



European Union Agency for the Cooperation
of Energy Regulators

ACER LNG price assessment and benchmark methodology

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1. Background and mission statement

Council Regulation (EU) 2022/2576 on *enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchanges of gas across borders* ('the Regulation') tasks the European Union Agency for the Cooperation of Energy Regulators ('ACER') with the publication of daily LNG price assessments and benchmarks. The price assessments shall, by definition, reflect 'the prevailing level at which LNG of stated specification has, or could be expected to have transacted over a defined period of time.' The LNG price assessment and the LNG benchmark, once established, 'could also become a reference rate for derivatives contracts used for hedging the price of LNG or the difference in price between the LNG price and other gas prices.'

The Regulation tasks ACER with creating objective daily LNG price assessments by collecting real-time information on LNG transactions. The Regulation grants ACER the necessary powers to collect the data needed for LNG price assessments from LNG market participants, extending the tasks and competences already conferred to ACER under Regulation (EU) No 1227/2011 and Commission Implementing Regulation (EU) No 1348/2014 (collectively referred to as 'REMIT').

ACER's mission is to ensure that objective daily LNG price assessments are made available as of 13 January 2023. ACER must process LNG market participants' data independently. To that end, ACER's LNG price assessment and benchmark methodology is designed based on the International Organization of Securities Commissions' (IOSCO) Principles for Price Reporting Agencies established in 2012 and on the IOSCO Principles for Financial Benchmarks¹ established in 2013 as a framework of Best Practices. These principles are designed to avoid distortions in the price assessments and to guarantee that results are transparent and accountable. ACER's LNG price assessment and benchmark methodology therefore aims to produce price assessments that are reliable indicators of LNG market values, free from distortion, and representative of the particular market to which they relate.

This price assessment is complemented by the publication of an LNG benchmark as of 31 March 2023. The LNG benchmark is determined by the spread between the daily LNG price assessment and the settlement price for the TTF Gas Futures front-month contract established by ICE Endex Markets B.V.

2. Market data used in the LNG price assessments and benchmarks

Criteria that define the physical commodity subject to this methodology

The Regulation mandates ACER to collect the LNG market data² required to establish the LNG price assessments by means of introducing a reporting instrument (hereinafter called 'reporting form'). The data collected in the reporting form is used to create ACER's LNG price assessments.

All data reported to ACER is kept confidential and stored in ACER's secure database.

¹ <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>

² LNG market data collected and published comprises only trades delivered in the EU reported by LNG market participants which are registered with an EU NRA.

The data fields contained in the reporting form and referenced throughout this document can be consulted in the document *Guidance on reporting LNG market data* accessible on ACER's dedicated LNG price assessment webpage³. The document offers guidance on all the data fields that the reporting form covers, and specifies the characteristics, quality, location, timing, terms and minimum volumes accepted, among others. These specifications have been determined in consultation with LNG market participants and follow industry conventions.

ACER collects information for Spot-type transactions, bids and offers, as well as for transactions concluded under Portfolio-type contracts (see *Guidance on reporting LNG market data* for expanded definitions of contract types). To produce the LNG price assessments, a data hierarchy is defined. As it is further elaborated in the section that follows, transactions rank the highest in the data hierarchy.

LNG trade data shall be reported whenever the contract quantity involves specialised vessels with a capacity of at least 75,000 cubic metres of LNG. This threshold guarantees the inclusion of LNG imports via standard-size cargoes (125,000 to 165,000 cubic metres), Q-Flex cargoes (165,000 to 216,000 cubic metres), and Q-Max cargoes (more than 216,000), but excludes small-scale cargoes, which would usually come with different terms of trade than large-scale LNG imports. Only collected LNG market data related to the listed cargo sizes are used in the assessment. The methodology considers the relevant transactions, bids and offers irrespective of the type of cargo to which they refer.

Data hierarchy for the LNG price assessments

To ensure the quality and integrity of the LNG price assessment, ACER follows a priority order when processing and using LNG market data:

1. The LNG price assessment considers **spot DES transactions**

ACER's LNG price assessment consists of a time and volume weighted average price of spot DES transaction prices reported for the purchase or sale of LNG with delivery in the European Union. A rolling window of up to ten working days is used to identify, aggregate and analyse the LNG market data used in each daily LNG price assessment.

2. Transactions that are reported from both buyers and sellers are considered only once

Both LNG buyers and sellers are required to report LNG market data to ACER by filling in an individual reporting form using TERMINAL. In case of discrepancies in the data reported by buyers and sellers, ACER will try to identify the gap, clarify it with the LNG market participants and use the most complete, accurate and consistent report for the price assessment.

3. The LNG price assessment considers firm **spot DES bids and offers**

³ See [ACER LNG price assessments webpage](#)

In case less than a defined number of spot DES transactions are available for a daily price assessment⁴, ACER will complementarily make use of the data on relevant bids and offers. The mid-price of the most favourable bids and offers related to comparable cargos, terms and delivery windows for a given assessment date will be estimated and used as additional input for the price assessment calculation. The *Guidance on reporting LNG market data* provides clarification about the types of bids and offers and how they shall be reported. Only reported bids and offers that relate to firm bid or offer commitments that are listed in the LNG trading platforms and are subject to a matching process will be considered.

4. The **last valid daily price assessment result is repeated**

On occasions where there is no sufficient LNG market data available for the price assessment during the relevant rolling time window, the last valid daily price will be repeated. ACER will communicate that the value is repeated and will share the reason for the repetition via the same publication channels.

5. **Outliers** and **single-submitter** situations

ACER may disregard transactions that appear to be outliers, since these can distort the price assessment and its results. Inconsistencies in the reported information or suspected motivation to unfairly influence the price discovery process would typically be grounds for the removal of data. ACER shall verify the information with the LNG market participants and assess if transaction outliers might have been caused by data quality issues. If misreported transactions get corrected within the timeframe defined in the reporting guidance, ACER will make use of the corrected data.

Moreover, in order to meet the mandate established in the Regulation, in the event that more than half of the data used in the assessment is provided by a single submitter, ACER will verify if the transactions are real and legitimate. In case data quality issues are confirmed, the price assessment will refer to the last valid price indication.

Integrity of the reporting process

The ACER *Guidance on reporting LNG market data* specifies the criteria that define the persons required to submit LNG market data to ACER for the purpose of LNG price assessments, the quality control procedures for the evaluation of the identity of the reporting party through the use of CEREMP, and the criteria applied to reporting persons who are registered to submit LNG market data on behalf of an LNG market participant.

Furthermore, Article 20(1) of the Regulation stipulates that LNG market participants shall submit daily to ACER the LNG market data in accordance with the specifications set out in Article 21, in a standardised format, and as close to real-time as technologically possible before the publication of the daily price assessment.

In order to allow ACER to perform the price assessment based on the submitted data of a given day in an adequate and timely manner (i.e. no later than 18:00 CET), it is imperative

⁴ The initial threshold is that the number of transactions within the working days rolling window is lower than five.

that LNG market participants also comply with their reporting obligation in a timely manner. In this respect, LNG market participants subject to the reporting obligation under the Regulation shall always keep in mind that their reporting obligation primarily specifies real-time reporting of LNG market data (as close to real-time as technologically possible).

In case the transaction or the placing/communication of the bids and offers is agreed after the publication of the price assessment on a given day or at any time during weekends or ACER holidays when there is no price assessment publication, LNG market participants shall still report the details of the LNG market data as close to real-time as technologically possible (and no later than by 14:00 CET the following working day).

If a transaction does not specify whether an LNG delivery is for an EU terminal on the day of the transaction but the buyer later decides to deliver the LNG to an EU LNG terminal, the latest point in time when the transaction becomes reportable is when the slot for the vessel is registered at the regasification terminal port authority⁵.

Any newly reported LNG market data that refers to transaction times prior to the assessment day will be used in the price assessment on the day when the data is reported. In such a case, the published price assessments will not be corrected.

3. Data analysis and the LNG price assessment and benchmark

ACER publishes **three distinct and independently calculated LNG price assessments**. In addition, ACER publishes a daily LNG benchmark determined by the spread between the daily LNG price assessment for DES LNG Spot EU and the settlement price for the TTF Gas Futures front-month contract established by ICE Endex Markets B.V. on a daily basis.

The assessments are published on ACER working days.

Table 1: ACER's LNG price assessments

	Type of contract and trading terms	Market area	Delivery period
1	DES LNG Spot NWE	North-West Europe	Up until the second half-month ahead
2	DES LNG Spot SE	South Europe	Up until the second half-month ahead
3	DES LNG Spot EU	European Union	Up until the second half-month ahead

Terminals considered in each market area are defined in TERMINAL's List of LNG Facilities.

The data reporting system (TERMINAL) enables to report delivery points listed in [Annex IX of the REMIT Manual of Procedures: List of LNG facilities subject to reporting according to REMIT](#) and additional delivery points in case the list is not complete.

The list of LNG facilities available as delivery points for reporting is revised on a continuous basis and is updated as soon as a new delivery point need is noticed.

⁵ LNG terminals have clear procedures for the registration of arriving vessels. See [an example](#) for LNG vessel registration at the Dutch GATE terminal.

All price assessments consider only **Spot-type transactions, bids and offers**⁶ with ‘**delivery ex-ship**’ (**DES**) **terms of delivery**⁷ that specify an EU delivery terminal in the contract.

The daily price assessments relate to cargoes for delivery within the second half-month ahead of the transaction date. [Annex 1. Assessed delivery periods](#) provides a table with the reference delivery periods assessed on each publication day⁸.

ACER does not assess a forward curve of prices for different delivery periods. The prices of cargoes with delivery periods on later dates are considered by means of adjusting their values into the reference second half-month ahead period (see further considerations in 4. Data adjustments). If transactions are reported for arrival on earlier dates, the data is considered without adjustment.

Transactions agreed under existing Portfolio-type contracts (often referred to as ‘execution agreements’; see the *Guidance on reporting LNG market data* for expanded definitions of contract types) are not used for the daily price assessment. ACER will analyse the collected LNG market data and explore the possibility of providing price assessments for Portfolio-type contracts in the future.

LNG contracts transacted under free-on-board (FOB)⁹ terms of delivery are not considered in the daily price assessment, even if those cargoes could eventually be delivered at EU terminals.

All LNG market data considered in the daily assessment is referred to as ‘eligible data’.

The daily assessment presents the volume-weighted average price resulting from this methodology. It may additionally show the spread between the LNG prices assessed and the settlement prices of selected gas hubs. The daily assessment indicates the number of transactions considered in the daily price assessment, the traded volume represented by the considered transactions, the number of market participants involved in the considered transactions, the number of LNG terminals covered by the considered transactions and the number of registered LNG market participants in CEREMP.

⁶ As stated in the *Guidance on reporting LNG market data*, cargoes originally procured under Portfolio-type contracts that are subsequently diverted and resold to other buyers are expected to be reported as Spot-type transactions.

⁷ The terms of delivery shall be specified by referring to the respective Incoterms applicable for LNG transactions. In Delivery ex-ship trading terms, the seller is responsible for the LNG until it is delivered to a specified port, whilst the delivery point is specified in the contract.

⁸ Each daily price assessment assesses prices for cargoes arriving during a defined half-month period. The reference period is up to the second half-month ahead of the transaction date. The period shifts at the specific dates referred in Annex 1. For example, on 10 February 2023, the second half-month ahead reference period is H1 March 2023, consisting of the days 1 to 15 March 2023, while on 24 February 2023, the second half-month ahead reference period is H2 March 2023, consisting of the days 16 to 31 March 2023.

⁹ In FOB transactions the buyer acquires the LNG and is responsible for shipping. The delivery point may not be specified in the original contract.

4. Data adjustments

To assure robustness of the calculation and comparability of transactions, ACER assessment methodology adjusts certain LNG market data received. The data adjusted is the following:

- Delivery dates
- Transaction times
- Prices

Normalisation of delivery dates

ACER's LNG price assessments reflect the prices of spot DES transaction prices for LNG cargoes arriving up until the second half-month ahead of the transaction date. ACER does not assess a forward curve of prices for different delivery periods. This approach is taken in view of the low number of transactions and with the aim of building the price assessments on actual and verified LNG market data.

The methodology normalises the price data of the reported spot DES transactions in terms of delivery dates (arrival start and end dates, arrival window):

- Prices of the transactions indicating delivery within the assessed half-month or earlier are not normalised.
- Prices of transactions indicating delivery soon after¹⁰ the assessed half-month are normalised as if the delivery were occurring in the assessed half-month.

The assessed spot DES price for the half-month period that comprises the soon after delivery is divided by the price that comprises the ACER-assessed half-month ahead. That coefficient is used to normalise the transaction prices reported for delivery soon after the assessed half-month period.

In order to apply this adjustment, the forward LNG prices assessed by relevant Price Reporting Agencies ('PRAs') may be used.

A schematic representation of the normalisation principle is available in [Annex 2.1. Normalisation of delivery periods/windows](#).

Rolling window of transaction days

Due to the low number of LNG transactions, the daily price assessment considers transactions (and, when necessary, selected bids and offers) transacted across the last ten weekdays (MON-FRI).

ACER assigns higher relevance to recent transactions. To assure this, time weighting follows a geometric progression (sequence), where higher weights are given to the most recent transaction data with weights gradually decreasing towards zero.

¹⁰ Soon after refers to delivery periods up until the 4th half-month ahead (H4).

The weighted average price is calculated by applying the following time weights w_{t-i} :

$$w_{t-i} = \frac{(1-a)}{(1-a^{10})} a^i,$$

where t represents day of the assessment, i represents lag between the transaction timestamp and assessment day, and a is a decay factor fixed and set by ACER.

Outright prices and indexed prices

LNG transactions can result in an outright fixed price or in an indexed price formula. The latter typically results in a floating price settled days after a transaction occurs. To build its daily price assessments, ACER will make use of the prices reported by market participants.

According to the *Guidance on reporting LNG market data*, if the original price of the transaction refers to an outright fixed price, market participants should report it and ACER will directly make use of that price for the daily assessment. If the transaction price is based on a price formula that results in an outright fixed price that is known at the time of a transaction, ACER will make use of that fixed price. Finally, if the price of a transaction cannot be expressed as an outright fixed price at the time of reporting because it results from an indexed floating value, ACER will make use of the estimated price that market participants are requested to provide irrespective of the availability of the index value at the time of reporting. In doing that estimate, LNG market participants are asked to use the settlement price(s) of the index or indices used in the formula from the previous day of the transaction.

5. Price assessment and benchmark publication

Peer review process

All ACER price assessments and benchmarks are produced by an analyst and then peer-reviewed by a second analyst. The assessment report is approved by a senior analyst prior to publication. This peer review process, which is fully auditable, is in place to make sure that this methodology is correctly and consistently applied and to ensure the integrity and quality of the published price assessments and benchmarks. Relevant information, including all price input, communication with the LNG market participants and editorial judgements, are securely retained in ACER's database for at least five years to maintain a full audit trail. Price assessors are trained in the price assessment process and must abide by the valid written LNG price assessment and benchmark Standard Operating Model.

Publication

After the peer review process, the daily price assessment is published every ACER working day at no later than 18:00 CET, taking account of the LNG market data reported until 16:00 CET.

As defined by Article 19(1) of the Regulation, the LNG price assessment is published daily by no later than 18:00 CET. As of 31 March 2023, in addition to the publication of the LNG price

assessment, ACER also publishes a daily LNG benchmark by no later than 19:00 CET or as soon as technically possible¹¹.

The daily price assessment and benchmark are published via ACER's publication channels (TERMINAL¹²).

Corrections and delays

If an incorrect assessment is published, it will be rectified and republished as soon as possible. A notice explaining the reasons for the correction will also be published promptly.

ACER uses several procedures and measures to avoid delays in the publication of its assessments. ACER will communicate an event of a delay promptly. In such a case, only data that has been received within the standard timeframe will be included in the assessment. No assessment will be amended due to the emergence of new data or market activity after the initial publication. Retrospective changes to the published values will only be made in case of a technical, administrative or interpretation error.

6. Methodology revision

ACER aims to continually develop and periodically review this methodology in consultation with the relevant stakeholders. The revisions will entail a consultation process, aiming to improve the assessments and make the publications as useful as possible.

7. Measures to prevent conflicts of interest

ACER has been implementing a Policy for the Prevention and Management of Conflicts of Interest since 2015¹³. The prevention and management of conflicts of interest is a vital part of good administrative behaviour of the EU institutions, bodies and Agencies. It is crucial to ensure ACER's independence and transparency, and to maintain the stakeholders' and citizens' trust in ACER's integrity. In the regulatory practice, the highest level of integrity is required to ensure the quality and credibility of regulatory measures. Any ACER staff member is obliged to carry out his/her duties independently, objectively, impartially and in keeping his/her duty of loyalty to the European Union. This Conflict of Interest Policy will also apply to the LNG price assessments and benchmarks. ACER staff members are bound by the EU Staff Regulations and the Conditions of Employment of Other Servants (CEOS) and its implementing rules as adopted by ACER's Administrative Board and the Director. The relevant rules in the Staff Regulations with respect to conflicts of interest can be found in Title II (Rights and Obligations).

¹¹ ACER's LNG Benchmark is only calculated when both ICE Settlements prices and ACER LNG price assessments are published. ACER's LNG Benchmark depends on the availability of ICE's TTF index and relies on the dedicated transfer protocols established for its procurement.

In case of unavailability of the index or failure in communications, the LNG Benchmark will be published as soon as technologically possible.

¹² See relevant [legal notice](#) and [data protection notice](#).

¹³ Decision AB No 2/2015 of the Administrative Board of ACER of 31 January 2015 laying down a policy for the prevention and management of conflicts of interest.

8. Queries and complaints

A written and published procedure for receiving, investigating and retaining records concerning complaints about ACER's LNG price assessment and benchmark process and results will be made available. The details concerning the complaints will be documented and published by ACER.

The procedure includes the option to seek recourse from an independent external auditor appointed by ACER to investigate such complaints.

9. External auditing

An external auditor, with appropriate experience and capability, will be tasked with reviewing and reporting on ACER's adherence to its stated methodology criteria and the requirements of the principles. The first resulting audit should be completed within one year of the application of this methodology and its results published within 15 months of the application of the methodology. Subsequent audits should take place annually and the results should be published three months after each audit is completed, with further interim audits carried out as appropriate.

These measures are intended to promote the reliability of assessment methodologies through stakeholder input and alert market authorities to possible factors that might affect the reliability of assessments.

Annex 1. Assessed delivery periods

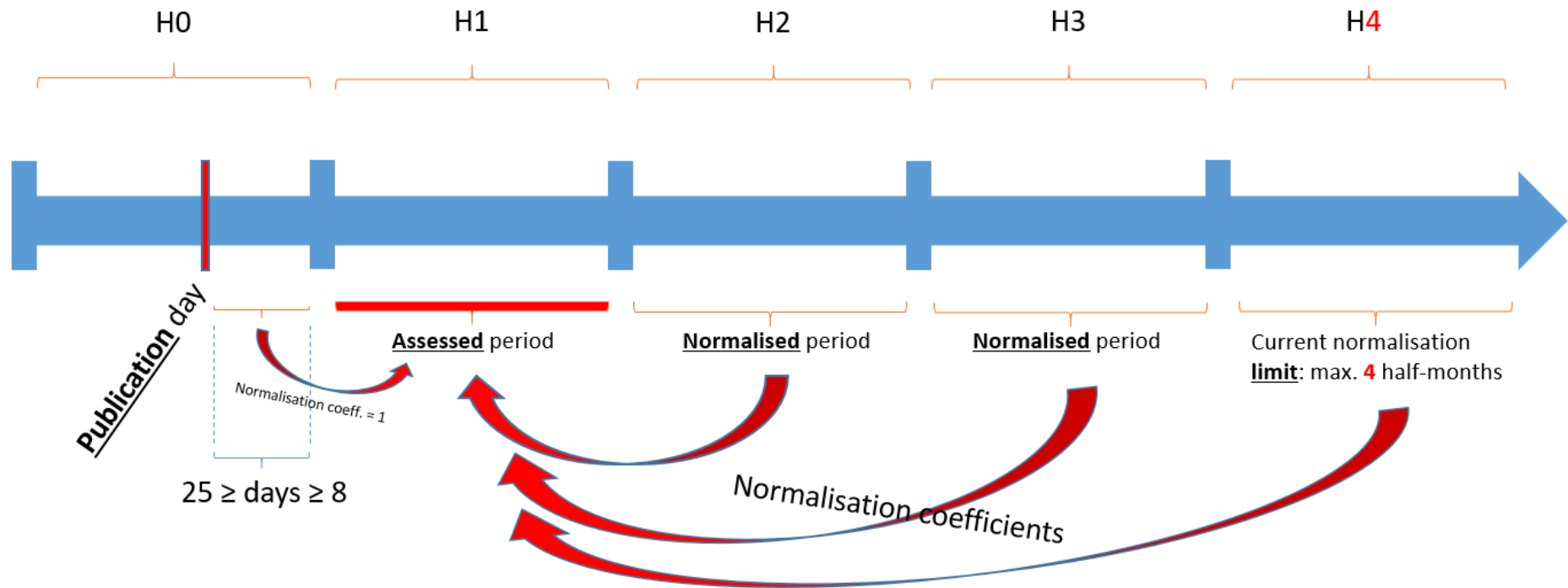
Correspondence between price assessment dates and assessed delivery periods:

Assessment day interval	Assessed Period	Delivery start date	Delivery end date
31/03/2023	H2 APR 23	16/04/2023	30/04/2023
09/04/2023	H1 MAY 23	01/05/2023	15/05/2023
24/04/2023	H2 MAY 23	16/05/2023	31/05/2023
09/05/2023	H1 JUN 23	01/06/2023	15/06/2023
25/05/2023	H2 JUN 23	16/06/2023	30/06/2023
09/06/2023	H1 JUL 23	01/07/2023	15/07/2023
24/06/2023	H2 JUL 23	16/07/2023	31/07/2023
09/07/2023	H1 AUG 23	01/08/2023	15/08/2023
25/07/2023	H2 AUG 23	16/08/2023	31/08/2023
09/08/2023	H1 SEP 23	01/09/2023	15/09/2023
25/08/2023	H2 SEP 23	16/09/2023	30/09/2023
09/09/2023	H1 OCT 23	01/10/2023	15/10/2023
24/09/2023	H2 OCT 23	16/10/2023	31/10/2023
09/10/2023	H1 NOV 23	01/11/2023	15/11/2023
25/10/2023	H2 NOV 23	16/11/2023	30/11/2023
09/11/2023	H1 DEC 23	01/12/2023	15/12/2023
24/11/2023	H2 DEC 23	16/12/2023	31/12/2023
09/12/2023	H1 JAN 24	01/01/2024	15/01/2024
25/12/2023	H2 JAN 24	16/01/2024	31/01/2024
09/01/2024	H1 FEB 24	01/02/2024	15/02/2024
25/01/2024	H2 FEB 24	16/02/2024	29/02/2024
08/02/2024	H1 MAR 24	01/03/2024	15/03/2024
22/02/2024	H2 MAR 24	16/03/2024	31/03/2024
08/03/2024	H1 APR 24	01/04/2024	15/04/2024
24/03/2024	H2 APR 24	16/04/2024	30/04/2024
08/04/2024	H1 MAY 24	01/05/2024	15/05/2024
23/04/2024	H2 MAY 24	16/05/2024	31/05/2024
08/05/2024	H1 JUN 24	01/06/2024	15/06/2024
24/05/2024	H2 JUN 24	16/06/2024	30/06/2024
08/06/2024	H1 JUL 24	01/07/2024	15/07/2024
23/06/2024	H2 JUL 24	16/07/2024	31/07/2024
08/07/2024	H1 AUG 24	01/08/2024	15/08/2024
24/07/2024	H2 AUG 24	16/08/2024	31/08/2024
08/08/2024	H1 SEP 24	01/09/2024	15/09/2024
24/08/2024	H2 SEP 24	16/09/2024	30/09/2024
08/09/2024	H1 OCT 24	01/10/2024	15/10/2024
23/09/2024	H2 OCT 24	16/10/2024	31/10/2024
08/10/2024	H1 NOV 24	01/11/2024	15/11/2024
24/10/2024	H2 NOV 24	16/11/2024	30/11/2024
08/11/2024	H1 DEC 24	01/12/2024	15/12/2024
23/11/2024	H2 DEC 24	16/12/2024	31/12/2024
08/12/2024	H1 JAN 25	01/01/2025	15/01/2025
24/12/2024	H2 JAN 25	16/01/2025	31/01/2025

Annex 2.1. Normalisation of delivery periods/windows (part 1)

Criteria for the assessment delivery period

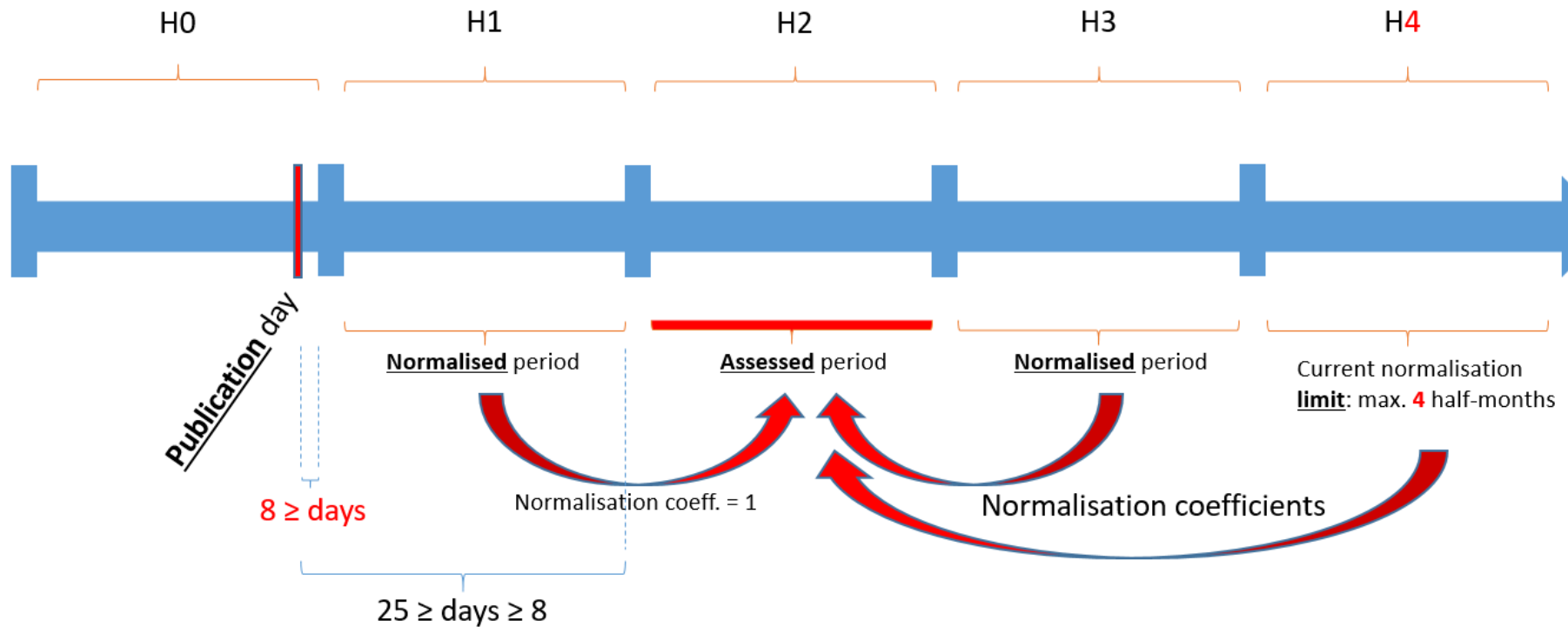
- Publication date at least 8 days before assessed delivery period
- Publication date not more than 25 days away from assessed delivery period
- Assessment reference period change allowed within a week



Annex 2.2. Normalisation of delivery periods/windows (part 2)

Criteria for the assessment delivery period

- Publication date at least 8 days before assessed delivery period
- Publication date not more than 25 days away from assessed delivery period
- Assessment reference period change allowed within a week



Annex 2.3. Normalisation of delivery periods/windows: numerical example

Reference data		Transaction 1 data	
Publication (assessment) date	02/02/2023	Area	NWE
Assessment period	H2 FEB	Delivery period	H1 FEB
FWD reference price for assessment period (EUR/MWh) (A)	54.00	Reported price (EUR/MWh)	53.00
FWD reference price for delivery period (EUR/MWh) (B)	53.00	Normalised price (EUR/MWh)	53.00
Normalisation coefficient H1 MAR (C) = (A)/(B)	1.0189		

Transaction 2 data	
Area	NWE
Delivery period	H1 MAR
Reported price (EUR/MWh)	55.00
Normalised price (EUR/MWh)	56.04

Normalised price = Reported price * norm. coefficient (C)

