



INNOBU · 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: www.innobu.com/en/digitalising-the-energy-transition.html

This book is not legal advice. 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.

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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	31
PART III: FUNCTIONS AND CONTROL	
4 Tariff use cases: TAF 1 to 16 and version 2.0	44
5 Grid-oriented control under §14a EnWG	54
6 Dynamic tariffs and grid charges in transition	66
PART IV: MARKET AND PRACTICE	
7 Market communication: how meter readings become processes	77
8 Rollout practice: figures, supervision and what nobody measures	89
APPENDIX	
The model: from the meter to the billing system	102
Open questions and negative findings	112
Deadline calendar	116

How to read this book

Reviewed: 14 October 2026

On 31 July 2026 the Federal Network Agency put a draft out for consultation: a market communication message called UTILTS was to be replaced by web services¹. On 1 October it took that back². If you had written a plan for the switch to web services in August, you could shelve it.

Two months. In this field that's nothing unusual. So 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, cybersecurity? Only at the edges. innobu.com has articles on all of them, and the reading paths put those articles in an order that starts with the basics.

Who this book is 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 too.

It isn't 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. Authorities, legislators and courts come first. Where a statement rests on manufacturer information or trade press, the footnote says so.

The coloured boxes in the text show how solid a statement 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
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

How many gateways in the field actually deliver grid status data? There's no figure. And there's no BSI certification yet for control straight from the gateway.

Both are in the book anyway. 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 chapter text is a different matter: a person checks it. That's why each chapter carries its own review date, and why 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](https://www.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 legal framework of the smart meter rollout came about.

Reviewed: 14 October 2026

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. Who installs: section 29. At what price: section 30. How much by when: section 45, and most of its quotas count periods rather than the installed base.

And the first of those period quotas? It 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" disappeared¹.

Drafting housekeeping, you'd think. In fact it rebuilt 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 requirements². Time frames existed in 2016 too. "From 2017 within eight years", for instance. They just didn't bind anyone before the BSI had made its finding³. 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 and which processes it sets up. Also 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 2025⁴.

Two steps, then. 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 met³.

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 declaration⁵.

A small edit in the legislative process turned out to matter. 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 certification⁶. Just a cross-reference. Five years later a court order turned on it.

The market declaration in court

Three dates for one decision. The BSI took it 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}. The finding: three manufacturers offered suitable gateways. Its scope was narrow, low-voltage final consumers up to 100,000 kilowatt hours, no interval metering, no §14a agreement. Immediate enforcement was ordered, and the mandatory rollout was on.

Pragmatic, from the BSI's point of view. Each of the three gateways had its Common Criteria security certificate. Interoperability was another matter. It rested on the manufacturers' own declarations for the "Basis" device profile². Enough to start with, the agency thought.

Around 50 metering point operators and private companies disagreed, according to the BSI. They objected and applied for interim relief⁸. 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. In Cologne it lost, on 21 July 2020⁹. On appeal it won.

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 own²:

- 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 because generation plants lacked functions? A reason the BSI had "created itself".

Then came paragraph 124. "Should the minimum requirements in fact be impossible to meet, it is, where appropriate, for the legislature to change them."² No appeal was possible.

It took the BSI a little over a year. On 20 May 2022 it withdrew the ruling, 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 procedure⁸. A second ruling issued the same day rested on section 19(6): four gateway types could stay in use and could still be newly installed¹⁰. That provision was fairly new itself. The legislature had added it in summer 2021, after the court order, for exactly this case of a determination that later turns out unlawful^{11,8}. It had been in force since 27 July 2021¹².

A new market declaration never came. The legislature answered in two steps, roughly as paragraph 124 had suggested. 2021 brought grandfathering and the basis for a staged rollout. 2023 did away with the determination altogether, and since then the agile rollout has let operators start with devices that still lack some functions.

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 Cologne². A nationwide stop on installations? It never ordered one. The legal basis for devices already installed only fell away with the withdrawal in May 2022, and then retroactively, as the BSI itself puts it¹⁰. No decision in the main proceedings could be found in public sources.

Who was right? Measured against the statute as it stood, the court. Still, the BSI had found a real problem. In 2020 there simply weren't three devices 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 GNDEW¹³. Signed on 22 May, promulgated in Federal Law Gazette 2023 Part I No. 133, in force since 27 May 2023^{14,1}. And 12 May 2023, the date printed on the Bundesrat paper? That's the Bundesrat's deadline. Not the date of entry into force.

Four changes defined the restart. Gone was 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 95¹.

How long did that last? Less than two years.

Next 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 2025¹⁵. That's where the "25 February 2025" in the current statutory text comes from. And the 95 percent by 2030 that still gets quoted? It 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 rollout¹⁶. No bill putting that into law could be found by mid-October 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 equipped¹⁷. 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)).

On the timeline, the 2023 break is hard to miss.

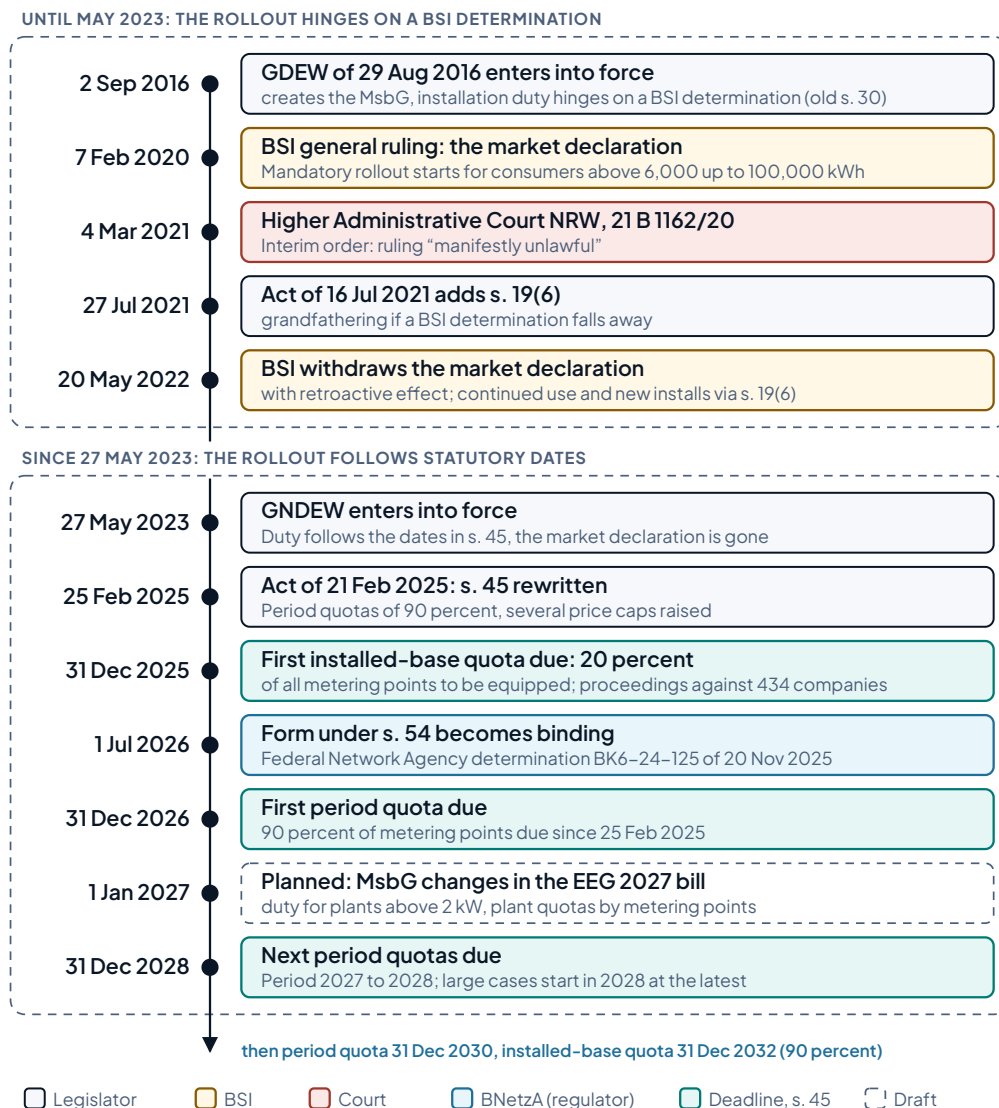


Figure 1: From the GDEW to the next quota. Until May 2023 the rollout legally hinged on a BSI determination, which no longer existed after the 2022 withdrawal. Since 27 May 2023 it has followed the dates in section 45 MsbG: first an installed-base quota of 20 percent on 31 December 2025, then three period 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. The practical rule: 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 this¹⁸. 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. Easy to mix up, since before 2023 it was the other way round.

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}. Forget the 20 euro user share from 2023. For 6,000 to 10,000 kilowatt hours it's 40 now. Twice as much for the customer, the same for the grid operator.

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 years²⁰.

And section 31? Still in the statute. With a date that has passed.

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. The provision hasn't changed. How the Federal Network Agency treats devices that got no update by then isn't publicly documented.

Next, transparency. 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 purpose²². The word "standardised" used to be in that provision too. The GNDEW struck it¹.

Standardised it is 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 look²³.

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 2026²⁴. The installed base plays no part. Only what fell due inside the window.

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, three period quotas in between. That has 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. And one with a weak base can make it.

Plants are counted in kilowatts. 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 latest²⁴.

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 start at 2 kilowatts accordingly. 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 2027²⁵. On 25 September 2026 the Bundesrat asked for the new 2 kilowatt threshold to be dropped. The government refused²⁶. First reading was on 24 September, the hearing on 5 October 2026²⁷. Nothing has been passed.

So who decides which street comes first? The statute sets no order. 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.

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 caps²⁴.

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

Not that the result could be hidden. 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 43²⁸.

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
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 2025¹⁷. Who fills them is up to the Federal Network Agency.

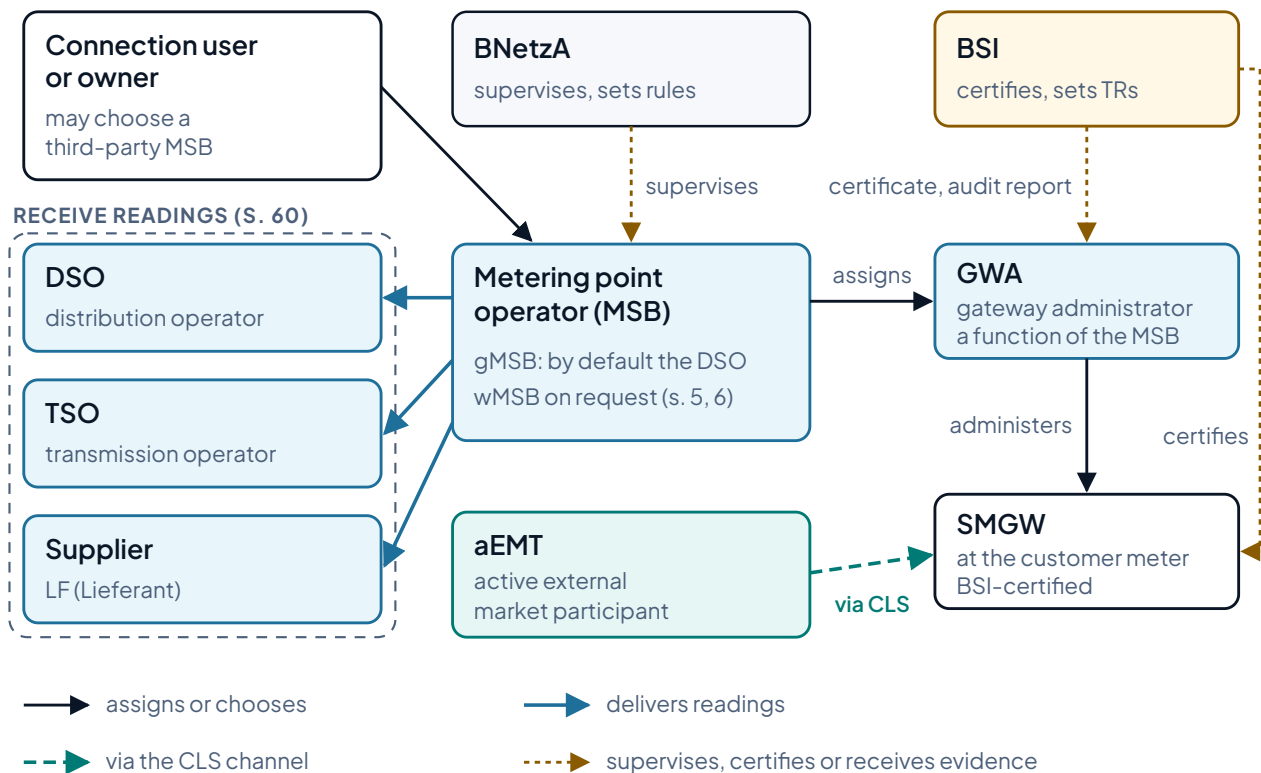


Figure 2: Who works with whom in metering. Gateway administration is a function of the metering point operator, which assigns the gateway administrator or acts as one. It delivers readings to grid operators and suppliers. The Federal Network Agency supervises, the BSI certifies.

And the authorities? Supervision, standard contracts, market processes and enforcement sit with the Federal Network Agency. The BSI certifies gateways under section 24 and specifies what they must be able to do³⁴. 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 Agency²⁴. The agency can order conduct to stop. It can prescribe remedies. It can even declare an infringement after it has ended. For procedure, section 76(4) points to the Energy Industry Act, the EnWG³⁶. That's where the penalty payment lives: at least 1,000 euros, at most ten million³⁷.

Section 12(2g) EnWG goes further. Added in February 2025, it lets the agency strip a default metering point operator of its basic responsibility and put in a fallback operator. Two routes lead there. 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 2025³⁸.

The bar is high.

But it's there. Since 2025, badly missing the quota for controllable cases puts basic responsibility at risk. And 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. 150 proceedings have since been closed³⁹. Chapter 8 has the details.

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 state⁴⁰.

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 percent⁴¹. 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 Germany⁴². 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 BSI⁴³. 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 exchange⁴⁰. 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, then, the MsbG is what counts for now. How an EU quota over all final customers would relate to a German quota over mandatory cases is an open question. One number for scale: on 30 June 2026, 5.9 percent of reported metering locations had an iMSys³⁹. Four checks follow. They differ in length because the deadlines differ in distance:

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 it in writing anyway.

4 Check contracts against BK6-24-125

Mandatory since 1 July 2026.

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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: 14 October 2026

SUMMARY

Two devices make an intelligent metering system. A digital electricity meter, called the modern metering device. And beside it the smart meter gateway, a communication computer with a security module inside. Germany's Metering Point Operation Act only speaks of an intelligent metering system when both are there.

Three networks meet at the gateway. Meters on the local metrological network. Customer, service technician and controllable devices on the home area network. Out on the wide area network, the gateway administrator and the market participants. Between them it 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. And the heat meters in the basement?

From spinning disc to metering system

77 words, section signs not counted. One sentence, section 2 no. 7 of the Metering Point Operation Act (MsbG), and it defines the intelligent metering system¹. 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 out¹.

First came the Ferraris meter. An aluminium disc turns in a magnetic field, a mechanical register adds up the turns as kilowatt-hours. How much power flowed, the device knows. When? No idea.

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 gateway¹. That one word carries the definition. Without a gateway an mME sends nothing at all. It still has to show the connection user consumption and time of use, plus daily, weekly, monthly and yearly values for the past 24 months².

Only the gateway turns the modern metering device into an intelligent metering system¹. The act also knows a plain metering system: any meter "linked into a communication network", such as a meter with its own modem. 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 2029³. Besides meters, the gateway 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 kilowatts⁴. Every other metering point gets at least an mME, where economically reasonable by the end of 2032, new buildings by completion⁵. Quotas and exceptions are in chapter 1.

And how far has the rollout got? On 30 June 2026, 3.17 million of 54.1 million reported metering locations had an iMSys. That's 5.9 percent⁶. 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.

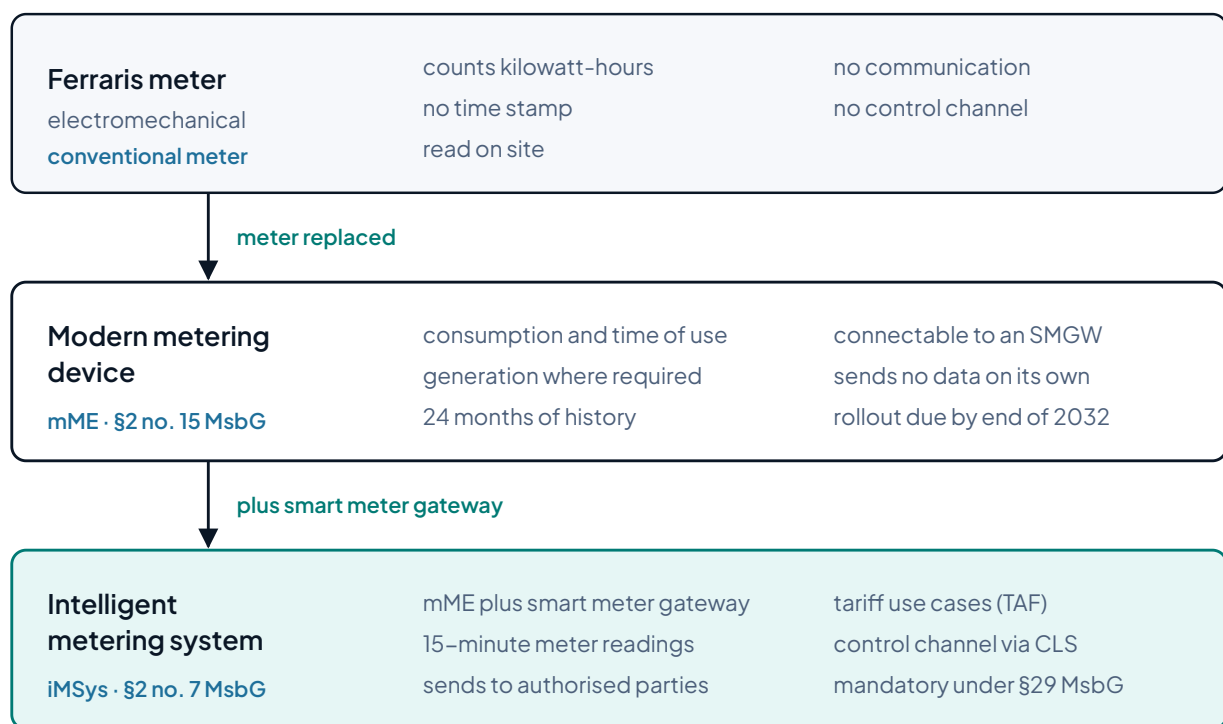


Figure 1: Three stages of metering. The Ferraris meter counts kilowatt-hours with no time reference, the modern metering device records consumption and time of use and can be connected, and only the smart meter gateway turns it into an intelligent metering system with remote transmission and a control 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, WAN⁸.

TECHNICAL STANDARD

Version 2.0 applies, version 1.1 is in the field

The BSI published version 2.0 of the guideline on 27 February 2025, and it didn't retire its predecessor 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 LMN⁸. 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 apart⁸. 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 law⁸.

Configuration belongs to one party only, the gateway administrator, GWA for short¹². It loads profiles and firmware and monitors the device. If needed, it wakes the gateway with a signed data packet. The readings? Out of its reach. The guideline puts it bluntly: "The GWA has no insight into the meter readings."⁸

Configure everything, read nothing. An odd division of labour for a box in the basement, and a consistent one.

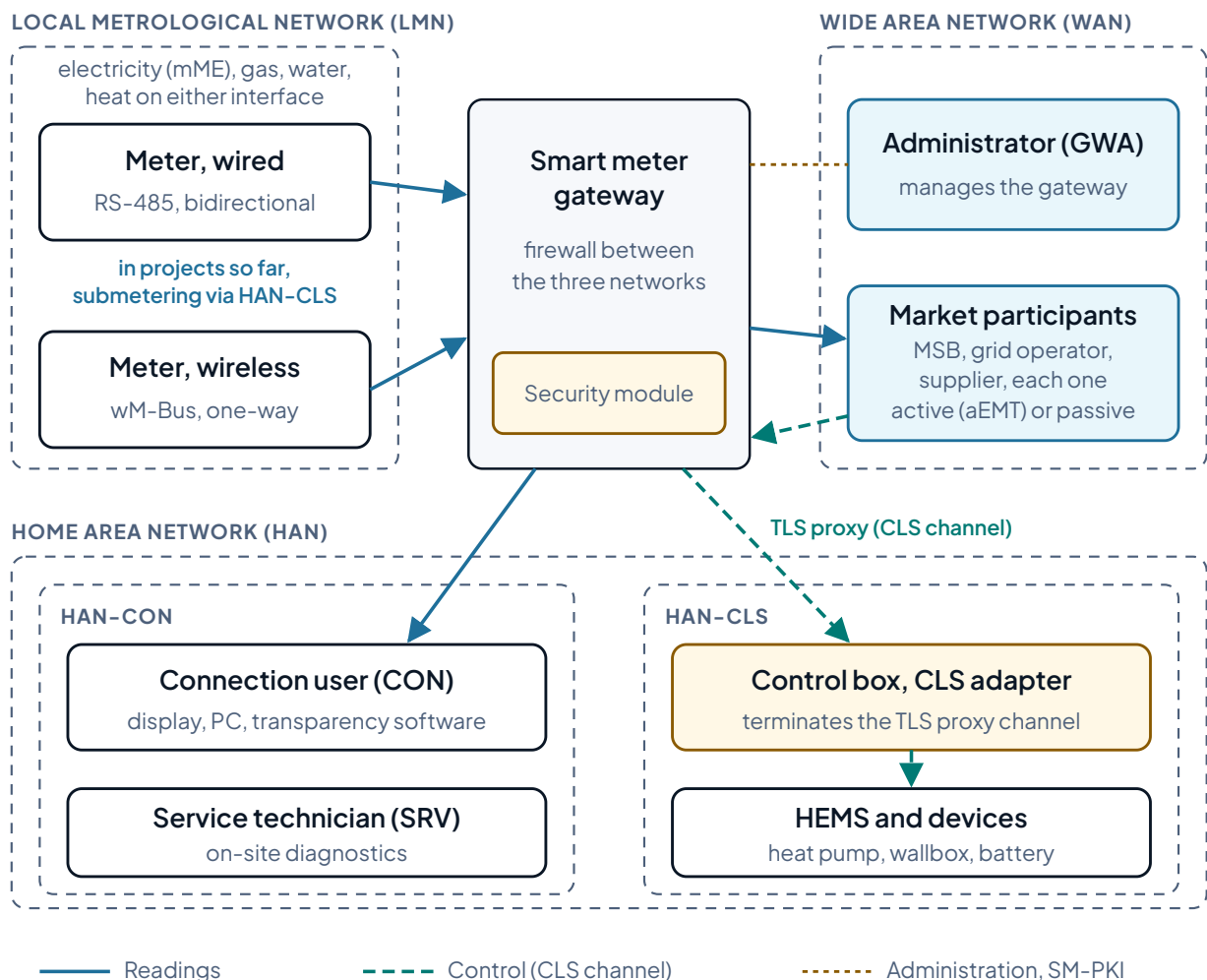


Figure 2: The three networks of the smart meter gateway. Meters deliver over the LMN, while in the projects known so far submetering arrives through an adapter in the HAN-CLS. The gateway sends readings to the market participants in the WAN and to the customer in the HAN. The gateway administrator manages 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

How do readings get in? Two physical interfaces, and the gateway must have both¹¹.

Wired means RS-485. On top of it the guideline stacks HDLC as transport protocol and TLS above that, and the gateway polls the meter actively¹¹. 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 for¹¹.

Several customers can share one device. In an apartment block the gateway has to keep the meters of different connection users apart⁸. 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 level¹².

So one device can 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 beforehand⁸.

The third role is the interesting one. 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 allocators⁸.

For these devices the gateway acts as a TLS proxy. One encrypted channel arrives from the WAN, another leads into the home network. Both end inside the gateway, which hands the data across without processing it⁸. Who may use the proxy? Only an active external market participant, aEMT. 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 itself¹¹. Whether display and control box share a segment in a given house comes down to the device and the installation.

And from outside? Direct access from the internet to the gateway's services, say via the customer's router, is not provided for¹¹.

This proxy channel is where control happens. 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. 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 material⁸. Physically it's part of the gateway. Yet the protection profile treats it as a product of its own, certified separately¹⁴. How that fits together is chapter 3.

Next, the **control unit**. That's the act's term. Installing and running it, the link to the gateway and to an energy management system included, is a standard service of the metering point operator¹³. The industry says control box, Steuerbox. VDE FNN writes its specification, currently version 1.5 of August 2025¹⁵.

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 side¹⁶. Inside that channel, back end and adapter speak whatever protocol the application needs; IEC 61850, EEBUS and OpenADR are the guideline's examples¹⁶. The BSI list now holds 26 certificates¹⁷.

Last comes the customer's **energy management system**. 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 something⁸.

Why the confusion over names? Because the component comes in several designs. Germany's energy agency dena lists four labels in use for it: CLS unit, CLS communication adapter, HAN communication adapter and (FNN) control box. According to dena, the terms reflect the range of implementations, and the FNN control box is the standardised variant. It has digital interfaces via EEBUS and analogue ones via relay contacts, and passes the signal either straight to the device or to an energy management system¹⁸.

Four names, several designs. In a tender, only the guideline number makes it unambiguous.

The WAN question

"The protocols below the network layer are not specified by this technical guideline."¹¹ One sentence, in a note on figure 4.2. With it, the WAN becomes the operator's problem. LTE, a 450 MHz network, powerline over the power cable, fibre? The guideline doesn't choose.

Legally, the bar is low. Besides the route in use, the gateway has to be open to one more kind of remote communication, arranged by the administrator¹². A second medium as an option. No more.

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 it³. No such ordinance could be found by mid-October 2026.

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; at the end of 2020, 96.5 percent of the land area had LTE. Its conclusion: "With only one of the communication technologies available to date, sufficient coverage and availability cannot be guaranteed. Hybrid solutions would be needed."¹⁹ And land area isn't a basement.

No help from the protection profile either, 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 Availability is an operations question.

And in a blackout? Public telecom networks aren't blackout-proof across all their components, notes an expert report by BET and WIK-Consult for the federal economics ministry, dated 28 June 2024. For the customer installation, blackout robustness is enough: an orderly restart once the voltage returns. To connect the iMSys, the report recommends the 450 MHz radio network²⁰. German law does list an "uninterruptible, blackout-proof, dedicated wide area communication connection" as an additional service. It ties that service to a statutory ordinance¹³, and none had turned up by mid-October 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 2025²¹. By 27 August 2026 the company was talking about 100,000 active SIM cards and a nationwide network. A percentage? None given. Smart meter gateways appear there as a device category, without a number of their own²².

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 technology⁶.

How often does the connection fail in the field? There are only indirect signs. A PwC study, 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. Sample and method aren't stated²³.

By now the Federal Network Agency treats this as a compliance question. Installing an iMSys alone is not enough, it says; the devices must reliably record quarter-hourly values and transmit them to the authorised parties⁶. Without a working WAN connection, that can't happen.

Which leaves this. For the LMN the guideline prescribes cable and radio standard. For the WAN, nothing. It does describe a network diagnostics service, through which the gateway reports its modem's signal quality and connection data to the administrator or a market participant. Optional, though. The manufacturer merely declares whether a device implements it⁸. With the right device the problem can be measured. Solved it isn't.

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 electricity⁸. And the act requires the iMSys to receive readings securely from meters of all four utilities, heat metering devices included¹².

Publicly described projects take another route. Submetering, the consumption metering inside multi-occupancy buildings, enters the gateway there through the home network. 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 running²⁴. The BSI list now includes a "CLS Adapter Submetering 2" certified under TR-03109-5¹⁷.

The BDEW sees it the same way. For submetering and existing installations, the association wrote in October 2024, the route via CLS channel and control unit "will continue to be necessary"²⁵.

A contradiction of the specification? No. The same guideline that puts heat meters on the LMN counts data concentrators for heat cost allocators among the CLS on the home network⁸. Both routes are specified, although the LMN route for submetering only arrived with version 2.0 of the guideline⁸. So far, publicly described projects build the second.

And what does the law demand? 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 2031²⁸. 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 metering³⁰. Mandatory iMSys installation under section 29 MsbG is about electricity only⁵. Gas has its own conditional connection duty in section 40, and it covers only new meters at existing gateways²⁷.

How connectable is the field, really? A consultancy source from June 2026 keeps it short: the systems are meant to be interoperable and connectable, but "in practice they often aren't". CLS connections work in pilot projects, it says. Productive rollout is still to come³¹. A named multi-utility project over the gateway with published production figures for 2026 could not be found.

Open ground, then, 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 utility¹³.

Where the data goes

Readings leave the gateway in one of two ways. Directly, in a star pattern, to each authorised recipient in the WAN. Or indirectly via a market actor⁸. If the route runs through the administrator, the gateway encrypts the content with the recipient's key¹¹. 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 too³². The target is in the statute book. For now, the work stays in the back end.

Meter data management lives there, and so does dispatch in the formats of market communication. That's chapter 7.

And the grid operator? It also receives the actual feed-in from TAF 9 and grid status data from TAF 10⁸, the subject of chapter 4. 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 once²⁰.

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

Reading heat or water through the gateway? For now, expect the CLS route 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: 14 October 2026

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. Nothing yet requires post-quantum methods in smart metering.

And the supposed clash over the deadline for gateway administrators? There isn't one.

Six parts, ten years apart

15 December 2014 and 13 December 2024. Both dates appear in the same document, the umbrella document of the BSI technical guideline TR-03109, version 2.0.1 of 8 December 2025. The older one belongs to the security module, the newer one to the gateway¹.

TR-03109 is a family of six parts, each covering one component or role, each with its own version¹:

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
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 year¹. The edition in force is still "Stand 2025" from December 2024⁴; no 2026 edition had appeared by mid-October 2026⁵. Part 4, the PKI, has no such shortcut. Its text is from 2017.

Why should a list of versions matter? Because the law is tied to it. 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 website⁶.

So, legally, what counts in the end is a web page. Keep that in mind. It explains a false alarm this chapter comes back to.

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 functions⁶ and, through its assurance package, fixes how deeply a product is examined⁷. The manufacturer then writes the security target for its specific device and has the device evaluated against it⁷.

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.2⁷.

Behind the acronyms lies a trade-off the profile states 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 all⁸. The toughest penetration testing, middling depth everywhere else. A compromise, and an honestly argued one.

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 many⁸.

Two things the profile deliberately leaves out. Availability isn't a security objective, since under section 25 MsbG reliable operation is the gateway administrator's job⁹. And the security module that holds the keys is a separate product with its own protection profile, even though it sits inside the gateway⁷. 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 node⁷. For control, the BSI followed up with a non-binding implementation note on 16 September 2025¹⁰. 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 testing¹. Section 24 MsbG demands both: security certification by the BSI under the Common Criteria or the European EUCC scheme, and conformity certificates for the guidelines¹¹. EUCC has applied since 27 February 2025¹². Procedures under the national scheme had to be completed by 27 February 2026¹³, and new security certificates for gateways have carried an EUCC number since then¹⁴. Metrology law adds a third check: for the functions relevant to legal metrology, the PTB issues a type-examination certificate¹⁵.

Here is what that looks like in the BSI product list. EFR's Secure Smart Grid Hub, version 2.00, has an EUCC certificate of 20 March 2026 and a TR certificate of 24 March 2026, listed separately¹⁴. Both still belong to the old state: the EUCC certificate names version 1.3 of the protection profile¹⁶, the TR certificate names TR-03109-1 version 1.1 as its test basis¹⁷. The same holds for all five gateways on the list. As of mid-October 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 system¹¹.

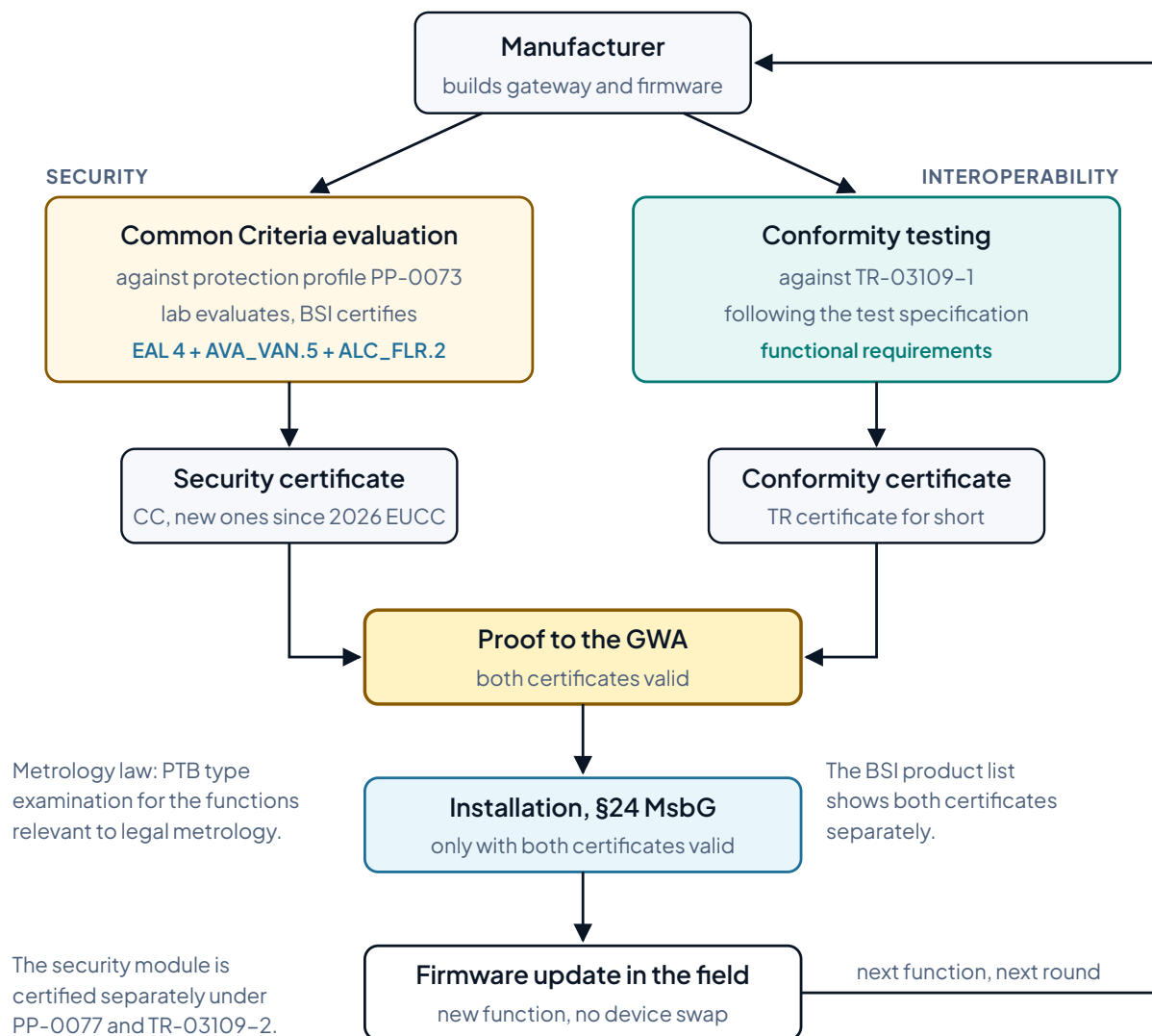


Figure 1: Two checks, one installation. The gateway needs a security certificate against protection profile PP-0073, with new ones issued only under EUCC since 27 February 2026, and a conformity certificate against TR-03109-1, called a TR certificate in the BSI product list. Only both together, shown 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.

What about older devices? 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 technician¹².

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 2025¹⁸. The BSI still lists this version as current², 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 it⁷. 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 once¹⁹.

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 BSI⁹.

That reads like one proof. It's two.

TR-03109-6 draws a clean line. 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 requirements¹⁹.

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 publication²⁰. 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 guideline¹⁹. 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 that¹⁹. Version 1.0 stays valid until the end of 31 December 2028¹.

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 website²¹, just as section 22(2) sentence 2 MsbG provides⁶. The announcement of 17 December 2025 says "spätestens ab 2027", from 2027 at the latest, and leaves out 2028²⁰. 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 parties¹².

The smart metering PKI: one anchor, many branches

How does a gateway know 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 certificates²². 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 who²³. Below it sit eleven registered Sub-CAs, run by IT service providers, manufacturers, gateway administration service providers and grid operators²⁴. They issue the certificates of the end users: external market participants, gateway administrators, gateway manufacturers and the gateways themselves²⁵.

Each end user gets three certificates with separate keys, one for TLS, one for encryption, one for signatures. There's a reason for that. Readings can travel through the administrator rather than straight to their recipient, so the connection is secured with TLS and the content is also encrypted and signed for the final recipient²⁵. 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 job²⁵. A detail with consequences: the revocation list lives in the back end.

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 detected⁸.

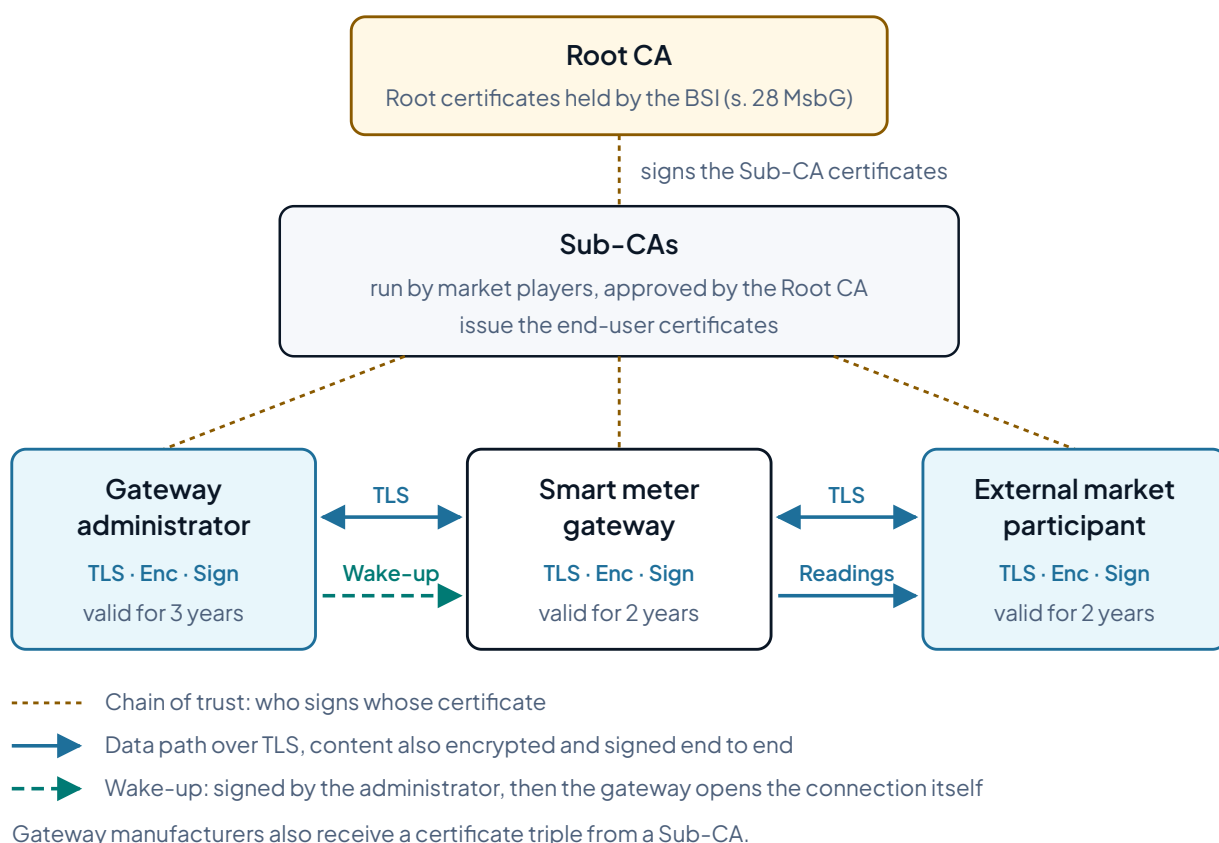


Figure 2: The chain of trust in the smart metering PKI. Under section 28 MsbG the BSI holds the root certificates; the Root CA certifies the Sub-CAs, which issue each end user a certificate triple. The root certificate is valid for eight years, Sub-CA certificates for five, the administrator's for three, 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 only through a signed wake-up.

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 two²⁵. The certification authorities change their own certificates even sooner: under the certificate policy, the Root CA every three years and each Sub-CA every two²⁶.

What does that mean across the country? By 30 June 2026, intelligent metering systems were installed at 3,172,579 metering locations²⁷. 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 meters⁷. 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 entirely²⁵. With every new certificate the administrator sends the gateway the whole chain down to the anchor it has stored, link certificates included²⁵.

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 nothing²⁵. 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 top²⁸.

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 reason²⁹.

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 all⁴.

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.GWASY.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 exists¹⁹.

It would be hard to put the problem more precisely. Nor does the guideline stop at the 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 measures¹⁹. Only all of this applies to the administrator. The protection profile for the device doesn't contain the word "quantum" once⁸, the guideline for the security module is from 2014¹, and that's exactly where the keys live.

NOT FIRMLY ESTABLISHED

Whether 2030, 2031 and 2035 apply to gateways

The February 2026 deadlines are general recommendations from the TR-02102 update²⁸. The October 2026 guideline works by risk level, and the classification happens in each organisation's own risk management²⁹. 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-03109-6¹⁹; 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 effect³.

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 cloud connection 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 it³⁰.

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 2024³. 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 recertification³¹.

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 there⁸. An adapter inside a connected heat pump is exactly that kind of device.

So what happened? By mid-October 2026 the BSI lists 26 certificates under TR-03109-5. The products are called control box, control module, CLS adapter or smart reader. Not one is a heat pump, a wallbox or a storage unit³².

That fits the bne's warning without proving it. 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 draws it where a manufacturer can still certify at a reasonable cost. Both lines have reasons behind them. They just 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 describes³³.

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 consents³⁴. Then every manufacturer has its device tested, twice. Last, the administrator pushes the update into the field, and only firmware the BSI has released¹⁹.

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 them³⁵. 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 binding³⁶. The familiar count of TAF 1 to 14 therefore reflects the state before 2021.

The product list shows how tight the cycle runs. For a single gateway model, Theben's CONEXA 3.0, it shows TR certificates dated 31 January 2022, 31 May 2023, 16 February 2024, 5 May 2025 and 14 October 2025¹⁴. Five conformity checks in not quite four years.

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 2021³⁷. No newer version has been published, 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 Use the installation window up to the end of 2027 deliberately

Gateways on the old state may only be installed until 31 December 2027. As of mid-October 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: 14 October 2026

SUMMARY

A tariff use case, TAF for short after the German Tarifierungsfall, 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. 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.

Nobody needs TAF 11 to dim a heat pump under §14a EnWG. Today that runs over the CLS channel; 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.

Which function is actually switched on in how many gateways? No authority knows.

What a tariff use case is

"Gateway with TAF 1, 2, 6, 7, 9, 10 and 14." That is roughly how manufacturers describe their devices¹, and the line says nothing about what the device measures. It doesn't need to. The numbers say it, at least to anyone who knows the guideline.

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-03109-1², and the gateway administrator configures them.

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 optional³; 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 optional³. The mandatory rollout started on exactly this profile in 2020, and a year later the Higher Administrative Court of North Rhine-Westphalia held the very same profile to be unlawful³ (chapter 1 tells the story).

The practical consequence is awkward. A TAF is a certified software function. It reaches the field through a firmware update, the hardware alone tells you little, and what a given gateway can do today depends on the version of the guideline it was last certified against.

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 blocks⁴. Manufacturer sources still count TAF 1 to 14¹, and since the market uses that count, so does this chapter.

Every tariff use case at a glance

The table shows the catalogue the way manufacturer sources list it, and next to it what version 2.0 of 13 December 2024 has made of it⁵. Behind "mandatory from 2027" sits the level MUSS+. Gateways certified against the new version from 1 January 2027 must support the function⁶; whether it then runs in the field is another matter, and the last section deals with it.

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
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

TAF	What the gateway does	Purpose	In version 2.0
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 manufacturer sources^{5,7,1}. Older overviews assign some numbers differently; in 2019 the FfE, for instance, filed TAF 9 under controllable devices⁸.

And what the guideline doesn't describe itself? Version 2.0 leaves a door open for that: a gateway may implement further tariff use cases if supplementary BSI documents describe them⁵. The note on TAF 5 and 16 is just 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^{3,7}. 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+⁵. The BSI note on TAF 5 and 16 from September 2025 also lists it next to TAF 1, 2, 7 and 8⁹. The gateway takes over values that a registering meter forms itself instead of registering them on its own. So "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 term, for electricity as well as gas, water and heat⁵; nothing more leaves it. That's how the gateway was once meant to work for households. Since the GNDEW, though, metering points with a smart metering system and up to 100,000 kWh a year are metered by a series of register readings or, where available, by quarter-hourly registering load profile metering¹⁰. 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. 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. An intelligent metering system without TAF 7? An expensive digital meter.

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 2021⁷, and version 2.0 reassigns number 8, to load profile formation with maximum values, required from 2027⁵.

That leaves TAF 12, the prepaid tariff: a prepaid energy amount counts down, and at a threshold a signal goes out¹. It has nothing to do with feed-in management or redispatch. The current feed-in comes from TAF 9, and redispatch isn't a tariff use case at all; it's a process under §13a EnWG that runs through its own channels.

The prepaid case has been gone from the guideline since version 1.1 of 2021⁷. Version 2.0 doesn't bring it back⁵.

Grid: TAF 9 and TAF 10

Measurements from the low-voltage grid were something a distribution system operator never had. TAF 9 and TAF 10 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 frequency⁵, and one manufacturer calls the gateway with TAF 10 the most important sensor in the grid¹¹.

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 concerned¹².

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's what minute values are for, and those cost extra and are capped at a quarter of the equipped connections.

So every grid operator has to pick the feeders it wants to see minute by minute. Blanket planning with minute-level TAF 10 simply isn't something the law foresees.

Then there is §14a. 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 latest¹³. 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 11¹, and it would seem obvious to dim a heat pump under §14a through it. That is exactly what doesn't happen.

Back in 2021 the Higher Administrative Court of North Rhine-Westphalia set out the situation soberly. TAF 11, it said, 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 question³.

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^{7,5}. 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 network¹⁴. In the home network a control box sits at the end of it. It passes the command on to the device or to an energy management system.

The law sees it the same way. Section 34(1) no. 6 MsbG speaks of data communication "via the smart meter gateway and a control unit connected to it"¹², and a tariff use case doesn't appear in the provision at all.

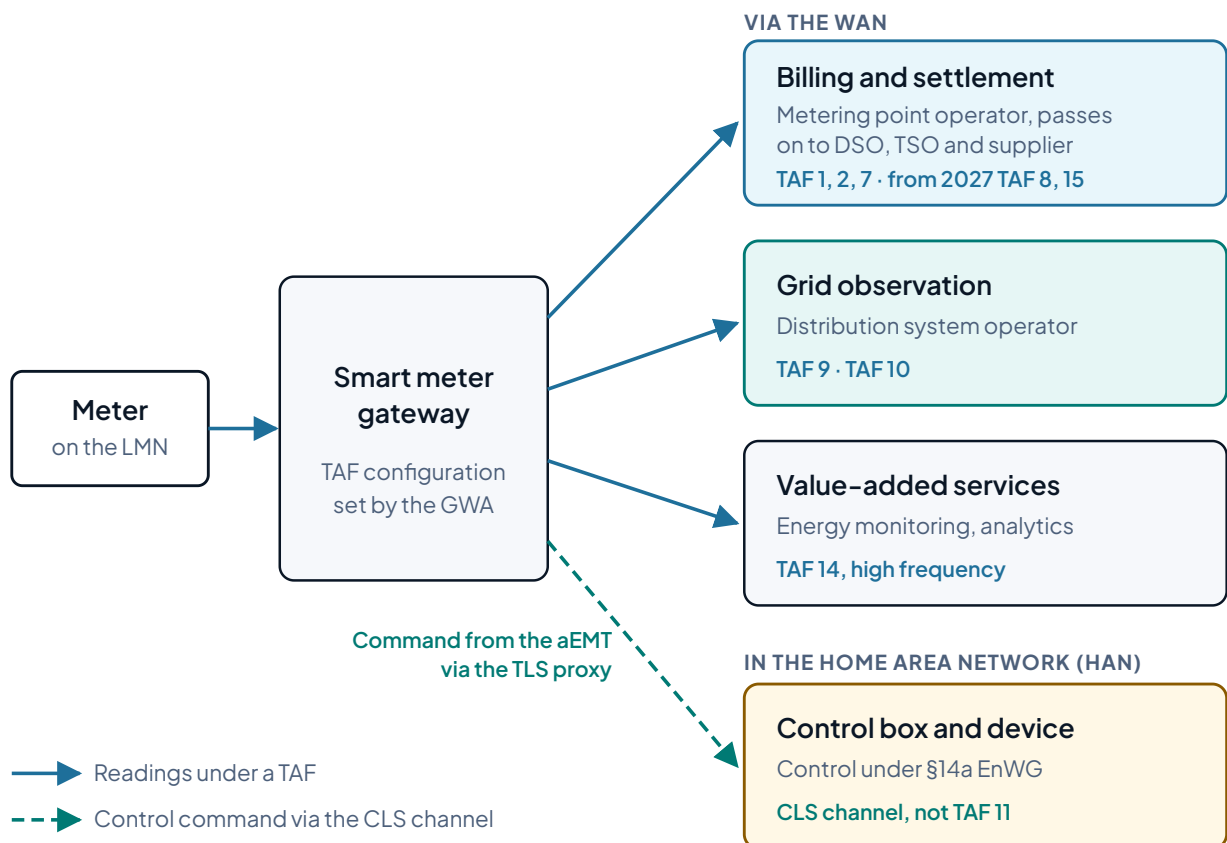


Figure 1: Where the tariff use cases deliver. Billing and settlement, grid observation and value-added services run over TAF. Billing values go to the metering point operator, which passes them on to the grid operator, the transmission system operator and the supplier under section 60 MsbG. Quarter-hourly 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 a door has been open. Version 2.0 of the gateway protection profile, BSI-CC-PP-0073, comes with the functional package "Power Limitation" for the case where the gateway controls devices itself¹⁴. 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 counterpart¹⁵.

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 level¹⁵. 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 proxy¹⁶.

A grid operator has shown that the technology works in a trial. In September and October 2025 Bayernwerk and Power Plus Communications sent around 1,100 control commands straight from the gateway to generation, storage and consumption devices, no control box involved, over EEBUS, and 99.63 percent went through¹⁷. 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-2026¹⁷.

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 EEBUS-Service-GmbH¹⁸. 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 mid-October 2026¹⁹. The announced schedule has slipped. Integrated control has reached the field anyway. On 1 July 2026 one competitive metering point operator reported 10,000 installed gateways with an integrated CLS module, BSI-certified according to the manufacturer, and a second one announced a contract for software to control devices directly from the gateway²⁰. The reports don't say against which version they were certified.

The BSI wants no untested counterpart in the home network, the BDEW no second certification route for the same goal. The BSI has since described the route inside the gateway technically, but it isn't binding, and as of mid-October 2026 no gateway is certified for it. That doesn't settle the dispute.

A sensible metering point operator therefore plans with the box and builds the architecture so it can be pulled out one day.

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. Each of these steps takes time.

Testing 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 separately¹⁹. For the functions relevant to legal metrology, a PTB type-examination certificate is added³. 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^{3,21}. In early 2021 TAF 9 and 10 only existed in the optional "Netz" profile³ and became mandatory only with version 1.1 of September 2021⁷; they reached devices through recertification, at Power Plus Communications as early as 30 October 2020²².

Read somewhere today that TAF 9 and 10 are only arriving now? Then the source is at least five years old.

In the BSI's staged model⁴ 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).

NOT FIRMLY ESTABLISHED

A stage 3 is announced but not described

The staged model is available in version 2.1 from November 2021 and names a third development stage as the goal⁴. No updated staged model has been published, and the BSI roadmap page that belongs to it is marked as an archive²³. Development now runs through new versions of the guidelines themselves.

New cases are on their way all the same. The BSI's 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 16⁹, expressly as a note with "keinen verpflichtenden Charakter", no binding character⁹.

And the old state? 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 2027⁶, TAF 8 and TAF 15 among them⁵.

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 manufacturer claim^{22,1}. Exactly these seven cases have been normative since version 1.1⁷, and all five gateways on the BSI list hold a conformity certificate against that version²⁴. Whether the functions are switched on in the field is another question, and no statistic answers it.

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.

Between catalogue and reality, then, a gap remains. 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 else sees that.

Four checks help close the gap 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 basis²⁴.
- 2 Record the TAF configuration as an inventory**
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**
No TAF 11 in the specification.

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Grid-oriented control under §14a EnWG

§14a EnWG without the myths: curative control with a transition rule to 2028, the 4.2 kW minimum, the control chain via CLS, modules 1 to 3.

Reviewed: 14 October 2026

SUMMARY

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

Dimming is curative. A threat to the grid has to be established first, 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. That's exactly where 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 charges¹, and four days later Ruling Chamber 6 decided when the grid operator may dim them in exchange². 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 voltage⁴.

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

Four groups, one threshold. 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 kW⁴.

Every device commissioned after 31 December 2023 has to take part. The ruling has exactly two exceptions. One covers charging points run by bodies with special road traffic rights, such as police and fire services; the other covers 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 excuse⁴, and commissioning doesn't have to wait until the iMSys and control box are in².

Money isn't all the owner gets. A grid operator may not delay or refuse the connection of a controllable consumer device by pointing to a lack of grid capacity⁴. The discount is only half the deal.

The 4.2 kW come from charging technology. 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 kW². The same number does two jobs on purpose, as threshold and as minimum power.

Curative: when dimming is allowed

One sentence in the ruling carries this whole chapter.

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 steps⁴. Upstream grid operators have no role under §14a².

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 counts⁹.

Does curative mean waiting for the fuse to blow? No. 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 react¹⁰.

4.2 kW

**are guaranteed to every
directly controlled device
during an intervention**

Annex 1, clause 4.5.1⁴

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
2028⁴

There's an upward exception. For directly controlled heat pumps and cooling systems rated above 11 kW, the 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 it¹¹. Storage units and wallboxes keep their 4.2 kW, even where that's less than 40 percent of their rating².

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 EMS⁴.

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, for 24 months per network section from the first use, two hours a day, and the minimum power stays⁴. The chamber justifies the cap by noting that this kind of control "as a rule" doesn't rest on real-time data².

"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 update³. 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 cuts responsibility into three pieces. The grid operator assesses the grid and hands over the order. The metering point operator gets it into the metering system. Making the device follow is the owner's job².

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 traffic¹⁵. What the control box has to do is set out in a VDE FNN requirements document, currently version 1.5 of August 2025¹⁶. 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.

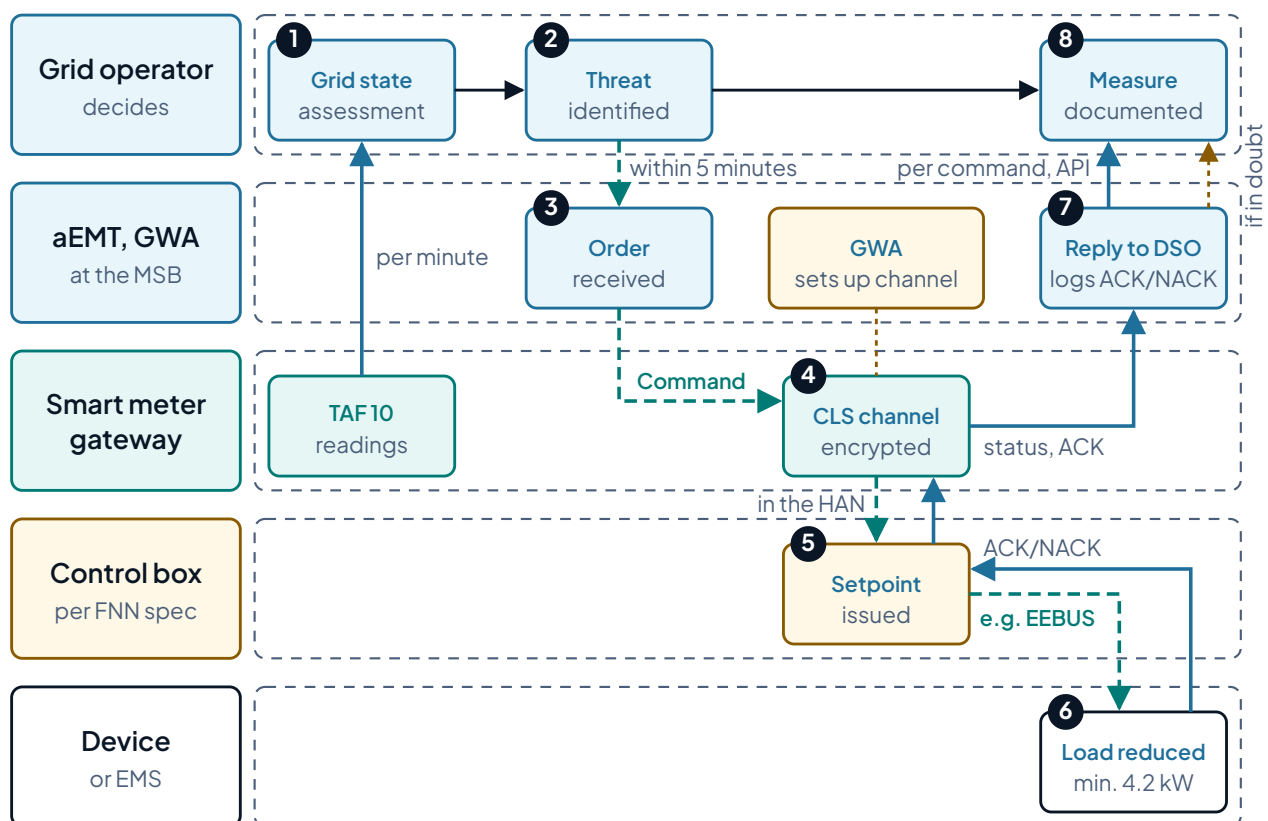


Figure 1: Simplified flow diagram, not BPMN notation. The numbered steps run from the grid status assessment through the control command to the answer the metering point operator sends the grid operator for every command, and on to the grid operator's documentation. Dashed: control command; solid blue: 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 device⁴. 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 applies⁴.

To check the maths: a wallbox, a heat pump and a storage unit, all below 11 kW. Direct control leaves 12.6 kW. 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.

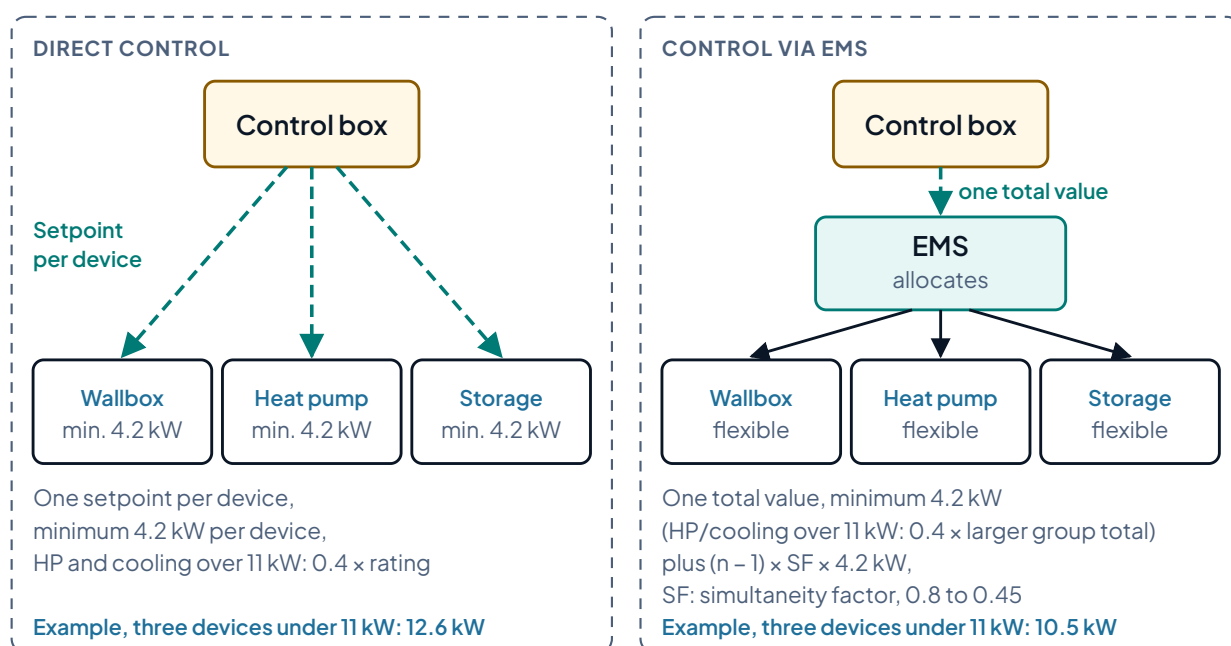


Figure 2: Direct control and control via an EMS side by side. On the left every device gets its own setpoint from the control box (dashed). On the right the EMS receives one total value (dashed) and allocates it to the devices as the owner decides (solid). Both examples assume three devices under 11 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 interfaces². The FNN 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 involved²⁰.

And the box itself? The 2023 ruling had already asked that the recommendations anticipate the control function moving elsewhere, into the gateway for example². The box would then disappear as a separate device 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 control⁴. Under notice no. 58 the API web services will probably stay limited,

until further notice, to market location identification and control²¹. Chapter 7 covers the processes behind them.

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 models⁴.

How much metering is enough? Until a recommendation arrived, the presumption was 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 feeders⁴. The recommendation came in April 2025, and on 14 April the agency recommended it for use²². 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 fails²³.

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 %

The table really answers an investment question. 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 area¹⁴. 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 pilot²⁴.

Three modules, two metering worlds

The reward sits in BK8-22/010-A. If the owner doesn't choose, the grid operator bills module 1²⁵.

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

Nobody needs an iMSys for modules 1 and 2. Once the owner has asked the metering point operator or the grid operator to make the device controllable, the owner's duty is met, 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 works differently. It 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 untouched²⁷. (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 law²⁶. So ask your metering point operator which route it takes. Either way, the grid operator receives values per tariff level.

The usual order route 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 follow²⁵. Four roles in a row, and if one stalls, the customer waits.

That's exactly where it jams. 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. They had until 30 September 2026 to fix the shortcomings²⁸. As of

13 October 2026 the enforcement list shows four proceedings against distribution system operators, all at the stage of a threatened penalty, none imposed²⁹. The introduction on the same page still speaks of two companies. Count 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: configuration orders, time windows in the gateway or the back end, values per tariff level. That's what the regulator measures.

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 extensions².

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 from².

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 flexibility².

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 one question counts: was a reduced grid charge actually billed before 1 January 2024¹? Night storage heaters keep their old arrangement until they stop operating. Controllable legacy devices without an earlier discount aren't covered at all, though their owners may switch voluntarily at any time, just not back⁴. The exemption for devices that can't be controlled has its price, since they lose the guaranteed connection under clause 5².

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 2025², and the final versions date from March and April 2025^{30,9}. When the first review falls due depends on where the clock starts, somewhere 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. The 24 months run from 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**
No gateway, still a discount.

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 delay⁴. 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^{31,32}. 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 logs³⁰. Keep the documentation for at least two years⁴.

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Dynamic tariffs and grid charges in transition

Section 41a EnWG for every supplier, which TAF a dynamic tariff needs, AgNes from 2029 and the MiSpeL determination: what is changing now.

Reviewed: 14 October 2026

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. 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. And the data formats?

A duty for every supplier

"The obligation under sentence 1 applies to all electricity suppliers from 1 January 2025." One sentence in section 41a(2) EnWG. It disposed of the threshold in front of it without deleting a word¹.

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 directly¹.

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. The Federal Network Agency counted 52 in 2022, 90 a year later and 412 in 2024⁵. 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 percent⁶. For everybody else, the duty is an offer nobody can take up.

There is a lever. Since 1 January 2025, 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 cases⁷. Same start date as the tariff duty, and for a supplier the shortest route to a metering system at the customer's premises.

With one catch. The default metering point operator may 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 possible⁸.

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 mid-October 2026. A monitoring report for 2026 had not been published by 14 October 2026⁵. Public figures on the number of such contracts in 2025 or 2026 don't exist.

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 they covered 96 quarter hours⁹. Hourly contracts stayed available.

This is the series that counts. The regulator describes such a tariff as tying procurement costs to the EPEX Spot market and calculates its own model prices from day-ahead results⁵. The exchange offers suppliers a dedicated licence for this, valid per country where the customers are¹⁰. Passing exchange prices on means holding a data contract too.

What about hourly prices?

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 hourly values still fits the definition, no authority had explicitly said by mid-October 2026. A tariff system built today should 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. 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 readings¹¹. As standard, the metering point operator sends that series to the supplier daily for the previous day, billing being one of the purposes¹². In the gateway the function is TAF 7 (Chapter 4): meter readings every 15 minutes, transmitted daily.

And TAF 2? Sounds like the tariff function. It's really 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. The exchange price, though, is only known the day before, and for each quarter hour separately. A window configured weeks ago knows nothing about it.

There's a wrinkle with TAF 7, though. In November 2023 ruling chamber 8 noted that TAF 7 "may not yet be used for billing", in the context of legal metrology rules¹⁴. Chapter 5 shows how metering point operators deal with that for module 3 today.

METERING AND TRANSMISSION

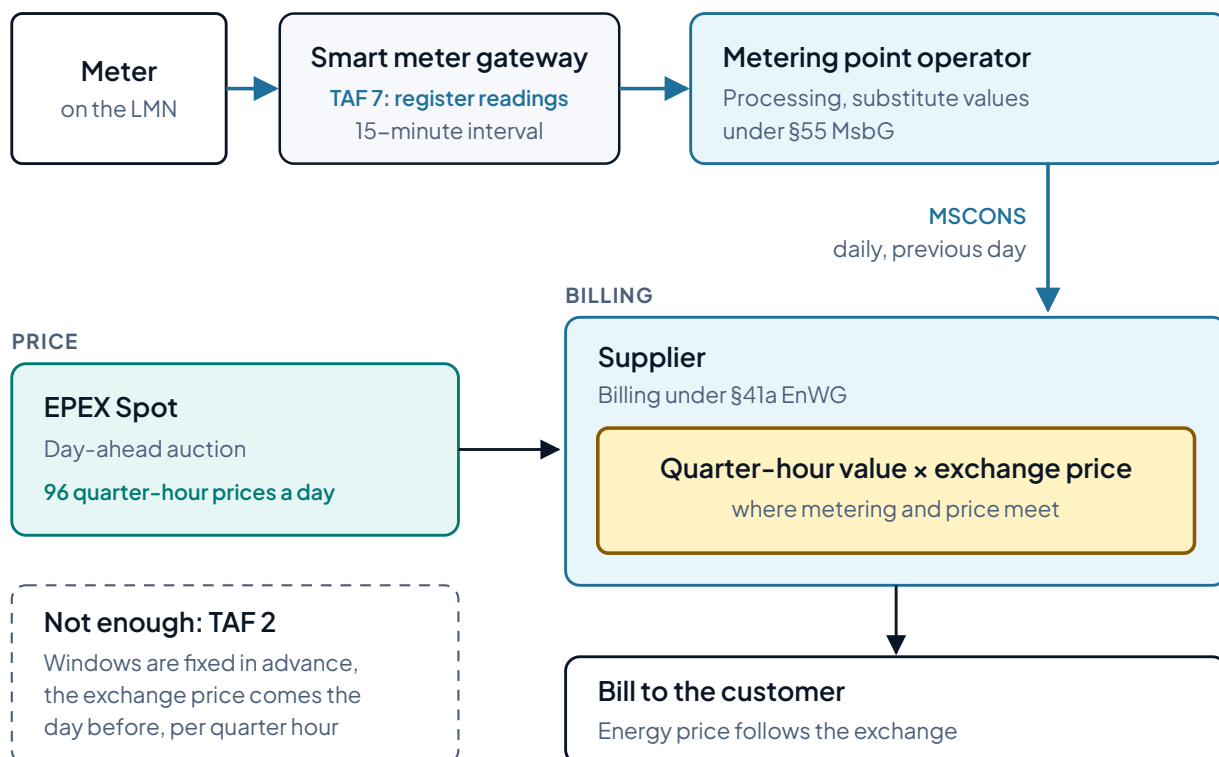


Figure 1: Where quarter hour and price meet. The gateway usually records the series of register readings through TAF 7, and the metering point operator sends it to the supplier every day as an MSCONS message. The day-ahead auction supplies 96 prices a day. Only the supplier's billing brings the two series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

KEY POINT

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

What billing has to cope with

Do the maths. 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.

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 words¹⁵. Since 6 June 2025 these series have been transmitted under determination BK6-24-174¹⁶. Chapter 7 has the details.

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 recording¹⁷. Where no true value is available, the metering point operator forms a substitute or provisional one¹¹. Time series are versioned for this¹⁵. A quarter hour can come back with a different value after the bill has gone out.

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 separately¹⁴.

The real weak spot lies between installation and the first bill. In September 2026 the Federal Network Agency 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 said⁶. 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"¹⁸.

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 5¹⁴.

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. Neither needs an iMSys¹⁴.

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 start¹⁴. Which level applies when, and in which quarters, is fixed in advance on the price sheet¹⁴. Grid operators have to publish it by 15 October for the following year, as expected charges if need be¹⁹. That's the difference from the exchange price.

Then, in 2026, enforcement started. As of 13 October 2026 the Federal Network Agency lists four distribution system operators over shortcomings "in particular in connection with module 3"²⁰. Three fixed levels, known long in advance. And even that stumbles.

The 2027 price sheets fall due one day after this chapter's status date. 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. The law behind it, a new section 24d EnWG, hadn't been passed on that day. Without legal certainty by 7 December 2026, the TSOs expect higher final charges²¹.

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 version²².

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 modules²³. The draft came out on 6 August 2026, with comments due by 18 September. A decision is planned for 2026, follow-up determinations for 2027²⁴.

There's a reason for the hurry. The Electricity Grid Charges Ordinance (StromNEV) lapses at the end of 31 December 2028, and from 1 January 2029 grid charges are to be set and billed under the new determination²². Around €37 billion a year is at stake, which the agency puts at roughly 30 percent of a household's electricity costs²⁴. 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 communication²².

For grid operators that means a new attribute in their master data, due in eighteen months.

Today, feeding in carries no grid charge at all²⁵. 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 commissioning²².

Dynamic grid charges are coming, 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 customers the agency holds off "for the time being"²².

Feature	Today	AgNes draft, from 2029
Household, low voltage	standing charge and energy rate ²⁶	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

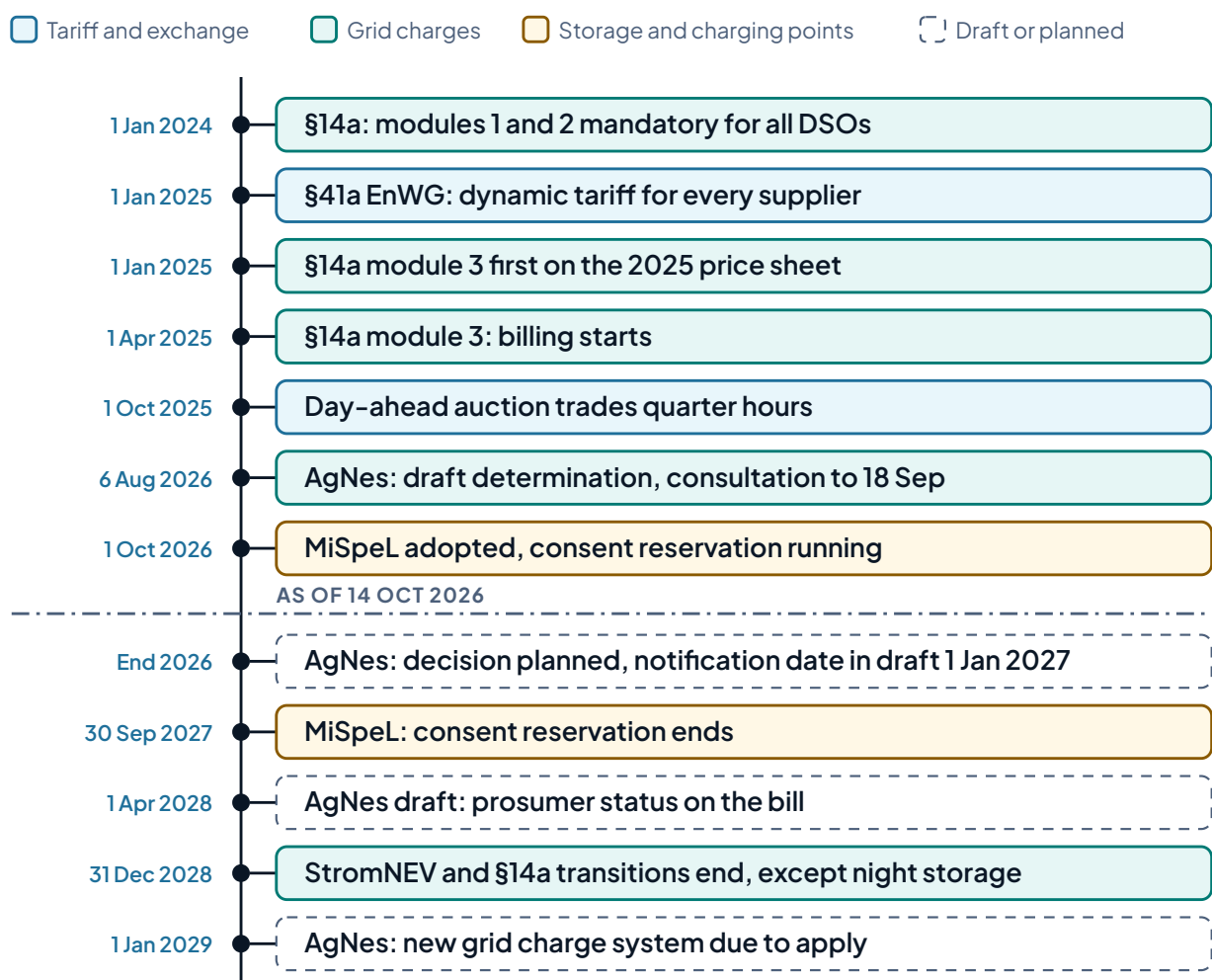


Figure 2: Documented key dates for tariffs and grid charges. Dashed frames mark drafts or plans, the dash-dot line the status date of this chapter. On 31 December 2028 the transition rules for older §14a arrangements end, night storage heaters excepted.

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"²². 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 either²². 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 excepted¹⁴.

How module 3 will develop is open. Many consultation submissions proposed exactly that instead of dynamic grid charges, some with five to six time windows²². The draft has no concrete proposals on it, the Federation of German Consumer Organisations (vzbv) complains²⁶.

NOT FIRMLY ESTABLISHED

Open until the decision

The content above comes from the draft of 6 August 2026 and may 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 October²⁷. 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 kWp²⁷.

Both work in quarter hours. The determination defines simultaneity explicitly as a 15-minute interval²⁷. No quarter-hour values, no MiSpeL. 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 it²².

Then the sentence that matters, item 9 a): "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"²⁷.

At the same time item 7 obliges exactly these grid and metering point operators to make the claims possible²⁷. They have to cooperate. Until then, though, only those with their consent can invoke the determination.

Why the transition period? The industry is meant to adapt its market communication processes, which, however, are "not part of the subject matter of this determination"²⁷. 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. The agency itself calls the period of just under a year "tight"²⁷.

One year of transition, one format cycle: Market communication data formats normally change twice a year, on 1 April and 1 October¹⁶. 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 2027²⁸. If the regular cycle holds, 1 October 2027 is the earliest date for amended format descriptions. That's 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) EEG²⁷. No such approval could be found by mid-October 2026. Until then, only the more demanding delimitation option is open.

Counterpoint: prosumer surcharge, processes, pace

The AgNes draft drew around 1,000 submissions, according to the Federal Network Agency. Two points draw most of the criticism, the prosumer surcharge and the feed-in charge²⁹. For households, the first one matters.

The German Solar Association (BSW-Solar) puts it at up to €165 a year and considers it defensible to extend the feed-in charge to new plants of every size instead. The reform must not "slow down" people who invest in solar panels, batteries, electric cars or heat pumps, says its managing director Carsten Körnig. 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"²⁹. The vzbv, in its submission of 16 September 2026, asks for the surcharge to be graded by plant size²⁶.

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"²². The lines are built. Their costs remain.

For digitalisation another objection weighs more. The bne misses a roadmap for data requirements and market processes: "New payment obligations must not take effect before prices and billing processes are firmly established." The draft offers "no reliable basis for implementation yet", says Kerstin Andreae, who chairs the BDEW executive board, and even the two years planned wouldn't be enough²⁹. Those two years are exactly what agency president Klaus Müller had named as the goal²⁴.

The argument isn't new. Even for module 3, as the draft itself records, several submissions said eighteen months of implementation time had fallen short²².

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 reservation²⁷.

Both camps have a point. The agency hasn't settled the dispute, though. It has postponed it by a year and pushed it down into every single grid area.

What grid and metering point operators should check now

Tariffs, module 3, AgNes and MiSpeL all hang on the same quarter-hour values. Four checks:

1 Measure delivery, not installation

An installed metering system counts in the statistics. 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 list²⁰.

3 Prepare the prosumer flag

The draft requires identification 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, why UTILTS stays, the 24-hour supplier switch, quarter-hour settlement, the MaBiS hub and the section 54 MsbG form.

Reviewed: 14 October 2026

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. There are API web services too, but only for two jobs: identifying a market location and passing on control commands.

That's how it will stay for now. In July 2026 the market was still consulting on replacing UTILTS with web services, and on 1 October the Federal Network Agency took that back.

Since January 2026 a supplier switch has had to work technically within 24 hours. 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. What holds both together? Master data that is right.

What market communication is and where it came from

1,397 pages. That's the length of the application handbook for a single message, UTILMD for electricity, in version 2.2, binding since 1 October 2026^{1,2}. Each case in it, from a termination between suppliers to a master data change, has its own check identifier.

It isn't paperwork for its own sake. The Metering Point Operation Act (MsbG) requires metering and master data to flow in a uniform national format set by the Federal Network Agency³. The expert group EDI@Energy, led by the BDEW, writes the formats. Ruling chamber 6 consults on them and puts them into force by notice¹.

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. The Federal Network Agency's rulings decide which message goes to whom and when. The EDI@Energy documents decide what the message looks like⁴.

The current set-up goes back to a problem in 2018. The law wanted readings from intelligent metering systems (iMSys) 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 2019⁵.

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 exist⁵. Two years later BK6–20–160 brought "MaKo 2022", whose process documents applied from 1 October 2022⁶.

And the gateway as sender? The law still envisages it, but only once the BSI rates processing in the device as technically feasible and the Federal Network Agency bases a ruling on that⁷. 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 is the GPKE, adopted on 11 July 2006 and in force since 1 August 2007⁸.

Rulebook	What it covers	Original ruling	Typical messages
GPKE	supplier switch, assignment, configurations, control commands, master data	BK6–06–009	UTILMD, UTILTS, API MaLo ident, API control
WiM	change of metering point operator, transmission of readings	BK6–09–034	UTILMD, MSCONS
MaBiS	balancing and balance group settlement	BK6–07–002	MSCONS with aggregated time series
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, and the handbooks^{9,2,10,11,12}.

The current GPKE has applied since 6 June 2025, parts 1 to 3 as amended by BK6–24–174 and part 4 as amended by BK6–22–024⁸. MPES disappeared the same day. Its rules for feed-in points now live in the GPKE¹³.

So a PV system runs through the same assignment processes as a household, with its own deadlines once direct marketing is involved¹¹. One rulebook fewer. Part 2 of the GPKE alone, though, runs to 115 pages¹¹.

MaKo 2026: messages, transport, web services

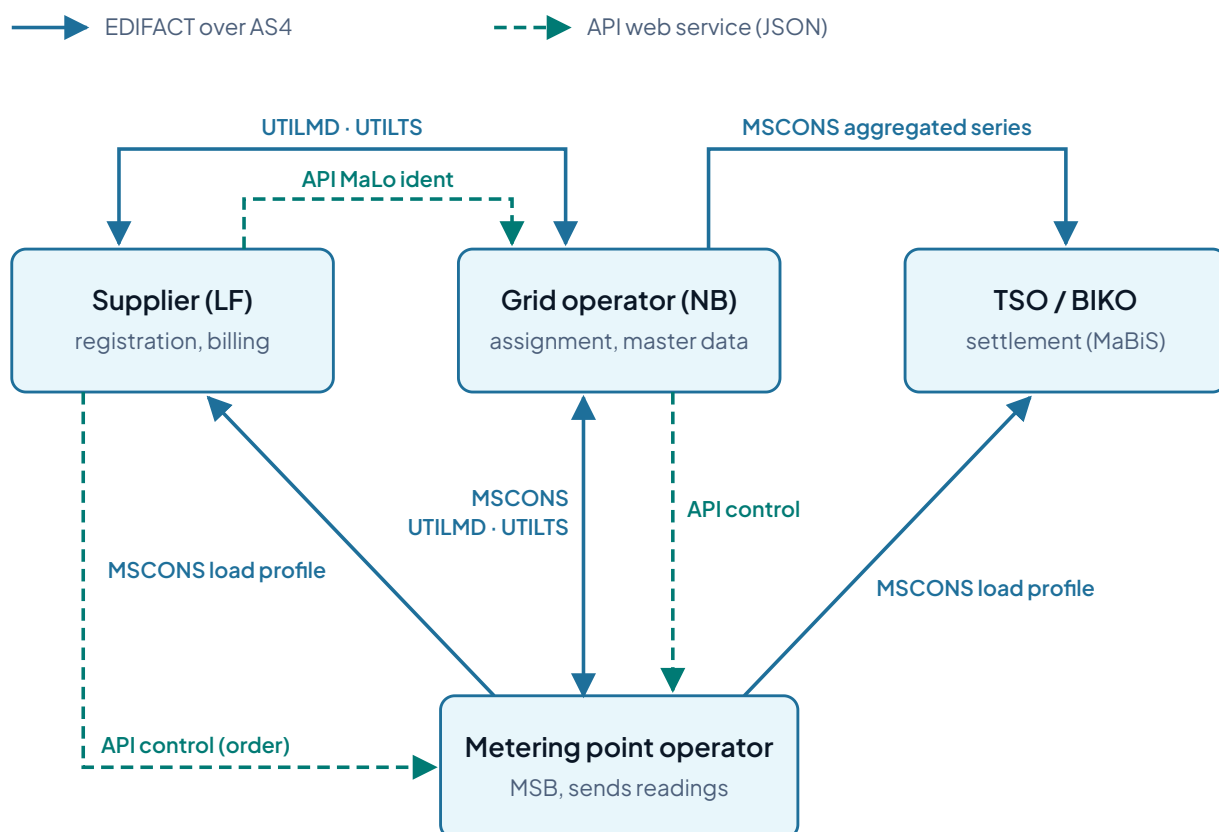
MaKo 2026 is an industry label. This year's formats rest on two notices from ruling chamber 6. The first put new versions into force on 1 April 2026¹⁴. The second has applied since 1 October 2026 and brings UTILMD electricity 2.2, MSCONS 3.2, UTILTS 1.1, APERAK 1.1 and a new AS4 profile, among others¹. Consultations happen twice a year¹⁵.

The main messages, briefly. UTILMD handles registrations and master data². MSCONS carries readings, from a single meter reading to a load profile, and for settlement also aggregated time series¹⁰. UTILTS transmits calculation formulas and the definitions of metering times, switching times and power curves¹⁶.

Every EDIFACT file gets a reply. Besides the AS4 delivery receipt, the recipient sends a CONTRL as a syntax check and, if the file can't be processed, an APERAK⁴. Two acknowledgements for one file.

Since 1 April 2024 these files have travelled 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 latest¹⁷.

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 service¹¹. 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 device¹². The specifications have since moved from Swagger to GitHub¹⁸. Anyone looking there will find a release 2.0.0 next to the production version. It 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^{1,19}.



Every EDIFACT file is acknowledged with CONTRL, processing errors come back as APERAK.

Notice no. 58: web services only for MaLo ident and control, expected until further notice.

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

The current UTILTS handbook has a code for cases where the standard falls short. Z34: "calculation formula must be requested from the sender"¹⁶. 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.

The consultation of 31 July 2026 wanted 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 well¹⁵.

Two months later the web services were off the table. The goal of carrying every formula within the standard was not.

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."¹⁵

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. "All possible location bundles and calculation formulas" are to travel via UTILMD and UTILTS, and a future consultation will present the changes this needs¹⁹.

Both pages are still online. 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 platform¹⁹.

Why the U-turn? 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 say¹⁹.

NEGATIVE FINDING

1 October 2027 was never decided

Where does 1 October 2027 come from as the date for the API switch? 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 formula¹⁵. A committee proposal, not a chamber decision. Since notice no. 58 it has nothing left to refer to.

What's left for 1 April 2027? Not much. 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 ECU 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 lists¹⁹.

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.

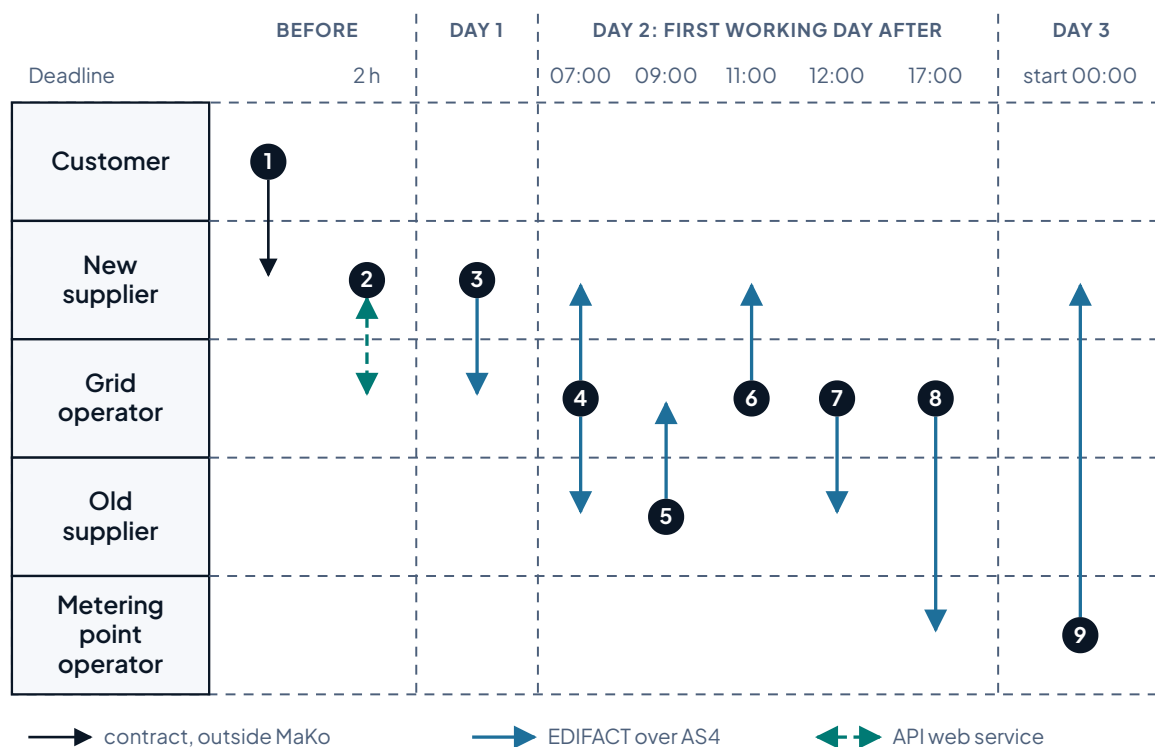
Switching supplier in 24 hours

"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 registration²⁰.

The Federal Network Agency built the processes in ruling BK6–22–024 of 21 March 2024. They've been live since 6 June 2025²¹.

The GPKE sets tight deadlines¹¹. The new supplier first 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, the clock runs. 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 supplier¹².



- 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.

Worked through as an example, a registration on Monday allows supply from Wednesday, midnight, at the earliest¹¹.

INDUSTRY PRACTICE

The start in June 2025

The Federal Association of Energy Market Service Providers (BEMD) measured how bumpy the start was. 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 operators²².

Three days from 10 to 80 percent. Fast, for an interface the whole market switches on at once. It wasn't over, though: 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 months²².

The quarter hour instead of the profile

On 25 October 2020 the day had 100 quarter hours. The MSCONS handbook still uses that clock-change day as its example, and for the spring change it's 92¹⁰. Otherwise 96. A detail any software that processes load profiles has to get right.

Which market location is balanced by profile and which by measured quarter hours, the GPKE settles in three sentences⁴:

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. 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 4²³. And the metering point operator has to send the series daily for the previous day to the grid operator, the transmission system operator and the supplier⁷. In market communication that's an MSCONS with the load profile of the measuring or market location¹⁰.

The change came with ruling BK6–24–174 of 24 October 2024. Grid and metering point operators had to start preparing quarter-hour balancing for market locations fully equipped with iMSys no later than 1 December 2024⁹. Since 6 June 2025 their meter reading series have been sent throughout²¹.

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 operator¹². 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.

For §14a this has consequences. When a grid operator steers a heat pump for grid purposes, it has to tell the supplier about every such intervention, and it does so through electronic market communication²⁴. 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.

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 latest²⁵. In May 2025 the chamber split the procedure into two blocks, first meter value processing and pseudonymisation, later balancing and settlement^{25,26}.

The roles already exist in law, as meter value processor and aggregator²⁷. On formats, things have been clear since 1 October 2026: the hub stays with EDIFACT as well¹⁹.

The Federal Network Agency hasn't set a start date, and the ruling on the first block is still pending¹⁹. The timetable doing the rounds in the market is a BDEW proposal. The chamber put it out for consultation in September 2025 with its content unchanged and pointed out that it may still change²⁸.

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"²⁹.

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 partners²⁵.

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"³⁰.

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^{29,30}.

On data protection the obligation is clear: the law explicitly requires pseudonymisation of load profiles and meter reading series in a whole range of transmissions³. The route there is open. On the timetable, data quality decides. A hub that needs almost all master data on day one won't start before the master data is ready.

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^{31,32}. Little per case, but the total grows with every metering point and every day.

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)³². The metering contracts bind only

the default metering point operator and cover modern metering devices and iMSys. The form under section 54 MsbG comes attached³³. The law asks for an easily understandable form listing who gets which data from whom, how often and for what purpose³⁴.

The link to market communication is section 4 of the framework contract, which refers 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 run³¹. A process description turns into a contract risk.

That leaves the part no ruling can solve alone. For the MaLo ID request the GPKE knows exactly one error case: the market location can't be identified, or not unambiguously. Supplier and customer then go into bilateral clearing¹¹. In UTILTS the same exit is called code Z34. In both cases the standard ends where the master data is wrong.

The MaBiS hub sharpens this. 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 location¹⁵. They aren't in an EDIFACT release for 1 April 2027, because there isn't one¹⁹. Working on your own data still pays off now.

Five checks for grid and metering point operators:

- 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**
No 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.
- 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 ECU.

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Rollout practice: figures, supervision and what nobody measures

The smart meter rollout in figures: corrected BNetzA statistics, 434 supervisory proceedings, the barometer that never returned and data that does not exist.

Reviewed: 14 October 2026

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 puts 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. Coercive fines imposed by mid-September: none. 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.

Do the devices actually deliver quarter-hour values, or operate a control box? Nobody publishes a figure.

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 stock¹. In spring the figures had been 3,094,346 devices and 5.5 percent². Close to 700,000 devices gone. On paper.

Why? 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 kWh³. 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 question⁴. Add up the groups and you count twice.

The mandatory-case quota wasn't touched. "The quotas on which the ongoing supervisory proceedings are based are not affected by this," the agency writes³. Ten days earlier the federal government had put a number on that base: 4,709,487 mandatory installation cases⁵.

Reference date	What is counted	iMSys	Base	Share
31 Dec 2025	total stock, first release	3,094,346	about 56.5 m metering locations	5.5 % ²
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 % ⁵
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 reported on 7 April 2026: 5.5 percent of about 56.5 million metering locations². The agency's version since 21 September 2026: 4.4 percent¹. Older articles and slide decks don't get corrected. Whenever you see a figure for the end of 2025, check which month the source is from.

Mandatory cases versus total stock

26.1 or 5.9 percent? Both describe 30 June 2026. Both sit on the same agency page¹.

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 2026³

0

coercive fines had been imposed by 11 September 2026

threatened: 5,000 to 500,000 euros⁵

The mandatory quota only counts final customers using 6,000 to 100,000 kilowatt hours a year, plus controllable consumer devices under §14a EnWG¹. The total quota takes in every metering location, the many households below that threshold included. Between the two lies 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. Neither is true.

REFERENCE DATE 31 DECEMBER 2025

Total stock, first release

3,094,346 iMSys

Total stock, corrected

2,406,454 iMSys

Mandatory cases

1,095,715 of 4,709,487

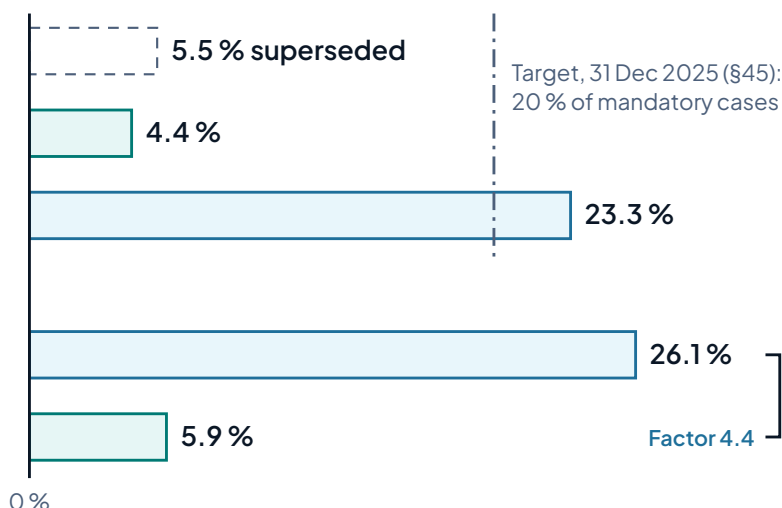
REFERENCE DATE 30 JUNE 2026

Mandatory cases

1,259,270 of 4,831,178

Total stock

3,172,579 of 54,135,202



Next target, 31 Dec 2026: 90 % of the metering points due for equipment since 25 Feb 2025. That is a period quota and cannot be compared with these bars.

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. 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. The 19 operators with more than 500,000 metering locations average 29.7 percent; the 591 with fewer than 30,000, 19.2 percent¹. That smallest class makes up almost three quarters of all 803 default metering point operators. And the averages are unweighted.

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 values¹. So the real total quota is probably higher, it says. By how much? It doesn't say.

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 2026⁶. 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)⁶. The government's draft for the EEG 2027 wants to switch these plant quotas to metering points (chapter 1).

What falls under the period quota? The agency's survey form spells it out: existing metering locations that become mandatory cases through higher consumption or a new §14a device, plus metering locations in new buildings or newly commissioned connections⁴. Two more rules from the same form carry weight. A §14a case only counts with a control unit. And that 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 equipped⁴.

Strict. And consistent, since a box that isn't connected controls nothing.

How often does the agency measure? Half-yearly, says the top of the page. Quarterly, says the FAQ below it¹. The law just says "regularly"⁶.

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 yet⁷. A first step, it said. Six months later the count stood at 434 companies. 150 proceedings had been closed, for instance because the quota had since been met or the default responsibility had been transferred³. The government's answer of 11 September gives 108 closures as of 31 August⁵. Two reference dates. No contradiction.

Chapter 1 deals with the provision itself. In practice a proceeding moves in stages: a hearing with the chance to comment⁷, then an order to remedy the breach and the threat of a coercive fine, and finally the fine itself¹. Section 94 EnWG, to which section 76(4) MsbG refers, sets the range at 1,000 euros to ten million euros^{8,9}. The amounts threatened so far lie between 5,000 and 500,000 euros. "No coercive fines have been imposed so far," the government replied⁵.

A coercive fine isn't a penalty. Its job is to force compliance, and it can be repeated and raised¹. Which is how an authority can run hundreds of proceedings without collecting a single euro. Is the pressure working? Only the closures show it. The government puts the delays down to operators' IT migrations, scarce hardware and an overstretched electrical trade⁵.

NOT FIRMLY ESTABLISHED

The number 77: three readings, probably one group

In trade articles, 77 stands for the proceedings opened on 27 March 2026⁷, for the companies with a quota of 0 percent among the 434³, 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 columns¹⁰. 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 percent¹¹, 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^{12,6}.

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 compliance¹.

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 adds¹. Some companies just get "n/a" in that column, for instance because the calculation would land above 100 percent or below zero.

How far do optional installations shift the quota? Our own analysis of the table as of 18 September 2026 gives a sober answer¹¹. For 743 of the 803 companies both quotas appear as numbers. The median gap is 1.3 percentage points. 19 companies show a gap of 20 points or more, and 66 sit below 20 percent without optional installations and above it with them.

A lot of noise about a few outliers? Not quite. For those 66, the counting method decides whether they clear the 20 percent mark.

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. That speaks for the new count. 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." A promise, made in the edition for the reporting year 2020¹³.

It was the last one. Published on 3 June 2021¹⁴, indicators frozen on 31 January 2021, overall score 44 out of 100, up from 36 the year before and 22 in the 2018 base year¹³. 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: 25 points¹³.

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 years¹⁵; the first came out on 22 July 2024¹⁶. 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 informed¹³.

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 informed¹⁷. 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 application¹⁸. 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 supplier¹⁸.

In the government's view, acceptance grows mainly with access to dynamic tariffs⁵. Figures to back that up? None in the same answer.

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 complaints⁵. How much households save with an iMSys is, according to the government, "not recorded statistically at a central level"⁵. And no survey could be found on how many customers actually use portals or apps to view their consumption.

Make or buy

For the 591 smallest default operators the question comes up early: what to do in-house, what to buy¹. Responsibility stays put either way. The gateway administrator isn't a market role of its own; it's a function of the metering point operator¹⁹.

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 ²⁰	The FNN note describes no process for switching service provider; TR-03109-1 covers only the gateway side ^{19,21}
CLS management as an active external market participant	ISO/IEC 27001 certification, or proof that a certified third party provides the service ²⁰	A provider serving several clients must separate them technically or organisationally ²⁰
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 ²²	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 ⁶	Transfers were one of the reasons for the 150 closed proceedings ³

A more radical answer to that last row comes from outside. 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 2024²³. It sees the fragmented structure of more than 800 metering point operators as the real obstacle and calls for consolidation². For households outside the mandatory cases it promotes a simpler "smart meter light", meant to complement the mandatory rollout rather than replace it²⁴. An interested party, then.

Chapters 3 and 5 cover the gateway administrator and the control box.

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 operation¹⁹. It covers the case where the metering point operator changes and the new one takes over the installed gateways. Figure 2 simplifies the sequence. 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^{25,21}. It connects to the new administrator, which acknowledges receipt, technically with an HTTP 200 according to the FNN note¹⁹. Under the technical guideline, though, the switch isn't complete until the new administrator has authenticated to the security module^{25,21}. With the HTTP 200, the note already hands over full control. Only the guideline is binding.

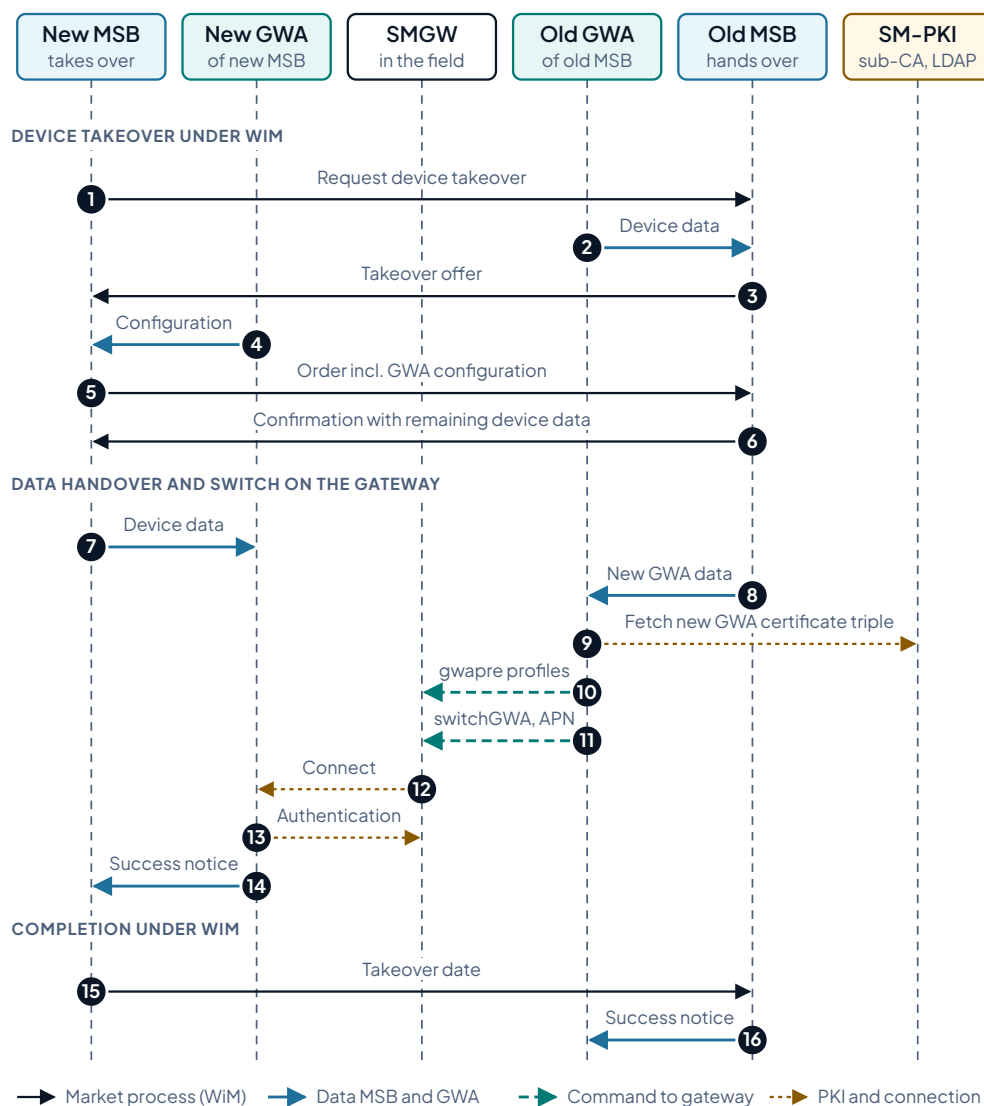


Figure 2: The gateway administrator change when the metering point operator changes and takes over the devices under WiM Strom, simplified from the VDE FNN note of October 2024. Related steps are sometimes merged into one arrow, and the SM-PKI lane is added. The preparation in the gwapre area (step 10) 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 operator¹⁹. LTE450? One provider. Without separate framework contracts between that provider 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 keys²⁵.

What about the APN, the access point into the mobile network? According to the note, the old administrator switches it only after the switch command, and only if one is used¹⁹. In the guideline, a change of access network is a separate process. Old and new access data both stay on the gateway so it can fall back²¹. Two fallback levels, in other words. If something fails, both switches have to be reversible, the note says¹⁹.

Revoking certificates isn't part of either sequence, the note's or the guideline's^{19,21}. 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 them²⁰. 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 processes¹⁹. There is no newer version of the note as of October 2026. Since February 2025 the FNN project group on gateway administrator system integration has been tasked with establishing the change process end to end and extending it to downstream components²⁶. Whether the market processes now carry it fully automatically couldn't be verified.

And the case that matters most for make or buy? Missing from the note. WiM doesn't provide for an operator that merely switches its gateway administration provider, and the note expressly leaves it out¹⁹. 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 contract²¹. That clause belongs in the service contract.

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 units⁴. What it leaves out tells you more.

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^{4,1}; [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 either⁵. 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 figures⁵.

The agency demands that the devices record and transmit quarter-hour values reliably³. Whether they do, it doesn't publish.

So the 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

Start with the targets. They're moving.

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"²⁷. The economics ministry has announced the amendment of the Metering Point Operation Act for the fourth quarter of 2026²⁸. No draft could be found by mid-October.

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 target²⁹. 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 transparency¹ 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 mark³⁰.

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

Gas first. Since 1 July 2026 customers can demand early equipment at gas metering points as well, to be carried out within four months³¹. 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 cost³². 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 heating³³. Connectable doesn't mean connected.

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 unit¹². 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. Until 30 September 2027 it only applies if the grid operator and the metering point operator agree³⁴.

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 them¹¹.

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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The model: from the meter to the billing system

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

Reviewed: 14 October 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.

What tells the grid operator that it has to step in? 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

It is a simplification, and a deliberate one. One meter, one gateway, 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.

What's missing? The transmission system operator, balancing groups, the planned MaBiS hub, redispatch, and anything to do with gas, water or heat. Those topics are in the reading paths. Here they would have made the picture unreadable. 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.

And the order of the steps is for explanation, 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

Nothing in this graphic is copied. The deadlines at each node 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.

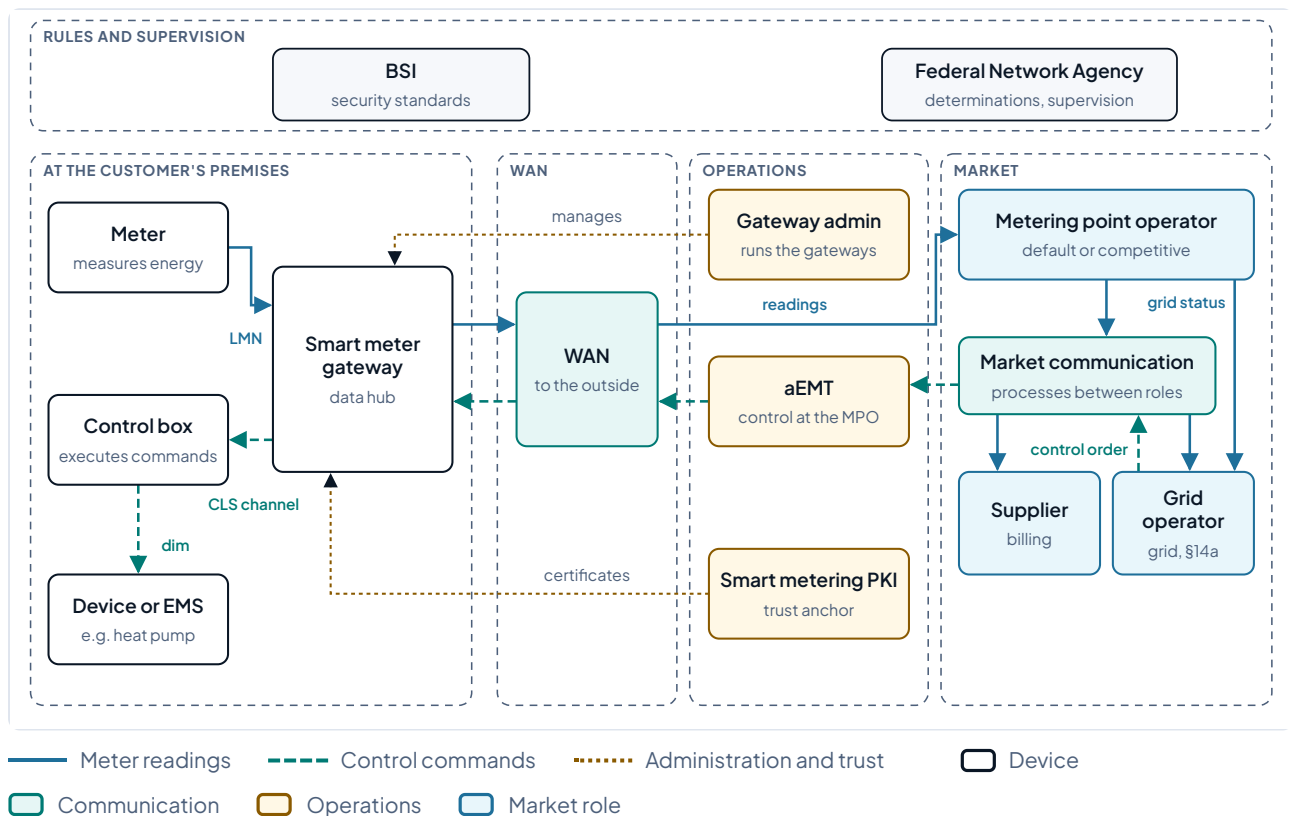


Figure: the model in the business view. Solid lines are meter readings, dashed lines control commands, dotted lines administration and trust. The text version names the interfaces behind each node under "Technical view".

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, 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 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-03109-6 v2.0 for gateway administrators](#)
- [1 January 2027: BSI TR-03109-1 v2.0: gateway certificates only with MUSS+](#)

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. Manufacturers report certifications for gateways with an integrated control 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

- [1 April 2027: VDE-AR-N 4100:2026-04: end of the transition period](#)
- [1 January 2029: §14a EnWG: end of the transition period](#)

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

- [31 December 2026: AgNes: framework ruling on electricity grid charges](#)
- [1 April 2027: VDE-AR-N 4100:2026-04: end of the transition period](#)

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

- [1 January 2029: §14a EnWG: end of the transition period](#)

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

A certification service provider runs the root instance under BSI supervision. Below it, sub-CAs issue certificates for gateways, gateway administrators 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 January 2027: BSI TR-03109-1 v2.0: gateway certificates only with MUSS+](#)

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, quarter-hourly as 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 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

- [1 April 2027: MaKo format release, notice no. 58](#)
- [1 July 2028: MaBiS hub: test systems of all market partners ready \(BDEW scenario\)](#)

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 until the end of 2028 (chapter 5).

TECHNICAL VIEW

The metering point operator sends its grid status data under TAF 10, quarter-hourly as a standard service, minute by minute only as 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

- [15 October 2026: 2027 network charges: publication by 15 October](#)
- [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 register profile 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

- [1 June 2028: Energy sharing across the grid boundary](#)

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

- [31 December 2026: Smart meter rollout: 90 percent of the installation cases since February 2025](#)
- [1 January 2027: EEG 2027 \(government draft\): no fixed tariff for new PV below 25 kW](#)

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: 14 October 2026

Some questions stayed open while the eight chapters were being written. Either nobody collects the data, or 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 14 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 functions¹. How many gateways actually deliver grid status data under TAF 10, or high-frequency values under TAF 14? Nobody publishes that. Chapter 4.

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 2021², covered the year 2020 and stood at 44 out of 100³. Nothing since. Its place went to the digitalisation report under section 48 MsbG, first published in July 2024, which drops the scoring and appears only every few years⁴. Anyone measuring progress in 2026 therefore has individual statistics. A running overall picture? No.

Dynamic tariffs are no better documented. The monitoring report counts 412 suppliers offering one in 2024⁵. How many households use such a tariff isn't recorded anywhere, and the 2026 report hadn't appeared by mid-October (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 again⁶. An actually imposed coercive fine had not been publicly documented by mid-October 2026. Chapter 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 services⁷. On 1 October 2026 notice no. 58 reversed that: "Die UTILTS bleibt damit erhalten", UTILTS stays⁸. The newer notice applies. 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. Trade articles from spring 2026 give 3,094,346 intelligent metering systems, or 5.5 percent of all metering locations⁹. The Federal Network Agency later corrected that to 2,406,454 systems and 4.4 percent¹. Nobody updated the older articles.

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 14¹⁰. Version 2.0 of 13 December 2024 adds a TAF 15 and reassigns number 8¹¹, and the BSI note on TAF 5 and 16 of September 2025 lists TAF 15 as well¹². Reading "TAF 1 to 14"? Then you're reading the state before 2021 (chapter 4).

A smaller case: the errata to the guideline on TAF 14. The Higher Administrative Court of North Rhine-Westphalia dates them 12 December 2019¹³, the BSI download page the 16th¹⁴. 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 rollout¹⁵. By September 2026 there were 434 proceedings in total, and 77 of those companies stood at zero⁶. The agency's table for 31 December 2025 lists exactly 77 companies at 0 percent¹⁶, 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 ¹⁷ .
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 ¹⁸ .

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 energy¹⁹. The draft came out on 6 August 2026, the decision is still pending, and the system is meant to apply from 2029²⁰. Module 3 under §14a stays untouched. What happens to modules 1 and 2, the draft doesn't say explicitly (chapter 6).

May the gateway replace the control box? Also open. Gateways with an integrated control module are already in the field, BSI-certified according to the manufacturer²¹. Yet as of mid-October 2026 the BSI product list shows no certificate against version 2.0 of the protection profile, the version that describes this function²² (chapters 4 and 5). The BSI's staged model, for its part, has been announcing a third stage since version 2.1 in November 2021. It still doesn't describe it²³.

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 cases²⁴. 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 force²⁵. None of it is law as of mid-October 2026 (chapter 8).

That leaves the EU network code on demand response. Not adopted. No adoption could be found after the ACER recommendation of 7 March 2025²⁶, so German grid operators currently have no obligation under it.

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Deadline calendar

The deadlines on this book's topics from 14 October 2026 onwards, taken from the innobu.com deadline calendar with data as of 14 October 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 October 2026	2027 network charges: publication by 15 October Electricity and gas distribution grid operators publish their 2027 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.	Electricity grid operator, Gas grid operator, Supplier	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. 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.	Electricity grid operator, Supplier	planned
31 December 2026	Heating costs ordinance: retrofit remote reading Heat suppliers retrofit or replace meters installed before 5 October 2021 that cannot be read remotely (FFVAV). Building owners do the same for heat and hot water meters and heat cost allocators (Heating Costs Ordinance).	Heat network operator, Company-wide, several roles	fixed
31 December 2026	Smart meter rollout: 90 percent of the installation cases since February 2025 By the end of 2026 default metering point operators must have completed at least 90 percent of the metering points that have fallen due since 25 February 2025. According to its press release, the Bundesnetzagentur collects progress twice a year, and it has been running supervisory proceedings against laggards since March 2026.	Default metering point operator	fixed
31 December 2026	Smart meter rollout: 90 percent of new generation capacity up to 100 kilowatts By the end of 2026 default metering point operators must have equipped at least 90 percent of the generation capacity 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.	Electricity grid operator, Default metering point operator	fixed

Date	Deadline	Affected	Status
1 January 2027	EEG 2027 (government draft): no fixed tariff for new PV below 25 kW Under the government draft, subject to the Bundestag's decision and EU state aid approval: new PV systems below 25 kW receive a temporary transition payment from the grid operator for at most 36 months instead of the feed-in tariff, then direct marketing with a 1.5 ct/kWh bonus for up to 48 months. Rooftop systems below 100 kW cap feed-in at 50 percent permanently. Systems commissioned by 31 December 2026 stay under the old rules. In the MsbG, mandatory smart meters and control devices for generation start above 2 kW, and the installation quotas in Section 45 count metering points instead of kilowatts. The Bundesrat wants to drop the 2 kW threshold; the federal government rejects that.	Electricity grid operator, Default metering point operator, Supplier	planned
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. By mid-October 2026 no gateway had been certified under version 2.0.	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.	Default metering point operator	fixed
1 April 2027	MaKo format release, notice no. 58 On 1 April 2027 ActivationDocument AWT version 1.1g and transport rules version 1.1i, including the changes to certificate use with mTLS, become binding. The previously consulted replacement of UTILTS by API web services is off the table.	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.	Electricity grid operator, Default metering point 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. Both use that period to set up metering, data delivery and billing for the two options.	Electricity grid operator, Default metering point operator, Storage 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.	Electricity grid operator, Supplier	planned
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.	Default metering point operator, Competitive metering point operator	fixed
1 June 2028	Energy sharing across the grid boundary From 1 June 2028 energy sharing must also work across adjacent balancing areas. According to the Federal Network Agency's Notice No. 73, the supplier based service model covers this too, with no further implementation by network operators.	Electricity grid operator, Supplier	fixed
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.	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.	Gas grid operator, Default metering point operator, Competitive metering point operator	fixed
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.	Company-wide, several roles	open
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.	Default metering point operator	fixed
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.	Electricity grid operator, Default metering point operator	fixed

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.	Electricity grid operator, Supplier	planned
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.	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.	Electricity grid operator, Supplier	planned
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.	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.	Default metering point operator	fixed