Phase 3 Online Customer Authorization: 3rd Party Initiated
(new & re-authorizations: *new functionality in red)

**Data Custodian <PG&E>**

- PG&E Customer Login page
- Customer Authenticates?
  - Yes: Customer Reviews
    - Pre-Selected 3rd Party, SAs, Scope, Dates, T&Cs
  - No (cancels)
- Customer Authenticated?
  - Yes: Agrees to Authorize?
    - Yes: Re-Direct to 3rd Party redirect_uri
    - No: Redirect to 3rd Party redirect_uri
- 3rd Party Receives Access Token
- 3rd Party Receives Authorization Code
- PG&E Receives Authorization Code
- 3rd Party receives "Access Denied" error parameter
- PG&E Validates Authorization Code
- PG&E Issues Authorization Code
- PG&E Issues new Access Token: Updates Client Access Token
- PG&E Validates Access Token
- PG&E Returns Authorization/Subscription Details
- 3rd Party Receives Access Token
- Optional: 3rd Party Requests Auth Details
- Authorization API Response contains:
  1) SubscriptionID as part of the resourceURI parameter
  2) RetailCustomerID = SubscriptionID = AuthorizationID (same value)
  3) AuthorizationID as part of the authorizationURI parameter
  Note: IDs to be used in constructing customer data API URI Endpoints
  4) (authorized) scope

**Web Portal**

- Redirect to PG&E
- Customer visit 3rd Party Site and wants to share Utility Data
- Customer Authenticates?
  - No (cancels)
- Customer Reviews
  - Pre-Selected 3rd Party, SAs, Scope, Dates, T&Cs
- Agrees to Authorize?
  - Yes: Re-Direct to 3rd Party redirect_uri
  - No (cancels)
- 3rd Party Receives Access Token
- 3rd Party Receives Authorization Code
- PG&E Receives Authorization Code
- 3rd Party receives "Access Denied" error parameter
- PG&E Validates Authorization Code
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  4) (authorized) scope

**Web Services (APIs)**

-Redirect to authorizationServer AuthorizationEndpoint URI with request params:
  GET
  https://api.pge.com/authorizationServer
  AuthorizationEndpoint URI with request params:
  - client_id=xxxxxxx
  - redirect_uri=redirect_uri
  - response_type=code
  - state=optionalState
  - login=guest

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1) Error parameter as per OAuth 2.0 Standard: https://tools.ietf.org/html/rfc6749#section-4.1.2.1
2) Optional State parameter also returned if provided as part of original request

Note: As a customer web account can have multiple Service Agreements associated to it, an online authorization may result in one Subscription ID mapping to multiple authorized Service Agreements (i.e. ‘Usage Points’).
AUTHORIZATION INITIATED AT THIRD-PARTY SITE
(High Level Overview)

Start at Third Party (e.g. Log In)

Authorization Code Request: 302 {authorizationServerAuthorizationEndpointURI}?Request_Parameters*

Authorization Code Request: 302 {authorizationServerAuthorizationEndpointURI}?Request_Parameters

Authorization Code & Scope Response: 302 {redirect_uri}?authorization_code&scope

Customer selects Utility (PG&E = Data Custodian)

Customer logs in, reviews/selects Scope (e.g. Service IDs, Authorized Date Range) & hits SUBMIT

Request Access Token {authorizationServerAuthorizationTokenEndpoint}?Request_Parameters&authorization_code

Access Token & Scope Response

Use Token to call Data APIs

Data API response

Receipt (Authorization Successful)

Services/Results using Data

Optional Dialog with Customer

Dialog with Customer

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*R24 Click Thru Ph3 enhancement allows defaulting to guest access tab on customer authentication page by redirecting with the following request parameter appended to redirect URL: "login=guest". All other values (e.g. no login parameter or login=blank) will default to MyAccount sign-in tab. For example: https://sharemydataqa.pge.com/myAuthorization?client_id=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&response_type=code&redirect_uri=https://thirdpartyredirect.com&login=guest
AUTHORIZATION INITIATED AT PG&E
(High Level Overview)

Customer (browser)

Log in (PG&E web account)

Optional Third Party Log In

Authorization Code Request:
302 (authorizationServerAuthorizationEndpointURI)?
Request_Parameters

Authorization Code Request:
302 (authorizationServerAuthorizationEndpointURI)?
Request_Parameters

Authorization Code & Scope Response:
302 (redirect_uri)?authorization_code&scope

Request Access Token
(authorizationServerAuthorizationTokenEndpoint?
Request_Parameters&authorization_code

Access Token & Scope Response

Use Token to call Data APIs

Data API response

Your Application

Send customer to Third Party
302 (ThirdPartyPortalURI)/client_id={client_id}
&ref=(Originating_PG&E_URL)

If customer has logged in recently,
no need to log in again

Customer reviews/selects Scope
(e.g. Service IDs, Authorized Date Range) & hits SUBMIT

Authorization Code & Scope Response:
302 (redirect_uri)?authorization_code&scope

Receipt (Authorization Successful)

Services/Results using Data

Share My Data

Customer discovers/selections 3rd
Party from list of registered 3rd
Parties, hits NEXT

Optional Dialog with Customer

Dialog with Customer

*R24 Click Thru Ph3 enhancement allows defaulting to guest access tab on customer authentication page by redirecting with the following
request parameter appended to redirect URL: “login=guest”. All other values (e.g. no login parameter or login=blank) will default to MyAccount
sign-in tab. For example: https://sharemydataqa.pge.com/myAuthorization?client_id=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
&response_type=code&redirect_uri=https://thirdpartyredirect.com&login=guest
API Data Access*
(PGE API URL Prefix: https://api.pge.com/GreenButtonConnect...)

Synchronous Web Services
(intended for initial post-authorization requests)

Asynchronous Web Services
(intended for on-going data requests of existing authorizations)

Data Custodian <PG&E> 3RD Party

PG&E Validates Access Token
PG&E Returns a list of Usage Points

Ad-Hoc Request for list of Usage Points using Access token

ESPI formatted data

Receive list of Usage Point IDs (obfuscated SA IDs)

PG&E Validates Access Token
PG&E Returns Data Associated to Access Token

Ad-Hoc Request using Access token

Receive Data Associated to Access Token

PG&E Validates Client Access Token. Responds w/ 202

Data Ready: Notification(s)

Receive Correlation ID/URI (s)

PG&E Validate <token>
PG&E Returns Data Associated to Correlation ID

Request Data Using <token> + Correlation ID

ESPI formatted data

Receive Data Associated to Correlation ID

Contains latest day’s data + deltas for past dates for all auths

PG&E Validates Client Access Token

Usage & Billing Info:

Subscription/{SubscriptionID}/UsagePoint

DR Enrollment Info:

RetailCustomerID

Example: 3rd Party GET at:

Usage & Billing Info:.../esi/1_1/resource/Batch/Sub

PG&E POST to 3rd Party registered Notification Url w/ following payload:

Customer Info:.../esi/1_1/resource/Batch/RetailCustomer

Request Data:.../esi/1_1/resource/Batch/RetailDRProgramInfo

Example: 3rd Party GET at:

Customer Info:.../esi/1_1/resource/Batch/RetailCustomerInfo

DR Enrollment Info:

 Bulg/...(BulkID)/...(CorrelationID)

Customer Info:.../esi/1_1/resource/Batch/RetailCustomerInfo

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Bulg/...(BulkID)/...(CorrelationID)

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Usage & Billing Info:.../esi/1_1/resource/Batch/Sub

Customer Info:.../esi/1_1/resource/Batch/RetailCustomer

DR Enrollment Info:

Bulg/...(BulkID)/...(CorrelationID)

Example: 3rd Party GET at:

Usage & Billing Info:.../esi/1_1/resource/Batch/Sub

Customer Info:.../esi/1_1/resource/Batch/RetailCustomer

DR Enrollment Info:

Bulg/...(BulkID)/...(CorrelationID)
Customer Auth Revocations w/ PG&E (for re-authorizations):
(PGE API URL Prefix: https://api.pge.com/GreenButtonConnect...)

**Data Custodian <PG&E>**

- Customer replaces old authorization w/ new one
- PG&E processes revocation of old authorization

**3rd Party**

- Notification: Authorization URL
- Receives Auth notification
- Receives Auth Details (Authorization URL)

**Web Services (APIs)**

- PG&E Updates 3rd Party Tokens to reflect revoked auth
- PG&E Validates Client Access Token
- PG&E Returns Authorization/Subscription Details

**3rd Party**

- 3rd Party Requests Auth Details (Authorization URL)
- Authorization API Response contains:
  1) SubscriptionID as part of the resourceURI parameter
  2) RetailCustomerID = SubscriptionID = AuthorizationID (same value)
  3) AuthorizedPeriod (authorization start & duration)

Note: IDs to be used in constructing API URI Endpoints (see Data Access)

- PublishedPeriod: Total window of data that can be requested. If authorization is revoked, value will reflect previously accessible window.
- Status: 1 = active authorization; 0 = revoked authorization
- (authorized) scope

PG&E HTTP POST to 3rd Party registered Notification URL w/ following payload (URL for Authorization details API):
.../espi/1_1/resource/Authorization/(AuthorizationID)

Note: AuthorizationID = SubscriptionID (same value)

3rd Party HTTP GET at Authorization API: .../espi/1_1/resource/Authorization/(AuthorizationID)

Note: for authorization revocations, the AuthorizedPeriod start + duration = 12AM day of the revocation

PublishedPeriod:

- Total window of data that can be requested. If authorization is revoked, value will reflect previously accessible window.
- Status: 1 = active authorization; 0 = revoked authorization
- (authorized) scope