2025 TDSP AMS Data Practices Matrix

Combined TDSPS responses including AEP, CNP, LP&L, Oncor and TNMP

**Updated: 06\_12\_25**

**NOTE: TDSPs will always send “re-versioned” LSE files to ERCOT for Settlement and Smart Meter Texas for REP of Record and Customer access.**

|  | **Questions/NOTES**  | **AEP** | **CNP** | **Oncor** | **TNMP** | **LP&L** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | **Do all TDUs provide a complete set of 96 interval values for each day?**  | It is not acceptable to provide nulls for interval values and would be rejected at ERCOT. | It is not acceptable to provide nulls for interval values and would be rejected at ERCOT.  | It is not acceptable to provide nulls for interval values and would be rejected at ERCOT. | It is not acceptable to provide nulls for interval values and would be rejected at ERCOT. | It is not acceptable to provide nulls for interval values and would be rejected at ERCOT. |
| 2(a) | **Do all TDUs trigger the estimation process when there are missing interval values or if the interval value does not pass VEE?** | Yes | Yes | Yes | Yes | Yes |
| 2(b) | **Are missing intervals provided as zero or estimated?** | Estimated | Estimated If Outage Management System (OMS) indicates the ESI ID experienced a power outage, then interval usage will be estimated as (0) zero for the duration of the outage or estimated interval data can be based upon historical usage.  | Estimated | Estimated | Estimated  |
| 2(c) | **What is each TDU’s process for estimating Missing interval values?**See “California Historical Estimation” document from TNMP for more details. | AEP uses 1 year look back when estimating missing interval values. If the data is not available from previous year, AEP does 1 week look back to estimate missing values. | Methods:The MRP (Missing Reads Process) automated processes are triggered hourly to check for actual data.If estimation will be necessary refer to CNP’s estimation methodology found below on page 18 and page 19 of this document:   | Interval data is shaped using a Same Day estimation routine\*. \*See 2(f) Oncor Note at the end of this matrix for more information  | The 2 week like day historical estimation process uses "like-days" from the designated reference week and Like-Day set. For example, if the data needing estimation is Tuesday data, and Tuesday of the preceding week is considered a Like-Day, then the corresponding intervals from Tuesday of the preceding week are used in the estimation. If there is data for both weeks the most recent week’s data will be used.  | LPL's Meter Data Management system will process incoming daily interval data through VEE. Any missing intervals detected will automatically be estimated via the logic outlined in 2(f) below. |
| 2(d) | **Under what circumstances do TDUs estimate interval values?** | Missing intervals for an active premise or data fails VEE | Missing intervals for an active premise or data fails VEE  | Missing intervals for an active premise or data fails VEE | Missing intervals for an active premise or data fails VEE | Missing intervals for an active premise or data fails VEE |
| 2(e) |  **What triggers the estimation process?**  | Missing interval value or register read or data does not pass VEE | Any time there is missing interval value(s) or does not pass the VEE process triggers the estimation process  | Missing register read or interval values or the data does not pass VEE  | Missing register read or interval values or data does not pass VEE  | Missing register read or interval values or data does not pass VEE  |
| 2(f) | **Explain the estimation process/method(s) used for each TDSP.***Tariff Section 4.8.1.4 –**“****For Standard Meters, AMS-M Meters, and IDR Meters,*** *Company shall consistently use reasonable methodologies to develop Estimated Billing Determinants. When Company must estimate Interval Data, it shall estimate the interval usage based on a methodology that reasonably accounts for the Retail Customer’s consumption and consumption patterns. If requested, Company shall provide the estimation methodology used.**A Meter Reading for a Standard Meter, AMS-M Meter, or an IDR Meter shall not be considered an Estimated Meter Reading if an Actual Meter Reading was completed and Company had to estimate a limited number of intervals of data to fill in gaps in the data collected.”****“For Meters other than Standard Meters, AMS-M Meters, and IDR Meters,*** *when an Actual Meter Reading is taken after two or more consecutive months of estimation, Company shall allocate any over or under-estimated usage over the entire estimation period. The allocation shall be based on the average daily consumption for the Retail Customer for the period between Actual Meter Readings.”* | 1. **Interval Gap Fill:**

Used for missing intervals within a day1. 2 hours or less utilizes Interpolation
2. 2 hours or more utilizes “like days” averaging
3. **Full Cut Estimation:**

Used when all intervals are missing for the day1. If the register read is available, consumption for the missing day is distributed over the 96 intervals referencing historical load shape.
2. If register read or any intervals for the previous day are not available, AEP estimates the scalar reading first and estimates the missing 96 intervals to align to the scalar. The consumption is distributed over the 96 intervals using historical load shape. If AEP has greater than or equal to 90 percent of the intervals from the previous day but is missing the current day’s scalar read, then AEP calculates the scalar reading based on intervals..
 | For CNP’s detailed estimation processes and methodology refer to page 18 and page 19 of this matrix. Also, Uniformed Business Practices (UBP) can be referenced on page 22 of this matrix. | Register reads are estimated by using available historical data to determine the day’s consumption. Current day consumption distributed per Same Day estimation routine\* over day’s 96 intervals.\*See 2(f) Oncor Note at the end of this matrix for more information | 1. Linear Interpolation – Used for intervals totaling 1 hr or less Linear interpolation operates on one or more intervals that need to be estimated, so long as a single contiguous group of intervals requiring estimation does not exceed 1 hour.2. If (1) is unsuccessful, then '2 week like day historical' estimation process is used, as described below. The 2 week Like day historical estimation process replaces intervals needing estimation with data from "like-days" from the designated reference week and Like-Day set. For example, if the data requiring estimation is Tuesday, and Tuesday of the preceding week is considered a Like-Day, then the corresponding intervals from Tuesday of the preceding week are used in the estimation. If the previous week is not available, the data from two weeks prior is used.3. If (1) and (2) are unsuccessful, then 'California historical' is used for intervals totaling more than 1 hr. This process calculates average daily load shapes using data from historical reference days. IEE derives interval-by-interval averages from valid intervals from the three nearest days of the same or like day of the week. | **Interval Data****Interval Interpolation Estimation:**System attempts to interpolate gaps up to 8 hours within an IMD using prior and subsequent intervals as starting points for linear interpolation.**Interval Averaging Estimation:** If gap greater than 8 hours, system finds historical interval data from the same measuring component for similar day and time to use for estimating any missing data within an IMD.**Interval Adjustment from Scalar (Register):**Missing or estimated interval values are then adjusted based on the values from the associated scalar (register) data on the same device**Scalar (Register) Data****Scalar (Register) Proration Estimation:**The system first attempts to prorate missing scalar register) data by looking for two valid scalar (register) readings on either side (before and after) of the missing period as boundaries. **Scalar (Register) Estimation from Interval:** If unable to estimate via Proration, the system attempts to calculate the missing scalar (register) values from the associated interval data on the same device for the same period. **Scalar (Register) Averaging Estimation:**If the missing scalar (register) period is unable to be estimated via proration or interval adjustment, the system will use historical scalar (register) data from the same measuring component for similar day and time to use for estimating any missing data within the IMD.  |
| 3(a) | **Are Zero (0) values provided for interval data? (Y/N)** **If so, what circumstances?****NOTE**:  The term **‘Active/Authorized’** is used for premises with an active or authorized REP of Record. This excludes premises where there is not an active or authorized REP of Record in the TDU’s system for the ESI ID | YesZero is a valid value for both estimates and actuals.* Zero actuals are rendered when received from an active/authorized premise.
* Zero actuals are rendered for active/authorized premises when the Catastrophic Estimation Process (CEP) is initiated.
* Zero estimates are rendered for active/authorized premises when a known outage has been identified or the premise’s load has been disconnected.
* Zero actuals are rendered for targeted customers while served by Mobile Generation Units when the TX Mobile Gen Process is initiated in accordance with HB 2483 signed into law in 2021
 | YesZero is a valid value for both estimates and actuals. * Zero actuals are rendered when received from an active/authorized premise.
* Zero estimates are rendered for active/authorized premises when a known outage has been identified or the premise’s load has been disconnected.
 | YesZero is a valid value for both estimates and actuals.* Zero actuals are rendered when received from an active/authorized premise.
* Zero estimates are rendered when a premise’s load has been disconnected.
 | YesZero is a valid value for both estimates and actuals.* Zero actuals are rendered when received from an active/authorized premise.
* Zero actuals are rendered for active/authorized premises when it has been identified the premise’s load has been disconnected.
 | YesZero is a valid value for both estimates and actuals.* Zero actuals are rendered when received from an active/authorized premise.

Zero actuals are rendered for active/authorized premises when it has been identified the premise’s load has been disconnected. |
| 3(b) | **Explain the validations performed for Zero value intervals.** | AEP does not have custom validations for zero value intervals. AEP performs same validations for zero values as non-zero values. | CNP does not perform validations on zero value intervals. | VEE is performed in accordance with UBP guidelines. Oncor performs data analysis checks for Zero consumption after disconnects or MVOs on ESIIDs and initiates additional review where deemed appropriate.The day after DNP completed, a validation is done to make sure the register read is the same as when the DNP occurred to determine if tampering/diversion has taken place.  | TNMP does not validate on zero interval data.Zero monthly billed consumption and zero consumption after DNP or MVO is validated in the CIS. | LPL performs zero consumption validations on interval data only if the device has been disconnected |
| 4(a) | **If the TDSP receives an Actual value for a previously Estimated interval, will the Actual interval value replace the Estimated interval value?** | Yes, and any new/changed data within 180 days will be resent to the market. | Yes, except in the case of stopped (tampered or damaged) meter since these were estimated because the meter was not allowed to register the actual usage.   | Once Oncor has re-established communication with a non-communicating meter, the gap reconciliation process will attempt to retrieve the interval data for up to the most recent four days. If the gap reconciliation process is successful, Oncor will replace the estimated intervals with the actual intervals for up to the most recent four days. | Any actual received after estimation will replace the estimate with an actual read.  Any new/changed data within 270 days will be resent to the market.  | When the estimation gets replaced with a regular read, all other estimates between that regular and the next regular read get replaced with prorations as well.  |
| 4(b) | **What is the timeline for replacing Estimated usage with Actual usage?**  | Upon receipt of the Actual data, which is typically within 3-5 days and is normally associated to power outages or non-communicating meters. Additionally, if a REP initiates a MarkeTrak and AEP can locate & re-process the data, then the Actual usage will replace the Estimated usage within 3-5 business days (manual process). | Upon receipt of the Actual data, which is typically within 3-5 days which is normally associated to Power Outages or non-communicating meters.   | Typically, within seven business days.  | Upon receipt of actual data, possibly as early as next day. | Upon receipt of the Actual data, which is typically within 3-5 days which is normally associated to Power Outages or non-communicating meters.  |
| 4(c) | **How are usage updates reflected in the LSE file?****See Retail Market Guide Section 7 – located in 7.15.2 (2)**Website Link:<http://www.ercot.com/mktrules/guides/retail/current> NOTE: TDSPs will always send “re-versioned” LSE files to ERCOT for Settlement and Smart Meter Texas for REP of Record and Customer access. | New LSE files will be posted with the create date and time stamp of the LSE file. | Date and time stamp upon replacement new LSE files will be posted with the updated create date and time stamp of the LSE file.  | New LSE files will be posted with the create date and time stamp of the LSE file  | Date and time stamp upon replacement; new LSE will be posted | Date and time stamp upon replacement, new LSE will be posted  |
| 4(d) | **Does the AMS meter store interval data?****If so, how much data is stored at the meter?** | Yes.Up to the most recent 60 days. | Yes.For generation meters, up to the most recent 6 months or for non-generation meters can store up to one year of interval data, unless there is a failure of the meter created by physical damage(s) and/or technical malfunction(s).  | Yes.Up to the most recent 34 days. | Yes.Up to the most recent 90 days. | **Yes** Up to the most recent 76 days  |
| 5(a) | **Is a Register Read always provided on the LSE file?**  | Yes.  | No, only if the register read is from the meter (not estimated).   | Yes. Oncor’s defines a Register Read as any “5-dial” read of the meter odometer. For example, the start and stop reads on an 867\_03 are “register reads”. A “midnight read” is simply a Register Read that is taken at midnight. | Yes. | Yes  |
| 5(b) | **Under what circumstances does the TDSP estimate Register Reads?** | When Register Read not received | When Register Read not received or interval updates result in a change to the corresponding estimated cumulative/register reads. | When Register Read not received or fails VEE. - If the collection process successfully passes all the daily interval values, the MDM will calculate a missed Register read using the"96 good" interval values.- Estimated register reads are also provided when a cancel rebill occurs. The rebill register reads are used to manually calculate the interval adjustments. | When Register Read not received | When Register Read not received  |
| 5(c) | **What is the validation process for Register Reads?** | UBP guidelines. Daily VEE is performed by the MDM on the register read. | UBP guidelines  | UBP guidelines | UBP guidelines | Daily VEE is performed by the MDM on the register read.  |
| 5(d) | **How often is the Register Read validated?** | Daily | During the collection of the usage data in order to create the LSE file(s).   | Daily | Monthly billing reads are validated within the CIS.   | Daily  |
| 5(e) | **What is the allowed variance between the sum of the interval data and the register read?** **NOTE:** The 2 multiplier variance applies to both IDR and AMS and is an industry standard used for many years. Reasoning is based on the fact that register reads are never rounded up. I.e. A register read of 20.01 and 20.99 would both appear as “20” when the presentation is in integer format. In this scenario, the register read would appear to have ZERO consumption for the period between the start and stop read.**Link for the Uniform Business Practices (UBP) for Unbundled Electric Metering** **<http://www.naesb.org/req/req_form.asp> (see notes at bottom)** | 2 times the meter multiplier | 2 times the meter multiplier applies to both Load and Generation register reads and the sum of the intervals for both Load and Generation channels.   | 2 times the meter multipliers  | 2 times the meter multipliers | LPL has the Sum Check validation configured to check the percentage difference between the consumption of the interval measuring component. If the percentage difference is higher than the configured tolerance (1%), the measurement fails the validation.  |
| 6(a) | **What reading is used to complete an energizing MVI?** | On-demand read at time of completion | On-demand read at time of completion  | Midnight reads (going into the day) when available. This may be an actual register read or the estimated value from the daily VEE process, otherwise on-demand read | Midnight read when available | Midnight Read  |
| 6(b) | **What reading is used to complete a MVI Force Off?** | Midnight read when available | Midnight read when available | Same as the MVI process | Midnight read when available | Midnight Read  |
| 6(c) | **What reading is used to complete a MVO?** | On-demand read at time of completion | On-demand read at time of completion | Same as the MVI process | On-demand read at time of completion | On-demand Read  |
| 6(d) | **Will changes in AMS data result in an 867 cancel & rebill?** **NOTE:** With the retrieval of actual 15-minute interval data will trigger re-versioned updates to LSE file(s) that will be sent to ERCOT for Settlement and Smart Meter Texas (SMT) for REP of Record’s and Customer’s access | Any gap retrieval that yields actual interval usage data will not trigger the TDSP’s cancel 867 and 810 rebill processes. Register Read and 867\_03 Usage true-up would be achieved through the next month’s 867\_03 Monthly Usage and 810\_02 Invoicing process.  | Any gap retrieval that yields actual interval usage data will not trigger the TDSP’s cancel 867 and 810 rebill processes. Register Read and 867\_03 Usage true-up would be achieved through the next month’s 867\_03 Monthly Usage and 810\_02 Invoicing process. | Any gap retrieval that yields actual interval usage data will not trigger the TDSP’s cancel 867 and 810 rebill processes. Register Read and 867\_03 Usage true-up would be achieved through the next month’s 867\_03 Monthly Usage and 810\_02 Invoicing process. | Any gap retrieval that yields actual interval usage data will not trigger the TDSP’s cancel 867 and 810 rebill processes. Register Read and 867\_03 Usage true-up would be achieved through the next month’s 867\_03 Monthly Usage and 810\_02 Invoicing process. | .Any gap retrieval that yields actual interval usage data will not trigger the TDSP’s cancel 867 and 810 rebill processes. Register Read and 867\_03 Usage true-up would be achieved through the next month’s 867\_03 Monthly Usage and 810\_02 Invoicing process.  |
| 6(f) | **How does Tampering impact the 867 vs LSE?** | 867 and LSE will be updated | All LSE files will be updated that includes the tampering 15-minute interval data that is subsequent to the cancel/rebilled usage included in the 867\_03 transaction(s) for the same period.  | LSE data is updated normally.  | 867 and LSE data will be updated | 867 and LSE data will be updated |
| 6(g) | **How are Inadvertent Gains handled in regards to the LSE files?****NOTE**: As a standard process at Smart Meter Texas, a REP of Record has access to all historical interval data available for an ESIID once the ESIID as long as they are REP of Record. | Once the Inadvertent Gain issue has been resolved, and all cancelling and rebilling of usage has been completed, and invoicing has been corrected for the REP of Record service period(s), AEP will update the Daily REP of Record file to SMT to reflect ROR changes from IAGs, and resend all LSE files for the same service period(s) for the corrected REP of Record to SMT for posting into the REP of Record’s FTPS folder. | LSE files will be resent where 867\_03 restatements are required due to the Inadvertent Gain. Once all cancel and rebilling of usage and invoicing has been corrected for the REP of Record service period(s). CNP will also resend all LSE files for the same service period(s) for the corrected REP of Record to Smart Meter Texas (SMT) for posting into the REP of Record’s FTPS folder.  | Oncor does not resend LSE files in the case of an IAG.  | LSE files are always sent to the CR of Record. LSE files will be resent where restatements are required due to the Inadvertent Gain | LPL does not resend LSE files in the case of an IAG LSE files are resent 7 Days, 30 days and 170 days by default.  |
| 6(h) | **Under what scenarios will REP of Record Updates be sent to SMT?****Any differences for MVI, MVO, Switch? Or is the timing the same?** | Any REP of record change initiated by a TX SET transaction.Dependent upon when the 867\_03Final/ 867\_04Initial is processed – which triggers a REP of Record change file to be sent to SMT. | All REP of Record changes initiated by TX SET transactions for a Move-In (MVI), Move-Out (MVO) or Switch.When the TX SET transaction is completed in CNP’s back end systems, a REP of Record change file is sent to Smart Meter Texas (SMT).  Since the REP of Record file that is sent to SMT isn’t dependent on the Texas SET completion transaction being delivered to the market, there could be a slight timing difference between the two.  In response to the second question, CNP’s timing would be the same for Move In (MVI), Move-Out (MVO) or Switch.  | Any REP of record change initiated by a TX SET transaction. Backdated MVIs will be corrected on a prospective basis from the actual date the MVI is completed, not the backdated MVI completion date.Dependent upon when the 867\_03Final/ 867\_04Initial is processed – which triggers a REP of Record change file to be sent to SMT. | Any REP of record change initiated by a TX SET transaction.Dependent upon when the 867\_03Final/ 867\_04Initial is processed – which triggers a REP of Record change file to be sent to SMT. | Any REP of Record change in our system will be sent to SMT at the end of the day. While REP of Record changes in our system are initiated by TX SET transactions, a REP of Record change file for SMT is not dependent on the completion of any particular TX SET transaction. There is no timing difference for MVI, MVO, or Switches (they all come in on the one file).  |

**TDSP AMS Data Practices for Prolonged Widespread Power Outages**

**Updated 06.12.25**

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| 7) | **Definitions in these two rules may need to be placed here:** | **§25.56 - Temporary Emergency Electric Energy Facilities (TEEEF).** **§25.59 - Long Lead-Time Facilities.**   |

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|  | **Questions/NOTES** | **AEP** | **CNP** | **Oncor** | **TNMP** | **LP&L** |
| 8) | **If communication is lost to a meter during a widespread prolonged outage, how are the missing intervals handled?** **Under what conditions would an estimate appear as an actual read in the SMT Portal?** | During any widespread power outage event where AEP has initiated the Catastrophic Estimation Process (CEP), AEP will use any Actual reads obtained from the meter. Any missing interval usage due to non-communicating meters will be shown as a Zero-Actual. Once the widespread power outage has concluded, and CEP is turned off and normal AMS meter communications have returned, any 15-minute interval data recovered from the meter will replace any Zero-Actuals sent during the outage window. All recovered interval data will be sent via LSE file to ERCOT and Smart Meter Texas (SMT). | During any widespread power outage event, , any missing Interval(s) usage data will be estimated for the duration of the outage and that usage will be estimated as (0) zero.  When the AMS meter returns to normal communications actual 15-minute interval data is recovered replacing prior estimated usage data. LSE files containing the actual 15-minute interval usage data will be provided to ERCOT and Smart Meter Texas (SMT). | Normal process will be deployed where missing intervals will be estimated using our standard VEE process until Gap Retrieval is able to obtain the missing usage. | During a widespread power outage event, missing interval data for non-communicating meters will be submitted as (0) zero actual. Once the meter begins to communicate, any previous intervals will be replaced, with LSE files submitted to ERCOT and Smart Meter Texas (SMT). |  Normal process will be deployed where missing intervals will be estimated using our standard VEE process until communication has been reestablished. Gap Retrieval will be able to obtain and fill in the missing usage. In the event the meter is not communicating, and reads are manually entered. This will update a read from estimated to Actual.  |
|  | **Questions/NOTES** | **AEP** | **CNP** | **Oncor** | **TNMP** | **LP&L** |
| 9) | **Do the TDSPs utilize other data practices during widespread prolonged outages, which may deviate from normal VEE processes?****NOTE:**  TDSPs will send market notices if/when deviating from normal VEE processes. | AEP’s normal VEE processes are utilized where CEP is not initiated | No fundamental changes to our VEE logic, however, we do expect estimation processes to run longer and CNP will adjust our data processing schedules to accommodate any additional processing timeframes, therefore the Market should expect later delivery times of any corresponding LSE data to be sent to ERCOT and Smart Meter Texas (SMT). | Typically not, however we will determine on a case-by-case basis; e.g. during Winter Storm Uri, Oncor made the decision to adjust estimated usage due to the impact of high Wholesale prices on Initial Settlement. | TNMP will utilize normal VEE and non-communicating meter logic. | Normal VEE process will take place  |
| 10) | **At what point will REPs know when the TDSPs utilize data practices for widespread, prolonged outages that will deviate from normal VEE processes?** | Any initial and re-versioned LSE file updates would be visible to Customers and their REP of Record. Each 15-minute interval provided in the daily LSE file will include an “A” for Actual or “E” for Estimated interval usage indicator.Interval Data on SMT portal may reflect current TDSP VEE process until LSE file is re-versioned to reflect TDSPs use of widespread, prolonged outage data practices that may deviate from normal VEE practices. |
| 11) | **Unless otherwise directed by the PUCT, will TDSPs generate 867s and 810s with estimated end register reads during a widespread, prolonged outage?** | Yes, as described in the TXSET Implementation Guide for 867\_03 and 810\_02, anytime an estimated reading is used to produce the Monthly 867\_03 Usage and corresponding 810\_02 Invoice transactions. The Monthly 867\_03 Usage transaction for the Meter Reads could reflect an AE or EE indicator as described below: * + - * 1. AE --- Meter Reading – Beginning Actual/Ending Estimated
				2. EE --- Meter Reading – Beginning Estimated/Ending Estimated

**NOTE:**  TDSPs will send market notices if/when deviating from normal VEE processes. |
| 12) | **Does the AMS meter store data?** **If so, how much data is stored?** | Yes, AMS meters store interval usage data for up to the most recent 60 days. | Yes, CNP’s AMS meters store daily 15-minute interval usage data for the most recent 6 months (generation-enabled meters). Non-generation meters can store up to one year of interval data. | Yes, Oncor’s AMS meters store interval usage data up to 34 days. | Yes, for a typical 2 channel meter, approximately 90 days of data is stored. | Yes, Lubbock AMS meters store interval data up to 76 days.  |

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|  | **Question/NOTES**  | **AEP** | **CNP** | **Oncor** | **TNMP** | **LP&L** |
| 13)  | **After a widespread, prolonged outage concludes, does the TDSP deploy any gap retrieval processes to recover interval data once power is restored to a premise?** **If so, describe the gap retrieval process, i.e. number of attempts made to retrieve actual data, re-versioned LSE files etc.****NOTE:** Initial and any re-versioned updates of LSE file(s) are always sent to ERCOT for settlements and Smart Meter Texas (SMT) for REP of Records and Customer’s access. See question 4(b) within the TDSP AMS Data Practices matrix for specific data retrieval timelines for replacing Estimated usage with Actual usage.TDSPs will make all reasonable attempts to provide market notice(s) when Gap Retrieval process has been initiated outside of normal Gap Retrieval processing, for potential impacts to Time of Use customer’s billing.  | After a widespread prolonged outage has concluded, AEP’s gap retrieval process will interrogate the AMS meter for any Actual interval usage stored locally at the Meter. For any intra-day intervals that are still missing after running the gap retrieval process, AEP will use any Actual data retrieved along with the standard gap-fill estimation process to estimate any remaining missing intervals. | Yes, in addition to the Missing Reads Processor (MRP) automated process which recovers any gaps in the interval usage data hourly, CNP may utilize Emergency Operating Procedures (EOP) specific to the widespread, prolonged outage depending on the scenario to retrieve actual data. Initial and any re-versioned updates of LSE file(s) are always sent to ERCOT for settlements and Smart Meter Texas (SMT) for REP of Records and Customer’s access. | Yes. The gap retrieval process will typically make two attempts to obtain the missing intervals after power has been restored. The system will look back for up to four days. Each time missing intervals are obtained, Oncor sends a new version of the LSE data to SMT and ERCOT. | TNMP utilizes daily, weekly and monthly automated gap retrieval processes. If we are able to obtain actual intervals, estimated and missing intervals will be replaced, and a new version of LSE data will be submitted. | As part of standard integration once communication is restored reads will be obtained 3 Attempts  |
| 14) | **Unless otherwise directed by the PUCT, will the TDSPs send cancel/rebills if the gap retrieval process yields actual interval data to replace estimated intervals?** | Any gap retrieval that yields actual interval usage data will not trigger the TDSP’s cancel 867 and 810 rebill processes. However, with the retrieval of actual 15-minute interval data will trigger re-versioned updates to LSE file(s) that are always sent to ERCOT for settlements and Smart Meter Texas (SMT) for REP of Records and Customer’s access. True-up of any Register Read(s) and/or 867\_03 Usage would be achieved through the next month’s 867\_03 Monthly Usage and 810\_02 Invoicing processes. |
| 15) | **If TDSPs utilize other data practices during widespread prolonged outages, what impacts may be experienced with 867s/810s and sum of interval data, unless otherwise directed by PUCT?** | No differences unless otherwise directed by PUCT. There may be variances between 867 Monthly Usage and 15-minute Interval Usage Data for the same period. 867 Read and Usage could be estimated consumption for the purposes of providing on-time 867 usage and 810 invoice transactions to the Market. While through gap retrieval processes completed post usage/invoicing periods, the estimated 15-minute interval usage data may be replaced with actual interval usage data that creates re-versioned updates of LSE file(s) sent to ERCOT for settlements and Smart Meter Texas (SMT) for REP of Records and Customer’s access.For Oncor only: some impacts may be determined on a case-by-case basis. |
|  | **Question/NOTES**  | **AEP** | **CNP** | **Oncor** | **TNMP** | **LP&L** |
| 16) | **Unless directed by PUCT, will TDSPs make allowances for any demand considerations due to possible cold load pick up impacts?** | AEP does not make allowances to modify demand readings and billings, unless otherwise directed by PUCT. | During TEEEF deployments CNP ignores peak demand registration triggered by cold load pick up once service is energized following an extended power outage. Additional demand allowances implemented outside of TEEEF, CNP will comply with any future order(s) issued by the PUCT regarding demand and/or cold load pick-up adjustments.  | Allowances will be determined on a case-by-case basis. | TNMP will make allowances as directed by a PUCT order. | Allowances will be determined on a case-by-case basis. |

**CNP Estimation Processes:**

Updated 06\_12\_25

The following estimation routines will apply to both Load and Distributed Generation (DG) for CNP’s AMS 15-minute interval data.

**Systemic:**

1. If the meter has known reason to **not** be recording usage, zero-based estimation will be used
	* + - Outage period indicated from Outage Management System (OMS)
			- Meter is disconnected (i.e., deenergized due to completed Move-Out , Disconnect for Non-Payment, Temporary Disconnect)
2. If section of data needing estimation is 2 hours or less in length, point-to-point linear interpolation is used to estimate the data.  Can be either:
3. Single interval to be estimated:  Estimated value used = ((interval value immediately preceding + interval value immediately following) divided by 2)
4. Greater than 1 interval less than 8 intervals bound by register reads: [Difference of the register reads (Ending Register – beginning register) less the sum of the actual intervals] divided by the number of missing intervals.
5. If the section of data needing estimation is on a holiday, exact-holiday estimation will be used from the previous year (i.e., Thanksgiving = previous year’s Thanksgiving, could be on different dates). If exact holiday cannot be estimated, like holiday (within the past 6 months) will be used for estimation.
6. If  none of the above criteria matches, the first successful pattern found will be used. Residential (RES) and Commercial (BUS) attempt 3 days, then 2 days, then 1 day before moving onto the next pattern.
7. Average usage pattern of [3-2-1] same weekdays all actual data (defined as the same day of week), limitation of the previous year’s same billing period
8. Average usage pattern of [3-2-1]  same weekdays all actual data (defined as the same day of week), limitation of 90-day lookback
9. Average usage pattern of [3-2-1]  same weekdays all actual data (defined as the same day of week), limitation of 365-day lookback
10. Average usage pattern of [3-2-1]  like days all actual data (defined as the same day type), limitation of 365-day lookback
11. Average usage pattern of [3-2-1]  like days allow estimate or previous Customer values (defined as the same day type), limitation of 365-day lookback
12. After any estimation, the MDM will attempt to scale interval data with the difference of the daily register reads (i.e., bookends). If an ending register read does not exist or is estimated, scaling will not occur.

If none are successful, the systems will exception the missing data for manual remediation.

If the missing gap is bound by two actual register reads, the difference of the registered usage will be applied to the missing intervals with the allocation based on the pattern identified.

If the missing gap is not bound by actual register reads, the pattern values will be used.

**Manual:**

Will be addressed by use of one of the following:

1. Manual estimation using actual historical data
2. Manual estimation using estimated historical data
3. Manual estimation using actual historical data from a nearby address
4. Manual estimation for special conditions
5. Manually scaled with register read

**2(f) Oncor Note**

If 1) TDSP Misses intervals early in the day:

And:

a) TDSP collects Actual Start Read and Actual Stop Read –

What does the TDSP do for the Register Read?  Oncor would have NO change to Actual Reads

What does the TDSP do for the intervals values?  Once Oncor re-establishes communication with the meter, Oncor’s gap reconciliation program will make up to two attempts to replace the missing interval data with actual interval data. If the gap reconciliation process fails, Oncor will estimate the consumption in the intervals utilizing the total consumption for the day from Register reads.

b) TDSP collects Actual start read but missed the Stop Read

What does the TDSP do for the Register Read?  Oncor will estimate the Stop Read which sets the kWhs for the day.

What does the TDSP do for the intervals values?  Assuming no intervals were collected during the day either, Oncor will use the estimated kWhs for the day and shape the interval values according to the Same Day estimation routine. Once Oncor has re-established communication with a non-communicating meter, the gap reconciliation program will attempt to retrieve the interval data for up to the most recent four days. If the gap reconciliation process is successful, Oncor will replace the estimated intervals with the actual intervals for up to the most recent four days.

C) TDSP Misses the Start read but Collects the Actual Stop Read

What does the TDSP do for the Register Read(s)?  Missed Start Read would be estimated at the conclusion of the prior day’s consumption.  The Start Read (yesterday’s stop read) may be adjusted today once the End of Day Read today is collected.

What does the TDSP do for the interval values?  Once Oncor re-establishes communication with the meter, Oncor’s gap reconciliation program will make up to two attempts to replace the missing or estimated interval data with actual interval data. If the gap reconciliation process fails, the missing interval values will be estimated based on the Register reads at the end of the day’s production cycle.  Oncor will use the estimated kWhs for the day and shape the interval values according to the Same Day estimation routine.

d) Miss start - Miss Stop Read

What does the TDSP do for the Register Read? Oncor Estimates the Stop Register read for the day and uses previously estimated register start read which was the prior day’s “stop read”.  The total consumption for the day is estimated kWh.

What does TDSP do for the intervals values? Oncor uses the estimated kWh and shapes the interval values as described above.

2) Miss intervals in the middle of the day: a) – d) – This will be the same as the scenarios above for Oncor

3) Miss intervals at end of day: a) – d) same as the scenarios above for Oncor.

4) Miss all data for the day:    Oncor will estimate the Register Reads and the Interval Values will be shaped as described earlier



**Uniform Business Practices (UBP) for Unbundled Electric Metering – Description of Same Day estimation routine**

2.2. If the section of data needing estimation is more than 2 contiguous hours, use the average of selected reference days to estimate the data.

**Rules and definitions** for selecting reference days for estimation:

* “Same weekdays” are defined as the same day of week as the day that needs estimation. In the case of holidays, “same weekdays” are holidays.
* “Like days” are defined as the same day type (i.e., weekday, weekend, and perhaps holidays) as the day that needs estimation.
* A standard list of holidays should be used, regardless

See UNIFORM BUSINESS PRACTICES FOR UNBUNDLED ELECTRICITY METERING VOLUME TWO Section 2.2.1 for the development of the daily profile using the Same Day estimation routine.