

To participate in PG&E’s Automated Demand Response (ADR) Program, you will need an OpenADR 2.0A or 2.0B-Virtual End Node (VEN) device. A list of OpenADR products is available at the OpenADR Alliance website: <http://products.openadr.org>.

The VEN connects to the PG&E SEELoad Server to poll and respond to demand response event information. The VEN acts as a gateway between PG&E and a facility or equipment control system (sometimes the VEN and the control system are one and the same). The VEN will poll the PG&E SEELoad Server for event information and communicate that information to the customer control system:



Figure 1: OpenADR communication chain

VEN setup involves four steps:

1

Connect the VEN to the customer control system. All VENs are different – some may connect using dry contacts, while others may be software-based solutions. Follow the manufacturer’s instructions to connect your VEN to the appropriate control platform.

2

Contact the ADR Operations Team to begin setup. In order to connect to the PG&E SEELoad Server, you will need to use the appropriate login credentials and endpoint URL for your particular VEN. First, email the ADR Operations Team to notify them of your intent to connect a new VEN. In your email please specify the manufacturer of your VEN device, whether you are using the 2.0A or 2.0B profile, and which DR program(s) you wish to participate in. If you are using a 2.0B VEN, please also provide the SHA-256 certificate key fingerprint to the ADR Operations Team. The key fingerprint will either be provided by the manufacturer of your VEN or will be visible in the VEN user interface.

Please Note: Customers with multiple PG&E electric meters may require additional information to complete the account setup. These customers will be handled on a case-by-case basis.

3A

Configure your OpenADR 2.0A VEN for connection to the PG&E SEELoad Server. The 2.0A profile only requires username and password for authentication by the PG&E SEELoad Server and does not use security certificates.

1. The ADR Operations Team will create a VEN account for you in SEELoad based on the information provided in your initial request email. You will receive a confirmation email with a secure link to an assigned username and password when this has been completed.

2. You will need to configure your VEN with the correct parameters before connecting to the PG&E SEELoad Server. Contact the manufacturer of your VEN for instructions on how to change your VEN's settings. Input the following information into the settings for your VEN:
 - a. OpenADR 2.0A device endpoint URL:
<https://pge.trcseeload.com/SEELoad/OpenADR2/Simple/EiEvent>
 - b. Username and password: Assigned by the ADR Operations Team. If your 2.0A VEN requires a VENID in addition to a username, use the provided username for that field.
 - c. Market Context: Set to the wildcard field (typically * or blank)
 - d. Resource ID: Only required for certain DR programs. Please discuss with your PG&E ADR customer lead whether this field is required for your VEN.
3. Verify that your VEN is online and connected to the PG&E SEELoad Server.

3B

Configure your OpenADR 2.0B VEN for connection to the PG&E SEELoad Server. The 2.0B profile uses certificate-based authentication. You will need to have a production certificate issued by a certificate authority. Most manufacturer VENs come with pre-installed certificates; but certificates can also be procured from Kyrio, the security provider for OpenADR (<http://www.kyrio.com/>). Please contact the ADR Operations Team if you have any questions on certificate procurement.

1. The ADR Operations Team will create a VEN account for you in SEELoad based on the information provided in your initial request email. You will receive a confirmation email with an assigned VENID when this has been completed and the system is ready for you to register your VEN.
2. You will need to configure your VEN with the correct parameters before connecting to the PG&E SEELoad Server. Contact the manufacturer of your VEN for instructions on how to change your VEN's settings. Input the following information into the settings for your VEN:
 - a. OpenADR 2.0B device endpoint URL:
<http://pge.trcseeload.com/SEELoad/OpenADR2/Simple/2.0b>
 - b. VTNID: SEELOAD_VTN_ID
 - c. VENID: Assigned by the ADR Operations Team.
 - d. Market Context: Set to the wildcard field (typically * or blank)
3. Send a registration request from your device to the PG&E SEELoad Server and verify that your VEN successfully registers and shows up as online.

4

Schedule a test event. After you have configured your VEN settings, you may wish to coordinate a test event and confirm your VEN can receive event signals and your facility responds as anticipated. A test event is required for any customers receiving a technology incentive from the PG&E ADR Program. To request a test event, please contact your PG&E ADR Customer Lead. If you are not an active customer in the PG&E ADR Program, please contact the ADR Operations Team for any testing needs.

Important things to know about your VEN and the PG&E SEELoad Server:

- **Certificates:** The 2.0B profile requires client-side (VEN) and server-side (SEELoad) certificates to authenticate each party and allow for secure exchange of information. These certificates allow the client and server to recognize one another and execute an electronic “handshake” to communicate

payloads – this helps prevent unauthorized parties from attempting to acquire payloads or exchange information. A valid client certificate must be installed on the VEN prior to connecting to the PG&E SEELoad Server – if connecting to the production PG&E SEELoad Server, a production certificate is required, while a free test certificate will suffice for any required testing on the test server. Please contact the ADR Operations Team or your PG&E ADR Customer Lead to determine which server you will be using. Most manufacturer VENs come with pre-installed certificates, but certificates can also be procured from a valid certificate authority. Kyrio is the official security provider for OpenADR: (<http://www.kyrio.com/>).

- **Market Context:** This field specifies which programs are accepted by the VEN. A wildcard field (typically * or blank) is required by PG&E to allow the VEN to accept all DR program types. Failing to use the wildcard field can prevent customers from successfully testing their equipment or from responding to actual events.
- **Push vs. Pull:** OpenADR allows for both “push” and “pull” signal transmission – PG&E currently only uses the “pull” model, in which VENs must poll the PG&E SEELoad Server at one minute intervals for event information. No payloads or control signals are transmitted to a VEN without the VEN requesting them.
- **Reporting:** While the OpenADR 2.0B profile does support reporting capabilities, this is not currently enabled or required by PG&E.
- **Resource IDs:** Customers who use a single VEN to control multiple resources must also program their VENs with the appropriate “Resource IDs” to control those resources. One example of this would be a customer with multiple stores spread over a large geographic area – for PG&E to include only a subset of stores in an event, the VEN must assign the correct Resource ID to each store. Please discuss with your PG&E ADR customer lead whether these requirements apply to you.
- **Signal Type:** The PG&E SEELoad Server currently only utilizes simple signals – NORMAL, MODERATE, and HIGH. All customers should default their VEN settings to respond to a HIGH response signal. No other signal types (e.g., pricing, load control) are currently transmitted.
- **VENID:** The VENID is assigned by the PG&E SEELoad Server and provided to customers with 2.0B VENs prior to VEN registration. 2.0A VENs may require the input of a VENID – in these instances a customer should use their assigned username. 2.0B VENs should include their assigned VENID whenever they poll the PG&E SEELoad Server.
- **VTNID:** The VTNID may not be necessary for all 2.0b VENs, as it is returned in the PG&E SEELoad Server payload after registration.
- **Warranty:** PG&E requires a three year warranty on any VEN that receives ADR Program incentives.

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