

Appendix O – Aggregator Handbook

Aggregator Enrollment Sample XML

```

<operations>
  <!-- aggregator enrollment -->
  <enrollment>
    <enroller-id>123456789</enroller-id>
    <enroller-type>Aggregator</enroller-type>
    <gs-contract-id>11111111</gs-contract-id>
    <contract-account-number>555555555</contract-account-
number>
    <meter-id>MPX000123456</meter-id>
    <w4-email>jrambo@gmail.com</w4-email>
    <customer-name>John Rambo</customer-name>
    <service-address>123 Elm St. #505 Honolulu HI,
96817</service-address>
    <gs-program-name>Special Program</gs-program-name>
    <participant-resource-capability>5</participant-resource-
capability>
    <participant-resource-capability-start-date>2017-11-
25</participant-resource-capability-start-date>
    <enrollment-start-date>2017-11-25</enrollment-start-date>
    <incentives>
      <incentive>
        <name>MINIMUM_INCENTIVE</name>
        <value>3</value>
        <start-date>2017-11-25</start-date>
      </incentive>
      <incentive>
        <name>ADDITIONAL_INCENTIVE</name>
        <value>5</value>
        <start-date>2017-11-25</start-date>
      </incentive>
    </incentives>
  </enrollment>
  <!-- service provider enrollment (Honeywell)-->
  <enrollment>
    <enroller-id>987654321</enroller-id>
    <enroller-type>Service Provider</enroller-type>
    <contract-account-number>555555555</contract-account-
number>
    <customer-name>John Rambo</customer-name>
    <service-address>123 Elm St. #505 Honolulu HI,
96817</service-address>
    <gs-program-name>Special Program</gs-program-name>
    <end-use-type>WH</end-use-type>
    <device-type>OpenADR</device-type>
    <device-model>FX2001</device-model>

```

```

    <device-serial-number>1234567</device-serial-number>
    <device-installation-date>2017-11-01</device-installation-
date>
    <device-enrollment-start-date>2017-11-01</device-
enrollment-start-date>
    <participant-resource-capability>5</participant-resource-
capability>
    <participant-resource-capability-start-date>2017-11-
25</participant-resource-capability-start-date>
    <enrollment-start-date>2017-11-25</enrollment-start-date>
    <incentives>
        <incentive>
            <name>MINIMUM_INCENTIVE</name>
            <value>3</value>
            <start-date>2017-11-25</start-date>
        </incentive>
        <incentive>
            <name>ADDITIONAL_INCENTIVE</name>
            <value>5</value>
            <start-date>2017-11-25</start-date>
        </incentive>
    </incentives>
</enrollment>
<!-- direct enrollment -->
<enrollment>
    <enroller-type>Direct</enroller-type>
    <contract-account-number>555555555</contract-account-
number>
    <meter-id>MPX000123456</meter-id>
    <w4-email>jrambo@gmail.com</w4-email>
    <customer-name>John Rambo</customer-name>
    <service-address>123 Elm St. #505 Honolulu HI,
96817</service-address>
    <gs-program-name>Special Program</gs-program-name>
    <end-use-type>WH</end-use-type>
    <device-type>OpenADR</device-type>
    <device-model>FX2001</device-model>
    <device-serial-number>1234567</device-serial-number>
    <device-fingerprint>555555555</device-fingerprint>
    <device-installation-date>2017-11-01</device-installation-
date>
    <device-enrollment-start-date>2017-11-01</device-
enrollment-start-date>
    <participant-resource-capability>5</participant-resource-
capability>
    <participant-resource-capability-start-date>2017-11-
25</participant-resource-capability-start-date>
    <enrollment-start-date>2017-11-25</enrollment-start-date>
    <incentives>
        <incentive>
            <name>MINIMUM_INCENTIVE</name>
            <value>3</value>

```

```

                <start-date>2017-11-25</start-date>
            </incentive>
            <incentive>
                <name>ADDITIONAL_INCENTIVE</name>
                <value>5</value>
                <start-date>2017-11-25</start-date>
            </incentive>
        </incentives>
    </enrollment>

    <!-- aggregator un-enrollment -->
    <enrollment>
        <enroller-id>123456789</enroller-id>
        <enroller-type>Aggregator</enroller-type>
        <contract-account-number>555555555</contract-account-
number>
        <meter-id>MPX000123456</meter-id>
        <customer-name>John Rambo</customer-name>
        <service-address>123 Elm St. #505 Honolulu HI,
96817</service-address>
        <gs-program-name>Special Program</gs-program-name>
        <enrollment-start-date>2017-11-25</enrollment-start-date>
        <enrollment-end-date>2017-11-26</enrollment-end-date>
    </enrollment>
    <!-- service provider un-enrollment (Honeywell) -->
    <enrollment>
        <enroller-id>987654321</enroller-id>
        <enroller-type>Service Provider</enroller-type>
        <contract-account-number>555555555</contract-account-
number>
        <customer-name>John Rambo</customer-name>
        <service-address>123 Elm St. #505 Honolulu HI,
96817</service-address>
        <gs-program-name>Special Program</gs-program-name>
        <end-use-type>WH</end-use-type>
        <device-type>OpenADR</device-type>
        <device-model>FX2001</device-model>
        <device-serial-number>1234567</device-serial-number>
        <device-installation-date>2017-11-25</device-installation-
date>
        <device-enrollment-start-date>2017-11-25</device-
enrollment-start-date>
        <device-enrollment-end-date>2017-11-26</device-enrollment-
end-date>
        <enrollment-start-date>2017-11-25</enrollment-start-date>
        <enrollment-end-date>2017-11-26</enrollment-end-date> <!--
this is needed if meter/account enrollment is ending -->
    </enrollment>
    <!-- direct un-enrollment -->
    <enrollment>
        <enroller-type>Direct</enroller-type>

```

```
<contract-account-number>55555555</contract-account-
number>
  <customer-name>John Rambo</customer-name>
  <service-address>123 Elm St. #505 Honolulu HI,
96817</service-address>
  <gs-program-name>Special Program</gs-program-name>
  <end-use-type>WH</end-use-type>
  <device-type>OpenADR</device-type>
  <device-model>FX2001</device-model>
  <device-serial-number>1234567</device-serial-number>
  <device-fingerprint>55555555</device-fingerprint>
  <device-installation-date>2017-11-25</device-installation-
date>
  <device-enrollment-start-date>2017-11-25</device-
enrollment-start-date>
  <device-enrollment-end-date>2017-11-26</device-enrollment-
end-date>
  <enrollment-start-date>2017-11-25</enrollment-start-date>
  <enrollment-end-date>2017-11-26</enrollment-end-date> <!--
this is needed if meter/account enrollment is ending -->
  </enrollment>
</operations>
```

Enrollment

Field	Required	Values	Comments
Enroller Id	Yes		Assigned by HECO (required if NOT Direct)
Enroller Type	Yes	Aggregator, Service Provider, Direct	
GS Contract ID	Yes		Assigned by HECO (required if NOT Direct)
Contract Account Number	Yes		Account number from Participant bill
Meter Id	No		Meter # from Participant bill
W4 Email	No		
Customer Name	Yes		First name last name
Service Address	Yes		
GS Program Name	Yes		Program name as provided by Company
End Use Type	No	WH, AC, ES, EV, etc	required if NOT aggregator
Device Type	No	Yukon, OpenADR	required if NOT aggregator
Device model	No		required if NOT aggregator
Device Serial Number	No		required if NOT aggregator
Device Installation Date	No		required if NOT aggregator
Device Enrollment Start Date	No		required if NOT aggregator
Device Enrollment End Date	No		required if NOT aggregator
Device Fingerprint	No		OpenADR fingerprint (required if OpenADR device)
Participant Resource Capability	Yes		Enabled Capability [kW]
Participant Resource Capability Effective Start Date	Yes		Enabled Capability Effective start date
Enrollment Start Date	Yes		Meter/customer enrollment start date
Enrollment End Date	No		
Incentive name	Yes	MINIMUM_INCENTIVE, ADDITIONAL_INCENTIVE	Minimum incentive, Additional incentive, etc
Incentive value	Yes		How much incentive
Incentive Start Date	Yes		Incentive effective start date

De-Enrollment

Field	Required	Values	Comments
Enroller Id	No		Assigned by HECO (required if NOT Direct)
Enroller Type	Yes	Aggregator, Service Provider, Direct	
Contract Account Number	Yes		Account number
Meter Id	No		Required if NOT Honeywell
W4 Email	No		Email to send W4 to
Customer Name	Yes		This is to help trouble shoot if contract acct # was fat figured
Service Address	Yes		This is to help trouble shoot if contract acct # was fat figured
GS Program Name	Yes	FFR Residential, FFR Small Business, Peak Reduction SBDLC AC, Peak Reduction SBDLC WH, Replacement Reserve RDLC AC, Replacement Reserve RDLC WH, etc	
End Use Type	No	WH, AC, ES, EV, etc	required if NOT aggregator
Device Type	No	Yukon, OpenADR	required if NOT aggregator
Device model	No		required if NOT aggregator
Device Serial Number	No		required if NOT aggregator
Device Installation Date	No		required if NOT aggregator
Device Enrollment Start Date	No		required if NOT aggregator
Device Enrollment End Date	No		required if NOT aggregator

Device Fingerprint	No		OpenADR fingerprint (required if OpenADR device)
Participant Resource Capability	No		Nominated Load
Participant Resource Capability Effective Start Date	No		Nominated Load Effective start date
Enrollment Start Date	Yes		Meter/customer enrollment start date
Enrollment End Date	Yes		
Incentive name	No	MINIMUM_INCENTIVE, ADDITIONAL_INCENTIVE	Minimum incentive, Additional incentive, etc
Incentive value	No		How much incentive
Incentive Start Date	No		Incentive effective start date

*note

1. All dates will be in the “yyyy-MM-dd” format

2. File name must be in this format: {EnrollerId}_{OrgName}_{Date:yyyy-MM-dd_HH-mm-ss_SSS}_enrollment.xml

Ex: 100001_HECO_2018-07-13_16-59-03_089_enrollment.xml

Note: HH represents hour in military time (0-23)

Appendix O – Aggregator Handbook

Attachment A – Aggregator Enrollment XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:element name="operations" type="EnrollmentType"/>
  <xsd:complexType name="EnrollmentType">
    <xsd:sequence maxOccurs="unbounded" minOccurs="0">
      <xsd:element maxOccurs="unbounded" minOccurs="0" name="enrollment"
type="EnrollmentDetailsType"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="IncentivesTypeDetails">
    <xsd:all>
      <xsd:element maxOccurs="1" minOccurs="0" name="name" nillable="true" type="xsd:string"/>
      <xsd:element maxOccurs="1" minOccurs="0" name="value" nillable="true" type="xsd:string"/>
      <xsd:element maxOccurs="1" minOccurs="0" name="start-date" nillable="true"
type="xsd:date"/>
    </xsd:all>
  </xsd:complexType>
  <xsd:complexType name="EnrollmentDetailsType">
    <xsd:all>
      <xsd:element maxOccurs="1" minOccurs="1" name="enroller-id"
nillable="true" type="xsd:string">
    </xsd:element>
      <xsd:element maxOccurs="1" minOccurs="1"
name="enroller-type" nillable="false">
        <xsd:simpleType>
          <xsd:restriction base="xsd:string">
            <xsd:enumeration value="Service Provider"></xsd:enumeration>
          </xsd:restriction>
        </xsd:simpleType>
      </xsd:element>
    </xsd:all>
  </xsd:complexType>
</xsd:schema>
```

```
        <xsd:enumeration value="Aggregator"></xsd:enumeration>
        <xsd:enumeration value="Direct"></xsd:enumeration>
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element maxOccurs="1" minOccurs="1"
    name="contract-account-number" nillable="false" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0" name="meter-id"
    nillable="true" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0" name="w4-email"
    nillable="true" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="1"
    name="customer-name" nillable="false" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="1"
    name="service-address" nillable="false" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="1"
    name="gs-program-name" nillable="false" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0" name="end-use-type"
    nillable="true" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0" name="device-type"
    nillable="true" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0" name="device-model"
    nillable="true" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0"
    name="device-serial-number" nillable="true" type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0"
    name="device-installation-date" nillable="true" type="xsd:date" />
<xsd:element maxOccurs="1" minOccurs="0"
    name="device-removal-date" nillable="true" type="xsd:date" />
<xsd:element maxOccurs="1" minOccurs="0"
    name="device-enrollment-start-date" nillable="true"
    type="xsd:date">
```



```
</xsd:element>
<xsd:element maxOccurs="1" minOccurs="0"
    name="device-enrollment-end-date" nillable="true" type="xsd:date">
</xsd:element>
<xsd:element maxOccurs="1" minOccurs="0"
    name="device-fingerprint" nillable="true" type="xsd:string">
</xsd:element>
<xsd:element maxOccurs="1" minOccurs="0"
    name="participant-resource-capability" nillable="true"
    type="xsd:string" />
<xsd:element maxOccurs="1" minOccurs="0"
    name="participant-resource-capability-start-date" nillable="true"
    type="xsd:date" />
<xsd:element maxOccurs="1" minOccurs="1"
    name="enrollment-start-date" nillable="false" type="xsd:date" />
<xsd:element maxOccurs="1" minOccurs="0"
    name="enrollment-end-date" nillable="true" type="xsd:date" />
<xsd:element maxOccurs="1" minOccurs="0" name="incentives"
    nillable="true" type="IncentivesType">
</xsd:element>
</xsd:all>
</xsd:complexType>
<xsd:complexType name="IncentivesType">
    <xsd:sequence maxOccurs="unbounded" minOccurs="0">
        <xsd:element name="incentive" type="IncentivesTypeDetails"/>
    </xsd:sequence>
</xsd:complexType>
</xsd:schema>
```

Capacity Build Aggregator
Capacity Reduction Aggregator
FFR

Ex.	Application	Transaction Type	Transaction	Participant Enrollment Start Date	Participant Enrollment End Date	Device Enrollment Start Date	Device Enrollment End Date	Device Installation OR Participant Move In Date	Device Removal OR Participant Move Out Date	Resource Capability Start Date	Incentive Start Date (Minimum or Additional)
1	HW/SP	Enrollment	Participant A Enrollment has 1 meter (Meter 1) and 1 device (Device 1) to enroll in Program X	Current date	N/A	Must be same or after Participant Enrollment Start AND Device Installation Date	N/A	Must be same or prior to Device Enrollment Start Date AND Participant Enrollment Start Date	N/A	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date
2	SP	Enrollment	Same Participant A enrolls same device (Device 1) in a different program, Program Y.	Current date	N/A	Must be same or after Participant Enrollment Start Date AND Device Installation Date	N/A	Must be same or prior to Participant Enrollment Start Date AND since device is already installed must match Device Installation Date on first enrollment for device	N/A	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date
3	HW/SP	Enrollment	Same Participant A enrolls a new, second device (Device 2) under Meter 1 in previously enrolled program, Program X	Must match Participant Enrollment Start Date used for first enrollment in Program X (#1)	N/A	Must be same or after Participant Enrollment Start Date AND after Device Enrollment Start Date used for first device	N/A	Must be same or prior to Device Enrollment Start Date AND Participant Enrollment Start Date	N/A	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date
4	SP	Enrollment	Same Participant A enrolls 2nd meter (Meter 2) and a new device (Device 3) in Program Y	Current date	N/A	Must be same or after Participant Enrollment Start AND Device Installation Date	N/A	Must be same or prior to Device Enrollment Start Date AND Participant Enrollment Start Date	N/A	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date
5	SP	Enrollment	Same Participant A enrolls a new, second device (Device 4) under Meter 2 in Program Y (assumes first meter and device already enrolled in Program Y)	Must match Participant Enrollment Start Date used for first enrollment in Program Y (#4)	N/A	Must be same or after Participant Enrollment Start Date AND Device Installation Date	N/A	Must be same or prior to Device Enrollment Start Date AND Participant Enrollment Start Date	N/A	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date
X1	SP	Enrollment	Participant B Enrollment Device 1B under Meter 1B in Program Z	Current date	N/A	Must be same or after Participant Enrollment Start AND Device Installation Date	N/A	Must be same or prior to Device Enrollment Start Date AND Participant Enrollment Start Date	N/A	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date
X2	SP	Enrollment	Same Participant B has 2nd meter (Meter 2B) to enroll 2nd meter in Program Z (No devices to enroll; special case: enroll 2 meters and one device)	Must match Participant Enrollment Start Date used for first enrollment in Program Y (#X+E142)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	SP	Unenrollment	Same Participant A unenrolls Device 4 from under Meter 2 in Program Y (Device 3 and Meter 2 remain enrolled in Program Y) (Device 4 is removed)	Must match Participant Enrollment Start Date used for first enrollment in Program Y (#4)	N/A	Must match Device 4 Device Enrollment Start Date used for enrollment in Program Y (#5)	Current date	Must match Device 4 Device Installation Date used for initial installation of device (#5)	Must be same or after Device Enrollment Stop Date	N/A	N/A
7	SP	Unenrollment	Same Participant A unenrolls Device 3 under Meter 2 from Program Y (Device 3 is that last enrollment in Program Y for Meter 2)	Must match Participant Enrollment Start Date used for first enrollment in Program Y (#4)	Current date	Must match Device 3 Device Enrollment Start Date used for enrollment in Program Y (#4)	Must be same or prior to Participant Enrollment End Date	Must match Device 3 Device Installation Date used for initial installation of device (#4)	N/A	N/A	N/A
8	SP	Unenrollment	Same Participant A unenrolls Device 2 under Meter 1 from Program X. (Device 2 is removed)	Must match Participant Enrollment Start Date used for first enrollment in Program X (#1)	N/A	Must match Device 2 Device Enrollment Start Date used for enrollment in Program X (#3)	Current date	Must match Device 2 Device Installation Date used for initial installation of device (#3)	Must be same or after Device Enrollment Stop Date	N/A	N/A
9	SP	Unenrollment	Same Participant A unenrolls Device 1 under Meter 1 from Program Y	Must match Participant Enrollment Start Date used for first enrollment in Program X (#2)	Current date	Must match Device 1 Device Enrollment Start Date used for enrollment in Program Y (#2)	Must be same or prior to Participant Enrollment End Date	Must match Device 1 Device Installation Date used for initial installation of device (#1)	N/A	N/A	N/A
10	SP	Unenrollment	Same Participant A unenrolls Device 1 under Meter 1 from Program X (Device 1 is removed)	Must match Participant Enrollment Start Date used for first enrollment in Program X (#1)	Current date	Must match Device 1 Device Enrollment Start Date used for enrollment in Program Y (#1)	Must be same or prior to Participant Enrollment End Date	Must match Device 1 Device Installation Date used for initial installation of device (#1)	Must be same or after Device Enrollment Stop Date	N/A	N/A
X3	SP	Unenrollment	Participant B unenroll 2nd meter (Meter 2B) in Program Z (No devices to enroll; special case: enroll 2 meters and one device)	Must match Participant Enrollment Start Date used for first enrollment in Program Z (#X2)	Current date	N/A	N/A	N/A	N/A	N/A	N/A
X4	SP	Unenrollment	Same Participant B unenrolls Device 1B under Meter 1B in Program Z	Must match Participant Enrollment Start Date used for first enrollment in Program Z (#X1)	Current date	Must match Device 1B Device Enrollment Start Date used for enrollment in Program Z (#X1)	Must be same or prior to Participant Enrollment End Date	Must match Device 1B Device Installation Date used for enrollment in Program Z (#X1)	Must be same or after Device Enrollment Stop Date	N/A	N/A
	HW/SP	Device Removal/Replacement	Device Removal & Unenrollment	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	Current date	Must match Device Enrollment Start Date used for device's initial enrollment in Program	Must be same or prior to Participant Enrollment End Date	Must match Device Installation Date used for initial installation of device	Must be same or after Device Enrollment Stop Date	N/A	N/A
10	HW/SP	Device Removal/Replacement	Device Removal (for Device Replacement)	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	N/A	Must match Device Enrollment Start Date used for device's initial enrollment in Program	Current date	Must match Device Installation Date used for initial installation of device	Must be same or after Device Enrollment Stop Date	N/A	N/A
11	HW/SP	Device Removal/Replacement	Device Install (for Device Replacement)	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	N/A	Must be 24 hours after Device Enrollment End Date from device removal (#10)	N/A	Must be same or prior to Device Enrollment Start Date	N/A	Must be same as Device Enrollment Start Date	Must be same as Device Enrollment Start Date
12	Agg	Participant Moves	Participant Moves out of premise; must unenroll Participant	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	Current date	N/A	N/A	N/A	N/A	N/A	N/A
13	Agg	Participant Moves	Participant Move into premise; must enroll Participant	Must be 24 hours after Participant Enrollment End Date of Participant that moved out (#12)	N/A	N/A	N/A	N/A	N/A	Must be same or after as Participant Enrollment Start Date	Must be same or after as Participant Enrollment Start Date
14	HW/SP	Participant Moves	Participant Moves out of premise & device remains installed (unenrollment)	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	Current date	Must match Device Enrollment Start Date used for device's initial enrollment in Program	Must be same or prior to Participant Enrollment End Date	Must match Device Installation Date used for initial installation of device or Participant Move In Date	Current date	N/A	N/A
15	HW/SP	Participant Moves	Participant Move into premise & device is already installed	Must be 24 hours after Participant Enrollment End Date of Participant that moved out (#14)	N/A	Current date	N/A	Must match Device Installation Date used for future enrollments/modifications for this Participant	N/A	Must be same or after as Device Enrollment Start Date	Must be same or after as Device Enrollment Start Date
16	HW/SP	Participant Moves	Owner Move in after Tenant Move out (#14 unenroll of Tenant) Special Case: if Owner is COM will need to be enrolled in SBDLC program	Must be 24 hours after Participant Enrollment End Date of Participant that moved out (#14)	N/A	Must be same or after Participant Enrollment Start AND Participant Move In Date	N/A	Must be same as Participant Enrollment Start	N/A	Must be same or after as Device Enrollment Start Date	Must be same or after as Device Enrollment Start Date
All	Participant Changes	Incentive Modification		Must match Participant Enrollment Start Date used for first enrollment of meter in Program	N/A	Must match Device Enrollment Start Date used for device's initial enrollment in Program	N/A	Must match Device Installation Date used for initial installation of device	N/A	N/A	Current date with updated \$ Incentive Value
All	Participant Changes	End Incentive without unenrollment (only applies to Additional Incentive)		Must match Participant Enrollment Start Date used for first enrollment of meter in Program	N/A	Must match Device Enrollment Start Date used for device's initial enrollment in Program	N/A	Must match Device Installation Date used for initial installation of device	N/A	N/A	Current date with \$0 Incentive Value
All	Participant Changes	Capability Modification		Must match Participant Enrollment Start Date used for first enrollment of meter in Program	N/A	Must match Device Enrollment Start Date used for device's initial enrollment in Program	N/A	Must match Device Installation Date used for initial installation of device	N/A	Current date with updated Resource Capability	N/A

Ex	Transaction Type	Transaction	Customer Enrollment Start Date	Customer Enrollment End Date	Device Enrollment Start Date	Device Enrollment Stop Date	Device Installation OR Customer Move In Date	Device Removal OR Customer Move Out Date	Resource Capability Start Date	Incentive Start Date
1	Enrollment	Customer A	1/14/2019	N/A	1/14/2019	N/A	1/10/2019	N/A	1/14/2019	1/14/2019
2	Enrollment	Customer A	1/20/2019	N/A	1/20/2019	N/A	1/10/2019	N/A	1/20/2019	1/20/2019
3	Enrollment	Customer A	1/14/2019	N/A	1/21/2019	N/A	1/20/2019	N/A	1/21/2019	1/21/2019
4	Enrollment	Customer A	1/22/2019	N/A	1/22/2019	N/A	1/20/2019	N/A	1/22/2019	1/22/2019
5	Enrollment	Customer A	1/22/2019	N/A	1/23/2019	N/A	1/23/2019	N/A	1/23/2019	1/23/2019

Ex.	Application	Transaction Type	Transaction	Participant Enrollment Start Date	Participant Enrollment End Date	Resource Capability Start Date	Incentive Start Date (Minimum or Additional)
1	Aggregator	Enrollment	Participant A Enrollment has 1 meter (Meter 1) to enroll in Program X	Current date	N/A	Must be same or after Participant Enrollment Start Date	Must be same or after Participant Enrollment Start Date AND Device Enrollment Start Date
2	Aggregator	Participant Changes	End Incentive without unenrollment (only applies to Additional Incentive)	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	N/A	N/A	Current date with \$0 Incentive Value
3	Aggregator	Participant Changes	Capability Modification	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	N/A	Current date with updated Resource Capability	N/A
4	Aggregator	Participant Moves	Participant Moves out of premise Z; must unenroll Participant	Must match Participant Enrollment Start Date used for first enrollment of meter in Program	Current date	N/A	N/A
5	Aggregator	Participant Moves	New Participant Moves into premise Z; must enroll Participant	Must be 24 hours after Participant Enrollment End Date of Participant that moved out (#3)	N/A	Must be same or after as Participant Enrollment Start Date	Must be same or after as Participant Enrollment Start Date
6	Aggregator	Unenrollment	Same Participant A unenrolls Meter 1 from Program X	Must match Participant Enrollment Start Date used for first enrollment in Program X (#1)	Current date	N/A	N/A

Account Number:
2XXXXXXXXXX

Contract:
30312512

ACCOUNT SUMMARY
See Bill Detail section for more information)

MESSAGES

Get a better understanding of your electric bill. Take a few minutes to review the explanation of charges provided on our website: www.hawaiianelectric.com/electricbill.

BILL PERIOD

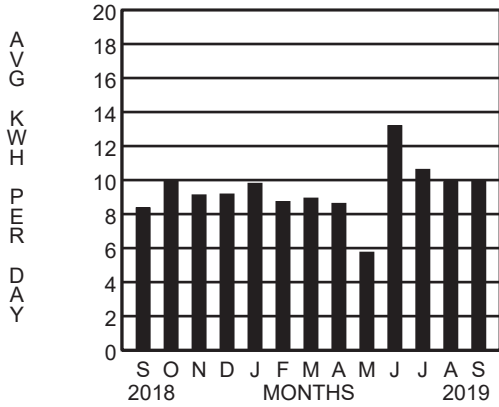
R Residential Service

FROM 08/24/19 TO 09/23/19 31 DAYS

METER# MPX000266338	REGISTER KWH	CURRENT READING 19,844.00	PREVIOUS READING 19,534.00	DIFFERENCE 310.00	MULTIPLIER 1	USAGE 310.00
------------------------	-----------------	------------------------------	-------------------------------	----------------------	-----------------	-----------------

USAGE PROFILE

ELECTRIC USAGE PROFILE FOR METER MPX000266338



DATE	KWH	AMOUNT	DAYS	KWH/DAY	\$/DAY
09/23/19	310	\$100.76	31	10.00	3.25
08/23/19	297	\$99.49	30	9.90	3.32
07/24/19	340	\$112.79	32	10.63	3.52
06/22/19	396	\$131.30	30	13.20	4.38
05/23/19	167	\$62.26	29	5.76	2.15
04/24/19	259	\$86.94	30	8.63	2.90
03/25/19	277	\$89.59	31	8.94	2.89
02/22/19	271	\$87.02	31	8.74	2.81
01/22/19	314	\$106.62	32	9.81	3.33
12/21/18	257	\$92.23	28	9.18	3.29
11/23/18	274	\$96.73	30	9.13	3.22
10/24/18	319	\$110.92	32	9.97	3.47
09/22/18	251	\$88.69	30	8.37	2.96

WHEN PAYING IN PERSON, PLEASE PRESENT BOTH PORTIONS
PLEASE DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT

Hawaiian Electric Company
PO Box 30260
Honolulu, HI 96820-0260
Telephone: 808) 548-7311

ACCOUNT NUMBER
2XXXXXXXXXX

TO BE PAID BY BANK

DUE DATE
Oct 13, 2019



E-BILL

Hawaiian Electric Company
 PO Box 30260
 Honolulu, HI 96820-0260

Account Number:
 2XXXXXXXXXXXX

Service Address Page 2 of 2

BILL DETAIL

DESCRIPTION	AMOUNT	TOTALS
PREVIOUS BALANCE	\$99.49	
Incoming Payment on 09/16/2019 - Thank You	\$99.49-	
Outstanding Balance		\$0.00
CURRENT CHARGES		
Electric Service R Residential Service		
Customer Charge	\$11.50	
Non Fuel Energy	\$33.11	
Energy Cost Adjustment	\$41.89	
PBF Surcharge	\$1.48	
Purchased Power Adjustment	\$8.70	
RBA Rate Adjustment	\$2.91	
Green Infrastructure Fee	\$1.17	
Total for Current Charges		\$100.76
Total Amount Due		\$100.76

Contact Information

Customer Service (7:30 AM to 6:00 PM) 1-808-548-7311
 Emergencies/Power Interruptions (24 hours) 1-855-304-1212

Payment Options:

By Mail: PO Box 30260, Honolulu, HI 96820-0260

Go online to www.hawaiianelectric.com

By Charge, Checking/Savings Debit Card, or Electronic Check:*

Residential & Commercial Customers 1-888-813-2207

* Payment fees will apply. Please allow a minimum of 3 business days for your account to be credited.

In Person:

1001 Bishop St., ASB Tower Lobby, Honolulu
 7:30 AM to 4:30 PM (Entrance on Ālākea St.)
 Our office is closed on weekends and holidays.

Western Union Agents:** Foodland, Sack N Save, Times Supermarkets, Safeway

** Remittance stub is required. Please allow a minimum of 2 business days for your account to be credited. Other restrictions may apply.

When a Bill Is Estimated

We try to read your meter each month, but if for some reason we cannot, your bill will be based on an estimate of recent average use. You are responsible for ensuring that your meter is unobstructed and accessible.

Important Information

Moving or Starting New Service

Please call us at least 2 business days before moving or starting new service.

Late Payment

A late payment charge of 1% (for electric service accounts) and 0.83% (for non-electric service accounts) shall be applied to any unpaid balance (excluding late payment charges) no earlier than 31 days since the generation of the last bill.

Your service may be disconnected if payment is received after the stated due date. If your service is disconnected, you may be required to pay your bills in full before your service is restored, and to pay a service establishment charge and a cash deposit.

Life Support or Emergency Equipment

Please contact Customer Service if anyone living in your home is dependent on life support or emergency equipment. However, because unplanned outages can and do occur, it is important for customers on life support to make alternative plans should the power go out at their homes.

For other information regarding your service, account charges, and rate schedules, please visit our website at www.hawaiianelectric.com or call Customer Service.

Green Energy Money Saver (GEM\$) On-Bill Program

Hawaii Green Infrastructure Authority
 Email: dbedt.gems@hawaii.gov

1-808-587-3868

Required Outcomes	Measurement Metric	Target
No defects that impair the delivery of resources or the determination of available capability	Number of Defects outstanding	1. Zero defects that impair the delivery of resources or the determination of available capability 2. All Medium Priority Defects have an acceptable Work Around 3. Exceptions must be approved by HECO/DR
Data Integration testing completed on QA from Aggregator Production on production schedule	Percentage of test cases successfully executed	>95% of test cases successfully executed
Successfully complete Grid Services dispatch test on PROD (no load)	Control signal received and telemetry consistent	1. VEN shows Notified after event intervals for 2 hour period 2. Telemetry is received 95% of
SFTP receiving and transferring data to PROD	Number of missed SFTP deliveries and transfers	No missed SFTP drops or transfers
FFR Certification Complete	Approved Certification	Received at least 5 business days prior to go live; approved prior to go live
Defined Cutover Checklist	Completed Cutover Checklist	Completed Cutover Checklist