



ONBOARDING AND PARTICIPATION GUIDE

for

ADAPTIVE STREET LIGHTS PROGRAM

provided by

San Diego Gas & Electric Company

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1. Purpose

San Diego Gas & Electric Company (SDG&E) offers a metered rate option for customer-owned street lighting, and customer-owned devices, (e.g., security cameras and cell repeaters that are installed on light poles). These rates are a part of the Adaptive Street Light (ASL) program.

Unlike the unmetered rate that is based on a flat monthly charge, the metered street light and device rates are based on actual energy consumption. This documentation serves as a guide for SDG&E customers interested in participating in the ASL program. It includes the light and device qualification requirements, along with the software and communication system requirements necessary to support program participation.

The rates introduced as part of ASL are:

- I. **LS2DS:** applicable for metered street lights, on dimmable, customer-owned installations,
- II. **LS2AD:** applicable for connected devices installed on lighting poles, on customer-owned installations.

To enroll in the ASL program, an interested customer should review these program participation guidelines, and any appended materials, and then sign and return the required forms from Section A of the Appendix to their assigned Account Executive.

2. Program Overview and Participation Requirements

The ASL Program establishes metered rates for customer owned street lights and devices placed on street light poles. Metering for lights and devices is provided by a vendor that is engaged directly by the customer. The meters associated with the light/device, must be tested and approved by SDG&E prior to rate eligibility. Vendor information systems that poll meters, process meter reads, and transmit consumption data to SDG&E, must meet the hardware and software requirements described in this document. Customers are responsible for electronically communicating all inventory changes directly to SDG&E.

The accuracy and timeliness of the electronic transmission of all inventory and meter consumption data to be used for billing purposes must meet SDG&E's standards and are the responsibility of the customer. Details of these participation requirements are found in Section 3.

To enroll in this program a customer must complete, at a minimum, the following:

- Participation fee of \$8000 as detailed in the tariff, directly to SDG&E. Details in Section 3.1: Participation Payment.
- Select a meter vendor that is either pre-approved by SDG&E or meets SDG&E requirements before rate participation. Details in Section 3.2: Meter Vendor Qualification.
- Complete a Third-Party Letter of Authorization to allow SDG&E to share account information with the customer's chosen meter vendor. Details in Section 6.1: Third-Party Letter of Authorization.
- Participate in Electronic Data Interchange for billing and payment or, at a minimum, enroll in a summary billing option. Details in Section 3.3: Billing Guidelines.
- Complete successful integration testing with SDG&E of the following:
 - Advance Shipping Notification (ASN). Details in Section 3.4: Integration Point 1
 - Inventory Management file. Details in Section 3.5: Integration Point 2
 - Consumption Data file. Details in Section 3.6: Integration Point 3
- Comply with the file transfer requirements dictated by SDG&E Information Security. Details can be found in Section 3.7: File Transfer Requirements.

This section provides an illustration of the customer onboarding process. The first stage involves the initial setup of new customers interested in the program, shown in Figure 1.

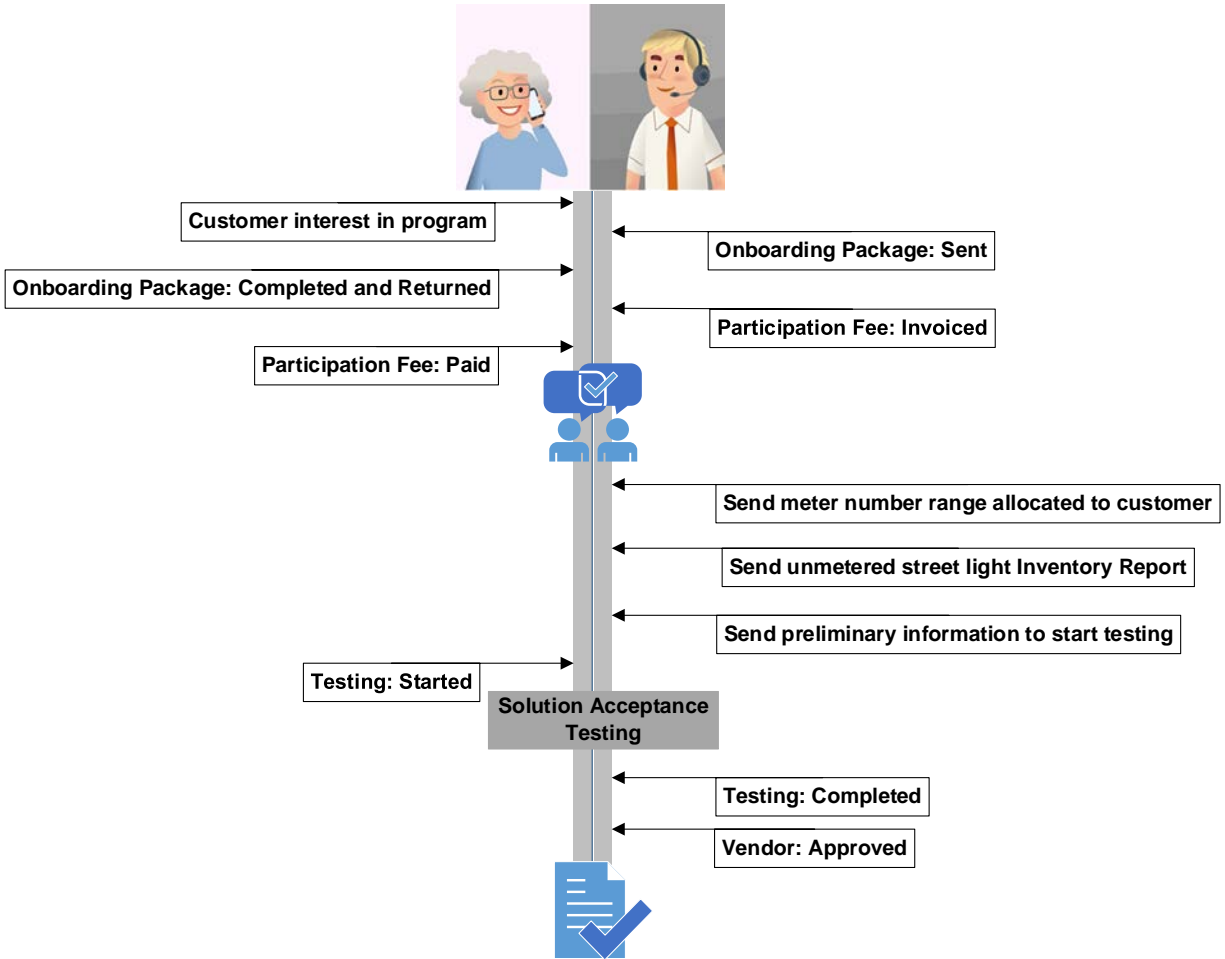


Figure 1: Customer Onboarding, Part 1

The second section provides an overview of the process to add lights or devices to the ASL rates. This is a recurring process, done after a vendor is approved by SDG&E and a customer has completed the necessary testing prerequisites. Figure 2 shows this process, which will occur every time a customer needs to add a street light or an ancillary device to the ASL program.

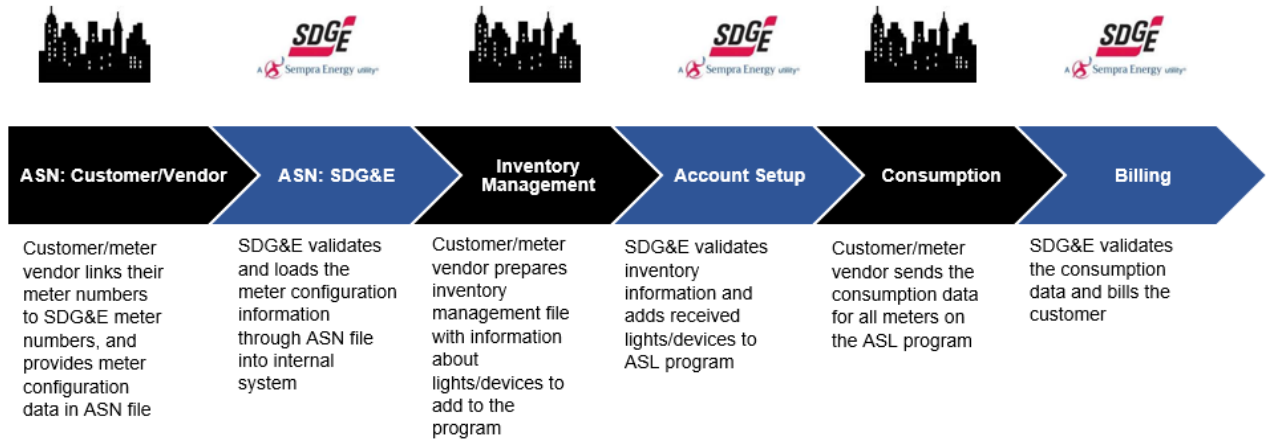


Figure 2: Converting lights or adding new lights or devices

3. Program Details: Requirements

This section details the requirements for the program details that were summarized in Section 2.

3.1 Participation Payment

All customers are required to pay a one-time up-front \$8,000.00 fee to SDG&E. Payment of this non-refundable fee must be completed before any integration testing begins, and before the Street Light Inventory Report is sent from SDG&E to the interested customer. This fee is included in the details of the tariff in the Schedule associated with the ASL program, which can be found on the SDG&E website here:

<https://www.sdge.com/rates-and-regulations/current-and-effective-tariffs>

Customer information for the participation payment must be provided in Section 6.2: Customer Information for Participation Payment.

3.2 Meter Vendor Qualification

All metered street lights and associated devices must have meter models and firmware versions that are tested and approved by SDG&E Electric Meter Engineering. This detailed hardware and software testing process involves several stages, including, but not limited to, testing the vendor's web portal, if applicable, meter farm installation and accuracy testing of meters.

Meter vendors must complete the meter vendor qualification process to be an approved meter vendor for the ASL program. Should a customer choose to install metered lights or devices from a vendor not approved by SDG&E, the customer is responsible for all costs of removal.

To start the vendor qualification process, SDG&E requires information about the vendor, which must be provided in Section 6.3: Meter Vendor Information and returned to SDG&E via the information methods provided in Section 1.

As an alternative to selecting a new meter vendor, customers may also collaborate with a meter vendor who has already been approved by SDG&E and undergone vendor qualification. A list of meter vendors with approved ASL requirements can be obtained from SDG&E via the contact information provided in Section 1.

3.3 Billing Guidelines

To participate in the ASL program, there are billing guidelines that apply to interested customers:

- 3.3.1 All lights and devices placed on a single, physical light pole will be billed together on one unique billing account, unless previously approved by SDG&E.
- 3.3.2 Electronic Data Interchange (EDI) is the preferred method of billing and payment of large volumes of accounts.
- 3.3.3 SDG&E supports version EDI 4010 of the ANSI X12 standard for invoicing and EDI version 3030 for payment/remittance processing. More information is available on the SDG&E website: <https://www.sdge.com/electronic-data-interchange-information>
- 3.3.4 Customers that do not have EDI capability must agree to enroll in SDG&E's summary billing option. More information is available on the SDG&E website: <https://www.sdge.com/groupbill>

3.4 Integration Point 1: Advance Shipping Notification (ASN)

All street light installations for this program must include a metered street light or device that is approved by SDG&E for the specific purpose of revenue-grade metering applications. The meter itself must comply with SDG&E's Electric Meter Engineering specifications. These specifications and associated testing are specified in Section 5: Technical Testing.

The customer must send required inventory information for these meters, which includes, but is not limited to, meter accuracy testing results and meter manufacturing information. This information is communicated to SDG&E in the form of an ASN file.

The ASN file is the first integration point between the customer's meter vendor and SDG&E for enrolling in the ASL program. The file is needed before any meters can be used for billing on this rate. It must follow an SDG&E determined file format and have required information for each field present. The file also requires a valid header and a valid trailer record. Details of the format and the fields required, along with suggested values, transmission protocol and timing can be found in Section 7.2: ASN File: Format and Fields.

3.5 Integration Point 2: Inventory Management

For SDG&E to successfully add street lights or ancillary devices to the metered rates associated with ASL, the customer is required to send detailed inventory information for each light or device. The information is needed to create the new bill accounts associated with this rate, and to reconcile the street light inventory from the unmetered rates to the new ASL rates. This inventory information for any lights or devices to be added to metered billing on the program must be received in an Inventory Management (IM) file from each customer, to initiate one of the four inventory management processes:

- 1) **Conversion:** Conversion of an unmetered street light (SL) to a metered SL or adding a new metered SL

- 2) **Add:** Adding an ancillary device (AD) to metered billing

- 3) **Update:** Updating the bulb information and/or replacing the meter associated with a bulb.

- 4) **Remove:** Removing a light or device from metered billing

The Inventory Management file is the second integration point between the customer's meter vendor and SDG&E for enrolling in the ASL program. Mandatory information includes, but is not limited to, the location of the street lights, their associated meter attributes and their bulb wattage.

If the data does not conform with the ASL program requirements, SDG&E may reject the data and delay account establishment until data is corrected. Details of Inventory Management file requirements are also provided in Section 4.2: Inventory Management file, while the requirements for the required fields and format which must be sent for establishing a billing account are included in Section 7.2: Inventory Management File: Format and Fields.

3.6 Integration Point 3: Consumption Data

The third major integration point between the customer/meter vendor and SDG&E is providing consumption, or usage, data for the energy that was consumed for each metered device or light that is a part of the customer's inventory.

Consumption data must be received at least once a day for all meters that the customer has as a part of the ASL program. If consumption data is not received by the required time (3 a.m. Pacific Time), is wholly or in part missing, erroneous, or is unusable, SDG&E will estimate usage at the maximum nameplate rating of the given fixture. The data must be sent in the form of a consumption data file, which must also have valid, correctly formatted header and trailer records.

A detailed description of Consumption Data file requirements can be found in Section 4.3: Consumption Data file. Details of the required fields and their formats can be found in Section 7.3: Consumption Data file: Fields and Format.

3.7 File Transfer Requirements

SDG&E requires customers and vendors to use the Secure File Transfer Protocol (SFTP) to send data. The customer's meter vendor must work with SDG&E's Information Technology (IT) department to provide the following information for file transfer:

- 1) Vendor will provide IP Addresses to SDG&E from the vendor system. This must be provided in Section 6.4: File Transfer Information.
- 2) SDG&E will provide the vendor with the SDG&E SFTP server address and credentials to access the SDG&E server
- 3) Vendor will then conduct a manual file transfer test
- 4) Vendor will subsequently conduct end-to-end System Integration Testing in conjunction with SDG&E IT. Details can be found in Section 5.2: System Integration Testing, and contact information for the IT department will be relayed by SDG&E before System Integration Testing begins.

4. Program Details: Technical Files

Details of the integration file types for the ASL program are enclosed in this section. In addition to data and formatting requirements for each of these file types, the third-party meter vendor and customer must comply with file transfer protocol requirements.

4.1 ASN file

An ASN file for all meters must be provided to SDG&E before customers and their associated vendor can use these meters for billing on the ASL program.

- 4.1.1 This ASN file should include the accuracy testing results of each meter in the shipment and should be provided in an electronic format via SFTP to SDG&E prior to establishing street light or ancillary device inventory.
- 4.1.2 The ASN file is used to upload metering data into SDG&E inventory and for managing metering devices for billing applications. Sample files should be provided and tested for accuracy before any product is accepted for program participation in ASL.
- 4.1.3 All customers using third-party meters must assign an SDG&E meter number to their meter inventory. This establishes a relationship between the third-party meters and the SDG&E metering system. The assigned SDG&E meter number must be communicated as part of the ASN file.
- 4.1.4 The ASN file must be sent by 6 p.m. (Pacific Daylight Time) for same day processing. If it is sent after 6pm, and there are additional data to be sent the next day, they must be appended to the existing file and the file must be re-sent.
- 4.1.5 For error or issue resolution, the customer and/or third-party meter vendor must provide a contact for ASN records that cannot be processed. Email is the preferred method of contact. This should be provided as detailed in Section A of the Appendix.

4.1.6 The expected file name for the ASN file is CP.ASL_AS01_ASN_METERS.txt.

4.1.7 The format and other required data fields for the ASN file are detailed in Section 7.2 of the Appendix.

4.2 Inventory Management file

SDG&E requires inventory information for each metered device or light that a customer has on the ASL program. There are four inventory management processes. Each process has a unique 3-letter “inventory indicator” that allows SDG&E to identify the procedure requested:

1. **CON:** Conversion of an unmetered street light (SL) to a metered SL or adding a new metered SL
2. **ADD:** Adding an ancillary device (AD) to metered billing
3. **UPD:** Updating the bulb information and/or replacing the meter associated with a bulb.
4. **REM:** Removing a light or device from metered billing

4.2.1 This inventory management information must be received in an Inventory Management (IM) file from each customer, to initiate each inventory management process.

4.2.2 The expected file name format is CP.ASL_IM_INPUT_<ENTITYID>_<3-Letter Inventory Indicator>_YYYYMMDDHHSSLL.txt, for example:
CP.ASL_IM_INPUT_0123456789_CON_20180801090000.txt

4.2.3 SDG&E will send a preliminary Inventory Management Report for currently installed unmetered street lights to each customer, with the descriptive address and associated street light numbers to be sent in the Inventory Management file. These are required fields and must be provided in the Inventory Management file when sent to SDG&E

4.2.4 The required data fields and format for the IM file are attached in Section 7.3 of the Appendix.

4.3 Consumption Data file

SDG&E requires interval consumption data for each metered light and device on the ASL program, at 15-minute increments e.g. at 12:00, 12:15, 12:30, 12:45. Customers are responsible for ensuring accuracy of energy consumption provided by each metered street light or ancillary device.

4.3.1 Customers are required to provide SDG&E with interval data in a daily Consumption Data file for all customer owned metered street lights and ancillary devices no later than 3 a.m. (Pacific Daylight Time) on the following day.

4.3.2 If a customer sends more than one file for the same day, prior to the 3 a.m. cutoff, the last file received will be used for billing purposes.

4.3.3 If a file is not received by 3 a.m. (Pacific Daylight Time), SDG&E will estimate the consumption for that customer.

4.3.4 The expected file name format is CP.ASL_AS06_<ENTITYID>_yyyyMMddHHmmSS.txt, e.g: CP.ASL_AS06_0123456789_20180801090000.txt

4.3.5 The required data fields and format for the consumption data file are attached as appended materials in Section 7.4 of the Appendix.

5. Program Details: Technical Testing

Prior to program participation the customer and the meter vendor must successfully pass all testing requirements. This section provides testing and validation requirements of the Adaptive Street Lights program, along with the estimated time to complete each stage of the testing.

5.1 Meter Testing

To participate in the ASL program, the customer and the customer's selected meter vendor must comply with certain meter hardware and testing requirements. All metered street lights and associated devices must have meter and firmware versions that are tested and approved by SDG&E Electric Meter Engineering. Meter vendors must complete this process to be an approved meter vendor for the ASL project, and before the lights or devices can be billed on the metered rates associated with the program.

The table below shows the different testing steps that each vendor is subject to for their meters to be approved. This includes testing the software interface associated with the metered devices.

ASL Testing Requirement	Testing Time Required
Vendor's ASL Webportal Testing	2 days
ASL Meter Farm Installation	1 day
ASL Accuracy Testing Performed: Run-Up Board Energy Test, WECO Demand Accuracy Test, Meter Farm Energy Test, and Fluke Power Analyzer Test	10 days
Documentation: Test Report and Approval Notice	5 days
Contingencies: Resolving Testing Issues	3 days

Meter Testing is the first step for a new vendor. Details of the testing criteria and the accuracy thresholds can be obtained from SDG&E after the onboarding forms are completed and the testing is initiated.

If there are new releases of hardware or firmware versions associated with the meters, customer and vendor will undergo an abbreviated testing procedure. If a customer is using both a vendor and hardware that has been approved by SDG&E, but firmware has not been previously approved by the Electric Meter Engineering group, the devices cannot be used for metered billing on the program, and the firmware of the lights or devices must be tested and approved.

The following table provides the minimum time requirements for the three meter testing scenarios:

Scenario	Testing Time Required
New Vendor	25 days
Approved Vendor, New Hardware	25 days
Approved Vendor, New Firmware	10 to 25 days

5.2 System Integration Testing

This section details the integration testing that will occur after the vendor's metered lights and/or ancillary devices approval. It is required that all necessary security and data transfer protocols are set and functional before System Integration Testing (SIT) begins.

The following table describes the minimum test cases that must be passed for SIT to pass:

Application	Test Scenario	Test Scenario Description
ASN File	Send ASN file for below scenarios	
1	Send ASN file for customer	ASN file for customer with all valid details and with in the meter range provided for XX meters
2	Send ASN file for customer with error on mandatory fields	ASN file with Error/Invalid details in Mandatory fields Example: Send Invalid Entity Id/SDGE Meter Range/Third Party Meter Number
3	Send ASN file for customer with mandatory fields missing	ASN file with Missing details in Mandatory fields
Inventory Management (CON/ADD)	Send AS03 file for CON & ADD for below scenarios	
1	Send AS03 (CON) file for customer	AS03 file for customer with all the valid details for the conversion of unmeter streetlights to meter accounts
2	Send AS03 (ADD) file for customer	AS03 file for customer with all the valid details for the New Devices to setup in CISCO
3	Send AS03 (CON) file with Invalid SL size and type	AS03 file with SL details in CON file with Invalid SL size and type
4	Send AS03 (ADD/CON) file with missing mandatory fields for customer	AS03 file with missing details in mandatory fields
5	Send AS03 (ADD) for adding second SPT for customer	AS03 file for customer with all the valid details for adding second SPT under established account
6	Send AS03 (CON) file for Conversion for Devices	AS03 file with Device details in CON file (AS03 (CON) file is only for SL Conversion)
Inventory Management (UPD)	Send AS03 file for UPD for below scenarios	
1	Send AS03 file for update of light type/size	AS03 file for customer with all the valid details for the UPD SL. Send two accounts 1.LE 2.IN
2	Send AS03 file for change of the meter details for SL account	AS03 file for customer with all the valid details for the UPD Street light
3	Send AS03 file with account #	AS03 file for customer with all the valid details for the UPD SL/Devices

Application	Test Scenario	Test Scenario Description
Inventory Management(REM)	Send AS03 file for REM for below scenarios	
1	Send AS03 file to remove a light for customer of customer	AS03 file for customer with all the valid account details for REM of light
2	Send AS03 file to remove device for customer of customer	AS03 file for customer with all the valid account details for REM of device
3	Send AS03 file for remove of light for customer of customer with invalid GRP-bill account	AS03 file for customer with all the invalid group bill account details for REM of light
Consumption Meter Reads (AS06)		
	Send AS06 Consumption files for below scenarios	
1	Send AS06 file with Invalid Endpoint (Endpoint not processed in CISCO)	AS06 file having Endpoint details not processed at SDGE
2	Send AS06 file with Non-UTC time format	AS06 file with time format other than UTC format
3	Send AS06 file with Interval reads equal/greater than max demand	AS06 file with interval reads equal or greater than Light size sent in AS09
4	Do not send AS06 file for one day	
5	Send AS06 file with no First read & Last Read	AS06 file for endpoint without first read/not equal to start read and last read for the day
6	Send AS06 file with intervals less than 96 for one day	AS06 file for endpoint with less than 96 intervals

If a customer selects a vendor whose meters have been approved and for which SDG&E has already conducted the integration testing, an abbreviated integration test will occur instead.

The following table shows an estimate of the testing time required for the overall System Integration Testing.

Process	Testing Time Required
ASN Process	3 days
Inventory Management Process	6 days
Consumption Data Reads	8 days
Billing Validations	3 days
Validate Meter Changes	5 days

6. Appendix, Section A: Required Forms and Information

Interested customers, in conjunction with their selected meter vendor, must complete, sign, and date the forms in this section. All forms are required to join the ASL program, unless otherwise indicated:

- Third-Party Letter of Authorization
- Customer Information for Participation Payment
- Meter Vendor Information
- File Transfer Information
- Exception Handling Contact

6.1 Third-Party Letter of Authorization

SDG&E requires all customers and their associated meter vendors to sign a Third-Party Letter of Authorization (LOA). An LOA is required before the customer's selected vendor can request customer information or service on behalf of a customer for the ASL program. Once it is completed, signed and dated, it must be returned to SDG&E as part of the completed onboarding package.

THIS IS A LEGALLY BINDING CONTRACT—READ IT CAREFULLY
(Please Print or Type)

I, _____
NAME TITLE (IF APPLICABLE)

of _____ (Customer) have the following mailing address
NAME OF CUSTOMER OF RECORD

_____, and do hereby appoint
MAILING ADDRESS CITY STATE ZIP

of _____
NAME OF THIRD PARTY MAILING ADDRESS

CITY STATE ZIP

to act as my agent and consultant (Agent) for the listed account(s) and in the categories indicated below:

ACCOUNTS INCLUDED IN THIS AUTHORIZATION:

1. _____
SERVICE ADDRESS CITY SERVICE ACCOUNT NUMBER
2. _____
SERVICE ADDRESS CITY SERVICE ACCOUNT NUMBER

(For more than two accounts, please list additional accounts on a separate sheet and attach it to this form)

INFORMATION, ACTS AND FUNCTIONS AUTHORIZED – This authorization provides authority to the Agent. The Agent must thereafter provide specific written instructions/requests (e-mail is acceptable) about the particular account(s) before any information is released or action is taken. In certain instances, the requested act or function may result in cost to you, the customer. Requests for information may be limited to the most recent 12 month period.

I (Customer) authorize my Agent to act on my behalf to perform the following specific acts and functions (initial all applicable boxes):

1. Request and receive billing records, billing history and all meter usage data used for bill calculation for all of my account(s), as specified herein, regarding utility services furnished by the Utility¹.
2. EPA Benchmarking (authorizes usage information to be uploaded to the EPA's ENERGY STAR **Portfolio Manager**®).
3. Request and receive copies of correspondence in connection with my account(s) concerning (initial all that apply):
 - a. Verification of rate, date of rate change, and related information;
 - b. Contracts and Service Agreements;
 - c. Previous or proposed issuance of adjustments/credits; or
 - d. Other previously issued or unresolved/disputed billing adjustments.
4. Request investigation of my utility bill(s).
5. Request special metering, and the right to access interval usage and other metering data on my account(s).
6. Request rate analysis.
7. Request rate changes.
8. Request and receive verification of balances on my account(s) and discontinuance notices.
9. Other acts and functions (please specify) _____

¹ The Utility will provide standard customer information without charge up to two times in a 12 month period per service account. After two requests in a year, I understand I may be responsible for charges that may be incurred to process this request.

6.2 Customer Information for Participation Payment

To participate in the ASL program, customers are subject to a one-time, \$8000.00 participation charge. The information provided in this section will be used to send an invoice to customer for this fee. Please provide the information listed below:

Customer Payment Information	
Customer Name (to appear on bills):	
Attention:	
Street Address:	
PO Box:	
City, State, ZIP:	
Telephone Number:	
Email Address:	
AE / Analyst Name:	

6.3 Meter Vendor Information

To effectively test the solution selected by the customer, SDG&E requires a point-of-contact for the meter vendor. To ensure that the metered street lights or devices have not been previously approved by SDG&E Electric Meter Engineering, customers are required to provide information about the hardware and software they intend to use for the ASL program. Please provide information about the meter vendor and the metered street lights or ancillary devices planned for installation in this section.

Meter Vendor Information			
Meter Vendor Name:			
Meter Vendor Contact Person		Meter Vendor Business Address	
First Name:		Address Line 1	
Last Name:		Line 2	
Phone:		City	
Email:		State	Zip
Metered Light/Device Information			
<u>Metered Light/Device Type 1</u>		<u>Metered Light/Device Type 2</u>	
Product Name		Product Name	
Hardware Version		Product Number	
Firmware Version		Firmware Version	
Light or Device?		Light or Device?	
Additional Information		Additional Information	
<u>Metered Light/Device Type 3</u>		<u>Metered Light/Device Type 4</u>	
Product Name		Product Name	
Product Number		Product Number	
Firmware Version		Firmware Version	
Light or Device?		Light or Device?	
Additional Information		Additional Information	
<u>Metered Light/Device Type 5</u>		<u>Metered Light/Device Type 6</u>	
Product Name		Product Name	
Product Number		Product Number	
Firmware Version		Firmware Version	
Light or Device?		Light or Device?	
Additional Information		Additional Information	

6.4 File Transfer Information

The customer and third-party meter vendor must communicate the IP addresses for the servers that they will be using to send the integration files. This will allow SDG&E to open firewall ports and accept files from these specific addresses. Please provide the IP addresses that will be used for sending information, as applicable:

IP Address 1	
IP Address 2 (if applicable)	
IP Address 3 (if applicable)	

6.5 Exception Handling Contact

It is the responsibility of the customer and their selected meter vendor to ensure that any files sent to SDG&E meet the standards laid out for file formatting and fields. Any files and/or records sent containing erroneous, corrupt or incomplete information, will not be processed.

6.5.1 Incorrect or incomplete information sent pertaining to the transfer of existing lights from unmetered to metered light rates will be rejected and returned to the customer for validation.

6.5.2 Lighting will continue to bill on unmetered rates until files are resubmitted and processed successfully.

6.5.3 Errors and exceptions related to meter setup and consumption data will be communicated to the associated third-party meter vendor.

6.5.4 Errors pertaining to information provided in the Inventory Management file (AS03) will be sent directly to the customer.

6.5.5 Please complete this information for relaying errors:

Error Handling Contacts	
Customer	
Full Name:	
Email:	
Telephone Number:	
Additional Information:	
Meter Vendor	
Full Name:	
Email:	
Telephone Number:	
Additional Information:	

7. Appendix, Section B: Fields and Formats for Integration Points

7.1 Purpose

The ASL program requires three major integration file types. These files must follow the required format, and each field must be in the location specified. The fields must not exceed the maximum field length specified, and the values must also follow the character type specified. All fields indicated as mandatory must be sent with the expected data for effective processing.

Details of the integration file types for the ASL program are enclosed in this section. This includes the data and formatting requirements for each of these file types, and information about the information to send for each field. The files are also required to have a valid and correctly formatted header record, and, in some cases, a valid trailer record. The three files are:

- ASN file
- Inventory Management file
- Consumption Data file

7.2 ASN file: Format and Fields

An ASN file for all meters that will be a part of the program must be provided to SDG&E before customers and their associated vendor can use these meters for billing on the ASL program. This ASN file should include the accuracy testing results of each meter in the shipment and must be provided in an electronic format sent via Secure File Transfer Protocol to SDG&E prior to sending any Inventory Management files.

Each ASN file must have a valid file header record. The expected format and the required fields for the header are shown, along with suggested values and a description of each record:

File Header Record	Description	Suggested Value	Meter Vendor Model (Sample Data)	Field Length	Field Format	Required/Optional
Record Type Indicator	Constant prefix for the record to identify the type.	Fixed Value	\$\$HEADER	8	TXT Format XXXXXXXX Left Justified Trailing Spaces	Required
File Type	Constant value to indicate the file is an ASN	Fixed Value	ASN	3	TXT Format XXX Left Justified Trailing Spaces	Required
File Transmission Date	Date when the ASN file is transmitted to the customer.		YYYYMMDD	8	Date Format YYYYMMDD	Required
Vendor Name	Constant value to indicate the vendor providing the ASN. This product may contain components from multiple vendors but only one vendor receives the PO for the product.	Fixed Value but SDGE has to provide the value for the City of SD	<entity ID>	35	TXT Format Left Justified Trailing Spaces	Required

Following the header record, each ASN file must have a valid File Type 01 record, and then a valid File Type 02 record. The format for the fields in both are included, along with suggested values and a description of the data requested. If a field is listed as N/A, it does not apply to the information needed for the ASL program. However, the field itself must be present in any ASN files sent to SDG&E, for effective processing of the file.

File Type 01 Record	Description	Suggested Value	Meter Vendor Model (Sample Data)	Field Length	Field Format	Required/Optional
Record Type Indicator	Constant prefix for the record to identify the type.	Fixed Value	01	2	TXT Format XX	Required
Purchase Order Number	Unique Identifier on the Customer-issued PO for the entire order that must be referenced on the Packing Slip and ASN. All SDGE POs will start with 44, 45, or 56. All PO Numbers for RMA will be SPACES.	Fill in with the City of San Diego purchase order #	600386	10	TXT Format 45XXXXXXXXX Left Justified SPACES for RMA shipments	Required
Purchase Order SAP Line Number	Unique Identifier on the Customer-issued PO for the row that must be referenced on the Packing Slip and ASN. All PO Line Numbers for RMA will be SPACES.	Leave as Spaces		5	TXT Format XXXXX Right Justified Leading Zeros SPACES for RMA shipments	Optional
Customer Stock Code Value	Unique Identifier on the Customer-issued PO used to stock the product in the warehouse and must be referenced on the Packing Slip and ASN. This value has some static attributes associated with the product definition in their system. Provided on the Purchase Order.	Fixed Value	NOSTOCK	18	TXT Format Left Justified Trailing Spaces	Required
Shipment Quantity (per Customer Stock Code Value)	Value representing the number of meters in meter shipment. This value is the same as the number of meters in the manufacturing run and is equal to the number of Type 2 ASN records.	Leave as Spaces		15	TXT Format XXXXXXXXXXXX XXXXX Right Justified Leading Zeros	Optional
Shipment Date from Manufacturer	Date the shipment leaves manufacturer loading dock and tied to shipment tracking numbers		YYYYMMDD	8	Date Format YYYYMMDD	Optional
Shipment Delivery Location	Value representing a location where the product is shipped. This is a general location name. The specific address is maintained by the customer and manufacturer and links to this name - manual setup from PO and mutually agreed summary name.	Leave as Spaces		15	TXT Format Left Justified Trailing Spaces CAPS	Optional

Shipment Type	Value used to indicate whether the customer or a designee of the customer, such as a deployment or final assembly vendor, receives the shipment. RMA product shipments is flagged and does not provide an indication of direct vs. indirect but will be shipped to the original Shipment Delivery Location. - "44..." PO = Indirect or "I" Shipment Type - "45..." PO = Direct or "D" Shipment Type - "56..." PO = Indirect or "I" Shipment Type - Example: 5K	Leave as Spaces		1	TXT Format X	Optional
Manufacturer Code	Value representing the manufacturer of the product.	Fixed Value	GE	2	TXT Format XX	Required
Manufacturer Part Number	Value representing the manufacturer-defined part number. For an OpenWay meter, this number is uniquely generated to represent the customer, device part number, and configuration of the device for the customer.	Leave as Spaces		40	TXT Format Left Justified Trailing Spaces	Optional
Starting Customer Device Serial Number in Shipment	Value representing the starting customer-defined Meter/Module/Device Serial Number in the shipment.	SDGE beginning "Meter Number"	04600000	8	TXT Format XXXXXXXXX Left Justified Trailing Spaces SPACES for Gas Modules	Required
Ending Customer Device Serial Number in Shipment	Value representing the ending customer-defined Meter/Module/Device Serial Number in the shipment.	SDGE Ending "Meter Number"	04799999	8	TXT Format XXXXXXXXX Left Justified Trailing Spaces SPACES for Gas Modules	Required
Starting Manufacturer Device Serial Number in Shipment	Value representing the starting manufacturer-defined Meter/Module/Device Serial Number in the shipment.	Leave as Spaces		18	TXT Format Left Justified Trailing Spaces	Optional
Ending Manufacturer Device Serial Number in Shipment	Value representing the ending manufacturer-defined Meter/Module/Device Serial Number in the shipment.	Leave as Spaces		18	TXT Format XXXXXXXXXX XXXXXX Left Justified Trailing Spaces	Optional

Number of Pallets in Shipment	Value representing the number of physical pallets included in the shipment.	Leave as Spaces		5	TXT Format XXXXX Right Justified Leading Zeros	Optional
Electric Meter Disk Constant (Kh)	Value which represents one revolution for an legacy electro-mechanical meter. This concept remains relevant for solid state meters and is typically hard-coded to a value of 1; however, this value will change for polyphase meters.	Fixed Value	00010000	8	TXT Format XXXXXXXXX Right Justified Implicit Decimal (9999v9999) 4 positions on the left with Leading Zeros 4 positions on the right with Trailing Zeros	Required
Electric Meter Default Internal Pulse Constant (Ke)	Value which represents the number of pulses per revolution for an electro-mechanical meter. This concept remains relevant for a solid state meter.	Leave as Spaces		8	TXT Format XXXXXXXXX Right justified Implicit Decimal (9999v9999) 4 positions on the left with Leading Zeros 4 positions on the right with Trailing Zeros	Optional
Electric Meter AEP Code	Unique identified used for an ANSI-standard meter description of the meter.	Use DS for streetlight meter records, and AD for all ancillary devices	<i>DS - Light AD - Device</i>	2	TXT Format XX SPACES for Gas	Required
Electric Meter AEP Manufacturer Code	Unique identified used for an ANSI-standard meter description of the meter manufacturer.	Fixed Value	Y	1	TXT Format X SPACES for Gas	Required
Electric Meter Minimum Volts	Value representing the minimum voltage supported by the meter.	Fixed Value	120	3	TXT Format Right Justified Leading Zeros ZERO if no value (default)	Required
Electric Meter Maximum Volts	Value representing the maximum voltage supported by the meter.	Fixed Value	480	3	TXT Format Right Justified Leading Zeros ZERO if no value (default)	Required
Electric Meter Phase	Value representing the meter phase.	Fixed Value	1	1	TXT Format X SPACES for Gas	Required
Electric Meter Wires	Value representing the number of meter wires	Fixed Value	3	1	TXT Format X	Required
Electric Meter Register Ratio	Value representing the register ratio for a legacy electro-mechanical meter. This concept is no longer relevant; therefore is hard-coded to a value of '1' for solid state meters.	Fixed Value	0000001	7	TXT Format Right Justified Leading Zeros SPACES for Gas	Optional

Electric Meter Class	Value representing the class of the electric meter.	Fixed Value	200	3	TXT Format Right Justified Leading Zeros SPACES for Gas	Required
Electric Meter Test Amps	Value representing the amperage at which the electric meter is tested.	Fixed Value	300	3	TXT Format Right Justified Implicit Decimal (99v9) 2 positions on the left with Leading Zeros 1 position on the right with Trailing Zero	Required
Electric Meter Class Accuracy Percentage	Value representing the meter class accuracy percentage for an electric meter.	Fixed Value	00100	5	TXT Format Right Justified Implicit Decimal (999v99) 3 positions on the left with Leading Zeros 2 positions on the right with Trailing Zeros	Required
Electric Meter and Gas Index Dials/Segments	Value representing the number of dials/segments on display of an electro-mechanical meter, gas index, or solid state meter.	Fixed Value	6	1	TXT Format X SPACES for Gas Modules shipped without indexes	Required
Electric Meter Mounting Configuration	Value representing the meter base type used for mounting the electric meter. This is used for the later half of the common form reference of "1S" or "2S"	Fixed Value	S	1	TXT Format X SPACES for Gas	Required
Electric Meter Mounting Form	Value representing the meter base type used for mounting the electric meter. This is used for the first half of the common form reference of "1S" or "2S."	Fixed Value	12	2	TXT Format XX Right Justified Leading Zeros SPACES for Gas Meters and Modules	Required
Gas Meter Drive Rate	Value representing the rate for the gas meter drive-dog or wriggler for the gas module. For an OpenWay gas module, this is configured at the time of installation; therefore, it is not populated. It is only populated for gas meter shipment or non-configurable gas module shipments.	Leave as Spaces		5	TXT format XXXXX Right Justified Leading Zeros Implicit Decimal 9999v9	N/A

Electric Meter Remote Disconnect Device	Value representing whether this meter type has a remote disconnect device within the meter. It does not indicate whether the remote disconnect function has been disabled at the customer's request upon leaving the manufacturer.	Fixed Value	N	1	TXT Format X SPACES for Gas	Required
Electric Cell Relay Meter	Value representing whether this meter also has Cell Relay capabilities.	Fixed Value	N	1	TXT Format X SPACES for Gas	Required
Electric Meter with TOU Capability	Value representing whether the meter is capable of Time of Use metering.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with IDR Capability	Value representing whether the meter is capable of Interval Data Recorder metering.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Extended IDR Memory	Value representing whether the meter has extended IDR memory.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Reactive KVA Capability	Value representing whether the meter is capable of Reactive KVA metering.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with 4 Quadrant Metering Capability	Value representing whether the meter is capable of 4 quadrant metering.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Outage Notification Capability	Value representing whether the meter is capable of outage notification messaging.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Power Quality Measurements	Value representing whether the meter is capable of power quality measurement.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Loss Compensation	Value representing whether the meter is capable of loss compensation.	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Voltage Sag/Swell Log	Value representing whether the meter is capable of Voltage Sag/Swell Log	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Harmonic Analysis	Value representing whether the meter is capable of Harmonic Analysis	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional

Electric Meter with Totalization	Value representing whether the meter is capable of Totalization	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Security Power Quality Log	Value representing whether the meter is capable of Security Power Quality Log	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Recording (20 Channel)	Value representing whether the meter is capable of Recording (up to 20 channels)	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Per Phase Measurements	Value representing whether the meter is capable of Per Phase Measurements	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Instrument Transformer Accuracy Connection	Value representing whether the meter is capable of Instrument Transformer Accuracy	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Electric Meter with Revenue Guard Plus	Value representing whether the meter is capable of Revenue Guard Plus	Leave as Spaces		1	TXT Format X SPACES for Gas and Electric	Optional
Meter Test Class	Value representing the test class assigned by the customer. For an electric meter, this is based on the location installed. For a gas meter, this is based on the test schedule. This value does not apply for a gas module and other non-meter shipments.	Leave as Spaces		3	TXT Format Left Justified Trailing Spaces SPACES for Gas Modules	Optional
Electric Meter Test Constant (Kt)	Value representing the test constant (Kt) used for meter testing.	Leave as Spaces		8	TXT Format XXXXXXXX Implicit Decimal (9999v9999) 4 positions on the left with Leading Zeros 4 positions on the right with Trailing Zeros	Optional

File Type 02 Record	Description	Suggested Value	Meter Vendor Model (Sample Data)	Field Length	Field Format	Required/Optional
Record Type Indicator	Constant prefix for the record to identify the type.	Fixed Value	02	2	Constant	Required
Pallet Identification Number	Value representing the pallet number where the device is located in the shipment. Format is defined by EPC Global Standards, Serial Shipping Containers Code (SSCC-96)	Leave as Spaces		24	TXT Format XXXXXXXXXX XXXXXXXXXX XXXX Position 1-3 Constant - 315 Position 4-9 Constant - 048888 (SDG&E SAP designation for Itron as a Vendor) Position 10-18 Right justified with leading zeros Position 19-24 Constant - 000000 SPACES if no value (default)	Optional
Case Identification Number	Value representing the carton number where the device is located in the shipment.	Leave as Spaces		24	TXT Format XXXXXXXXXX XXXXXXXXXX XXXX Left Justified First Nine Characters Constant Next Fifteen Leading Zeros	Optional
Customer Device Serial Number	Value representing the customer-defined Meter Serial Number. This field is not used for devices other than gas and electric meters, such as Zigbee repeaters and gas modules.	SDGE Meter Number - Assigned by SDGE at time of purchase request	Add meter number here	8	TXT Format XXXXXXXXXX Right Justified with Leading Zeros	Required
Manufacturer Device Serial Number	Value representing the manufacturer-defined Meter Serial Number. This field is not used for devices other than gas and electric meters, such as Zigbee repeaters and gas modules.	MFG Serial Number of individual meter device	Enter Mfg serial number	18	TXT Format XXXXXXXXXX XXXXXXXXXX Left Justified Trailing Spaces	Required
Manufactured Date	Date representing when the meter was manufactured.	Mfg Date	Enter Mfg date (YYYYMMDD)	8	Date Format, YYYYMMDD	Required
Manufacturing Lot Number	Value representing the manufacturer's production order number from the factory schedule.	Leave as Spaces		12	TXT Format XXXXXXXXXX XX Left Justified Trailing Spaces	Optional
Meter Size Code	Value representing the capacity of the Gas Meter	Leave as Spaces		2	TXT Format XX Right Justified Leading Zero SPACES for Electric SPACES for Gas Module	N/A

Customer-specified Meter Type Code	Value representing the type of meters, as recognized by the customer.	Fixed value SDGE provided value		8	TXT Format XXXXXXXX Left Justified Trailing Spaces SPACES for Gas	Required
Manufacturer-specified Meter Type Code	Value representing the type of meter, as recognized by the manufacturer.	Fixed Value	GESTRLT	8	TXT Format XXXXXXXX Left Justified Trailing Spaces	Required
Electric Meter Register Firmware Version	Value that represents the register board firmware version. For an OpenWay meter, this is a component of the meter responsible for processing and storage of data passed up from the measurement/metrol ogy of the meter and is remotely upgradeable. (version.revision.buil dnumber)	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces Explicit Decimal Points	Optional
Electric Meter Register Hardware Board Version	Value representing the register board version and revision. For an OpenWay meter, the physical board is shared with other functions - including HAN, LCD display; therefore, the board version may be shared across multiple functions. (version.revision.buil dnumber)	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces Explicit Decimal Points	Optional
Electric Meter Register Serial Number	Value representing the serial number printed on the register circuit board. For an OpenWay meter, this board may contain multiple functions, including the CommMod and Zigbee radios; therefore, the serial number will be the same.	Leave as Spaces		18	TXT Format Left Justified Trailing Spaces	Optional
Electric Meter Register Constant	Value representing the register constant in an electro-mechanical meter. This concept is no longer relevant and is hard coded to a value of '1.	Fixed Value	001	3	TXT Format XXX Right Justified with leading zeros Default value = 1	Optional

Metrology Firmware Version	Value representing the metrology firmware reversion for each meter. For OpenWay this is not Remotely upgradeable	Fixed Value	3.1.0.7	10	TXT Format Left Justified Trailing Spaces	Required
Electric Meter Metrology Hardware Version	Value representing the metrology hardware reversion for each meter. For OpenWay this is not Remotely upgradeable	fixed Value	GE20206734	10	TXT Format Left Justified Trailing Spaces SPACES for Gas devices	Required
Electric Meter Configuration Group Identification	Value representing the configuration group that has been assigned within the meter. This concept may be unique to an OpenWay meter for managing the behavior of a meter and is closely related to the configuration program. <i>CISCO Import process will need to default value</i>	Leave as Spaces		17	TXT Format Left Justified Trailing Spaces SPACES for non-OpenWay meters	N/A
Electric Meter Communications Module Type	Value representing whether the Communications Module used to establish network connectivity has been integrated into the device or is an external component. For an OpenWay meter, this is integrated.	Leave as Spaces		1	TXT Format X SPACES for non-electric meter devices	N/A
Electric Meter Factory Programmed	Value representing whether the meter has been pre-programmed in the factory to behave in a defined manner. For an OpenWay meter, this is completed by assigning a configuration program.	Leave as Spaces		1	TXT Format X	Optional
Electric Meter Program Identification	Value representing the configuration program that has been assigned within the meter. This concept may be unique to an Itron CENTRON meter for managing the behavior of a meter and is closely related to the configuration group in OpenWay.	Leave as Spaces		5	TXT Format XXXXX Right Justified Leading Zeros	Optional

Device Warranty Start Date	Date representing when the warranty is in effect for a meter/module/device . For an OpenWay electric and gas meter or module, SDG&E has negotiated an extended warranty. The warranty is for 90 days after the Manufactured Date of the device - see Field 64. For non-Itron products, such as third-party comm. cards, the extended warranty does not apply.	Leave as Spaces		8	Date Format, YYYYMMDD	Optional
Gas Meter Diaphragm	Value representing the type of material used in for the diaphragm.	Leave as Spaces		1	TXT Format X SPACES for non-gas meter devices	N/A
Max Months Off	<i>CISCO default to 999</i>	Leave as Spaces		4		N/A
Electric Meter Elements	Value representing the number of sensing elements in the meter used by the metrology.	Fixed Value	0010	4	TXT Format XXXX Right Justified Leading Zeros	Optional - default should be 0001
Communications Module Type	Value representing the type of optional commutations module to be inserted into the meter. This will one of potentially many product lines produced by a single vendor.	Leave as Spaces		2	TXT Format XX	Optional
Gas Module Meter Type	Value representing the type of compatible gas meter for the gas module.	Leave as Spaces		2	TXT Format XX Left Justified Trailing Spaces	N/A
Communications Module Manufacturer	Value representing the manufacturer of the communications module. This data elements assumes the provider of the comm card is abstracted from the meter manufacturer; however, they may be the same, such as OpenWay.	Fixed Value	GE	8	TXT Format Left Justified Trailing Spaces	Required GEMALTO

Communication Module Serial Number	Value representing the serial number printed on the communications module circuit board. For an OpenWay meter, this board may contain multiple functions, including the Register and Zigbee radios; therefore, the serial number will be the same. For a gas module, we are providing the module ID in this field even though it is not the etched serial number.	Leave as Spaces		29	TXT Format Left Justified Trailing Spaces	Optional
Communication Module Identification	Value represented on the exterior of a device to identify its unique number for the Communication Module and recognized on the network layer. For an OpenWay gas device, this is the decimal form of the later portion of the MAC. For an OpenWay electric device, this is the MAC address of the OW RFLAN.		<i>Enter CISCO meter number here</i>	20	TXT Format Left Justified Trailing Spaces CAPS	Required
Communication Module Assembly Date	Date representing when the communication module completes final assembly with base meter.	Leave as Spaces		8	Date Format, YYYYMMDD	Optional
Communication Module Firmware Version	Value representing the communication module protocol firmware (version.revision.buildnumber)	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces	Optional
Communication Module Firmware Effective Date	Date representing when the communication module Firmware is released by Engineering	Leave as Spaces		8	Date Format YYYYMMDD	Optional
Communication Module Board Version and Revision	Value that represents the communication board version and revision. If integrated with other boards, such as with OpenWay, this value may be the same as others. (version.revision.buildnumber)	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces	Optional

Communication Module Radio Channel Frequency	Value that represents the primary network channel used by the communication board	Fixed Value	2.4	10	TXT Format Explicit Decimal Left Justified Trailing Spaces	Required Multiple
Communication Module Radio Channel Unit of Measure	Value that represents the unit of measure for the primary network frequency used by the communication board	Fixed Value	GHZ	4	TXT Format Left Justified Trailing Spaces	Required MHZ
Communications Module Battery Manufactured Date	Date representing when the battery for the communications module was manufactured. This date is a reference point for how long the battery will be considered inside the useful shelf life. For SmartSynch, this does not apply.	Leave as Spaces		8	Date Format, YYYYMMDD SPACES for SmartSynch	N/A
Communications Module Battery Manufacturer	Value representing the manufacturer of the battery used in the communications module. For SmartSynch, this does not apply.	Leave as Spaces		10	TXT Left Justified Trailing Spaces SPACES for SmartSynch	N/A
Communications Module Battery Lot #	Value representing the lot number for the battery used in the communications module. For SmartSynch, this does not apply.	Leave as Spaces		12	TXT Left Justified Trailing Spaces SPACES for SmartSynch	N/A
Communications Module Battery Type	Value representing the battery type in the communications module.	Leave as Spaces		10	TXT Left Justified Trailing Spaces SPACES for SmartSynch	N/A
Communications Module Battery Size	Value representing the battery size in the communications module. For SmartSynch, this does not apply.	Leave as Spaces		10	TXT Left Justified Trailing Spaces SPACES for SmartSynch	N/A
Communications Module Battery Voltage	Value representing the battery voltage in the communications module. For SmartSynch, this does not apply.	Leave as Spaces		5	TXT Right Justified Implicit Decimal (999v99) 3 positions on the left with Leading Zeros 2 positions on the right with Trailing Zeros	N/A

Communications Module Battery Install Date	Date representing when the batter was installed in the communications module.	Leave as Spaces		8	Date Format YYYYMMDD SPACES for SmartSynch	N/A
Communications Module Battery Expiration Date	Date representing when the battery for the communications module is considered as outside its useful shelf life. For SmartSynch, this does not apply.	Leave as Spaces		8	Date Format YYYYMMDD SPACES for SmartSynch	Optional
Communications Module ESN	Value representing the Electronic Serial Number of the communications module. For an OpenWay meter, this is the ANSI-standard, C12.22 formatted value for the communications board. For OpenWay, this is not the number for the Cell Relay. For an OpenWay gas module, this is the DEC form of the full HEX MAC. For a non-AMI SmartSynch meter, this is the PIN number.	Leave as Spaces	123469.598.ADC482	32	TXT Format Left Justified Trailing Spaces SPACES for Gas Meter	Optional
Communications Module MAC Address	Value representing the network hardware address and is in hexadecimal form. For an OpenWay electric meter, this is printed on the front of the meter. For an OpenWay gas meter, this is the DEC form of the Module Serial Number (last portion of full MAC).	Leave as Spaces	123469.598.ADC482	32	TXT Format HEX format Left Justified Trailing Spaces Leading Zeros CAPS	Optional
Electric Meter HAN Module Available	Value representing whether the meter has a HAN radio available.	Leave as Spaces		1	TXT Format X Only for Electric Meters SPACES for GAS	N/A

Electric Meter HAN Module Model Number	Value representing the model number for the HAN module.	Leave as Spaces		8	TXT Format If 105 N then Blank Left Justified Trailing Spaces SPACES for GAS	N/A
Electric Meter HAN Module Manufacturer	Value representing the manufacturer of the HAN module.	Leave as Spaces		8	TXT Format If 105 N then Blank Left Justified Trailing Spaces SPACES for GAS	N/A
Electric Meter HAN Module Serial Number	Value representing the serial number for the HAN module. For OpenWay, the HAN module is integrated onto other boards; therefore, it will contain the same serial number as the other functional components - RFLAN and Register board.	Leave as Spaces		29	TXT Format If 105 N then Blank SPACES for GAS	N/A
Electric Meter HAN Module Identification	Value representing the HAN Module IEEE issued number for Zigbee Standard number from IEEE + Electric Meter identifier + Mac address (decimal)	Leave as Spaces		50	TXT Format If 105 N then Blank Left Justified Trailing Spaces SPACES for GAS	N/A
Electric Meter HAN Module Assembly Date	Date representing when the HAN module was assembled with the meter.	Leave as Spaces		8	TXT Format YYYYMMDD	N/A
Electric Meter HAN Module Firmware Version	Value representing the firmware version for the HAN module and is remotely upgradeable. (version.revision.buildnumber)	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces	N/A
Electric Meter HAN Module Firmware Effective Date	Date representing when the version of HAN module firmware became effective.	Leave as Spaces		8	TXT Format YYYYMMDD	N/A
Electric Meter HAN Module Hardware Version	Value representing the hardware version number of the HAN module.	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces	N/A
Electric Meter HAN Radio Channel / Frequency	Value representing the frequency on which the HAN module communicated.	Leave as Spaces		5	TXT Format Explicit Decimal Left Justified Trailing Spaces	N/A

Electric Meter HAN Radio Channel/ Frequency Unit of Measure	Value representing the unit of measure for the HAN module communication frequency.	Leave as Spaces		4	TXT Format Left Justified Trailing Spaces	N/A
Electric Meter with an Option Board	Value representing whether the meter has an option board.	Leave as Spaces		1	TXT Format X SPACES for Gas	N/A
Electric Meter with a Serial Interface	Value representing whether the meter has a serial interface.	Fixed Value	N	1	TXT Format X SPACES for Gas	Required
Electric Meter with I/O Card	Value representing whether the meter has an I/O card for inputting pulses.	Leave as Spaces		1	TXT Format X SPACES for Gas	N/A
Electric Meter with KYZ	Value representing whether the meter has a KYZ card	Leave as Spaces		1	TXT Format X SPACES for Gas	N/A
Communication Board Warranty Start Date	Date representing when the warranty is in effect for a meter/module/device . For an OpenWay electric and gas meter or module, SDG&E has negotiated an extended warranty. The warranty is for 90 days after the Manufactured Date of the device - see Field 64. For non-Itron products, such as third-party comm. cards, the extended warranty does not apply and is the Manufactured Date. For Itron OpenWay RFLAN comm card, the 90 day extended warranty applies.	Leave as Spaces		8	Date Format, YYYYMMDD	Optional
WAN Manufacturer	Value representing the manufacturer of the WAN technology. For OpenWay, this does not apply to meter/modules but does refer to the Cell Relay device with its integrated backhaul technology. For SmartSynch, this refers to only the backhaul technology.	Leave as Spaces		8	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	Optional

WAN ESN	Value representing the electronic serial number for the WAN device.	Leave as Spaces		32	TXT Format Left Justify Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	Optional
WAN Modem ID	Value representing the modem identifier for the WAN device. For an OpenWay Cell Relay, this is the IMEI Number from the barcode on bottom of Cell Relay. For SmartSynch meter, this is the the ICCID/integrated SIM.	Leave as Spaces		32	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and SSI	Optional
WAN Final Assembly Date	Date representing assembly of the WAN device into the meter.	Leave as Spaces		8	Date Format, YYYYMMDD SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Firmware Version	Value representing the firmware version for the WAN device. For OpenWay, this is the Cell Relay firmware and is remotely upgradeable. (version.revision.build number)	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Hardware Version	Value representing the hardware version for the WAN device. For an OpenWay Cell Relay, this is the core board version and it represented in the WAN Firmware version.	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Program ID	Value representing the profile that has been programmed into the WAN device. For an OpenWay Cell Relay, this is the part number representing the configuration document for pointing the Cell Relay to the correct environment.	Leave as Spaces		10	TXT Format Left Justified Trailing Space SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A

WAN Battery Manufactured Date	Date representing when the battery for the WAN device battery was manufactured. This date is a reference point for how long the battery will be considered inside the useful shelf life.	Leave as Spaces		8	TXT Format YYYYMMDD SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Battery Manufacturer	Value representing the manufacturer of the battery used in the WAN module.	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Battery Lot Number	Value representing the lot number for the battery used in the WAN module.	Leave as Spaces		12	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Battery Type	Value representing the battery type in the WAN module.	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Battery Size	Value representing the battery size in the WAN module.	Leave as Spaces		10	TXT Format Left Justified Trailing Spaces SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Battery Voltage	Value representing the battery voltage in the WAN module.	Leave as Spaces		8	TXT Format XXXXXXXXX Right justified Implicit Decimal (999999v99) 6 positions on the left with Leading Zeros 2 positions on the right with Trailing Zeros	N/A
WAN Battery Install Date	Date representing when the batter was installed in the WAN module.	Leave as Spaces		8	Date Format, YYYYMMDD SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A
WAN Battery Expiration Date	Date representing when the battery for the WAN module is considered as outside its useful shelf life.	Leave as Spaces		8	Date Format, YYYYMMDD SPACES for non-Cell Relays and non-C12.22 SmartSynch	N/A

WAN Battery Life	Date representing when the battery for the WAN module is considered as outside its useful shelf life.	Leave as Spaces		5	TXT Format XXXXX Months Right justified Implicit Decimal (9999v9) 4 positions on the left with Leading Zeros 1 position on the right with Trailing Zero	N/A
Manufacturer Test Date	Date when manufacturer QC tested the Meter/Device		20161104	8	Date Format YYYYMMDD	Required
Series Full Load	Value representing the percentage accuracy for meter at full load.		00010001	8	TXT Format Right justified Implicit Decimal (999999v99) 6 positions on the left with Leading Zeros 2 positions on the right with Trailing Zeros ZERO if no value (default)	Required
Series Light Load	Value representing the percentage accuracy for meter at light load		00010005	8	TXT Format Right justified Implicit Decimal (999999v99) 6 positions on the left with Leading Zeros 2 positions on the right with Trailing Zeros ZERO if no value (default)	Required
Series Power Factor	Value representing the percentage accuracy for meter power factor		00009999	8	TXT Format Implicit Decimal (999999v99) Right Justified 6 positions on the left with Leading Zeros 2 positions on the right with Trailing Zeros ZERO if no value (default)	Required
Manufacturer QC Tester Initials	Value representing the person who performed QC test	Fixed Value	GE	2	TXT Format XX Left Justified Trailing Spaces	Required

Manufacturer QC Test Read	Value representing the manufacturer QC test read	Fixed Value	00000000	8	TXT Format XXXXXXXX Right Justified Leading Zeros	Optional
Charging Station Manufacturer	CD_CHG_STA_MFG - 2 Character Code to identify Charging Station Manufacturer - SDGE to provide codes for manufacturers	Leave as Spaces		2	TXT Format XX Left Justified Trailing Spaces	N/A
Charging Station Model	CD_CHG_STA_MOD EL - This identifies the Charging Station Model	Leave as Spaces		12	TXT Format Left Justified Trailing Spaces	N/A
Charging Station Serial Number	Charging Station Serial number is the serial number of the Charging Station - if the meter components are not serialized, the meter serial number and the charging serial number would be the same	Leave as Spaces		18	TXT Format Left Justified Trailing Spaces	N/A
Related Meter Number	ID_MTR_RELATED - Identifies the "other" meter that is installed in a charging station (we would receive two rows for these charging stations one for each meter in the charging station)	Leave as Spaces		8	TXT Format XXXXXXXX Right Justified Leading Zeros	N/A
Number of Charging Ports	Total number of charging ports in a single EVSE	Leave as Spaces		2	TXT Format XX Right Justified Leading Zeros Zero if no value (default)	N/A
Number of Embedded Meters	Total number of meters embedded in a single EVSE	Leave as Spaces		2	TXT Format XX Right Justified Leading Zeros Zero if no value (default)	N/A
Third-Party Meter Number	Third-Party Meter Number associated to the CISCO Meter Number		<GE Meter Number>	60	TXT Format Left justified Trailing Spaces	Required

The ASN file must also have a valid file trailer record. The expected format and the required fields for the trailer are shown, along with suggested values and a description of each record:

File Trailer Record						
Data Element	Element Definition			Length	Format	
Record Type Indicator	Constant prefix for the record to identify the type	Fixed Value	\$\$TRAILER	9	TXT Format Left Justified Trailing Spaces	Required
File Type	Constant value to indicate the file is an ASN	Fixed Value	ASN	3	TXT Format Left Justified Trailing Spaces	Required
File Record Count	Sum of (Header + Total Type1 + Total Type2 + Trailer)		00000066	9	TXT Format XXXXXXXXXX Right Justified Leading Zeros	Required
File Type 2 Count	Count of Type 2 (Meter Count) on the file – control information		0000000000000062	17	TXT Format XXXXXXXXXX XXXXXXX Right Justified Leading Zeros	Required

7.3 Inventory Management file: Format and Fields

SDG&E requires inventory management information from each customer to bill them on the metered rates associated with the ASL program.

This inventory information for any lights or devices to be added to metered billing on the program must be received in an Inventory Management (IM) file from each customer, to initiate each of the inventory management processes.

The IM file must have a valid header record, with the following fields required to process the file:

Field Name	Values/Examples	Comments
Header Descriptor	\$\$HEADER	
Filler	One blank SPACE	To separate the fields in the Header, for better readability.
Data Source (Entity ID)	123456789	10-digit number, which must match Entity-ID value in each individual data record
Filler	One blank SPACE	To separate the fields in the Header, for better readability.
Process Type	CON/ADD/REM/UPD	Depends on process type; must match each process type value in each individual record
Filler	One blank SPACE	To separate the fields in the Header, for better readability.
Date	MM/DD/YYYY	Date and time must be separated by a space
Filler	One blank SPACE	To separate the fields in the Header, for better readability.
Time Stamp	HH:MM:SS	Current, system-generated time in Pacific Daylight Time
Filler	One blank SPACE	To separate the fields in the Header, for better readability.
Number of records in file	Five-digits with leading zeroes	Must be greater than zero

Following the file header record, the IM file must have records for each inventory street light or device that needs to be added, converted, removed or updated for the ASL program. Some fields are mandatory for all inventory processes, while some are only required for certain processes. However, all fields must be present for effective processing of the file. If the data is not required for a certain process, the fields can be zeros or blank spaces:

Field Name	Description	Format	Requirement
Entity ID	SDG&E to communicate to customer in the inventory file sent after participation payment	PIC 9(10)	Mandatory
Inventory Indicator	3-letter code that defines process type. Must match with header.	PIC X(3)	Mandatory
Device Indicator	Defines whether record is a light or a device	PIC X(2)	Mandatory
Group Bill Account Number	SDG&E communicates to customer via inventory report (sent after participation payment)	PIC 9(10)	Mandatory
Third Party Meter Number	Unique identifier across all Meters	PIC X(48)	Conditional
Old Third Party Meter Number	Unique identifier across all Meters	PIC X(48)	Conditional
Account Number	Metered Account number that is established for ASL.	PIC 9(10)	Conditional
GIS Coordinates (LATITUDE)	Optional field, but data must be sent (with zeros or actuals)	PIC X(18)	Conditional
GIS Coordinates (LONGITUDE)	Optional field, but data must be sent (with zeros or actuals)	PIC X(18)	Conditional
Street Light Number	SDG&E communicates to customer via inventory report (sent after participation payment)	PIC 9(9)	Conditional

Effective Date	Cannot be future dated, must be within 10 days of time file is sent	MM/DD/YYYY	Mandatory
Descriptive Address	Descriptive address of the light/device. SDG&E communicates to customer via inventory report (sent after participation payment)	PIC X(54)	Mandatory
City	2-digit code for city that SL/AD is in	PIC X(2)	Conditional
State	2-digit code for state that SL/AD is in	PIC X(2)	Conditional
Zipcode	5-digit zip code for the SL/AD	PIC 9(5)	Conditional
Towncode	SDG&E communicates to customer via inventory report (sent after participation payment)	PIC X(2)	Conditional
Light Type	Type of Bulb/Lighting	PIC X(2)	Conditional
Light Size	Size of the Light	DEC (6, 2)	Conditional

Since each process type has some information that is not required, the following table lists sample data for the fields associated with each process type. The data fields must be present for effective processing of the file, and must be provided as either zeroes or blank spaces (depending on the suggested value) if the field is listed as conditional.

For Conversion and Add scenarios:

Field Name	CON - Sample Data	ADD - Sample Data
Entity ID	0000012345	0000012345
Inventory Indicator	CON	ADD
Device Indicator	SL	AD
Group Bill Account Number	0123456789	0123456789
Third Party Meter Number	"ThirdPartyMeterNumber"	"ThirdPartyMeterNumber"
Old Third Party Meter Number	(48 spaces)	(48 spaces)
Account Number	000000000	0011223344
GIS Coordinates (LATITUDE)	-117.2175597	-117.2175597
GIS Coordinates (LONGITUDE)	32.74360062	32.74360062
Street Light Number	000111234	000000000
Effective Date	08/01/2018	08/01/2018
Descriptive Address	1234 MAIN ST CLOSE TO INTERSECTION WITH EDISON AVENUE.	1234 MAIN ST CLOSE TO INTERSECTION WITH EDISON AVENUE.
City	SD	SD
State	CA	CA
Zipcode	92126	92126
Towncode	01	01
Light Type	LE	(2 spaces)
Light Size	025750 (For 257.50 Watts)	(6 zeroes)

For Update and Remove scenarios:

Field Name	UPD - Sample Data	REM - Sample Data
Entity ID	0000012345	0000012345
Inventory Indicator	UPD	REM
Device Indicator	SL	SL
Group Bill Account Number	0123456789	0123456789
Third Party Meter Number	"ThirdPartyMeterNumber"	(48 spaces)
Old Third Party Meter Number	"ThirdPartyMeterNumber"	"ThirdPartyMeterNumber"
Account Number	0011223344	0011223344
GIS Coordinates (LATITUDE)	(18 spaces)	(18 spaces)
GIS Coordinates (LONGITUDE)	(18 spaces)	(18 spaces)
Street Light Number	000111234	000111234
Effective Date	08/01/2018	08/01/2018
Descriptive Address	(54 spaces)	(54 spaces)
City	(2 spaces)	(2 spaces)
State	(2 spaces)	(2 spaces)
Zipcode	00000	00000
Towncode	(2 spaces)	(2 spaces)
Light Type	LE	(2 spaces) for devices LE/IN for lights
Light Size	003750 (For 37.5 Watts)	025750 for lights (6 zeroes) for devices

7.4 Consumption Data file: Format and Fields

SDG&E requires consumption data for all metered devices or lights that are on the ASL program, at least once a day. If data is erroneous, missing, or in an invalid format, SDG&E will estimate consumption based on the details in the Schedule associated with the ASL program. To avoid this, interested customers and their associated meter vendors must follow the format described.

Each consumption data file must have a valid header as the first record, have no more than one header and have the following format and fields:

Field Name	Description	Type	Max Length	Sample Values	Requirement
HEADER RECORD					
1 Header Record / file. Must be first record in file. End with newline.					
Title	Header Title to specify it's a header record	String	5	Value : "HDRV1"	Conditional
ProcessDate	UTC DateTime stamp of when the following Consumption Data was sent.	ISO-8601 (yyyy-MM-DD-HH:mm:ss+"Z")		2017-12-17-00:00:00Z	Conditional
CustomerID	Customer ID for customer	String	10		Mandatory
WindowDuration	Length in seconds of the time period that the data records provided span.	Int64		86400 (24 hours, 1 day)	Conditional
WindowEndUTC	UTC DateTime stamp for the end of the measurement period (final measurement's DateTimeStamp)	ISO-8601 (yyyy-MM-DD-HH:mm:ss+"Z")		2017-12-16-23:59:59Z	Conditional

Following the header record, the consumption data file must have a valid data record in the expected format. The following fields must be present for every consumption data record sent to SDG&E, and in the specified format:

Field Name	Description	Type	Max Length	Sample Values	Requirement
CONSUMPTION DATA RECORD					
0 to many Data Record(s) / file. Each record must end with newline.					
EndpointID	Network ID or IPV6 number	String	50	AB01:BC12:CD23:DE34: 01AB:23CD:45EF:6789	Mandatory
Duration	Duration of the Read in seconds. (Will be 900 for 15 min Intervals)	Int64		900	Mandatory
ReadIntervalEndUTC	Interval Read End Time in UTC	ISO-8601 (yyyy-MM-DD-HH:mm:ss+"Z")		2017-12-16-00:15:00Z	Mandatory
UOM	Unit of Measurement	String		WH	Mandatory
RegisterReadValue	Reading of the Meter at the end of the interval mentioned above	Decimal		123345	Mandatory
IntervalValue		Decimal		15.3	Conditional
Version	New/Correction	Char	1	N	Conditional
Quality	Register Actual/Estimated Read level (See EDI 867)	String	2	1	Conditional
ChannelNum		Int32		1	Conditional
Direction		String		D	Conditional

The last record in any consumption data file must be a valid trailer record, and comply with the following format and fields:

Field Name	Description	Type	Max Length	Sample Values	Requirement
TRAILER RECORD		1 Trailer Record/file. Must be last record in file. Record must end with newline.			
Title	A Trailer Record with only one field. Purpose is to specify the end of the file so that Receiver can confirm that no data was lost in transmission or at source	String	7	Value : "TRLR"	Mandatory