AMI Use Case:

C4 - External clients use the AMI to interact with devices at customer site

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Revision Number	Revision Date	Revision / Reviewed By	Summary of Changes	Changes marked
1	060203	JGoacher	Inserted use case information into template.	N
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Approvals

This document requires following approvals.

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1. Use Case Description

External clients use the AMI to interact with devices at customer site

1.1 Use Case Summary

The Advanced Meter Infrastructure (AMI) will enable third parties, such as energy management companies, to use the communication infrastructure as a gateway to monitor and control customer equipment located at the customer's premise. The AMI will be required to enable on-demand requests and support a secure environment for the transmission of customer confidential information.

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1.2 Use Case Detailed Narrative

A third party vendor wants to identify what customer equipment (e.g. air conditioning, pool pumps, compressors, etc) is running and how much power each piece of equipment is drawing during a particular time of day. The vendor may also want to control or program specific equipment (e.g. turn on/off, adjust thermostat). The third party vendor makes an on-demand status and/or control request of the customer equipment. The monitoring or status request is received by the CCS, the requestor and destination is authenticated and then the request is transmitted to the specific customer site. The customer equipment receives the request and provides a response back to the CCS and the CCS transmits the information back to the third party. If the on-demand request is a control request, the customer equipment will adjust operations as requested and provide an acknowledgement of receipt and processing through the CCS back to the third party.

The third-party monitoring and control capabilities described in this use case may provide customers with increased options for programs and services that might not normally be provided by the utility and also may offset some of the AMI costs. These proposed services will enable customers to more easily participate in utility and non-utility demand reduction programs, by allowing third parties to help them monitor and control their equipment.

1.3 Business Rules and Assumptions

Assumptions:

- Meters will be read remotely once per day, (at minimum) (i.e. for this use case – to ensure collection of third party messaging logs)
- Meters will have 2-way communication abilities

- Customer devices to be enrolled in third party monitoring and control programs will meet utility communication standards
- The focus of this use case is on energy related devices and corresponding energy information
- The customer must grant permission for the utility or parties to monitor their onsite devices
- Home Area Network (HAN) attached devices are not part of the CCS

2. Actors

Actor Name	Actor Type (person, device, system etc.)	Actor Description
AMI Meter	Device	A device that measures and registers the amount of commodity consumed at a location.
Third Party	Person	A vendor outside SCE, that may or may not be hired by the customer, which needs to monitor customer equipment status and power consumption.
Customer Device(s)	Device	An electric appliance or machinery that has a monitoring device that monitors equipment status and power consumption of equipment.
Customer	Person	Residential or small business customers that receive electrical service from SCE.
Service Point Gateway (SPG)	Device	Communications hub responsible for brokering third party messaging in between the CCS and a customer's HAN. NOTE: This is a logical rather than physical actor. While it is possible that the Service Point Gateway resides in the AMI meter, it may also reside elsewhere, for instance in a pole-top device.
Home Area Network (HAN)	System	Customer owned and operated network which carries third part y messaging (among other messages) between the customer's HAN-attached devices and the utility's Service Point Gateway
AMI	System	AMI back office and communications system responsible for (among other things) transporting third party messaging from the third parties themselves to a customer's Service Point Gateway.
Meter Data Management System (MDMS)	System	System that stores meter data (e.g. usage, generation, meter logs, meter test results) and makes data available to authorized systems. This system is a component of the CCS
Customer Communication System	System	System that enables remote two-way communications with AMI meters and customer devices. This system will also enable the ability for third

Actor Name	Actor Type (person, device, system etc.)	Actor Description
(CCS)		parties to communicate with customer equipment for monitoring and control.
Website	System	A utility provided internet site where the customer can view their energy and cost information online, enroll in prepayment electric services and enable third party monitoring and control of customer equipment.

3. Step by Step analysis of each Scenario

3.1 Primary Scenario 1 - Energy management company monitors customer equipment - on-demand

This scenario describes the simplest use case, in which the third-party energy management company gathers energy consumption data from customer premises equipment using the AMI.

Triggering Event	Primary Actor	Pre-Condition	Post-Condition
(Identify the name of the event that start the scenario)	*(Identify the actor whose point-of-view is primarily used to describe the steps)*	*(Identify any pre-conditions or actor states necessary for the scenario to start)*	*(Identify the post-conditions or significant results required to consider the scenario complete)*
Third party makes an on-demand request for energy consumption data from the customer's equipment using the CCS.	CCS	The customer has provided the utility permission for the third party to access equipment at their site according to scenario 3.	CCS will have processed the third party request and return requested energy information to the third party

3.1.1 Steps for this scenario

Step #	Actor	Description of the Step	Additional Notes
#	*What actor, either primary or secondary is responsible for the activity in this step?*	*Describe the actions that take place in this step. The step should be described in active, present tense.*	*Elaborate on any additional description or value of the step to help support the descriptions. Short notes on architecture challenges, etc. may also be noted in this column..*
1	Third Party	Energy management company issues a request to gather information from customer equipment.	

Step #	Actor	Description of the Step	Additional Notes
2	CCS	CCS authenticates source third party.	
3	CCS	CCS authorizes source third party.	
4	CCS	CCS logs the request and authorization status.	
5	CCS	CCS passes request to the service point gateway.	
6	SPG	Service point gateway sends acknowledgment to CCS that request was received and CCS logs the receipt.	
7	SPG	Service point gateway passes the message to the HAN, logs the transaction and sends a receipt to the CCS (if possible)	
8	HAN	HAN passes message to Local device (HAN and Local device are not part of the CCS).	
9	Customer Device	Customer device sends return message through the HAN to the service point gateway.	
10	SPG	Service point gateway receives the message, logs the transaction and sends a receipt to the CCS.	
11	SPG	Service point gateway passes requested data to the CCS.	
12	CCS	CCS authenticates target third party .	
13	CCS	CCS authorizes target third party.	
14	CCS	CCS logs the authorization status.	
15	CCS	CCS receives the message and logs the receipt.	
16	CCS	CCS sends the energy related data to the energy management company.	
17	CCS	CCS logs that the message was sent.	

3.2 Primary Scenario 2 - Third party wants to control (on/off/limit/program) customer equipment

This scenario describes the case in which the third party attempts to control the equipment at the customer site. The control request may be to turn equipment on or off, to limit the energy demand from the customer, or to reprogram the customer equipment, among other possibilities.

Triggering Event	Primary Actor	Pre-Condition	Post-Condition
(Identify the name of the event that start the scenario)	*(Identify the actor whose point-of-view is primarily used to describe the steps)*	*(Identify any pre-conditions or actor states necessary for the scenario to start)*	*(Identify the post-conditions or significant results required to consider the scenario complete)*
Third party makes an on-demand request to control the customer's equipment using the CCS.	CCS	The customer has provided the utility permission for the third party to access equipment at their site according to scenario 3.	CCS will have processed the third party control request and provided confirmation to the third party

3.2.1 Steps for this scenario

Step #	Actor	Description of the Step	Additional Notes
#	*What actor, either primary or secondary is responsible for the activity in this step?*	*Describe the actions that take place in this step. The step should be described in active, present tense.*	*Elaborate on any additional description or value of the step to help support the descriptions. Short notes on architecture challenges, etc. may also be noted in this column..*
1	Third Party	Third Party makes an on-demand status request of monitored equipment to determine what equipment is operating during a peak energy period.	Refer to primary scenario 1 - Energy Management Company Monitors Customer Equipment.
2	Third Party	Third Party decides to control customer equipment.	

Step #	Actor	Description of the Step	Additional Notes
3	Third Party	Third Party sends message to the utility to control specific customer equipment	
4	CCS	CCS receives, authenticates and authorizes source third party.	
5	CCS	CCS logs the request and authorization status.	
6	CCS	CCS passes the control command to the service point gateway	
7	SPG	Service point gateway passes the control command to the HAN, logs the transaction, and sends a receipt to the CCS	
8	HAN	HAN passes the control command to local devices (HAN and customer device are not part of the CCS)	
9	Customer Device	Customer device receives the control command to turn on, turn off, limit power, or modify program from the HAN	
10	HAN	Customer device sends confirmation of executed control command through the HAN to the service point gateway	
11	SPG	Service point gateway receives the control command confirmation message, logs the transaction and sends a receipt to the CCS.	
12	SPG	Service point gateway passes the confirmation message to the CCS.	
13	CCS	CCS authenticates target third party.	
14	CCS	CCS authorizes target third party.	

Step #	Actor	Description of the Step	Additional Notes
15	CCS	CCS logs the authorization status	
16	CCS	CCS receives the confirmation message and log the receipt.	
17	CCS	CCS sends the confirmation message to the third party.	
18	CCS	CCS logs that the control confirmation message was sent.	

3.3 Primary Scenario 3 - Customer requests third party access to customer's location be enabled/disabled/modified and configured (program provisioning)

In this scenario, the customer changes the access of the third party to equipment at the customer's site. This may occur because the customer has just initiated or discontinued the contract with the third party or has changed the terms of the contract. Refer also to the use case "I3: Utility upgrades AMI to address future requirements", in the scenario "AMI registers customer owned devices for communication on the HAN"

Triggering Event	Primary Actor	Pre-Condition	Post-Condition
(Identify the name of the event that start the scenario)	*(Identify the actor whose point-of-view is primarily used to describe the steps)*	*(Identify any pre-conditions or actor states necessary for the scenario to start)*	*(Identify the post-conditions or significant results required to consider the scenario complete)*
The customer wants to authorize a third party to have access to their in home equipment. With the customer's permission provisioning is needed.	CCS	The customer has provided the utility permission for the third party to access equipment at their site	CCS will have provisioned the AMI meter to enable third party messaging.

3.3.1 Steps for this scenario

Step #	***Actor***	***Description of the Step***	***Additional Notes***
#	*What actor, either primary or secondary is responsible for the activity in this step?*	*Describe the actions that take place in this step. The step should be described in active, present tense.*	*Elaborate on any additional description or value of the step to help support the descriptions. Short notes on architecture challenges, etc. may also be noted in this column..*
1	Customer	Customer/third party contacts utility or logs onto a utility website to enable/disable/modify third party access to devices/appliances on HAN via the AMI service point gateway.	
2	Customer Representative/Website	The Customer Representative accesses the customer's account and confirms the customer's identity and validates third party program participation (e.g. third party contract signed by the customer and customer devices are compatible with AMI).	
3	Customer Representative/Website	For each third party, a service level must be specified within the CCS (e.g. configurable service level for bandwidth - number/frequency of third party messaging).	
4	Customer	The customer must provide the unique serial number(s) for the device(s) for which they want to enable/disable or modify third party access	
5	Customer Representative/Website	The Customer Representative issues command requesting that third party access to customer's HAN be enabled/disabled/modified with customer specific configurations.	
6	CCS	CCS transmits command to customer's service point gateway to enable/disable/modify third party access to customer's HAN.	

Step #	Actor	Description of the Step	Additional Notes
7	SPG	The service point gateway will receive and log the command, enable/disable/modify and configure third party access to customer's HAN, and send a receipt of the successful transaction to the CCS.	
8	CCS	The CCS will receive and log the receipt from the service point gateway and make the information available to other utility systems (e.g. MDMS, CSS)	

3.4 Alternate Scenario 1 - Third party or customer reports third party monitoring or control failures

In this scenario, a communications or equipment problem has occurred and either the third party or the customer reports that the Third Party cannot access the equipment at a customer's site. This scenario highlights the requirement that the CCS be able to remotely test the communications path to the customer equipment.

Triggering Event	Primary Actor	Pre-Condition	Post-Condition
(Identify the name of the event that start the scenario)	*(Identify the actor whose point-of-view is primarily used to describe the steps)*	*(Identify any pre-conditions or actor states necessary for the scenario to start)*	*(Identify the post-conditions or significant results required to consider the scenario complete)*
Third party or customer is reporting to the utility that they or their authorized third party does not have monitoring or control abilities of the customer's in home predefined equipment.	CCS	The customer has provided the utility permission for the third party to access equipment at their site according to scenario 3.	CCS will have tested third party messaging and receive results.

3.4.1 Steps for this scenario

Step #	***Actor***	***Description of the Step***	***Additional Notes***
#	*What actor, either primary or secondary is responsible for the activity in this step?*	*Describe the actions that take place in this step. The step should be described in active, present tense.*	*Elaborate on any additional description or value of the step to help support the descriptions. Short notes on architecture challenges, etc. may also be noted in this column..*
1	Third Party	Third party or customer contacts utility to report problem with third party monitoring and/or control.	
2	Customer Representative/Website	The Customer Representative accesses the customer's account and confirms that: • Third party access to the customer's service point gateway is enabled • The third party in question has been authorized for access • Third party service level is configured appropriately	
3	Customer Representative/Website	The Customer Representative issues a command requesting a remote test of service point gateway communications.	
4	CCS	CCS transmits test command to customer's service point gateway.	
5	SPG	The service point gateway receives and logs the command, completes the remote test, and sends test results back to the CCS.	

Step #	Actor	Description of the Step	Additional Notes
6	CCS	The CCS receives results from the SPG. • If test indicates service point gateway failure, trouble order is issued. • If test indicates service point gateway OK, customer is advised of successful utility-side test and is directed to work with third party or HAN supplier to resolve the problem	At this point the scenario may continue as described in use case "I2: Utility Manages End-to-End Lifecycle of the Meter System"

3.5 Alternate Scenario 2 - Utility detects third party communication/messaging failure

This scenario differs from the previous scenario in that it is the utility who detects the problem with the communications path between the third party and the customer device.

Triggering Event	Primary Actor	Pre-Condition	Post-Condition
(Identify the name of the event that start the scenario)	*(Identify the actor whose point-of-view is primarily used to describe the steps)*	*(Identify any pre-conditions or actor states necessary for the scenario to start)*	*(Identify the post-conditions or significant results required to consider the scenario complete)*
Utility determines communication and or messaging availability between the third party and customer has failed	CCS	The customer has provided the utility permission for the third party to access equipment at their site	The CCS will have identified a communication problem and alerted required utility systems

3.5.1 Steps for this scenario

Step #	***Actor***	***Description of the Step***	***Additional Notes***
#	*What actor, either primary or secondary is responsible for the activity in this step?*	*Describe the actions that take place in this step. The step should be described in active, present tense.*	*Elaborate on any additional description or value of the step to help support the descriptions. Short notes on architecture challenges, etc. may also be noted in this column..*
1	CCS	The CCS detects a failure to transmit a third party message to the service point gateway	
2	CCS	The CCS issues a communication test to the service point gateway	
3	SPG	If the service point gateway receives the test request, it logs and processes the request then sends results to the CCS	
4	CCS	The CCS receives the results and sends the information to the MDMS	
5	MDMS	The MDMS will receive the test information and make it available to other utility systems (e.g. CSS or third party program system)	
6	CCS	If the service point gateway fails to return test results to the CCS (e.g. failure to communicate), the CCS alerts the required utility systems in addition to sending the information to the MDMS	

4. Requirements

4.1 Functional Requirements

Functional Requirements	Associated Scenario # (if applicable)	Associated Step # (if applicable)
The CCS shall have the ability to route third party messages to and from the service point gateway and external third parties for the purpose of monitoring customer devices connected to a Home Area Network (HAN).	1 1	5 11
The CCS shall have a service point gateway that has the ability to route messages to and from customer's Home Area Network for the purpose of monitoring customer devices.	1 1	7 9
Communication between customer devices and third party shall be secure based on configurable CCS authentication capabilities to protect against Spoofing, Man in the Middle, replay attacks, etc.	1 2	2 4
The number/frequency of third party messages to customer devices shall be limited to utility configured levels. If the third party exceeds the configured number of messages allowed, the third party message shall be rejected and a warning message advising the limit has been exceed and containing the message ID, designation ID and date/time received will be sent to the third party.	1 2	2 3
The utility shall be able to prioritize between third party messages and utility messages using the CCS at configurable levels.	1 2	1 3
CCS shall authenticate and authorize third parties to communicate with specific service point gateways.	1 2	3 4
The service point gateway shall be configurable to communicate with zero, one, or many third parties.	1 2	14 15
CCS will validate third party messaging format and reject malformed messages.	1 2	3 4

Functional Requirements	***Associated Scenario # (if applicable)***	***Associated Step # (if applicable)***
The CCS shall log receipt of all third party messages received with the message ID, destination ID and date/time received (including those from the customer devices) and shall log all transmissions sent back to the third party.	1 1 1 1 1 2 2 2 2 2	4 7 10 15 17 5 7 11 16 18
The service point gateway shall log events (e.g. messages receipts, authentication failures, etc.) and the log will be collected by the utility on a daily basis.	1 1 2 2	7 10 7 11
Service point gateway log events shall have the ability to be configured to be sent to utility in real time upon being recorded (e.g. Repeated authentication failures to the service point gateway, additions/removal of devices from home area network, etc).	1 1 1 2 2	6 7 10 7 11
The CCS shall have the ability to retrieve service point gateway logs on demand.	1 1 2 2	7 10 7 11

Functional Requirements	***Associated Scenario # (if applicable)***	***Associated Step # (if applicable)***
Pulse output or other output capabilities from existing meters (demand and IDR meters, utility/customer-owned) will be supported by the new AMI meters, for customer convenience (e.g. energy management systems, other customer devices).	1	0
The CCS shall provide standardized, configurable message/command formats to enable third parties to communicate with customer devices.	1 1 2 2	1 16 3 17
The CCS shall have the ability to route third party messages to and from the service point gateway and external third parties for the purpose of controlling/ programming customer devices connected to a Home Area Network (HAN)	2 2	3 17
The CCS shall have a service point gateway that has the ability to route messages to and from customer's HAN for the purpose of controlling/programming customer devices.	2 2	6 12
The CCS communication transaction logs shall be accessible to other authorized systems. (e.g. Customer Service System)	1 1 1 1 1 1 1 2 2 2 2 2 2	4 6 7 10 14 15 17 5 7 11 15 16 18

Functional Requirements	***Associated Scenario #*** ***(if applicable)***	***Associated Step #*** ***(if applicable)***
The CCS transaction logs shall be able to receive and store the following information, at a minimum: INBOUND: a. Third party source ID b. Customer destination device ID c. Date and Time of third party transaction received d. Date and time pushed to the service point gateway e. Date and time received at service point gateway and pushed to HAN OUTBOUND: a. Customer source device ID b. Third party destination ID c. Date and Time received at service point gateway d. Date and Time pushed to CCS. e. Data and Time received by CCS and pushed to third party.	1 1 1 1 1 1 1 2 2 2 2 2 2	4 6 7 10 14 15 17 5 7 11 15 16 18
The CCS shall allow for third party messages for monitoring or control to be able to be prioritized by the third party	1 2	1 3
The CCS shall notify the third party when the third party message is undeliverable to the customer's service point gateway. (*Related to C405, Scenario 1).* Possible failure reasons include: a. Exceeded limit of messages b. System congestion	1 2	1 3
The CCS shall have the ability to remotely provision the service point gateway to accept third party messages from approved, contractual, third parties.	3	6

Functional Requirements	***Associated Scenario #*** ***(if applicable)***	***Associated Step #*** ***(if applicable)***
The CCS shall have the ability to remotely provision the service point gateway to accept third party messages from specific, contractual, HAN devices. (i.e. for security purposes)	3	6
All third party communications on the AMI network must be authorized and authenticated. This includes messages being transported on: a. WAN – Wide area network b. HAN – Home area network c. NAN – Neighborhood area network	1 1 1 1 2 2 2 3	2 3 12 13 4 13 14 1
The CCS shall log unauthorized third party message attempts (inbound or outbound) to/from customer HAN.	1 1 2 2 3	4 14 5 15 1
The service point gateway shall log unauthorized third party message attempts (inbound or outbound) to/from customer HAN (HAN, WAN, etc.).	1 1 2 2 3	6 10 7 11 7
The service point gateway shall communicate unauthorized third party message attempts to the CCS at a configurable frequency level.	1 1 2 2	6 10 7 11

Functional Requirements	***Associated Scenario #*** ***(if applicable)***	***Associated Step #*** ***(if applicable)***
	3 5	7 1
The CCS shall generate an alarm message when unauthorized third party messaging attempts exceed the rate of 10 per hour.	1 1 2 2 3 5	6 10 7 11 8 1
The service point gateway shall generate an alarm message (sent to the CCS) when unauthorized HAN to third party messaging attempts exceed the rate of 10 per hour.	1 2	0 0
The CCS shall ensure that utility communication access to the service point gateway shall be able to take priority over third party communication access. (e.g. during an outage)	3	3
The CCS shall have the ability to notify third parties when third party messages are undeliverable. (E.g. power outage, system failure, etc.)	3 5	3 2
The CCS shall send and receive third party messages with a response time that is configurable based on contract tier levels agreed to by SCE, customers, and third parties.	3	3
The CCS shall allow for multiple third party messaging contract tier levels to govern the number of messages third parties can send and receive. (*Assumption – 3 tiers - need more definition – John Bubb)*	3	3
The CCS shall have the ability to remotely test communications between the service point gateway and CCS and log test results.	4 5	4 3
The CCS shall have the ability to remotely test communications between the service point gateway and devices attached through the customers HAN and log results.	4	4

Functional Requirements	***Associated Scenario # (if applicable)***	***Associated Step # (if applicable)***
The CCS shall have the ability to remotely test communications between the CCS and third party systems and log results.	4	4
The CCS shall have the ability to remotely reboot/reset the service point gateway - HAN communications remotely.	4	4
The CCS shall have the ability to retrieve the service point gateway communications log through a regularly scheduled or on demand process	4	5
If the third party exceeds the configured number of messages allowed, the third party message shall be rejected and a warning message advising the limit has been exceed and containing the message ID, original designation ID and date/time received will be sent to the third party.	1 2	0 0
The MDMS shall receive meter test results and make the information available to other utility systems (e.g. CSS)	5	6
The CCS shall alert required utility systems (configurable), when a meter test fails	5	6
All third party messages/transaction requests sent to/received from third parties and messages sent to/received from the service point gateways (processed and logged) by the CCS shall be available to other utility systems (e.g. MDMS, CSS)	1 1 1 2 2 2 2 2 2 2 3 3 4	4 14 17 4 5 13 14 15 17 18 6 8 6

Functional Requirements	Associated Scenario # (if applicable)	Associated Step # (if applicable)
	5 5	4 6
The CCS shall require unique customer equipment IDs to enable remote communications between third parties and customer equipment	3 3 3 3	4 5 6 7
The CCS shall have the ability to intermittently test remote communications between the CCS, service point gateway and customer equipment (health checks) and between the CCS and third parties and make the information available to other utility systems (e.g. MDMS, CSS, third party program management)	5 5	1 6

4.2 Non-functional Requirements

Non-Functional Requirements	Associated Scenario # (if applicable)	Associated Step # (if applicable)
Third party messaging to a given service point shall be limited to 24 transactions per hour, not to exceed 576 in one day. These transactions forecasts assume 2 transactions per third party request (e.g. a monitoring message will use 2 transactions (one to the SPG and one containing results from the SPG). Base line has been established assuming interval length down to 5 minute intervals.	1 2	3 4
Third party messaging capability shall be available 24 hours per day 7 days a week with an allowance for down time for maintenance	1 2 2	1 1 3
Once received, the CCS shall deliver inbound messages to the service point gateway and outbound messages back to the third party in 60 seconds or less, subject to message	1 2	1 3

Non-Functional Requirements	Associated Scenario # (if applicable)	Associated Step # (if applicable)
prioritization (see requirement C407).		
Once received, the service point gateway shall deliver inbound messages to the HAN and outbound messages back to the third party in 60 seconds or less, subject to message prioritization (see requirement C407).	1 2	5 6
The CCS shall be able to remotely test communications at the service point gateway and HAN and receive results within 60 seconds.	4	4
The CCS shall be able to remotely retrieve the service point gateway communications log within 60 seconds of it being requested	4	5
If the CCS cannot deliver a third party message according to the system configuration, a warning message will be sent to the third party within 15 minutes.	4	0

4.3 Business Requirements

Business Requirement	Associated Scenario # (if applicable)	Associated Step # (if applicable)
The customer shall sign an approved contract to enable third party access to the customer's site.	3	2
The customer's third party communication contracts shall terminate when customers turn off service. Third party communication attempts shall be rejected.	3	1
Utility messages shall have the ability to be prioritized over third party messages dependent on their urgency.	1 2	1 3

5. Use Case Models (optional)

This section is used by the architecture team to detail information exchange, actor interactions and sequence diagrams

5.1 Information Exchange

For each scenario detail the information exchanged in each step

Scenario #	Step #, Step Name	Information Producer	Information Receiver	Name of information exchanged
#	Name of the step for this scenario.	What actors are primarily responsible for Producing the information?	What actors are primarily responsible for Receiving the information?	Describe the information being exchanged
Primary 1		Third party	CCS	Information from customer equipment request • Customer Name • Customer Device ID
1		Third party	CCS	Authentication request
1		CCS	Third party	Authentication confirmation, Authorization confirmation
1		CCS	Service point gateway	Information from customer equipment request
1		Service point gateway	CCS	Receipt confirmation for information from customer equipment request
1		Service point gateway	Customer device	Information from customer equipment request
1		Customer Device	Service point gateway	Customer data
1	.	Service point gateway	CCS	Receipt confirmation that customer data has been received from HAN
1	.	Service point gateway	CCS	Customer data
1		Third party	CCS	Authentication request
1		CCS	Third party	Authentication confirmation Authorization confirmation
1		CCS	Third party	Customer data

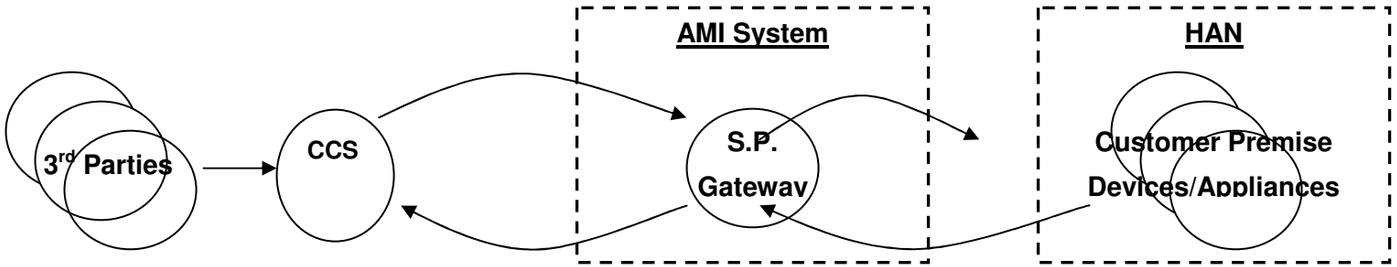
Scenario #	Step #, Step Name	Information Producer	Information Receiver	Name of information exchanged
2		Third party	CCS	Control command to specific equipment e.g. On, off, change setting, update equipment schedule
2		Third party	CCS	Authentication and Authorization Request
2		CCS	Third party	Authentication and Authorization Confirmation
2		CCS	Service point gateway	Control command
2		Service point gateway	CCS	Receipt confirmation of control command at Service point gateway
2		Service point gateway	Customer device	Control command
2		Customer device	Service point gateway	Receipt confirmation of control command and execution at HAN
2		Service point gateway	CCS	Receipt confirmation of control command and execution at Service point gateway
2		CCS	Third party	Receipt confirmation of control command and execution at CCS
3		Third party Customer	Customer Representative	Request to enable/disable/modify third party access to devices/appliances • Name of third party • Customer Name or Account Number • Customer Device Type • Customer Device ID

Scenario #	Step #, Step Name	Information Producer	Information Receiver	Name of information exchanged
3		Customer Representative	CCS	Customer account information request • Customer identity request • Third party participation request • Customer equipment unique IDs
3		CSS	Customer Representative	Customer account information data • Customer identity data • Third party participation confirmation • For each third party, a service level is specified (e.g. configurable service level for bandwidth – number/frequency of third party messaging).
3		CSS	CCS	Command requesting third party access enabled/disabled/modified with customer specific configurations
3		CCS	Service point gateway	Command requesting third party access enabled/disabled/modified with customer specific configurations
3		Service point gateway	CCS CSS Customer Representative	Receipt and execution confirmation of command requesting third party access enabled/disabled/modified with customer specific configurations
4		Third party OR Customer	Customer Representative	Problem report on monitoring or control of customer devices
4		Customer Representative	CSS	Customer account information request: • third party access to SPG enabled request • third party authorized for access request • third party service level request

Scenario #	Step #, Step Name	Information Producer	Information Receiver	Name of information exchanged
4		CSS	Customer Representative	Customer account information confirmation: • third party access to SPG enabled confirmation • third party authorized for access confirmation • third party service level data
4		CSS	CCS	Command requesting automated test of Service point gateway communications
4		CCS	Service point gateway	Command requesting automated test of Service point gateway communications
4		Service point gateway	CCS	Service point gateway communication test results
4		CCS	CSS	Service point gateway communication test Results
4		CSS	Customer Representative	Trouble order for Service point gateway OR Customer information report
5	2	CCS	Service point gateway	Command to test communications with Service point gateway
5	3	Service point gateway	CCS	Test results
5	4	CCS	MDMS	Test results
5	5	MDMS	CSS	Test results
5	6	CCS	Other Utility Systems	Report of failure to communicate with Service point gateway

5.2 Diagrams

The architecture team shall use this section to develop an interaction diagram that graphically describes the step-by-step actor-system interactions for all scenarios. The diagrams shall use standard UML notation. Additionally, sequence diagrams may be developed to help describe complex event flows.



6. Use Case Issues

Capture any issues with the use case. Specifically, these are issues that are not resolved and help the use case reader understand the constraints or unresolved factors that have an impact of the use case scenarios and their realization.

Issue
Describe the issue as well as any potential impacts to the use case.
•

7. Glossary

Insert the terms and definitions relevant to this use case. Please ensure that any glossary item added to this list should be included in the global glossary to ensure consistency between use cases.

Glossary	
Term	**Definition**

8. References

Reference any prior work (intellectual property of companies or individuals) used in the preparation of this use case.

9. Bibliography (optional)

Provide a list of related reading, standards, etc. that the use case reader may find helpful.