

UFE Reporting Guidelines Consultation

Draft Report – UFE Reporting Guidelines
Consultation

Published: 18 November 2022

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New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia
Australian Energy Market Operator Ltd ABN 94 072 010 327

Notice of Second Stage Consultation – UFE Reporting Guidelines Consultation

National Electricity Rules – Rule 8.9

Date of Notice: 18 November 2022

This notice informs all Registered Participants, Metering Providers, Metering Data Providers, Embedded Network Managers, Ministers and the Australian Energy Regulator (AER) (Consulted Persons) that AEMO is commencing the second stage of its two stage consultation (Consultation) on the changes (Changes) which AEMO proposes (Proposals) to the:

- UFE Reporting Guidelines (Guidelines); and
- Consequentially, the Retail Electricity Market Glossary and Framework.

This Consultation is being conducted under clause 3.15.5B of the National Electricity Rules (NER), in accordance with the consultation requirements in NER 8.9.

Invitation to make Submissions

AEMO invites written submissions on this Draft Report and Determination (Draft Report).

Please identify any parts of your submission that you wish to remain confidential and explain why. AEMO may still publish that information if it does not consider it to be confidential but will consult with you before doing so.

Consulted Persons should note that material identified as confidential may be given less weight in the decision-making process than material that is published.

Closing Date and Time

Submissions in response to this Notice should be sent by email to NEM.Retailprocedureconsultations@aemo.com.au to reach AEMO by 5.00pm (Melbourne time) on 19 December 2022.

All submissions must be forwarded in electronic format (both pdf and Word). Please send any queries about this consultation to the same email address.

Submissions received after the closing date and time will not be valid, and AEMO is not obliged to consider them. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

Publication

All submissions will be published on AEMO's website, other than confidential content.

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Executive Summary

The publication of this Draft Report commences the second stage of the standard consultation procedure conducted by AEMO to consider the Changes to the Guidelines, as well as the Retail Electricity Market Glossary and Framework.

AEMO received nine written submissions and one confidential submission in response to the Issues Paper. The submissions were supportive of the AEMO-proposed changes to the Guidelines, as well as recommending additional changes.

The Changes are:

- Provision of UFE data with high level trend information monthly made available via a web page.
- Production of the formal UFE Trends Report annually covering a 24-month rolling period.
- Provision of seasonal and same month of the previous year information, to provide insights into variations to UFE components that may occur over a year.
- Provision of median, average, upper limit, and lower limit UFE values, as benchmarks for each *local area*.
- Provision of charts identifying variation of settlements metering data versions (Preliminary, Final, Revision 1 and Revision 2) for each *local area*.
- Provision of source data related to charts published in a UFE Trends Report via a web page.
- In addition to the variables that modify metering data identified by AEMO to be analysed, inclusion of the following variables:
 - Emergency unmetered generation use
 - Review/audit of unmetered load calculation methodologies
 - Analysis of metering data quality (actual vs estimations) used in UFE calculations
- Facilitation by AEMO of discussion forums prior to the release of a UFE Trends Report that identifies UFE reduction actions.

As the Guidelines are to be published by 1 March 2023, AEMO proposes that the 2023 UFE Trends Report – which must be based on the Guidelines – could be produced by 1 May 2023, as requested by one respondent. This Draft Report seeks further stakeholder comment on appropriate UFE Trends Report publication dates.

AEMO's draft determination is to amend the Guidelines in the form published with this Draft Report, in accordance with NER 3.15.5B.

1. Stakeholder consultation process

AEMO is conducting the Consultation in accordance with the standard rules consultation procedure in NER 8.9.2. AEMO's process timeline is as follows:

Table 1 Consultation process and timeline

Consultation steps	Dates
Issues Paper published	8 September 2022
Submissions due on Issues Paper	7 October 2022
Draft Report published	18 November 2022
Submissions due on Draft Report	19 December 2022
Final Report published	27 February 2023

AEMO may adjust the dates and include additional steps as needed, depending on the number and complexity of issues raised in the submissions.

AEMO's consultation webpage is at [UFE reporting guidelines consultation](https://aemo.com.au/consultations/current-and-closed-consultations/ufe-reporting-guidelines-consultation)¹. The webpage contains all published papers and reports, written submissions, and other relevant documents or reference material, other than material identified as confidential.

AEMO thanks all stakeholders for their feedback on the Proposal to date. AEMO looks forward to further constructive engagement.

This Draft Report uses terms defined in the NER, which are intended to have the same meanings. A glossary of additional terms and abbreviations is at Appendix A.

¹ <https://aemo.com.au/consultations/current-and-closed-consultations/ufe-reporting-guidelines-consultation>

2. Background

2.1. NER requirements

The National Electricity Amendment (Global Settlements and Market Reconciliation) Rule 2018 requires AEMO to publish the UFE Trends Report at least once a year. NER 3.15.5B(d) and (e) require AEMO to maintain and consult on the Guidelines, and set out AEMO's approach to preparing and publishing the UFE Trends Report.

In accordance with transitional provision NER 11.112.3(b), AEMO was not required to comply with the Guidelines when preparing UFE Trends Report that was published on 1 June 2022. However, AEMO must prepare the subsequent UFE Trend Reports in accordance with the Guidelines.

2.2. Context for this consultation

AEMO is required to produce the UFE Trends Reports to provide information and analysis of UFE in each *local area* to facilitate the management and efficient decrease in UFE over time.

In accordance with NER 3.15.5B, at least once each year, AEMO must, in accordance with the Guidelines, prepare and publish on its website the UFE Trends Report, setting out:

- AEMO's summary and analysis of the total UFE amounts in each *local area* over the reporting period
- AEMO's analysis of the UFE amounts in each *local area* in the reporting period against benchmarks determined by AEMO acting reasonably
- AEMO's analysis of the sources of UFE in each *local area*
- AEMO's recommendations to improve visibility of UFE in each *local area*; and
- AEMO's recommended actions to reduce the amounts of UFE in each *local area*

2.3. The National Electricity Objective

Within the specific requirements of the NER applicable to the Proposal, AEMO will seek:

- to make a determination that is consistent with the national electricity objective (NEO); and
- where considering options, to select the option best aligned with the NEO.

The NEO is expressed in section 7 of the National Electricity Law as:

to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to:

- (a) price, quality, safety, reliability and security of supply of electricity; and
- (b) the reliability, safety and security of the national electricity system.

2.4. First Stage Consultation

On 8 September 2022, AEMO issued the Notice of First Stage Consultation and published the Issues Paper, accompanied by the initial draft amended documents. This information is available on AEMO's website: <https://aemo.com.au/en/consultations>

The Issues Paper included a summary of the proposed changes.

In response, AEMO received nine written submissions and one confidential submission. AEMO has published copies of all written submissions (excluding any confidential information) on AEMO's website at: [AEMO | UFE Reporting Guidelines Consultation²](#).

² <https://aemo.com.au/consultations/current-and-closed-consultations/ufe-reporting-guidelines-consultation>

3. List of material issues

The key material issues arising from the Proposal or raised in submissions are listed in the following table:

Table 2 List of material issues

No.	Issue	Raised by
1.	Reporting Timings and Frequency	Multiple Respondents
2.	Reporting Level Granularity	Multiple Respondents
3.	Reporting UFE Analysis	Multiple Respondents
4.	Additional UFE Reduction Actions	Multiple Respondents
5.	Volatility of UFE between Settlement Cycles	Multiple Respondents

A detailed table of issues raised by stakeholders in written submissions to the Issues Paper, together with AEMO's responses, is contained in Appendix B.

Questions and responses from non-confidential meetings are published on the consultation webpage.

Each of the material issues in Table 2 are discussed in Section 4.

4. Discussion of material issues

4.1. Reporting Timings and Frequency

4.1.1. Issue summary and submissions

AEMO proposed to publish each UFE Trends Report by 1 June each year, covering a 12-month reporting period.

Accordingly, for the (year "x"), the reporting period is 1 May (year "x-1") to 30 April (year "x").

The submissions highlighted concerns associated with publishing the UFE Trends Report annually on 1 June.

Multiple respondents stated that annual reporting should:

- Be provided no later than 28 February, or after June 30, to allow for annual budgeting considerations (Origin Energy).
- Be provided in time to allow for tariff submissions for the next financial year (Origin Energy).
- Be aligned with the publication of Loss Factors, and for both UFE and Loss Factors to be published on 1 May instead of 1 June (Red Lumo).

Many respondents suggested quarterly reporting generally to provide more accurate and considered understanding of UFE over time:

- Alinta Energy considered that until the data collated by AEMO is stabilised (over the next 24-36 months), quarterly reporting with monthly granularity of UFE would provide confidence to industry stakeholders in relation to data quality, given the significant fluctuations seen month to month in some local network areas since global settlement began its soft start in 2021.
- CS Energy stated that the costs associated with UFE are material and volatile, therefore need to be understood as quickly as possible, to minimise the impact on consumers. Consumers

cannot wait a year for answers. The alignment of quarterly reports to financial year quarters will best assist consumers, as well as benefit AEMO, given feedback from these reports could be incorporated into subsequent reports. Further, the UFE Trend Reports needs to be based on finalised data, inclusive of AEMO's analysis.

- Shell Energy required that the quarterly reporting should be provided one month after the end of the quarter, to provide more real time response to mitigate the drivers of UFE, as well as to allow for a tailored response through identification of seasonal swings.
- Stanwell stated that annual reporting was inappropriate for customers subjected to significant fluctuations in UFE, or very high charges. Stanwell also suggest publishing the reports one month after quarter end. This would provide more confidence to customers, as well as enable AEMO and market participants to investigate excessively high UFE.

AGL highlighted:

- The need for retail businesses to forecast likely UFE amounts, so that the impact can be included in business processes (hedging, consumer products, retailer supply obligations, etc). Monthly or quarterly downloadable data sets (and graphs) on UFE are required, to allow businesses to process consistent UFE data, prepare volume and forecast budgets and feed information into pricing processes.
- The need to identify and mitigate/minimise UFE, which requires longer-term analysis and reduction/resolution of sources of UFE to be reported.

4.1.2. AEMO's assessment

The respondents proposed a range of reporting timeframes and frequencies including:

- No later than 28 February or after 30 June.
- A timeframe that supports tariff submissions for the next financial year.
- A timeframe that aligns to the publication of Loss Factors on 1 May.
- Quarterly reporting.
- Monthly reporting.

4.1.3. AEMO's conclusion

AEMO considers that the monthly provision of UFE data with high level trend information will be of more value to Participants than the production of a formal report monthly or quarterly. This is because the production of a formal report would be based on final metering data and would require approximately one month to prepare. Accordingly, a formal report would be based on a reporting period ending two months in the past.

AEMO proposes to:

- Make such UFE data available via a page.
- Produce the formal UFE Trends Report annually covering a rolling 24-month period, to ensure that a substantial period covered by the report will include charts related to Preliminary, Final, Revision 1 and Revision 2 UFE information.
- As the Guidelines are to be published by 1 March 2023, produce the 2023 UFE Trends Report by 1 May 2023, as requested by one Respondent. This 2023 UFE Trends Report would cover a period ending 25 February 2023 (end of last trading week in February 2023).

Questions

- **AEMO intends to publish UFE Trends Reports by 1 May each year. Stakeholders are requested to indicate their acceptance of this proposal or provide details supporting a different date for the publication of the UFE Trends Report in the future.**

4.2. Reporting Level Granularity

4.2.1. Issue summary and submissions

AEMO requested the feedback of participants on:

- UFE visibility improvements, by reporting UFE values at a more granular level than at the *local area*, noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs.
- Options to present seasonal variance in other ways.

Several respondents requested a more granular level of reporting than local area. The stated benefits include:

- Providing customers with greater visibility of their local network and evidence for advocacy purposes in relation to network issues experienced. Network issues in regional NSW are ongoing. Any evidence to support the issues raised by customers to assist with advocacy to the DNSP for a better level of service is helpful.
- Helping to identify the specific injection points which contribute more to UFE than others.

In addition:

- AGL proposed that AEMO provide a 'test area' to assess the impact/benefit of making changes.
- CS Energy requested a comparison of UFE between local areas to assist in determining the source of UFE. The analysis needed to be much more granular and complete than that presented in the June 2022 UFE report. The analysis needs to allow participants to explore the origins of UFE and the potential actions to reduce UFE. CS Energy was particularly keen to dissect Distribution Loss Factors (DLF) and estimation errors.
- Shell would like the ability to analyse UFE at the TNI level for distribution networks.
- Red Lumo saw greater benefits in reporting UFE factors at the TNI and participant level.

4.2.2. AEMO's assessment

AEMO considers that weekly source data behind the reporting means provision of the data behind the UFE Trends Report. Such weekly UFE component data is already available to Participants through the RM43 and RM46 reports.

The analysis of UFE at a TNI level is not possible where a *local area* includes virtual TNIs (Global Settlements, Final Determination, Section 3.8). However, the analysis of UFE is possible at the TNI level for distribution networks that do not have virtual TNIs.

AEMO intends to provide seasonal variance information in the UFE Trends Report. AEMO received support from respondents in this regard.

4.2.3. AEMO's conclusion

AEMO considers that the provision of the source data behind the UFE Trends Report charts will assist Participants to analyse and interpret the information presented in the UFE Trends Reports. As the volume of source data would be too large to include in the UFE Trends Report, AEMO intends to make the source data available via a web page.

The existence of virtual TNIs in some *local areas* prevents analysis of UFE components at a TNI level for that *local area*. AEMO intends to include in the UFE Trends Report some analysis of UFE components at a TNI level for some of the *local areas* that do not have virtual TNIs.

AEMO intends to include seasonal and same month of the previous year comparison information, as well as source data, to provide insights into variations to UFE components that may occur throughout a year.

4.3. Reporting UFE Analysis

4.3.1. Issue summary and submissions

The charts in the relevant section of the UFE Report provide a summary of the UFE calculation components for each local area. The Proposal is to provide UFE component charts for the current reporting period, based on FINAL version metering data. AEMO proposed the inclusion of corresponding charts for the previous reporting period.

Multiple respondents supported this inclusion, stating that such analysis is:

- Useful in overall trend analysis and issue tracking (Shell).
- Assists with understanding the historic and forecast exposure of market participants and the performance of LNSPs in limiting losses.
- Useful in tracking the overall trends and issues, as well as enabling the comparison over time (improvements, degradation etc) against the current 12-month trend being reported on.

Several respondents suggested the benefits of including:

- Comparison with the same period from previous year (TasNetworks).
- Metering data version analysis over the reporting period. (AGL, Shell Energy and Stanwell).
- Seasonal analysis to determine whether seasonal variations are persistent (CS Energy and TasNetworks). Red Lumo suggested that insights and analysis of the changing conditions across seasons are important to ascertain the likely impacts on UFE. Such conditions include solar increase/decrease, daylight hours, unmetered supply (i.e. streetlights), one off or ongoing changing weather conditions (El Niño and La Niña). The further analysis should focus on the seasonal drivers of UFE, as well as the extent to which these drivers impact technical losses, or other drivers.
- Source data to accompany the analysis charts (Red Lumo and Stanwell).
- Charts to show weekly granularity (Shell, Red Lumo).
- AEMO-published charts for the prior reporting period, to allow for comparison and interpretation by industry.
- Tabular (5-minute interval) data sitting behind these graphs, to understand, investigate and reduce UFE over time (Stanwell).
- Comparison of different networks' UFE ranges, which may themselves be useful indicators of potential causes, as well as helping to identify outlier days, which can be further investigated (AGL).

UFE Benchmark Analysis

AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. AEMO requested feedback on this methodology.

All respondents supported the proposed methodology. In addition, multiple respondents requested that benchmark values be provided for each quarter to provide seasonal analysis. Stanwell added the need for further quarterly analysis by AEMO to understand seasonal trends.

UFE Source Analysis

AEMO is required to analyse the sources of UFE in each *local area* to recommend actions to reduce UFE. The sources of UFE and the respective actions to reduce UFE are diverse. Accordingly, the identification of the likely sources of UFE will be crucial to identifying actions to reduce UFE.

The following areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE Reporting Guidelines:

- DLF Values
- Accumulation Metering Migration to 5-minute Metering

- 15 and 30-minute Metering Migration to 5-minute Metering
- Unmetered Loads Migration to Metered Arrangements
- NCONUML Alternative Calculation Methodologies
- Review of Profiling Methodologies
- Review Unmetered Cross Boundary Energy Volumes

The respondents generally support the analysis of the proposed UFE sources and identifying the UFE sources of greatest importance.

Further:

- Red Lumo identified 3 top ranked variables:
 - DLF value changes – historical analysis of DLFs
 - Accumulation (BASIC) meter replacement with interval meters
 - Illegal consumption.
- CS Energy identified the importance of ADME for further analysis.
- AGL stated that true analysis of UFE activities will be more dependent on final revision data than initial meter data. A rolling 24 monthly data set, with minimal/no analysis, could be released monthly, with some associated information published quarterly. This approach would ensure that there was a common set of public information available, especially for December and March each year, to support budgeting, forecasting, and pricing activities, as well as regulatory processes (e.g. VDO & DMO development).
- AGL stated also that data sets contain the initial data as well as any settlements revised data, so that industry can consider the changes in UFE as meter data is revised.
- Stanwell observed significant differences in UFE between AEMO statements, requiring a comparison between Preliminary, Final, Revision 1 and Revision 2. Currently, some customers are seeing differences of greater than 10% between Preliminary vs Final UFE data.
- Stanwell stated that C&I retailers, where customers have interval metering, cannot take actions to minimise UFE. This is because all other sources of UFE besides upgrading to interval metering are not within Stanwell's control. A detailed breakdown of UFE by source will at least assist C&I retailers to explain to customers the causes of the UFE charges that are being passed on.

4.3.2. AEMO's assessment

AEMO proposes to:

- Include corresponding charts for the previous reporting period can be accomplished by basing the UFE Trends Report on a 24-month rolling period (Section 4.1.3 above).
- Provide median, average, upper limit, and lower limit UFE values as benchmarks for each *local area* was supported by respondents.
- Base UFE source analysis on identifying variables that modify metering data was supported by respondents. The following additional variables to analyse were suggested:
 - Emergency unmetered generation use.
 - Review/audit of unmetered load calculation methodologies.
 - Analysis of metering data quality (actual vs estimations) used in UFE calculations.

Questions

- **The illegal consumption of energy has been identified as a source of UFE that should be ranked as top priority variable to be investigated. As there is no head of power placing an obligation on a specific party to manage the discovery of illegal energy consumption and AEMO has no visibility of illegal energy consumption, stakeholders are requested to provide details of a systematic way to discover illegal energy consumption.**

4.3.3. AEMO's conclusion

AEMO intends to include the following changes to the UFE Trends Report:

- Charts to be based on FINAL settlements data to ensure consistency across the whole reporting period of 24 months.
- Charts to be based on weekly rather than monthly data.
- Median, average, upper limit, and lower limit UFE values as benchmarks for each *local area* for the reporting period, including by season.
- Analysis of migration of metering installations that do not provide 5-minute metering data to 5-minute metering installations.
- Analysis of actual metering data and estimated metering data in UFE calculations.

4.4. Additional UFE Reduction Actions

4.4.1. Issue summary and submissions

The respondents raised a number of issues, including:

- Red and Lumo requested transparency of all actions planned/taken to reduce UFE, especially if these can assist the overall market, instead of just one participant. Red and Lumo recommended this be an industry wide shared source of information.
- Origin proposed that there should be distributor reporting of the investigations undertaken to reduce areas of high UFE. Origin proposed also that AEMO should analyse UFE corrections between statement runs, to understand the drivers of UFE corrections between Final and Revision 2. Revision 2 data should be compared year on year for comparison (Section 2 above).
- Alinta noted – in the context that LNSPs hold any additional information required, along with data from third party Meter Data Providers and Metering Coordinators – that the AER's price determination process provides incentives and should apply enforcement to ensure UFE reduces over time.
- Stanwell considers – in the current context, where AEMO is the only party that has access to the complete data set needed to understand UFE – that AEMO should interrogate the data to identify and communicate errors, trends and issues, as well as to propose ways to reduce UFE.
- TasNetworks suggested that AEMO should consider the ability of parties to respond to recommendations. Expectations of expenditure by network businesses to reduce UFE needs to consider the cadence of regulatory determinations to ensure the best outcomes to customers.

4.4.2. AEMO's assessment

The respondents supported the following areas of analysis where actions to reduce UFE could be achieved:

- DLF calculations (DNSP responsibility).
- Unmetered load and profiling methodologies/procedures (AEMO responsibility).

4.4.3. AEMO's conclusion

AEMO recommended actions to reduce UFE will be included in UFE Trends Reports. AEMO proposes to facilitate discussion forums prior to the release of a UFE Trends Report, to identify and confirm recommended UFE reduction actions.

Areas of analysis to reduce UFE will include:

- DLF calculations (DNSP responsibility).
- Unmetered load and profiling methodologies/procedures (AEMO responsibility).

4.5. Volatility of UFE between Settlement Data Versions

4.5.1. Issue summary and submissions

AEMO's billing cycle to Financially Responsible Market Participants (FRMPs) provides several versions of a weekly billing statement (Preliminary, Final, Revision 1 and Revision 2) that include UFE calculations. The volatility in UFE calculations which occur during this settlement cycle is raising stability issues. Currently, some customers are observing differences of greater than 10% between Preliminary and Final UFE data.

In this regard:

- AGL suggested that true analysis of UFE activities will be more dependent on final revision data than initial metering data. Accordingly, while the initial metering data may trigger some considerations, the longer-term impact and management of UFE is more likely to be captured through the revision data.
- Shell Energy advised that approximately 95% of its electricity sales are attributed to customers who have invested in advanced interval metering, who are most likely not material contributors to UFE. Given such a significant cost impact, it is important that full and detailed analysis is provided to substantiate these socialised market costs, so that the affected customers have adequate information, particularly when it is likely they would not be a material contributor to the incidence of UFE. Shell Energy supports UFE charts which analyse the movement of UFE between settlement versions, particularly final and revision versions.
- Stanwell observed significant differences in UFE between AEMO statements, requiring a comparison between Preliminary, Final, Revision 1 and Revision 2.

4.5.2. AEMO's assessment

The respondents support AEMO's proposal to provide additional information to support UFE analysis in the form of presenting variations in UFE related to settlements metering data versions (Prelim, Final, Revision 1 and Revision 2).

4.5.3. AEMO's conclusion

AEMO concludes that charts which identify the variation of UFE related to settlements metering data versions for each *local area* should be included in the UFE Trends Report.

5. Draft determination on proposal

AEMO's draft determination is to amend the:

- Guidelines in the form published with this draft report, in accordance with NER 3.15.5B.
- Retail Electricity Market Glossary and Framework, to reflect the Guidelines.

Appendix A. Glossary

Term or acronym	Meaning
UFE	Unaccounted for Energy
FRMP	Financially Responsible Market Participant
DLF	Distribution Loss Factor
TNI	Transmission Network Identifier
DNSP	Distribution Network Service Provider
LNSP	Local Network Service Provider



Appendix B. List of Submissions and AEMO Responses

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
1	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?</p>	AGL	<p>Business Needs for UFE reporting</p> <p>In considering the content and timing of the UFE reports to be prepared and published, there should be some consideration of the business need which these reports will meet and support. The following are clear outcomes arise from UFE and UFE reporting: Need for retail businesses to forecast likely UFE amounts so that the impact can be included in business processes (hedging, consumer products, retailer supply obligations, etc). The need to budget for the forecast amount of UFE; and Identify and mitigate / minimise UFE.</p> <p>Outcomes 1 and 2 As many business budgets and regulatory processes are undertaken post December (generally around March) it would be valuable for AEMO to publish monthly or quarterly downloadable data sets (and graphs) on UFE, to allow businesses to process consistent UFE data and prepare volume and forecast budgets and feed information into pricing processes. These data sets may comprise 5-minute data sets for each day of the quarter and would be updated showing initial settlement values and final settlement values. Given the time frame between the initial data and final data, it is likely that the information would need to cover a rolling two-year period.</p> <p>Outcome 3 Outcome 3 is the longer-term analysis and reduction / resolution of sources of UFE. It is expected that this analysis will take longer, and rectification is likely to involve changes to data, processes or capital expenditure (e.g. metering or other systems). As such, it seems that this analysis should be undertaken through the year and reported in the annual UFE report, which would then feed into longer term business activities (e.g. procedure changes, process changes, capital expenditure). Further, true analysis of UFE activities will be more dependent on final revision data than initial meter data. So, while the initial meter data may trigger some considerations, the longer-term impact and management of UFE is more likely to be captured through the revision data.</p> <p>As discussed above, it would be valuable to show over a longer-term period both initial data and post revision data.</p>	<p>AEMO notes the respondent’s comments about the business needs for the timing of UFE reporting.</p> <p>AEMO notes the respondent’s suggestion to provide a rolling 24-month metering data set monthly with minimal or no analysis with some associated information published quarterly.</p> <p>AEMO is considering how to make settlements metering data available for Participants on a monthly basis.</p> <p>AEMO notes the respondent’s suggestion to provide settlements metering data versions, i.e. Prelim, Final, Rev 1 and Rev 2 metering data versions.</p>



#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
				<p>Noting that while the RM46 and potentially other data sources may be available, it is expected they would comprise initial meter data sets. A rolling 24 monthly data set, with minimal / no analysis, could be released monthly, with some associated information published quarterly.</p> <p>This proposal would ensure that there was a common set of public information available, especially for December and March each year to support budgeting, forecasting and pricing activities and Regulatory processes (e.g. VDO & DMO development).</p> <p>This data set would comprise the initial data and any revised data as settlements is updated. It would be preferable that the data sets contain the initial data as well as any settlements revised data so that industry can consider the changes in UFE as meter data is revised. This will become important in the longer-term actions to mitigate UFE, as it will help separate the initial impact of profiling from systemic UFE causes.</p> <p>The Annual reports could focus on longer term periods – e.g. 5 years – but using predominantly revision data, although the more recent two years may also show the various categories of data (e.g. initial, final, revised) as a guide to how temporary variances are appearing.</p>	
2	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?</p>	Alinta	<p>Alinta Energy believes that until the data collated by AEMO is stabilised (over the next 24-36 months), quarterly reporting with monthly granularity of UFE would provide confidence to industry stakeholders in relation to data quality, given the significant fluctuations seen month to month in some local network areas since global settlement began its soft start in 2022.</p>	<p>Refer to response to Item 1 related to the provision of a rolling 24-month metering data set.</p>

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
3	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”)).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?</p>	CS Energy	<p>CS Energy does not agree with the suggested dates. The costs associated with UFE are material and volatile and need to be understood as quickly as possible to minimise the impact on consumers. Consumers cannot wait a year for answers to their questions.</p> <p>The UFE Trends report needs to be on a quarterly basis, with these aligned to the financial year quarters to best aid consumers. This earlier access to information will also benefit AEMO as feedback will be provided more frequently and can be incorporated into subsequent reports. This will provide a quicker pathway to maturity of reporting.</p> <p>The UFE Trends report must also be based on finalised data to maximise its benefit. AEMO should develop the reporting schedule to facilitate this alongside sufficient time for AEMO to perform and present the required analysis.</p>	Refer to response to Item 1 related to the provision of a rolling 24-month metering data set.
4	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”)).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What</p>	CNSWJO	<p>Q1. No. The proposed reporting timeframe is fine.</p> <p>Q2. N/A</p>	AEMO notes the respondent’s comments.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		benefits will be realised through a different reporting timeframe?			
5	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?</p>	Origin Energy	<p>Q1: Yearly reporting is acceptable; however, the report should be published in time to allow for tariff submissions for the next fin year.</p> <p>Q2: The report should be published no later than 28th of February each colander year. The benefit of this reporting cycle is to allow for financial year budgeting. Alternatively a Financial year report would also be acceptable, published later in the year post 30 June.</p>	<p>AEMO notes the respondent’s comments.</p> <p>AEMO notes the respondent’s position that yearly reporting is acceptable and the preference for UFE Trends Report to be published by end of February to support participant budgeting.</p>
6	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p>	Red Lumo	<p>Red Energy and Lumo Energy (Red and Lumo) strongly recommend AEMO to adopt the following timeframes:</p> <ul style="list-style-type: none"> - For the UFE report to be aligned with the publication of Loss Factors - currently taking place on 1 June. - For both UFE and Loss Factors to be published on 1 May, instead of 1 June. <p>The preference for 1 May (or earlier) is to allow time for the information to be evaluated and accounted for when assessing the financial impacts on items being reviewed around the same period such as VMO and DMO.</p>	<p>AEMO notes the respondent’s comments.</p> <p>AEMO notes the respondent’s suggestion that UFE Trends Report should be published earlier than 1 May each year.</p>



#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?			
7	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?</p>	Shell Energy	<p>Q1 -Yes.</p> <p>Q2- Preference would be for the report to be provided at least quarterly; provided one month after the end of the quarter. This will: Allow for more real time response to mitigate the drivers of UFE – providing clear benefits to customers who are impacted by the costs of UFE. Allow for tailored response through identification of seasonal swings Provide a rolling picture of UFE trend, hence as more information becomes available this will provide even further guidance as to the drivers</p>	Refer to response to Item 1 related to the provision of a rolling 24-month metering data set.
8	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”).</p>	Stanwell	<p>The purpose of publishing UFE data is to enable all participants to have access to information to understand, investigate and reduce UFE over time.</p> <p>Waiting one year for 12 months of UFE data is too long, and particularly inappropriate for customers that are being subjected to significant fluctuations in UFE from month to month or very high UFE charges that are unable to be explained.</p> <p>Given it takes up to a month after preliminary data for final data to become available, AEMO should prepare and publish UFE reports quarterly, aligned with each quarter of the financial year. The UFE report should be prepared and published 1 month after the final data is available for each quarter of the financial year.</p> <p>Quarterly preparation of the UFE report by AEMO would not only provide customers with more confidence that UFE trends were being monitored by AEMO, but also enable AEMO and market participants</p>	Refer to response to Item 1 related to the provision of a rolling 24-month metering data set.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?</p>		to investigate excessively high UFE that cannot be explained or to start developing plans to reduce high UFE.	
9	1.1	<p>Purpose and Scope</p> <p>AEMO intends to publish each UFE Trends Report by 1 June each year covering a 12-month reporting period (For the (year “x”) UFE Trends Report the reporting period is 1 May (year “x-1”) to 30 April (year “x”).</p> <p>Q1. Do stakeholders require a different reporting timeframe?</p> <p>Q2. If so, what reporting timeframe is appropriate? What benefits will be realised through a different reporting timeframe?</p>	TasNetworks	Timeframe proposed is acceptable.	AEMO notes the respondent's comments.
10	2	<p>Summary of analysis of UFE</p> <p>Charts in this section provide a summary of the UFE calculation components for each <i>local area</i>. The current proposal is to provide UFE component charts for the current</p>	AGL	<p>See comments above.</p> <p>The need to undertake budgetary and forecasting assessments, mean that UFE needs to be considered at the initial data stage, as this will be the amounts allocated during the initial settlement processes.</p> <p>The use of final settlements data allows analysis of the profiling processes used on the initial data and is likely to show the more correct UFE for a distribution network. This will also allow users to consider the impact of the initially allocated UFE vs the likely final allocated UFE.</p>	AEMO notes respondent's comments related to the inclusion of metering data version analysis over the reporting period.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>reporting period based on FINAL version metering data.</p> <p>Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?</p>		<p>As interval meters are installed (and converted to 5ms) and basic meters removed, this issue should start to decrease. However, current discussions indicate that the interval meter rollout will take between 10 and 15 years, so this is not an issue which will disappear quickly.</p>	
11	2	<p>Summary of analysis of UFE</p> <p>Charts in this section provide a summary of the UFE calculation components for each <i>local area</i>. The current proposal is to provide UFE component charts for the current reporting period based on FINAL version metering data.</p> <p>Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?</p>	Alinta	<p>Alinta Energy believes corresponding charts for the previous period be included. In particular local areas, Alinta Energy has encountered values of UFE that are volatile and do not seem consistent with losses that might be expected in those areas. A comparison over time would be of value to understand the historic and forecast exposure of market participants and the performance of LNSPs in limiting losses and provide insights through trends.</p>	<p>AEMO notes respondent's support for previous reporting period charts to be included in the current report for comparison purposes.</p>
	2	<p>Summary of analysis of UFE</p> <p>Charts in this section provide a summary of the UFE calculation components for each local area. The current proposal is to provide UFE component charts for the current reporting period based</p>	CS Energy	<p>It is premature to provide commentary on the summary of analysis of UFE given the current charts are not based on the final version metering data nor do the local area observations add much insight. Given the purpose of the reporting is to identify trends in UFE and facilitate better management of UFE, the charts should not be restricted to the current reporting period only. There may be benefit in assessing any seasonal trends for example. Ideally consultation would occur when data was finalised, and analysis completed to allow market participants to provide informed feedback. CS Energy suggests the next stage of consultation be conducted with a complete dataset and analysis.</p>	<p>AEMO notes the respondent's comments related to including previous reporting period charts in the current report, including seasonal analysis.</p>

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>on FINAL version metering data.</p> <p>Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?</p>		Data should also be provided in tables alongside the charts and the reports should provide UFE validation.	
12	2	<p>Summary of analysis of UFE</p> <p>Charts in this section provide a summary of the UFE calculation components for each local area. The current proposal is to provide UFE component charts for the current reporting period based on FINAL version metering data.</p> <p>Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?</p>	CNSWJO	Q1. Yes. The corresponding charts for the previous reporting years should be included. This would allow comparison by local area year on year.	AEMO notes the respondent's comments.
	2	<p>Summary of analysis of UFE</p> <p>Charts in this section provide a summary of the UFE calculation components for each local area. The current proposal is to provide UFE component charts for the current reporting period based</p>	Origin Energy	AEMO should publish charts for the prior reporting period to allow for comparison and interpretation by industry. Benefits are not yet known as we haven't consumed the information.	AEMO notes respondent's support for previous reporting period charts to be included in the current report for comparison purposes.



#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response																
		on FINAL version metering data. Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?																			
13	2	Summary of analysis of UFE Charts in this section provide a summary of the UFE calculation components for each local area. The current proposal is to provide UFE component charts for the current reporting period based on FINAL version metering data. Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?	Red Lumo	<p>Red and Lumo request the following:</p> <ul style="list-style-type: none"> - For the charts to show a weekly view rather than a monthly view. This granular detail is more relevant and useful to work with when undertaking trend analysis. It allows for any associated events in a short period of time, which may impact on the trending volume, to be more accurately identified. - Reports to include the weekly source data feeding into the report, even if as a reference table - example table below. This is much more useful to work with rather than just a visual of a chart displaying trends which cannot easily be analysed without the source data. The source data could be saved in a different location with a link provided in the report. <table border="1"> <thead> <tr> <th></th> <th>Week #</th> <th>Week #</th> <th>Week #</th> </tr> </thead> <tbody> <tr> <td>TME</td> <td>xx</td> <td>xx</td> <td>xx</td> </tr> <tr> <td>ADME</td> <td>xx</td> <td>xx</td> <td>xx</td> </tr> <tr> <td>UFE</td> <td>xx</td> <td>xx</td> <td>xx</td> </tr> </tbody> </table> <ul style="list-style-type: none"> - AEMO should provide previous reporting period charts. Historical periods are useful in tracking the overall trend and undertaking any comparison over time (improvements, degradation, etc...) against the current 12-month trend being reported on. - The analysis from AEMO needs to compare and talk to the trends identified between previous periods of reporting, not just within the current 12-month period in the report. 		Week #	Week #	Week #	TME	xx	xx	xx	ADME	xx	xx	xx	UFE	xx	xx	xx	<p>AEMO notes the respondent's comments related to the inclusion of source data to accompany the analysis charts and support for comparison analysis for previous reporting periods.</p> <p>AEMO notes the respondent's suggestion for charts to show weekly rather than monthly granularity.</p>
	Week #	Week #	Week #																		
TME	xx	xx	xx																		
ADME	xx	xx	xx																		
UFE	xx	xx	xx																		
14	2	Summary of analysis of UFE Charts in this section provide a summary of the UFE calculation components for each local area. The current proposal is to provide UFE component charts	Shell Energy	<p>We are supportive of UFE charts providing an analysis of the movement of UFE between settlement versions, particularly final and revision versions.</p> <p>Q 1 -To assist with the theme of greater transparency and granularity of reporting, Shell Energy proposes the charts show a weekly view to help with relevancy and trend analysis. Such reporting can also assist with accurate identification of trends when these are material but also for short-term anomalies or significant swings or events, as we have recently experienced.</p>	<p>AEMO notes the respondent's support for the inclusion of metering data version analysis over the reporting period and for comparison analysis over previous reporting periods.</p> <p>AEMO notes the respondent's suggestion for charts to show weekly rather than monthly granularity</p>																

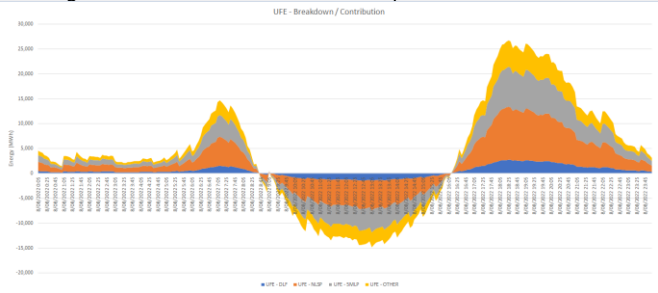
#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>for the current reporting period based on FINAL version metering data.</p> <p>Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?</p>		<p>Shell Energy also proposes that AEMO provide previous reporting period charts. Historical periods are useful in overall trend analysis and issue tracking. Analysis should compare the trends identified between previous periods of reporting and the current rolling 12-month period in the report.</p>	
15	2	<p>Summary of analysis of UFE</p> <p>Charts in this section provide a summary of the UFE calculation components for each local area. The current proposal is to provide UFE component charts for the current reporting period based on FINAL version metering data.</p> <p>Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?</p>	Stanwell	<p>As Stanwell has observed significant differences in UFE between AEMO statements, a comparison between Preliminary, Final, Revision 1 and Revision 2 is required. Stanwell would also like to see Final, Revision 1 and Revision 2 periods indicated on the timeline of the existing graphs.</p> <p>A total UFE cost should also be included (i.e. UFE kWh x Loss Factor x RRP) being a customer pass-through cost.</p> <p>Tabular (5-minute interval) data sitting behind these graphs would also be required to understand, investigate and reduce UFE over time. This could be provided as an electronic excel file per local area and made available for download on AEMO's website.</p>	<p>AEMO notes the respondent's support for the inclusion of metering data version analysis over the reporting period and source data to accompany the analysis charts.</p> <p>NER 3.15.5(d) requires AEMO to provide information to enable a <i>Market Customer</i> to verify the UFE amounts allocated to that <i>Market Customer's connection points</i> in a <i>local area</i>. The charge for UFE applied by a <i>Market Participant</i> is determined by that <i>Market Participant</i>, therefore AEMO cannot provide a UFE cost, as requested.</p>
16	2	<p>Summary of analysis of UFE</p> <p>Charts in this section provide a summary of the UFE calculation components for each local area. The current proposal is to provide UFE component charts for the current</p>	TasNetworks	<p>There would be benefit from including previous reporting period data to aid trend analysis and to identify whether seasonal variations are persistent.</p>	<p>AEMO notes the respondent's suggestion to include seasonal variation identification.</p>

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>reporting period based on FINAL version metering data.</p> <p>Q1. Should the corresponding charts for the previous reporting period also be included? If so, what benefits will be realised?</p>			
17	3	<p>UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. Q1. Is there a better methodology to determine benchmarking for a local area? If so, provide details of that methodology.</p>	AGL	<p>The average and median UFE provide one view of the how much UFE is being allocated, but the max / min bandwidth around those trends, should also be provided as this shows the range the UFE is likely to move between. An initial thought is that a large UFE range means multiple causes are at play, while a small UFE range, means that there are less significant issues impacting UFE. Comparison of different networks UFE ranges, may in themselves be useful indicators of potential causes, and may help identify outlier days, which can be further investigated.</p>	<p>AEMO notes the respondent's support for the proposed mean, average, upper limit, and lower limit benchmark values.</p>
18	3	<p>UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. Q1. Is there a better methodology to determine benchmarking for a local area? If so, provide details of that methodology.</p>	Alinta	<p>This seems and appropriate approach.</p>	<p>AEMO notes the respondent's support for the proposed mean, average, upper limit, and lower limit benchmark values.</p>

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
19	3	UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. Q1. Is there a better methodology to determine benchmarking for a local area? If so, provide details of that methodology.	CS Energy	The proposed benchmarks are sufficient initially, however, CS Energy proposes they should be applied at a quarterly resolution to capture seasonal characteristics.	AEMO notes the respondent's support for the proposed mean, average, upper limit, and lower limit benchmark values. Request for benchmark values to be provided for each quarter for seasonal analysis.
20	3	UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. Q1. Is there a better methodology to determine benchmarking for a local area? If so, provide details of that methodology.	CNSWLO	Q1. No alternate methodology is suggested.	AEMO notes the respondent's comments.
21	3	UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. Q1. Is there a better methodology to determine benchmarking for a	Origin Energy	Origin supports the AEMO benchmark proposal.	AEMO notes the respondent's support for the proposed mean, average, upper limit, and lower limit benchmark values.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		local area? If so, provide details of that methodology.			
22	3	UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. Q1. Is there a better methodology to determine benchmarking for a local area? If so, provide details of that methodology.	Red Lumo	No comment at this stage.	AEMO notes the respondent's comments.
23	3	UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period. Q1. Is there a better methodology to determine benchmarking for a local area? If so, provide details of that methodology.	Stanwell	The UFEF for each local area should be charted and benchmarked as part of the development of this "UFE Reporting Guideline". Currently, some customers are seeing differences of greater than 10% between Preliminary vs Final UFE data. Anything that can highlight the difference between AEMO statements would be useful. For customers in some local areas, there is a constant upward trend in UFE from May to July 2022. Data should be analysed by AEMO to understand if such trends are seasonal or simply due to the timing of metering data processes such as the use of Estimate vs Final reads from basic meters being used. The report should then be quarterly so that seasonal trends are visible.	AEMO notes the respondent's comments related to the use of benchmarks and seasonal analysis.
24	3	UFE benchmark analysis AEMO proposes to publish the median, average, upper limit, and lower limit UFE values as benchmarks for each local area per reporting period.	TasNetworks	No better methodology has been identified.	AEMO notes the respondent's comments.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		Q1. Is there a better methodology to determine benchmarking for a local area? If so, provide details of that methodology.			
25	4	<p>UFE source analysis</p> <p>Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE reporting guidelines. Q1. Are there other variables that modify metering data that should be included in the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data</p> <p>Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?</p>	AGL	<p>For clarity, the mix of interval and basic meters in a distribution network is a useful indicator. Consider how much of the total load is metered by interval meters vs accumulation meters and how much energy is being profiled (which is also be driving the settlement spike issue):</p> <p>For example – SA has ~ 28% Type 4 meters vs ~72 % type 6 meters 25% of energy is profiled from basic; 10 % is profiles from interval (15/30) meters.</p> <p>Other variables which will affect UFE calculations are:</p> <ul style="list-style-type: none"> for some days are the use of unmetered large generators (e.g. small townships) by DNSPs to reduce consumer outages or switching between networks which does not involve a boundary meter. Completion of updating TNIs for all distribution services supplied by a different network (e.g. CitiPower boundaries). Audit UMS energy calculations for standard devices (e.g. public lighting). <p>Ranking – At this stage AGL would suggest that the ranking be undertaken on the volume of energy impacted (i.e. 80/20 rule). This will allow the drivers with the biggest volumes to be identified and actioned in order of impact. It may be that until there is a full year of data available for consideration (both initial and final) it may not be possible to rank any causes, however, it is likely that profiling is one of the bigger impacts, and DLFs are potentially the next biggest cause, noting that so many of the UFEs are negative.</p>	AEMO notes the respondent’s support for the analysis of the proposed UFE sources and identifying the UFE sources of greatest importance for the respondent.
26	4	<p>UFE source analysis</p> <p>Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE reporting guidelines. Q1. Are there other variables that modify metering data that should be included in</p>	Alinta	The scope of variables applied for UFE source analysis seem comprehensive. It is clear how solar PV is to be managed.	AEMO notes the respondent’s support for the analysis of the proposed UFE sources.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?			
27	4	UFE source analysis Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE reporting guidelines. Q1. Are there other variables that modify metering data that should be included in the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?	CS Energy	<p>The UFE source analysis needs to drill down into specifics as much as possible. From CS Energy's perspective, it appears most benefit would arise from understanding the breakdown of ADME as well as looking at metering estimation errors (methodology and DLF). A stylised version of what CS Energy would expect is depicted below, showing UFE as a function of source components.</p>  <p>This allows participants to identify the larger contributors and how they vary, and they should definitely be ranked. Attention can then be directed to understanding these and potential management actions. These charts (and associated data tables) would then facilitate easier comparison between local areas where there are known differences in characteristics such as metering population.</p>	AEMO notes the respondent's support for the analysis of the proposed UFE sources and identifying the importance of further analysis of ADME for the respondent.
28	4	UFE source analysis Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4	CNSWJO	This region strongly supports minor energy flow metering.	AEMO notes the respondent's comments.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>of the Initial Draft UFE reporting guidelines. Q1. Are there other variables that modify metering data that should be included in the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?</p>			
29	4	<p>UFE source analysis</p> <p>Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE reporting guidelines. Q1. Are there other variables that modify metering data that should be included in the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?</p>	Red Lumo	<p>Red and Lumo request AEMO to include illegal consumption as a variable. AEMO will need to consider the most appropriate source and methodology to obtain this data (i.e. Networks, MDP/MC, etc...). Red and Lumo see there are 3 variables which are ranked at the top, with the remainder having equal importance depending on their volume at the time of reporting. The 3 top ranked variables are:</p> <ul style="list-style-type: none"> - DLF value changes – historical analysis of DLFs (<i>Top priority</i>) - Accumulation (BASIC) meter replacement with interval meters (<i>Top priority</i>) - Illegal consumption (<i>Top priority</i>) 	AEMO notes the respondent’s support for the analysis of the proposed UFE sources and identifying the UFE sources of greatest importance for the respondent.

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
30	4	<p>UFE source analysis</p> <p>Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE reporting guidelines. Q1. Are there other variables that modify metering data that should be included in the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data</p> <p>Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?</p>	Shell Energy	<p>Shell Energy considers that illegal consumption, unmetered load, metering inaccuracies and any identified missing meter registers should be included and could be extracted from distributor / network reporting for granularity.</p> <p>Further analysis should be conducted to investigate the extent to which interval verses non interval metering are drivers of UFE. This was one of the key reasons provided by AEMO as a proponent to the rule change - metering accuracy and incentivising retailers to roll out advanced metering systems. If metering type is indeed the predominant driver of UFE, then it is particularly important that retailers be provided with sufficient analysis and tools to track this. Further analysis should look to seasonal drivers of UFE and the extent to which this impacts technical losses (or other drivers).</p>	<p>AEMO notes the respondent's support for the analysis of the proposed UFE sources and identifying the UFE sources of greatest importance for the respondent.</p>
31	4	<p>UFE source analysis</p> <p>Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE reporting guidelines. Q1. Are there other variables that modify metering data that should be included in the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data</p>	Stanwell	<p>It's important that trends over time of the sources that contribute to UFE are shown.</p> <p>This means a breakdown of the contributions of different sources to UFE over time for the reporting period (which is suggested to be quarterly) should be provided graphically, and as a separate 5-minute dataset.</p> <p>In addition it is critical to see what proportion of accumulation meters are read versus unread in the final data presented in the quarterly report.</p> <p>It should also identify what kWh proportion of reads are actuals (meter data quality of 'A') vs non-actuals.</p> <p>All analysis should be broken down by local area.</p>	<p>AEMO notes the respondent's comments related to sources of metering data quality accuracy.</p> <p>AEMO notes the respondent's suggestion to include analysis of metering data actual vs estimations.</p>

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?			
32	4	<p>UFE source analysis</p> <p>Areas of UFE source analysis are related to variables that modify metering data, as identified in section 4 of the Initial Draft UFE reporting guidelines.</p> <p>Q1. Are there other variables that modify metering data that should be included in the UFE reporting guidelines? If so, provide details of the other variables and their effect on metering data</p> <p>Q2. Should the importance/effect of these variables be ranked? If so, which variables should be analysed initially?</p>	TasNetworks	<p>No other variables are recommended for addition.</p> <p>No comment on importance of variables.</p>	AEMO notes the respondent's support for the proposed variables to be included in the Guidelines.
33	5	<p>Recommendations – UFE visibility improvements</p> <p>Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs.</p>	AGL	<p>UFE at a network level is caused by a significant number of factors which will be difficult to separate, action and be sure of the outcome. Undertaking more granular analysis in some defined areas (i.e. test areas) it should be possible to observe the impact of making changes to specific causes of UFE to determine the impact / benefit. It is noted that these test areas may be required for some years or ongoing, so that changes can be assessed against initial and final settlements data and interval data.</p>	AEMO notes respondent's suggestion to establish "test areas" in which assessment of changes can be made.

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		Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?			
34	5	<p>Recommendations – UFE visibility improvements</p> <p>Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs.</p> <p>Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?</p>	Alinta	No comment.	AEMO notes the respondent's comments.
35	5	<p>Recommendations – UFE visibility improvements</p> <p>Q1. What are the benefits in reporting UFE values at a more granular level than at</p>	CS Energy	<p>CS Energy considers <i>local area</i> level reporting is appropriate and that seasonal variance information should be reported as per the benchmark analysis above.</p> <p>CS Energy sees benefit in the ability to compare different local areas, for example, the Energex network with Citipower which has more interval meters. This will assist in determining the source of UFE.</p>	AEMO notes the respondent's support for local area reporting, seasonal analysis, and comparison of UFE between local areas.

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		the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs. Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?			
36	5	Recommendations – UFE visibility improvements Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs. Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?	CNSWJO	Q1. A more granular level of reporting would provide customers greater visibility of their local network and provide evidence for advocacy purposes in relation to network issues experienced. Network issues in regional NSW are ongoing and difficult to gain traction with the DNSP on. Any evidence to support the issues raised by customers to lobby the DNSP for a better level of service is helpful. Q2. No alternate is suggested.	AEMO notes the respondent's comments.
37	5	Recommendations – UFE visibility improvements	Origin Energy	Seasonal and monthly variance is important to track as we do not know the significance of it yet.	AEMO notes the respondent's comments and support for seasonal and monthly analysis.



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		<p>Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs.</p> <p>Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?</p>			
38	5	<p>Recommendations – UFE visibility improvements</p> <p>Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs.</p> <p>Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?</p>	Red Lumo	<p>Red and Lumo see greater benefits in reporting UFE factors at the TNI & participant level. It is currently not possible to reconcile UFE factor against Participant/TNI level whilst these are based on local area network. Reporting at the more granular level would allow for the reconciliation with the Settlement Report which is at the Participant & TNI level.</p> <p>The weighting of UFE for participants is different to market values - leading to reconciliation impacts at the TNI/Customer level. This was not an issue for the previous settlement processes and has become a challenge we seem to struggle to overcome.</p> <p>With regards to the presentation of the seasonal variance information. Any factors which have the potential of impacts on the generation and consumption of energy should be considered as a factor for potential analysis of UFE trend. Insights and analysis of the changing conditions across seasons are important to ascertain the likely impacts on UFE - changing conditions such as: consideration for solar increase/decrease, daylight hours, unmetered supply (i.e. streetlights), one off or ongoing changing weather conditions (El Niño and La Niña). On this basis, Red and Lumo request the following: - As per our request to section 2 (further above), should AEMO provide the weekly source data behind the reporting, this would allow participants to undertake their own seasonal application and analysis to any peaks/trophs observed.</p>	<p>AEMO notes the respondent’s comments, support for seasonal analysis and the suggestion to provide source data behind the reporting.</p> <p>It should be noted that weekly UFE component data is already available for Participants through the RM43 and RM46 reports to support any analysis that a Participant may wish to undertake.</p>

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				- AEMO needs to highlight within the charts (suggest colour coding) each season for a quick visual presentation of possible seasonal trend changes.	
39	5	<p>Recommendations – UFE visibility improvements</p> <p>Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs.</p> <p>Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?</p>	Shell Energy	<p>Shell Energy believes any factors that impacts the generation and consumption of energy should be considered as a factor for potential analysis of UFE trend.</p> <p>This would include analysis on the varying conditions to ascertain the likely impacts on UFE. These include but are not limited to solar increase/decrease, daylight hours or isolated or ongoing changing conditions such as the weather.</p> <p>We note that AEMO nominated that a move to global settlements would enable commercial losses to be “identified, measured and fairly allocated over a trading period, and tracked over the long term”³</p> <p>Shell Energy believes it is therefore crucial to report UFE factors at the TNI level rather than the local level, to better reconcile UFE factors and identify localised drivers of UFE such as metering inaccuracies.</p> <p>We note that the need for TNI level analysis and reporting was supported in the AEMC Draft Decision on global settlement changes, as it was noted that “AEMO proposed in its rule change request that UFE be calculated for each TNI”. Further, the AEMC observed that “Calculating UFE at the TNI level would also focus industry efforts to reduce it. For example, issues such as the misallocation of NMIs to TNIs, large undetected commercial losses, and the poor estimation of technical loss factors, would either require UFE to be calculated at the TNI level, or be significantly harder to identify if it was calculated at a higher level.”⁴</p> <p>It would therefore be advantageous for TNI level analysis to be included as part of UFE reporting. This analysis will allow for losses identification, supporting one of the key reasons the global settlement approach was introduced in the first place.</p>	<p>AEMO notes the respondent’s comments and support for seasonal analysis.</p> <p>While the provision of references, by the respondent, to the AEMC’s position in the Global Settlements Draft Determination related to reporting on UFE factors at the TNI level is correct, it must be noted that the AEMC changed the requirement to allocate UFE at the local level due to the existence of virtual TNIs in some distribution networks – ref. Global Settlements Final Determination Section 3.8.</p>
40	5	<p>Recommendations – UFE visibility improvements</p> <p>Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful</p>	Stanwell	<p>Stanwell’s view is that reporting UFE at the local area level is appropriate, noting that AEMO does have the ability to request more granular data from the DNSP’s about which NMI’s are mapped to TNI’s versus VTN’s should it be needed to investigate high UFE calculated within a local area.</p> <p>It is difficult to comment on how the seasonal variance is presented as the June 2022 report didn’t contain any data in this section.</p> <p>As mentioned above, a view of UFE with Regional Reference Price applied would be beneficial to see the actual cost to customers.</p>	<p>AEMO notes the respondent’s comments and support for seasonal analysis.</p>

³ Ibid

⁴ AEMC, Global Settlement and Market Reconciliation, Draft rule determination, 30 August 2018 page 26.

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		for local areas that have virtual TNIs. Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?			
41	5	Recommendations – UFE visibility improvements Q1. What are the benefits in reporting UFE values at a more granular level than at the local area? Noting that reporting at TNI level is not meaningful for local areas that have virtual TNIs. Q2. Should the seasonal variance information be presented in another way? If so, how should this information be presented and what will be the benefits of presenting the information in this alternative way?	TasNetworks	More granular reporting would help identify specific injection points contributing more to UFE than others. TasNetworks acknowledges the challenges of this especially given the use of virtual TNIs in some local areas. We see little benefit from providing seasonal variance information. Our preference is to provide comparison with the same period the previous year.	AEMO notes the respondent's comments and support for same period from previous year reporting.
42	6	Recommendations – UFE reduction actions Q1. Are there other actions which should	AGL	To reduce UFE, the causes need to be understood. Given the volumes of energy which need to be impacted to drive particular outcomes at this point in time, the most likely causes at present are profiling (basic to 5ms, 15/30 to 5 ms) and DLFs.	AEMO notes the respondent's comments.

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		be explored to reduce UFE? Q2. Who holds the information to support these actions?		<p>The impact of the profiling issue can be measured through the replacement of basic meters with interval meters and the conversion of meters and the updating of 15/30 meters to 5ms meters.</p> <p>The potential impact of DLFs is substantially more complex and effectively rely on the accuracy of the meter data amongst other things as a key input. There has been discussion about DLFs being more dynamic and this is potentially an area which could be further explored.</p> <p>The responsible party will be dependent on the UFE cause. For instance, DLFs are the domain of the DNSPs. Profiling methodologies are within AEMO's domain. Meter replacement is a combination of DNSP meter testing and retailer/MC capability to install meters and retailer led rollout capability. UMS load calculations are the domain of DNSPs etc.</p>	
43	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE? Q2. Who holds the information to support these actions?</p>	Alinta	<p>LNSPs hold any additional information required along with data from third party Meter Data Providers and Metering Coordinators. The AER's price determination process provides incentives and should apply enforcement to ensure UFE reduces over time.</p>	AEMO notes the respondent's comments.
44	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE? Q2. Who holds the information to support these actions?</p>	CS Energy	<p>These questions will be relevant once final metering data has been obtained and appropriately analysed to understand the key value drivers for UFE in each local area.</p> <p>AEMO should be the party that holds this information.</p>	AEMO notes the respondent's comments.
45	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE? Q2. Who holds the information to support these actions?</p>	CNSWJO	<p>Q1. Yes. AEMO should be aware that initiatives such as smart controls for streetlighting and the roll-out of smart meters which would both work to reduce UFE, are difficult to access in regional NSW. Councils are consistently receiving estimated bills and are actively trying to install smart meters however it can be a challenging process and requests are not being swiftly rolled out upon request for various reasons.</p> <p>Further, as our DNSP does not have international standard asset management system, Councils are spending significant amounts of time and money on bill checking and are pursuing refunds for overcharges.</p>	AEMO notes the respondent's comments.

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				<p>With smart controls, the Southern Lights Group in regional NSW consists of Joint Organisations and their 42 member councils tirelessly lobbying the DNSP over the past few years to install smart controls on streetlights however, while this is being rolled out in metro NSW, the regional DNSP appears not to see the value both for themselves and for their customers. Smart controls would not only reduce UFE through informing the DNSP when the light is not working optimally, but it also provides an opportunity for minor energy flow metering to allow councils to dim the lighting at appropriate times.</p> <p>Smart meters and smart controls both have the capacity to reduce the amount of unaccounted for energy.</p> <p>Support from AEMO for customers in regard to lobbying DNSPs to support these initiatives would be appreciated.</p> <p>Q2. DNSPs and retailers.</p>	
46	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE?</p> <p>Q2. Who holds the information to support these actions?</p>	Origin Energy	<p>Q1: Asset registration changes or additions in LA's or distribution area of new plant or Cross Boundary meter to determine if there is a change in the UFE correlating to any new or amended infrastructure. Historically there have been registration errors that have been settled to Local Retailers resulting in off market settlements. As this mechanism is not available in the Global Settlement environment, AEMO should perform this analysis.</p> <p>There should be DB reporting of the investigations undertaken to reduce area's of high UFE. With varied causes of unmetered energy flows, it is incumbent on AEMO to help identify area's with higher than average UFE and Networks to undertake investigations.</p> <p>Q2: AEMO/Networks</p>	AEMO notes the respondent's comments.
47	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE?</p> <p>Q2. Who holds the information to support these actions?</p>	Red Lumo	<p>Red and Lumo require transparency of any and all actions planned, and/or taken, to reduce UFE. Especially if these can assist the overall market and not just one participant. We recommend this be an industry wide shared source of information.</p>	AEMO notes the respondent's comments. Future UFE Trend Reports will include identification of UFE reduction actions.
48	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE?</p>	Shell Energy	<p>The industry should have access to granular data and sources of information relating to UFE. This would be consistent with the transparency and granularity that Shell Energy seeks through this consultation. We believe that retailers and other market customers impacted by UFE should be consulted with respect to any actions proposed or planned to reduce UFE.</p>	<p>AEMO notes the respondent's comments.</p> <p>AEMO will consider implementing a discussion forum around the release of a UFE Trends Report.</p>

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		Q2. Who holds the information to support these actions?			
49	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE?</p> <p>Q2. Who holds the information to support these actions?</p>	Stanwell	<p>Q1: It is not possible at this time to comment on actions to explore cases of high UFE when there is no data available to understand the potential causes of high UFE. Currently, AEMO is the only party that has access to the complete data set needed to understand UFE. Therefore, Stanwell believes it is AEMO's role to interrogate the data and to identify and communicate errors, trends and issues and propose ways to reduce UFE.</p> <p>Q2: As stated above, under Global Settlements, AEMO is the only party which currently has access to all the information needed to identify trends and areas of high UFE which warrants investigation. Therefore, it is imperative that the level of granularity provided in this UFE publication be sufficient for all participants to cross check their own monthly data against the AEMO published data with respect to the UFE for their local area and their own component of the load and corresponding UFEA.</p> <p>C&I retailers such as Stanwell, where customers have accurate interval metering, cannot take actions to minimise UFE. This is because all other sources of UFE besides upgrading to interval metering are not within Stanwell's control. A detailed breakdown of UFE by source will at least assist C&I retailers explain to customers the cause of the UFE charges that are being passed on.</p>	<p>AEMO notes the respondent's comments.</p> <p>AEMO has produced a UFE Fact Sheet to assist retailers to explain UFE calcs. to their customers</p>
50	6	<p>Recommendations – UFE reduction actions</p> <p>Q1. Are there other actions which should be explored to reduce UFE?</p> <p>Q2. Who holds the information to support these actions?</p>	TasNetworks	<p>AEMO should consider the ability of parties to respond to recommendations. Expectations of expenditure by network businesses to reduce UFE needs to consider the cadence of regulatory determinations to ensure the best outcomes to customers.</p>	<p>AEMO notes the respondent's comments.</p> <p>AEMO will consider implementing a discussion forum around the release of a UFE Trends Report.</p>
51	Appendix A.1	<p>UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are:</p> <p>UFE for the local area</p> <p>UFE for the local area as a percentage of local area ADME</p>	AGL	<p>In considering UFE there are four views of the data that could to be considered:</p> <p>A high level / long term view to determine whether UFE is trending in the right direction – eg monthly across multiple years.</p> <p>A mid-level view of Monthly UFE across a year - to identify whether UFE is being changes by seasonal impacts (eg solar panels, heat, cold) eg daily for a month;</p> <p>A lower-level view of UFE by day in a month, to determine if specific events on a day are driving UFE – eg unusual switching; large scale generation usage;</p>	<p>AEMO notes the respondent's support for the proposed UFE charts to be included in the Guidelines and suggestion to include a rolling 24-month data set.</p>

#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2.</p> <p>Q1. Do the proposed charts, provide sufficient information, in conjunction with the charts in Section 2, to facilitate UFE analysis? Q2. If not, which other additional information is required? Provide details of other additional information required and the benefits of providing the additional information. Q3. Who holds the additional information?</p>		<p>A more granular view to determine what events may be impacting UFE; eg interval within a day AGL supports the proposed analysis and suggest that a 24 month rolling data set be used and made available (industry and public) to meet this analysis. Within those charts (and data sets) the median/average and hi/lo boundaries could also be presented and modelled over revisions. As UFE is an item to be managed and reduced some longer-term trending (likely updating) should also be shown. Eg UFE from global start and initially started with initial data, which could be updated with final data to provide the long-term view of whether UFE is trending in the right direction. AEMO should be advised by the networks of any unusual switching events (eg emergency switching) which will impact UFE quantities, and which should be identified and published within the UFE data sets. AEMO could review consistency of UMS calculations of identical devices by DBs to look for substantial variation – eg standard public light, NBN assets, Telstra assets, etc</p>	
52	Appendix A.1	<p>UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are: UFE for the local area UFE for the local area as a percentage of local area ADME UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2.</p> <p>Q1. Do the proposed charts, provide sufficient information, in conjunction with the charts in Section 2, to</p>	Alinta	We support the proposed UFE charts in Appendix A.1.	AEMO notes the respondent’s support for the proposed UFE charts to be included in the Guidelines.



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		<p>facilitate UFE analysis? Q2. If not, which other additional information is required? Provide details of other additional information required and the benefits of providing the additional information. Q3. Who holds the additional information?</p>			
53	Appendix A.1	<p>UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are: UFE for the local area UFE for the local area as a percentage of local area ADME UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2.</p> <p>Q1. Do the proposed charts, provide sufficient information, in conjunction with the charts in Section 2. to facilitate UFE analysis? Q2. If not, which other additional information is required? Provide details of other additional information required and the benefits of providing the additional information.</p>	CS Energy	<p>As discussed earlier, in order to understand the makeup of UFE further assessment of ADME needs to be performed at the local area level. Information needs to be available on the contributions made available due to, but not limited to, the following:</p> <ul style="list-style-type: none"> • DLF; • Estimation Errors in particular: <ul style="list-style-type: none"> o Contribution made by Basic Meters; o Unmetered supplies; o Profiling methodologies. 	AEMO notes the respondent's comments and suggestion to provide ADME analysis.

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54	Appendix A.1	<p>Q3. Who holds the additional information? UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are: UFE for the local area UFE for the local area as a percentage of local area ADME UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2.</p> <p>Q1. Do the proposed charts, provide sufficient information, in conjunction with the charts in Section 2. to facilitate UFE analysis? Q2. If not, which other additional information is required? Provide details of other additional information required and the benefits of providing the additional information. Q3. Who holds the additional information?</p>	CNSWJO	<p>Direction ought to be provided regarding “local area” to pursue more granularity – rather than leaving it to the DNSP. If Local Area is the local government area that would be helpful however advice as granular as possible to identify where the UFE is originating from would be more than helpful in solving the problem. This is particularly the case when the % are so high as is the case in this region. Given Councils are the leaders and advocates for a footprint we would like to see LGA as the minimum standard for “local.” The estimated \$300K pa CNSWJO Councils are paying in UFE could buy significant support in demand management, energy generation and storage</p>	Local area, in the context of UFE, is defined in the National Electricity Rules as being the geographic area of a Distribution Network Service Provider.
55	Appendix A.1	<p>UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are: UFE for the local area</p>	Origin Energy	<p>Q1: No Q2: AEMO should also undertake analysis of UFE corrections between statement runs, to understand the drivers of UFE corrections between Final and Rev 2. Rev 2 data should be compared year on year for comparison (per section 2) The first year of reporting will not be able to achieve this outcome, but subsequent years should. The benefit of this analysis is to</p>	AEMO notes the respondent’s comments and the suggestion to provide metering data version analysis related to UFE components.



#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		<p>UFE for the local area as a percentage of local area ADME</p> <p>UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2.</p> <p>Q1. Do the proposed charts, provide sufficient information, in conjunction with the charts in Section 2. to facilitate UFE analysis?</p> <p>Q2. If not, which other additional information is required? Provide details of other additional information required and the benefits of providing the additional information.</p> <p>Q3. Who holds the additional information?</p>		<p>determine any data quality issues that can be corrected to help with better Final billing quality.</p> <p>Industry should also be presented with a NEM and distribution area by volume and \$ value associated with UFE, tracked by week.</p> <p>Q3: AEMO should have all the information required to present this data.</p>	
56	Appendix A.1	<p>UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are:</p> <p>UFE for the local area</p> <p>UFE for the local area as a percentage of local area ADME</p> <p>UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2.</p> <p>Q1. Do the proposed charts, provide</p>	Red Lumo	See our response to Section 2.	AEMO notes respondent's comments.



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		<p>sufficient information, in conjunction with the charts in Section 2. to facilitate UFE analysis?</p> <p>Q2. If not, which other additional information is required? Provide details of other additional information required and the benefits of providing the additional information.</p> <p>Q3. Who holds the additional information?</p>			
57	Appendix A.1	<p>UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are:</p> <ul style="list-style-type: none"> UFE for the local area UFE for the local area as a percentage of local area ADME UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2. <p>Q1. Do the proposed charts, provide sufficient information, in conjunction with the charts in Section 2. to facilitate UFE analysis?</p> <p>Q2. If not, which other additional information is required? Provide details of other additional information required and the</p>	Stanwell	<p>Before Global Settlements (GS), UFE was the responsibility of Tier 1 retailers. In order to understand trends it is extremely important to see a comparison of UFE by local area now versus before GS and understand the frequency of UFE recovery for the Tier 1 retailer before GS.</p> <p>Going forward, a comparison for the same month of the previous year should also be provided.</p>	<p>AEMO is unable to produce a UFE comparison with the period before Global Settlements as many UFE data elements were not available for that period. Data elements that were missing include:</p> <ul style="list-style-type: none"> Tier 1 accumulation metering data Cross boundary connection point metering data Non-contestable unmetered load metering data



#	Clause	Heading/ Definition	Respondent	Participant Comment	AEMO response
		benefits of providing the additional information. Q3. Who holds the additional information?			
58	Appendix A.1	<p>UFE analysis supporting information. Additional information to support UFE analysis in each local area. These charts are: UFE for the local area UFE for the local area as a percentage of local area ADME UFE for the local area by metering data version, i.e. Prelim, Final, Rev 1 and Rev 2.</p> <p>Q1. Do the proposed charts, provide sufficient information, in conjunction with the charts in Section 2. to facilitate UFE analysis? Q2. If not, which other additional information is required? Provide details of other additional information required and the benefits of providing the additional information. Q3. Who holds the additional information?</p>	TasNetworks	The proposed charts provide sufficient information to facilitate initial analysis.	AEMO notes the respondent's support for the proposed UFE charts to be included in the Guidelines.
59		Other relevant information	AGL	<p>Flags to identify unusual network switching, so that the daily data can be reviewed / excluded as necessary Comparison of Hi/Lo Boundaries – to see which DBs have tight boundaries vs wide boundaries</p>	AEMO notes the respondent's comments.



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				<p>For 2022-2023 track the conversion of meters from 30/15 to 5 min to see if there's an impact on UFE</p> <p>Ongoing reporting on meters by type for each DB – eg type 6, 5, 4 (15/30), 4 (5ms) etc</p>	
60		Workshop	AGL	<p>AGL supports the concept of a workshop during the consultation on the development of the UFE report form.</p> <p>AGL also suggests that AEMO consider some sort of discussion workshop post each annual report (eg 1 month post release) to discuss trends / issues / industry actions and whether further changes are needed in the reporting, much like the Dynamic Quarterly workshops/briefings. AGL suggest that some adjustments to UFE reporting will be required, particularly in the initial years as many issues are currently being bedded down at this time (eg global settlements, meter conversion). As such, ongoing engagement with industry will be beneficial in supporting this process.</p>	AEMO notes the respondent's comments.
61		Other Issues	CS Energy	<p>As detailed in the Guidelines, the main goal is to increase understanding of what contributes to UFE in each local area from which actionable recommendations can be made to reduce UFE in an efficient manner. Given the significant impact that GS has had on consumers, it is critical that AEMO provides as much information as possible to help retailers minimise the impacts on customers.</p> <p>It is difficult to assess the proposed UFE reporting guidelines given their lack of detail. Much of this arises due to the lack of finalised metering data which limits the level of information able to be presented, in particular cogent analysis. Understanding UFE will require analysis that goes beyond simply presenting charts; rather ADME and DDME need to be dissected as this is where the main errors are likely to manifest and access to this data.</p> <p>CS Energy is keen to work with AEMO and other market participants to implement pragmatic solutions in the management of UFE recognising the objective to attain an efficient minimum level of UFE. Achieving this, however, first requires sufficient visibility to begin the conversation.</p> <p>Customers are extremely anxious of these changes and seek answers to:</p> <ul style="list-style-type: none"> • What exactly is driving this cost? • How do we check it? 	AEMO notes the respondent's comments.



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				<ul style="list-style-type: none"> • Why is it so variable? How can we plan and budget for it given this variability? • How can we do anything about it given we cannot change our load profiles? and • How can bills be validated given AEMO doesn't publish factors like it does for the pool price? 	
62		Other Issues	CNSWJO	<p>We attach a letter which details the concerns raised by the eleven councils within Central NSW. As a region we are actively trying to reduce consumption, costs and reliance on the grid through a variety of initiatives, and costs such as UFE significantly impact these.</p> <p>UFE charges for the 3 months from June to August 2022 have cost the eleven councils close to \$75,000 and are significantly higher than the +/- 5% advised by the retailer in April 2022.</p> <p>The UFE percentage in regional NSW is much higher than in metro NSW, and there are fewer customers to share the costs.</p> <p>Councils in NSW are rate pegged at 0.7% and the UFE of 6-10% in the past 3 months is not insignificant, and councils will not be able to easily absorb these charges.</p> <p>Please see the attached letter for further detail.</p> <p>We believe further work needs to be done by AEMO and other relevant organisations with regard to UFE charges, including:</p> <ul style="list-style-type: none"> • Investigating opportunities to at least share the UFE burden with the network providers, particularly in regional NSW, and/or retailers. Passing these costs through to customers who have meters and who are trying to explore opportunities for costs savings is not sustainable. More work needs to be done on identifying actions to correct the issues that cause unaccounted for energy and fairly apportioning the cost burden to the parties who have the ability to fix the issues. It is the view of the CNSWJO Board that the DNSP for this region ought to have a better understanding of its assets. Clearly, the UFE costs being passed through is the financial outcome of this poor understanding. • Encouraging DNSPs to be actively fixing the issues through initiatives such as accelerating the installation of smart electricity meters where bill estimates are another contributor of UFE. 	AEMO notes the respondent's comments.



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				<ul style="list-style-type: none"> • A transparent, clear and consistent approach to UFE charging methodology for all retailers. • A consistent approach to how UFE charges are listed on the bill, including so that UFE in kWh • does not appear to contribute to the electricity actually consumed by the site for emissions reporting purposes. • Clarity for retailers and consumers as to whether the UFE charges are applicable to all sites or only large market sites consuming greater than 100MWh p.a. • An auditing and dispute resolution regime delivered by AEMO that ensures that there is no • double-dipping in respect to charges for Transmission Losses and charges for UFE and where • customers can lodge complaints regarding the quantum of these charges. 	
63		Other Issues	Red Lumo	<p>Given settlement calculations are done at the participant ID/TNI for the Settlement Report, Red and Lumo would like the supporting information that's currently not available in the RM43.</p> <p>Red and Lumo would like to understand if power outages impact UFE estimates or finals?</p> <p>Red and Lumo would like to understand from AEMO, where abnormalities to the trend are identified, what actions are to be taken where there is insufficient time to resolve abnormalities.</p>	<p>AEMO notes the respondent's comments.</p> <p>Additional UFE information is contained in the RM46 report.</p> <p>AEMO will continue to use its current settlements metering data validation processes to identify metering data anomalies and work with the appropriate parties to rectify the anomalies.</p>
64		Other Issues	Shell Energy	<p>UFE has experienced extreme volatility since the introduction of global settlements. To date, participants have very little information from AEMO to identify the reasons behind these significant swings or indeed if the issues are the accuracy of the settlement of the market itself.</p> <p>For confidence in market settlement and to ensure that participants are responding appropriately, we encourage AEMO to undertake detailed analysis of UFE and provide regular updates to those that are liable for UFE payments. Shell Energy believes yearly reporting is insufficient and provides little information to retailers for the purposes of responding to UFE drivers, and importantly, provide accurate information to retail customers.</p> <p>Tier 1 retailers have been the beneficiaries of the introduction to global settlements, particularly with the advantages of scale to spread UFE costs across a large customer base. Other lower tiered</p>	<p>AEMO notes the respondent's comments.</p> <p>AEMO is preparing a UFE Fact Sheet to assist retailers in explaining UFE calculations to their customers.</p>



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				<p>retailers that have a small number of customers with greater load are bearing the substantial volatility in UFE costs, with distribution of costs across a smaller number of customers. Facing significant UFE cost swings, customers are rightly expecting information on the source of UFE. This is a key reason as to why it is so important that the industry is provided with transparency around UFE and that the report contains detailed analysis, provided frequently to retailers and market customers.</p> <p>We note that, as the proponent of the global settlement rule change, AEMO rationalised the significant system spend imposed on the industry from its introduction as providing incentives to reduce commercial losses, encouraging the adoption of advance metering and enabling AEMO to report on the effect of market initiatives on the accuracy of electricity settlement. It is therefore imperative that AEMO provides sufficient analysis to the industry so that it can identify the root causes of UFE, the degree to which advance metering will alleviate UFE, the proposed corrective measures to ensure UFE is mitigated and the historic trends of UFE to ensure any mitigation adopted is effective.</p> <p>Significantly, Shell Energy's year to date UFE cost makes up \$23 million of our total settlement costs. Shell Energy also advises that approximately 95% of its electricity sales are attributed to customers who have invested in advanced interval metering and are most likely not material contributors to UFE. With such a significant cost impact, it is important that we are provided with full and detailed analysis substantiating these socialised market costs so that our affected customers have adequate information, particularly when it is likely they would not be a material contributor to the incidence of UFE.</p>	
65		Other Issues	Stanwell	<p>Stanwell requests that AEMO provides a guidance sheet that customers can access explaining the UFE charges and if such guidance doesn't currently exist, for AEMO to work with industry to develop broad guidance on how UFE is applied to customers as well as ways to smooth out its impact, for example between preliminary and final data.</p> <p>While the additional information requested for the Guidelines are extremely important for market participants, Stanwell continues to submit, it is AEMO's ongoing responsibility to investigate and analyse UFE data to reduce UFE charges over time. As the holder of all UFE data under Global Settlements, it is expected that AEMO would be following robust data assessment and analysis processes. If aspects of the data at the local level looked suspicious or warranted further interrogation at a more granular level, then it is expected that AEMO would investigate the anomaly or unexpected trends and then work</p>	<p>AEMO notes the respondent's comments.</p> <p>AEMO is preparing a UFE Fact Sheet to assist retailers in explaining UFE calculations to their customers.</p> <p>AEMO will continue to use its current settlements metering data validation processes to identify metering data anomalies and work with the appropriate parties to rectify the anomalies.</p>



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				with market participants to reduce UFE. Similarly, if publication of data at a more granular level than at the local area would enable AEMO to explain the data from a particular event or series of events, then this should be undertaken.	
66		Other Issues	TasNetworks	No Comment	AEMO notes respondent's comments.