering devices, where economically justifiable, by the end of 31 December 2032; for new buildings and major renovations by completion of the building (Section 29(3) MsbG). If missed: The MsbG sets no administrative offence. The Federal Network Agency can order measures under Section 76 MsbG and enforce them with coercive fines under Section 94 EnWG (Section 76(4) MsbG).	Default metering point operator	fixed
31 December 2032	**Smart meter rollout: 90 percent of all mandatory cases** Final mark of the statutory rollout: by the end of 2032, 90 percent of all metering points to be equipped need an intelligent metering system. Optional installation cases count towards the quota since the EnWRÄndG of 18 December 2025. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If the rollout of control units falls short by at least 25 percent and this contributes significantly to a possible threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Default metering point operator	fixed
31 December 2032	**Smart meter rollout: 90 percent of total generation capacity** By the end of 2032 default metering point operators must have equipped metering points covering at least 90 percent of the total installed generation capacity, separately for systems above 7 and up to 100 kilowatts and systems above 100 kilowatts. The yardstick is installed capacity, not the number of metering points. If missed: If the default metering point operator misses the quota, the Federal Network Agency can order measures under Sections 45(2) and 76 MsbG and enforce them with coercive fines of EUR 1,000 to EUR 10 million (Section 76(4) MsbG, Section 94 EnWG). If the equipping of installations with control units falls short by at least 25 percent and this contributes significantly to a possible threat to system security, it can withdraw the default responsibility under Section 12(2g) EnWG.	Electricity grid operator, Default metering point operator	fixed
1 January 2033	**AgNes: dynamic network charge for battery storage at levels 1 to 5** Network operators set up a dynamic network charge and bill it to battery storage operators at grid and transformer levels 1 to 5 from 1 January 2033 at the latest, not before 1 January 2030 (AgNes draft ruling, operative point 12.2 sentence 1, subject to the condition in operative point 12.3). If missed: The draft ruling sets no specific consequence. Once adopted, the regulator can order compliance with the ruling under Section 65 EnWG and enforce it with coercive fines under Section 94 EnWG.	Electricity grid operator, Transmission system operator, Storage operator	planned

Date	Deadline	Affected	Status
1 January 2035	**AgNes: dynamic network charge for generation plants at levels 1 to 5** Network operators bill the dynamic network charge to operators of generation plants at grid and transformer levels 1 to 5 from 1 January 2035 at the latest, not before 1 January 2032; offshore wind is exempt (AgNes draft ruling, operative point 12.2 sentence 2, subject to the condition in operative point 12.3). If missed: The draft ruling sets no specific consequence. Once adopted, the regulator can order compliance with the ruling under Section 65 EnWG and enforce it with coercive fines under Section 94 EnWG.	Electricity grid operator, Transmission system operator, Plant operator (generation)	planned

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