

Retrofit System

Retrofit Service Provider API Specification

SPEC-232

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2.0	Add framework attribute and incorporate AODA changes	November 25, 2020
3.0	Updated authentication methods to reflect transition to API key authentication. Added new fields	September 1, 2021
3.1	Addition of Quasi-prescriptive measure columns	March 10, 2022
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4.2	Addition of Address_ID representing unique address identifier from address auto complete service, in sections 3.2.3, 3.5.3, 3.7.3 Application, Facility, and Applicant API response Addition of Applicant Country in section 3.2.3 Application API response	February 5, 2024

Table of Changes

Reference (Section and Paragraph)	Description of Change
2.2	Lines 26-28 updated to outline API Authentication Header with the new root endpoint

2.3	Updated the API root endpoint for both Production and Sandbox environment
3.1	Updated URI suffix for retrieving list of pre-project or post-project applications
3.2	Updated URI suffix for retrieving detailed information of a application
3.3	Updated URI suffix for retrieving application invoice document
3.4	Updated URI suffix for retrieving application facilities information
3.5	Updated URI suffix for retrieving facilities details
3.6	Updated URI suffix for retrieving facility document
3.7	Updated URL suffix for retrieving applicant representatives
3.8	Updated URL suffix for retrieving applicant comments
3.5.3	Added two new columns, prescriptive measure id and custom measure id, as part of "Document" section, in Facility details API response.

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1. Introduction

1.1 Purpose

1. The purpose of this document is to provide design specification for the Retrofit System's Service Provider Application Programming Interface (API) web service.
2. These specifications are reviewed by the IESO solution analyst, IESO business analyst and providers of systems that will interact with the Retrofit system through an automated interface. These specifications will be approved by the solution steward for the Retrofit System.

1.2 Assumptions and Limitations

3. The design specification document describes the Service Provider API functions provided as part of the Retrofit System. These APIs have been provided to enable Service Providers to retrieve Retrofit application information and store/view this information in their own internal systems. The scope of API functions for Service Providers has been limited to retrieval so at this time there are no update functions available.
4. Retrofit Application interaction with Applicants and Applicant Representatives will only be through the Retrofit User Interface and no API functions will be made available for Applicant and Applicant Representative Tasks.
5. The design specification document is a living document and will be updated as new web services are added or existing web services are changed.

1.3 Conventions

6. The standard conventions followed for this document are as follows:
 - Quotation marks are used to highlight process or component names;
 - Italics are used to highlight publication, titles of procedures, letters and forms; and □ All time mentioned in this document is in East Standard Time (EST).

1.4 Glossary

7. **Application** – A request for funding for a single *participant* from one of the conservation programs. Each application will identify the *participant*, the *participant's* facilities and the measures that are applicable to each facility.
8. **Application Note** – Text that is captured and assigned to an *application*. The individual that created the note along with time will be captured with each note that is added to the *application*.
9. **Application Status** – Is the status that the application can have during different phase of the application. This status is a combination of the phase of the application as well as a specific state

that is applicable to the phase. Note that the application status could be set on any form, and this sets the status of the application as a whole.

The list of Application status codes can be found at [Section 4](#)

10. **Facility** – A facility is a location where the participant will be implementing conservation initiatives to reduce energy consumption.
11. **Forms** – An application progresses through a workflow, consisting of multiple forms. Each form has data to be filled in. Forms are completed to move onto the next form (Decision nodes using business logic determine the form flow).
12. **Applicant** – This is a role in the Retrofit process that is assigned to the person or company that submits requests for funding to support the execution of projects that will reduce electricity consumption. An *Applicant* can sometimes be referenced as a Participant or a Customer.
13. **Applicant Representative** – This is a role in the Retrofit process that is assigned to the person or company that is helping *participants* through the *application* process. An *Applicant Representative* can sometimes be referenced as Partner.
14. **Retrofit Program Analyst** – This is a role in the Retrofit process that is assigned to one or more individuals associated with a LDC who will review *applications* for accuracy and take corrective action if necessary.
15. **Project** – The act of implementing the changes to a facility that is identified on an *application*.
16. **Custodian** – The person Assigned in Online IESO who maintains the API account used to access the Retrofit API.
17. **Service Provider** – An organization responsible for reviewing Retrofit applications on behalf of the IESO
18. **Geographical Zone** – Ontario has been divided into geographical zones based on Postal Codes. All Interim Framework (IF) applications submitted to the IESO will be assigned a geographical zone which will determine which Service Provider is assigned. The list of Geographical Zones can be seen in [Section 5](#)

1.5 Document Organization

19. Section 2 describes the general information of the Retrofit API.
20. Section 3 describes the specific details associated with each *web service retrieve function*.
21. Section 4 provides the details associated with each *application status code*.
22. Section 5 provides the list of *geographical zones*.

– End of Section –

2. Retrofit API General Information

2.1 Retrofit REST API

23. The Retrofit API is a Representational State Transfer (REST) Application Programming Interface (API). The REST API is a web service architecture that focuses on resources for a specific service and their representations. A client sends a stateless request to a server element located at a Uniform Resource Identifier (URI) and performs operations with the standard **GET** HTTP method.
24. The default request and response type of the Retrofit API should be in JSON (JavaScript Object Notation) format.

2.2 Authentication and Authorization

25. The Retrofit API leverages API keys for authentication. There are multiple methods to authenticate using an API key. With basic authentication, a client is required to send a username and password with all requests to correctly authenticate. The API encodes these credentials in Base64 format and transmits in the HTTP authorization header. If a request does not include an appropriate Authorization header, the API returns a 401 Authorization Required error.
26. To authenticate using Basic Authentication you must supply the API key as either the username with a blank password, or as the password with a blank username.

Basic Authentication Header (with null username):

```
curl -u :${API_KEY} https://online.ieso.ca/suite/webapi/endpoint
```

Basic Authentication Header (with null password):

```
curl -u ${API_KEY}: https://online.ieso.ca/suite/webapi/endpoint
```

27. To authenticate using an Appian-API-Key header without Basic Authentication you must supply a header called Appian-API-Key as follows:

Appian-API-Key Header:

```
curl https://online.ieso.ca/suite/webapi/endpoint -H "Appian-API-Key: ${API_KEY}"
```

28. To authenticate using a Bearer Token header without Basic Authentication you must supply an Authorization header as follows:

Bearer Token Header: `curl https://online.ieso.ca/suite/webapi/endpoint -H "Authorization: Bearer ${API_KEY}"`

29. HTTPS is required by the Retrofit API to provide end-to-end encryption when sending credential and business data information across the open internet.
30. The API (machine) account should be used to access the Retrofit API. The Rights Administrator registered for your organization needs to request an API account with the “Retrofit API” access role or apply this role to an existing API account in Online IESO by selecting “Manage System Access” under the ACTION tab. The Rights Administrator for your organization must grant the “Retrofit API” access role to a Custodian machine account. If a Custodian has not yet been registered, then the Rights Administrator must request a new machine account and provide the Custodian details.

31. The API account will have the ability to execute the web services for multiple LDCs. LDCs will be responsible for approving access to their information and also that the service provider meets all of their requirements with respect to information protection and privacy.

2.3 API Endpoint

32. Interaction with the Retrofit API begins with a request to the URL. The format of the Retrofit API URL is made up of a root endpoint and a resource URL. For example, to get the list of pre-project applications from the Retrofit system, the API endpoint is this [URL](#). This [URL](#) is the root endpoint and /retrofit-sp/applications/ is the resource URL. The following is the list of the Retrofit API root endpoints.

Table 2-1 API Root Endpoints

Environment	Root Endpoint
Sandbox	URL value
Production	URL value

2.4 API HTTP Methods

33. The Retrofit API uses the standard GET, PUT, DELETE and POST HTTP methods for the different type of request to a resource. The Retrofit API supports the following list of HTTP methods.

Table 2-2 API HTTP Methods

Method	Description
GET	Retrieval of a single resource or search for resources. For example, retrieve an application with details or a list of applications.

2.5 API Status Codes and Error Messages

34. The Retrofit API returns standard HTTP status codes for the API successful or failed calls. The following is a list of most common status codes with a brief description of each code.

Table 2-3 API Status Codes

Code	Text	Description
200	OK	Standard response for successful API requests
201	Created	The resource was successfully created
400	Bad Request	Invalid request due to bad syntax or validation failed.
401	Unauthorized	Authentication has failed or was not provided
403	Forbidden	The request has insufficient permissions to perform the action or read the resource, or the action is unsupported in general
404	Not Found	The requested resource cannot be found
408	Request Timeout	The server did not receive a complete request message within the time that was prepared to wait.
Code	Text	Description

429	Too Many Requests	Too many requests have been made in a given amount of time
500	Internal Server Error	A generic error message when something is broken
503	Service Unavailable	The server is currently unavailable; possibly down for maintenance

35. In general, the status codes follow the following rules:
- a. 200+ means the request has succeeded
 - b. 400+ means an error that originates from the client has occurred
 - c. 500+ means an error that originates from the server has occurred
36. Status code 429 will be returned if the number of requests made by an API account exceeds the following thresholds:

Period	Total Requests (per 5 minutes)
Business Hours (7:00 AM – 6:00 PM EST) Monday-Friday excluding holidays	150
All other hours	600

2.6 API General Validation Rules

37. The Retrofit API solution should be designed and implemented with respect to information protection and privacy. The API should return “Bad Request” with status code 400 if the validation of an API account and Organization relationship failed.
38. The mandatory request and data input parameters such as Organization ID, Application ID, and Facility ID parameters shall be validated before executing web service calls. The API should return “Bad Request” with status code 400 if validations failed.
39. The API shall return “Record Not Found” with status code 404 if the requested record is not found in the Retrofit system.

Table 2-4 API General Validations Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is required	400	{ “message”: “Validation Failed” “details”: “sp_organization_id is required” }

sp_organization_id is invalid	400	{
Validation Rule	HTTP Status Code	Examples/Explanations
		<pre> “message”: “Validation Failed” “details”: “The API account doesn’t have permissions to access Retrofit system for organization “ + sp_organization_id </pre>
Application is not found	404	<pre> { “message”: “Record Not Found” “details”: “Couldn’t find an application with the input parameters in the Retrofit system “ + application_id } </pre>

2.7 Testing the Requests to the API

40. There are numerous tools you can use to test your requests to the Retrofit API. Below is a list of some common tools:
 - a. cURL – cURL is pre-installed on many Linux and Mac systems. Windows users can download a version at this [address](#).
 - b. Postman - Chrome Extension

2.8 API Assumptions and Limitations

41. The Retrofit API solution will only support LDCs uploading and downloading application or facility documents for applications that are in-flight. Once a project has been closed, LDC’s will have to go through our Retrofit solution to download documents.
42. The Retrofit API has the following system default settings.

Table 2-5 API System Default Settings

Attribute	Description
Versioning	The Retrofit API has not stated versioning; however, this attribute has been included in the URL structure for potential usage at a later time. The current defaulted version of the API is “v1”
UTF-8 Encoding	Every string passed to and from the Retrofit API needs to be UTF-8 encoded.
Date Format	All date and time field values are in the ISO standard format (YYYY-MMDDThh:mm:ssZ)

Accept Header	The “Accept” Header must be specified on all GET requests in order to control the accepted output format of the request. The default Accept header is application/json.
Attribute	Description
Content-Type Header	The “Content-Type” header must be specified on POST and PUT requests in order to control the accepted input and output format of the request. The default Content-Type Header is application/json.
batch-size	The maximum number of records returned per request. The default value of batch-size is 1000.
Total-count	The total number of records available for the given input parameters.
Start-index	The index of the first record to be returned, the default value of the start index is 1. If an invalid value is passed the system will use the default (instead of returning a validation error).
File Upload	File uploads must be encoded and transmitted as base64 strings. Maximum file size allowed is 20MB.

43. Unnecessary information in the sample JSON response has been left out for brevity.

– End of Section –

3. Retrofit API Retrieve Functions

3.1 Retrieve Pre-Project or Post-Project Applications

44. The application Service Provider shall be able to retrieve the list of pre-project or post-project applications they require to make their pre-project or post-project application approval decisions.
45. The service provider may specify optional filters to limit the number of results returned

Attribute	Details
URI Suffix	/rft-sp-v1-applications
HTTP Method GET/POST/PUT	GET

3.1.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
geographical_zone_id	Number	Optional	Geographical Zone ID. The list of geographical zones can be found in Section 5
person_id	Number	Optional	Person ID (Applicant or Applicant Representative)
application_status_id1	Number	Optional	Application Status ID, The list of application status codes can be found in Section 4
application_status_id2	Number	Optional	Application Status ID, The list of application status codes can be found in Section 4
application_status_id3	Number	Optional	Application Status ID, The list of application status codes can be found in Section 4
last_updated_dt_from	Date	Optional	Application Last Updated Date From
last_updated_dt_to	Date	Optional	Application Last Updated Date To
start_index	Number	Optional	Response will be limited to a predefined batch size starting at record 1 if the start index is not provided. If the number of total records exceeds the batch size the requester must provide a start_index greater than the batch size to retrieve the subsequent batch of records.

3.1.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is invalid	400	{ "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" }
geographical_zone_id is invalid	400	{ "message": "Validation Failed", "details": "Invalid Geographical Zone ID: " + geographical_zone_id }
application_status_id is invalid	400	{ "message": "Validation Failed", "details": "Could not find the Application Status ID in the Retrofit system " + application_status_id }
Last Updated Date From is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date From is invalid. Last Updated Date From is required if Last Updated Date To is present." }
Last Updated Date To is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date To is invalid. Last Updated Date To is required if Last Updated Date From is present." }
Last Updated Date To is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date To should be greater than Last Updated Date From." }
Start index exceeds total record count	400	{ "message": "Start Index Invalid", "details": "The requested start index exceeds the total number of records " + start_index }

Applications for Person ID not found	404	{ "message": "Record Not Found",
Validation Rule	HTTP Status Code	Examples/Explanations
		"details": "The person ID requested does not exist or is not related to any applications for your LDC. ID:" + person_id }

3.1.3 Response

Field	Data Type	Data Size	Cardinality	Description
application_id	Number	15,0	0..*	Application ID
application_name	String	255	0..*	Application Name
total_est_app_incentive	Number	15,2	0..*	Total Estimated Application Incentive
total_actual_app_incentive	Number	15,2	0..*	Total Actual Application Incentive
application_status_id	Number	15,0	0..*	Application Status ID
application_status_name	String	500	0..*	Application Status Name
application_status_short_name	String	100	0..*	Application Status Short Name
estimated_project_start_date	Date		0..*	Estimated Project Start Date
estimated_completion_date	Date		0..*	Estimated Project Completion Date
lead_ldc_organization_id	Number	15,0	0..*	Application LDC Organization ID
lead_ldc_organization_name	String	75, 0	0..*	Application LDC Organization Name
sp_organization_id	Number	15,0	0..*	Service Provider Organization ID
sp_organization_name	String	75, 0	0..*	Service Provider Organization Name
applicant_person_id	Number	15,0	0..*	Applicant Person ID
applicant_first_name	String	50,0	0..*	Applicant First Name
applicant_last_name	String	50,0	0..*	Applicant Last Name
applicant_account_id	String	100,0	0..*	Applicant Account ID
app_rep_person_id	Number	15,0	0..*	Applicant Rep Person ID
app_rep_first_name	String	50,0	0..*	Applicant Rep First Name
app_rep_last_name	String	50,0	0..*	Applicant Rep Last Name
app_rep_account_id	String	100,0	0..*	Applicant Rep Account ID
adv_incentive_invoice_req	String	1	0..*	Advance Incentive Invoice Required?
advance_incentive_invoice_paid	String	1	0..*	Advance Incentive Invoice Paid?
final_invoice_required	String	1	0..*	Final Invoice Required?
final_invoice_paid	String	1	0..*	Final Invoice Paid?
app_remaining_incentive	Number	15,2	0..*	Application Remaining Incentive
creation_dt	Date		0..*	Creation Date

last_update_dt	Date		0..*	Last Updated Date
multi_site	String	1	0..*	Multiple Site Project Flag (Y or N)
pre_project_submission_date	Date		0..*	Pre-Project Application Submission Date
pre_project_approval_date	Date		0..*	Pre-Project Application Approval Date
pre_project_resubmission	String	1	0..*	Pre-project Resubmission Flag (Y or N)
post_project_submission_date	Date		0..*	Post-Project Application Submission Date
Field	Data Type	Data Size	Cardinality	Description
post_project_approval_date	Date		0..*	Post-Project Application Approval Date
post_project_resubmission	String	1	0..*	Post-project Resubmission Flag (Y or N)
migrated_application	String	1	0..*	Migrated Application
geographical_zone_id	Number	15, 0	0..*	Geographical Zone ID
geographical_zone_name	String	50, 0	0..*	Geographical Zone Name
framework	String	100, 0	0..*	Application Framework (CFF/IF)
start_index	Number	3	0..*	Start Index
batch_size	Number	3	0..*	Batch Size
total_count	Number	3	0..*	Total Count

3.1.4 Sample Request

```
{
  "sp_organization_id": 123456,
  "last_updated_dt_from": "2020-01-01T00:00:00Z"
  "last_updated_dt_to": "2020-01-15T00:00:00Z"
}
```

3.1.5 Sample Response

```
{
  "start_index": 1,
  "batch_size": 200,
```

```

"total_count": 287,
"applications": [{
  "application_id": 234567,
  "application_name": "Test 1",
  "application_status_id": 2,
  .....
},
{
  "application_id": 234568,
  "application_name": "Test2",
  "application_status_id": 3,
  .....
}

```

3.2 Retrieve Pre-Project or Post-Project Application Details

46. The application Service Provider shall be able to retrieve detailed information of a pre-project or post-project application they require to make their pre-project or post-project application approval decisions.
47. This function also retrieves invoice information if a retrofit application has advance incentive invoices or final invoices.

Attribute	Details
URI Suffix	/rft-sp-v1-appdetails
HTTP Method GET/POST/PUT	GET

3.2.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
application_id	Number	Mandatory	Application ID

3.2.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is invalid	400	<pre> { "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" } </pre>

application_id is invalid	400	{ "message": "Validation Failed", "details": "application_id is invalid or was not provided" }
Application is not found	404	{ "message": "Record Not Found" "details": "Could not find an application with the input parameters in the Retrofit system" + application_id }

3.2.3 Response

Field	Data Type	Data Size	Cardinality	Explanations
application_id	Number	15,0	0..1	Application ID
application_name	String	255	0..1	Application Name
lead_ldc_organization_id	Number	15,0	0..1	Lead LDC Organization Id
lead_ldc_organization_name	String	100	0..1	Lead LDC Organization Name
sp_organization_id	Number	15,0	0..*	Service Provider Organization ID
sp_organization_name	String	75, 0	0..*	Service Provider Organization Name
applicant_person_id	Number	15,0	0..1	Applicant Person Id
applicant_person_name	String	50+50	0..1	Applicant Name
applicant_person_email	String	100	0..1	Applicant Email
applicant_person_phone	String	30	0..1	Applicant Phone
applicant_address_id	String	30	0..1	Applicant Address ID
applicant_address1	String	100	0..1	Applicant Address
applicant_address2	String	100	0..1	Applicant Address
applicant_address3	String	100	0..1	Applicant Address
applicant_city	String	50	0..1	Applicant City
applicant_province	String	50	0..1	Applicant Province
applicant_postal_code	String	20	0..1	Applicant Postal Code
applicant_country	String	30	0..1	Applicant Country
applicant_rep_person_id	Number	15,0	0..1	Applicant Rep Person Id
applicant_rep_person_name	String	50+50	0..1	Applicant Rep Name

applicant_rep_person_email	String	100	0..1	Applicant Rep Email
applicant_rep_person_phone	String	30	0..1	Applicant Rep Phone
applicant_rep_address_id	String	30	0..1	Applicant Rep Address ID
applicant_rep_address1	String	100	0..1	Applicant Rep Address
applicant_rep_address2	String	100	0..1	Applicant Rep Address
applicant_rep_address3	String	100	0..1	Applicant Rep Address
applicant_rep_city	String	50	0..1	Applicant Rep City
applicant_rep_province	String	50	0..1	Applicant Rep Province
applicant_rep_postal_code	String	20	0..1	Applicant Rep Postal Code
applicant_rep_country	String	30	0..1	Applicant Rep Country
date_application_received	Date		0..1	Application Received Date
company	String	100	0..1	Company
payee	String	50	0..1	Payee
address_id	String	30	0..1	Application Address ID
address1	String	100	0..1	Application Address
address2	String	100	0..1	Application Address
address3	String	100	0..1	Application Address
city	String	50	0..1	Application City
province	String	50	0..1	Application Province
postal_code	String	20	0..1	Application Postal Code
country	String	30	0..1	Application Country

Field	Data Type	Data Size	Cardinality	Explanations
hst	String	200	0..1	HST Registration Number
application_description	String	4000	0..1	Application Description
application_type	String	50	0..1	Application Type
other_financial_incentives	String	1	0..1	Other Financial Incentives
funding_provider	String	100	0..1	Funding Provider
funding_program_name	String	100	0..1	Funding Program Name
total_funding_amount	Number	15,2	0..1	Total Funding Amount
funding_comments	String	4000	0..1	Funding Comments
estimated_project_start_date	Date		0..1	Estimated Project Start Date
estimated_completion_date	Date		0..1	Estimated Project Completion Date

actual_project_start_date	Date		0..1	Actual Project Start Date
actual_project_completion_date	Date		0..1	Actual Project Completion Date
participant_agreement_auth	String	1	0..1	Participant Agreement Authorization
tot_est_peak_demand_savings	Number	21,3	0..1	Total Estimated Application Peak Demand Savings (kW)
total_est_app_energy_saving	Number	15,3	0..1	Total Estimated Application Energy Savings (kWh)
total_est_app_demand_reduction	Number	15,3	0..1	Total Estimated Application Demand Reduction (kW)
tot_est_regional_adder	Number	15,2	0..1	Total Estimated Regional Adder
total_est_app_incentive	Number	15,2	0..1	Total Estimated Application Incentive
total_est_app_eligible_cost	Number	15,2	0..1	Total Estimated Application Eligible Costs
tot_act_peak_demand_savings	Number	21,3	0..1	Total Actual Application Peak Demand Savings (kW)
total_actual_app_energy_saving	Number	15,3	0..1	Total Actual Application Energy Savings (kWh)
total_actual_app_demand_reduct	Number	15,3	0..1	Total Actual Application Demand Reduction (kW)
tot_act_regional_adder	Number	15,2	0..1	Total Actual Regional Adder
total_actual_app_incentive	Number	15,2	0..1	Total Actual Application Incentive
total_actual_app_eligible_cost	Number	15,2	0..1	Total Actual Application Eligible Costs
total_max_sha_advance_amount	Number	15,2	0..1	Total Maximum SHA Advance Amount
total_appr_sha_advance_amount	Number	15,2	0..1	Total Approved SHA Advance Amount
total_final_sha_amount	Number	15,2	0..1	Total Final SHA Amount
max_mt_advance_incentive_amt	Number	15,2	0..1	Maximum M&T Advance Incentive Amount
total_appr_mt_advance_amt	Number	15,2	0..1	Total Approved M&T Advance Incentive Amount
max_tsm_advance_incentive_amt	Number	15,2	0..1	Maximum TSM Advance Incentive Amount
total_appr_tsm_advance_amt	Number	15,2	0..1	Total Approved TSM Advance Incentive Amount

Field	Data Type	Data Size	Cardinality	Explanations
total_advance_incentive_amount	Number	15,2	0..1	Total Advance Incentive Amount
third_party_reviewer	String	100	0..1	Third Party Reviewer
application_status_id	Number	15,0	0..1	Application Status Id
application_status_name	String	500	0..1	Application Status Name
total_estimated_sha_amount	Number	15,2	0..1	Total Estimated SHA Amount
app_remaining_incentive	Number	15,2	0..1	Application Remaining Incentive
contact_name_emv	String	50	0..1	Contact Name For EM&V

company_name_emv	String	100	0..1	Company Name For EM&V
contact_email_emv	String	100	0..1	Contact Email For EM&V
contact_phone_emv	String	30	0..1	Contact Phone For EM&V
fast_track_eligible	String	1	0..1	Fast Track Eligible?
multi_site	String	1	0..1	Multi-Site?
pre_project_submission_date	Date		0..1	Pre Project Submission Received Date
post_project_submission_date	Date		0..1	Post Project Submission Received Date
send_comm_to_apprep	String	1	0..1	Send Communications To App Rep?
fast_track_approved	String	1	0..1	Fast Track Approved?
paper_copy_application	String	1	0..1	Paper Copy Application?
adv_incentive_invoice_req	String	1	0..1	Advance Invoice Required?
advance_incentive_invoice_paid	String	1	0..1	Advance Incentive Invoice Paid?
final_invoice_paid	String	1	0..1	Final Invoice Paid?
purchase_order_no	String	25	0..1	Purchase Order Number
final_invoice_required	String	1	0..1	Final Invoice Required?
pre_project_ldc_approver	String	100	0..1	Pre-Project LDC Approver
pre_project_resubmission	String	1	0..1	Pre-Project Resubmission?
post_project_resubmission	String	1	0..1	Post Project Resubmission?
fbr_number	String	100	0..1	FBR Number
extension_agreement	String	1	0..1	Extension Agreement?
framework	String	100	0..1	Framework
actual_tenant_edu_incentive	Number	15,2	0..1	Actual Tenant Education Incentive
funding_mechanism	String	50	0..1	Funding Mechanism
pre_project_approval_date	Date		0..1	Pre-Project Approval Date
post_project_approval_date	Date		0..1	Post Project Approval Date
creation_dt	Date		0..1	Creation Date
last_update_dt	Date		0..1	Last Updated Date
hst_exempt	String	1	0..1	HST Exempt
migrated_application	String	1	0..*	Migrated Application
invoice_id	String	50	0..*	Invoice ID

Field	Data Type	Data Size	Cardinality	Explanations
type	String	20	0..*	Invoice Type
creation_dt	Date		0..*	Invoice Creation Date
submission_dt	Date		0..*	Invoice Submission Date
document_name	String	100	0..*	Invoice Document Name

invoice_amount	Number	15,2	0..1	Invoice Amount
accepted	String	1	0..1	Invoice Accepted
invoice_paid	String	1	0..1	Invoice Paid
approved_dt	Date		0..*	Invoice Approved Date
geographical_zone_id	Number	15, 0	0..*	Geographical Zone ID
geographical_zone_name	String	50, 0	0..*	Geographical Zone Name

3.2.4 Sample Request

```
{  
  "sp_organization_id": 123456,  
  "application_id": 234567  
}
```

3.2.5 Sample Response

```
{  
  "application":  
  {  
    "application_id": 234567,  
    "application_name": "Test 1",  
    "application_status_id": 2,  
    .....  
  },  
  "invoices" [  
    {  
      "invoice_id": 101038,  
      "type": "Initial",  
      "document_name": "inv.pdf",  
      "invoice_amount": 500.34,  
      "invoice_paid": "Y",  
      .....  
    },  
    {  
      "invoice_id": 101039,  
      "type": "Final",  
      "document_name": "nv2.pdf",  
      "invoice_amount": 1000.34,  
      "invoice_paid": "N",  
      .....  
    }  
  ]  
}
```

3.3 Retrieve a Pre-Project or Post-Project Application Invoice Document

48. The application Service Provider shall be able to retrieve an in-flight invoice document uploaded within the application.

Attribute	Details
URI Suffix	/rft-sp-v1-appdoc

HTTP Method GET/POST/PUT	GET
Content Type	application/octet-stream

3.3.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
application_id	Number	Mandatory	Application ID
invoice_id	Number	Mandatory	Application Invoice ID

3.3.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is invalid	400	{ "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" }
application_id is invalid	400	{ "message": "Validation Failed", "details": "application_id is invalid or was not provided" }
Application is not found	404	{ "message": "Record Not Found", "details": "Could not find an application with the input parameters in the Retrofit system" + application_id }
invoice_id is required	400	{ "message": "Validation Failed", "details": "invoice_id is invalid or was not provided" }
Validation Rule	HTTP Status Code	Examples/Explanations
		}

Invoice is not found	404	{ "message": "Record Not Found", "details": "Could not find an invoice with the input parameters in the Retrofit system " + invoice_id }
Application closed	400	{ "message": "Application is closed" "details": "This application is in the closed status. You can view the documents by visiting the record in Appian. " }
Document size exceeds 250 MB	400	{ "message": "Validation Failed" "details": "The document cannot be retrieved as the file size exceeds 250 MB " }

3.3.3 Sample Request

```
{
  "sp_organization_Id": 123456,
  "application_Id": 234567,
  "invoice_Id": 101038,
}
```

3.3.4 Sample Response

Authorization	Headers (2)	Body	Pre-request Script	Tests
	Key			Value
<input checked="" type="checkbox"/>	Authorization			Basic dXNlcjp1c2Vy
<input checked="" type="checkbox"/>	Content-Type			application/octet-stream
	New key			Value
Body	Cookies	Headers (10)		Test Results
<p>cache-control → no-cache, no-store, max-age=0, must-revalidate</p> <p>content-disposition → inline; filename="test.docx"</p> <p>content-length → 33510</p> <p>content-type → application/octet-stream</p> <p>date → Thu, 04 Oct 2018 00:55:35 GMT</p> <p>expires → 0</p> <p>pragma → no-cache</p>				

Figure 3-1: Invoice Document Sample Response

3.4 Retrieve Pre-Project or Post-Project Application Facilities Information

49. The application Service Provider shall be able to retrieve pre-project or post-project application facility information they require to make their pre-project or post-project application approval decisions.

Attribute	Details
URI Suffix	/rft-sp-v1-facilities
HTTP Method GET/POST/PUT	GET

3.4.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
application_id	Number	Optional	Application ID
last_updated_dt_from	Date	Optional	Facility Last Updated Date From
last_updated_dt_to	Date	Optional	Facility Last Updated Date To

start_index	Number	Optional	Response will be limited to a predefined batch size starting at record 1 if the start index is not provided. If the number of total records exceeds the batch size the requester must provide a start_index greater than the batch size to retrieve the subsequent batch of records.
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3.4.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is invalid	400	{ "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" }
Application is not found	404	{ "message": "Record Not Found", "details": "Could not find an application with the input parameters in the Retrofit system " + application_id }
Validation Rule	HTTP Status Code	Examples/Explanations
Last Updated Date From is required	400	{ "message": "Validation Failed", "details": "Last Updated Date From is invalid. Last Updated Date From is required if Last Updated Date To is present." }
Last Updated Date To is required	400	{ "message": "Validation Failed", "details": "Last Updated Date To is invalid. Last Updated Date To is required if Last Updated Date From is present." }
Last Updated Date To is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date To should be greater than Last Updated Date From." }

Start index exceeds total record count	400	{ "message": "Start Index Invalid" "details": "The requested start index exceeds the total number of records " + start_index }
----------------------------------------	-----	-----------------------------------------------------------------------------------------------------------------------------------------

3.4.3 Response

Field	Data Type	Data Size	Cardinality	Explanations
application_id	Number	15,0	0..*	Application ID
application_name	String	255	0..*	Application Name
lead_ldc_organization_id	Number	15,0	0..*	Lead LDC Organization ID
lead_ldc_organization_name	String	100	0..*	Lead LDC Organization Name
sp_organization_id	Number	15,0	0..*	Service Provider Organization ID
sp_organization_name	String	75, 0	0..*	Service Provider Organization Name
facility_id	Number	15,0	0..*	Facility ID
facility_name	String	150	0..*	Facility Name
project_description	String	4000	0..*	Project Description
project_size_class	String	100	0..*	Project Size Class
project_type	String	50	0..*	Project Type
estimated_project_start_date	Date		0..*	Estimate Project Start Date
estimated_project_end_date	Date		0..*	Estimate Project End Date
creation_dt	Date		0..*	Creation Date
last_update_dt	Date		0..1	Last Updated Date
migrated_application	String	1	0..*	Migrated Application
start_index	Number	3	0..*	Start Index
batch_size	Number	3	0..*	Batch Size
total_count	Number	3	0..*	Total Count

3.4.4 Sample Request

```
{
  "sp_organization_id": 123456,
  "application_id": 234567
}
```

3.4.5 Sample Response

```
{
  "start_index": 1,
  "batch_size": 200,
  "total_count": 4,
  "facilities": [ {
    "application_id": 123456,
    "application_name": "Test 1",
    "application_status_id": 2,
    "facility_id": 234516, "facility_name":
    "Test Facility 1",
    .....
  },
  {
    "application_id": 234567,
    "application_name ": Test2,
    "application_status_id ": 3,
    "facility_id": 234516, "facility_name
    ": "Test Facility 1",
    .....
  },
  .....
  {
```

3.5 Retrieve Pre-Project or Post-Project Facilities Details

50. The application Service Provider shall be able to retrieve all identified pre-project or post-project application facility detail information they require to make their pre-project or post-project application approval decisions.
51. This function also retrieves site visit information and measures data associated with the requested facility in the Retrofit system.
52. Facility File Uploads and Site Visit Documents can both be retrieved using function 3.6

Attribute	Details
URI Suffix	/rft-sp-v1-facdetails
HTTP Method GET/POST/PUT	GET

3.5.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
application_id	Number	Mandatory	Application ID
facility_id	Number	Mandatory	Facility ID

3.5.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is invalid	400	{ "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" }
application_id is required	400	{ "message": "Validation Failed", "details": "application_id is invalid or was not provided" }
Application is not found	404	{ "message": "Record Not Found", "details": "Could not find an application with the input parameters in the Retrofit system " + application_id }
facility_id is required	400	{
Validation Rule	HTTP Status Code	Examples/Explanations
		"message": "Validation Failed", "details": "facility_id is invalid or was not provided" }
Facility is not found	404	{ "message": "Record Not Found", "details": "Could not find a facility with the input parameters in the Retrofit system " + facility_id }

3.5.3 Response

Field	Data Type	Data Size	Cardinality	Explanations
-------	-----------	-----------	-------------	--------------

application_id	Number	15,0	0..1	Application ID
application_name	String	255	0..1	Application Name
lead_ldc_organization_id	Number	15,0	0..1	Lead LDC Organization ID
lead_ldc_organization_name	String	100	0..1	Lead LDC Organization Name
sp_organization_id	Number	15,0	0..*	Service Provider Organization ID
sp_organization_name	String	75,0	0..*	Service Provider Organization Name
facility_id	Number	15,0	0..1	Facility ID
facility_name	String	150	0..1	Facility Name
project_description	String	4000	0..1	Project Description
project_size_class	String	100	0..1	Project Size Class
project_type	String	50	0..1	Project Type
estimated_project_start_date	Date		0..1	Estimate Project Start Date
estimated_project_end_date	Date		0..1	Estimate Project End Date
tot_est_cost_p_ext_lighting	Number	15,2	0..1	Total estimated eligible costs prescriptive exterior lighting
tot_est_cost_p_nonext_lighting	Number	15,2	0..1	Total estimated incentive prescriptive non-exterior lighting
social_housing_adder	String	1	0..1	Social Housing Adder?
sha_advance_percent	Number	15,4	0..1	SHA Advance Percent
tot_est_facility_eligible_cost	Number	15,2	0..1	Total estimated facility eligible costs
tot_est_incentive_p_nonext_ltg	Number	15,2	0..1	Total estimated incentive prescriptive non-exterior lighting
tot_est_incentive_p_ext_ltg	Number	15,2	0..1	Total estimated incentive prescriptive exterior lighting

Field	Data Type	Data Size	Cardinality	Explanations
cap_tot_est_p_nonext_lighting	Number	15,2	0..1	Capped total estimated incentive prescriptive exterior lighting
cap_tot_est_p_ext_lighting	Number	15,2	0..1	Capped total estimated incentive prescriptive exterior lighting

cap_tot_est_incentive_p	Number	15,2	0..1	Capped total estimated incentive prescriptive
cap_tot_est_incentive_c	Number	15,2	0..1	Capped total estimated incentive custom
cap_tot_est_facility_incentive	Number	15,2	0..1	Capped total estimated facility incentive
tot_act_cost_p_ext_lighting	Number	15,2	0..1	Total actual eligible costs prescriptive exterior lighting
tot_act_cost_p_nonext_lighting	Number	15,2	0..1	Total actual eligible costs prescriptive non-exterior lighting
tot_act_facility_cost	Number	15,2	0..1	Total actual facility eligible cost
tot_act_incentive_p_ext_ltg	Number	15,2	0..1	Total actual incentive prescriptive exterior lighting
tot_act_incentive_p_nonext_ltg	Number	15,2	0..1	Total actual incentive prescriptive nonexterior lighting
cap_tot_act_p_ext_lighting	Number	15,2	0..1	Capped total actual incentive prescriptive exterior lighting
cap_tot_act_p_nonext_lighting	Number	15,2	0..1	Capped total actual incentive prescriptive non-exterior lighting
cap_tot_act_incentive_p	Number	15,2	0..1	Capped total actual incentive prescriptive
cap_tot_act_incentive_c	Number	15,2	0..1	Capped total actual incentive custom
cap_tot_act_facility_incentive	Number	15,2	0..1	Capped total actual facility incentive
facility_remaining_incentive	Number	15,2	0..1	Facility remaining incentive
tot_facility_advance_incentive	Number	15,2	0..1	Total facility advance incentive
is_complete	String	1	0..1	Is complete?
pre_project_ldc_approver	String	100	0..1	Pre-project LDC approver
max_tsm_adv_incentive_amt	Number	15,2	0..1	Maximum TSM advanced incentive amount
approved_tsm_adv_incentive_amt	Number	15,2	0..1	Approved TSM advanced incentive amount
max_mt_adv_incentive_amt	Number	15,2	0..1	Maximum M&T advanced incentive amount
approved_mt_adv_incentive_amt	Number	15,2	0..1	Approved M&T advanced incentive amount
actual_project_start_date	Date		0..1	Actual project start date
actual_project_end_date	Date		0..1	Actual project end date

select_preproject_site_visit	String	1	0..1	Selected for pre-project site visit?
select_postproject_site_visit	String	1	0..1	Selected for post-project site visit?

Field	Data Type	Data Size	Cardinality	Explanations
address_id	String	30	0..1	Address ID
address1	String	100	0..1	Facility Address Line 1
address2	String	100	0..1	Facility Address Line 2
address3	String	100	0..1	Facility Address Line 3
city	String	50	0..1	Facility Address City
province	String	20	0..1	Facility Address Province
postal_code	String	20	0..1	Facility Address Postal Code
electric_utility_number	String	100	0..1	Electric Utility Number
facility_type_id	Number	15,0	0..1	Facility Type ID
facility_type_name	String	200	0..1	Facility Type Name
estimated_tenant_edu_incentive	Number	15,2	0..1	Estimated Tenant Education Incentive
actual_tenant_edu_incentive	Number	15,2	0..1	Actual Tenant Education Incentive
farm_registration_no	String	100	0..1	Farm registration number
ownership_type	String	50	0..1	Ownership type
tot_est_cost_pres_measure	Number	15,2	0..1	Total estimated eligible costs prescriptive measures
tot_est_cost_custom_measure	Number	15,2	0..1	Total estimated eligible costs custom measures
adder_zone_id	Number	15	0..1	Adder Zone ID associated with Facility
p_adder_percent	Number	15,3	0..1	Prescriptive Adder Percentage
c_adder_percent	Number	15,3	0..1	Custom Adder Percentage
tot_est_pres_adder	Number	15,2	0..1	Total estimated prescriptive adder
tot_act_pres_adder	Number	15,2	0..1	Total actual prescriptive adder
est_p_facility_adder	Number	15,2	0..1	Estimated prescriptive facility adder
est_c_facility_adder	Number	15,2	0..1	Estimated custom facility adder
act_p_facility_adder	Number	15,2	0..1	Actual prescriptive facility adder
act_c_facility_adder	Number	15,2	0..1	Actual custom facility adder
tot_est_facility_adder	Number	15,2	0..1	Total estimated facility adder
tot_act_facility_adder	Number	15,2	0..1	Total actual facility adder

sp_adder_zone_override	String	1	0..*	SP override adder zone flag
tot_est_incentive_pres_measure	Number	15,2	0..1	Total estimated incentive prescriptive measures
tot_est_incentive_cust_measure	Number	15,2	0..1	Total estimated incentive custom measures
tot_est_facility_incentive	Number	15,2	0..1	Total estimated facility incentive
tot_actual_incentive_p_measure	Number	15,2	0..1	Total actual incentive prescriptive measures
tot_actual_incentive_c_measure	Number	15,2	0..1	Total actual incentive custom measures
tot_actual_facility_incentive	Number	15,2	0..1	Total actual facility incentive

Field	Data Type	Data Size	Cardinality	Explanations
tot_actual_cost_p_measure	Number	15,2	0..1	Total actual eligible costs prescriptive measures
tot_actual_cost_cust_measure	Number	15,2	0..1	Total actual eligible costs custom measures
tot_est_peak_demand_savings	Number	21,3	0..1	Total Estimated Peak Demand Savings
tot_estimated_kw_reduction	Number	15,3	0..1	Total estimated kW reduction
tot_estimated_kwh_saving	Number	15,3	0..1	Total estimated kWh savings
tot_act_peak_demand_savings	Number	21,3	0..1	Total Actual Peak Demand Savings
tot_actual_kw_reduction	Number	15,3	0..1	Total actual kW reduction
tot_actual_kwh_saving	Number	15,3	0..1	Total actual kWh savings
max_sha_adv_incentive_amt	Number	15,2	0..1	Maximum SHA advance incentive amount
approved_sha_adv_incentive_amt	Number	15,2	0..1	Approved SHA advance incentive amount
ldc_multi_site_fee	Number	15,2	0..1	LDC multi-site fee
estimated_sh_adder_amount	Number	15,2	0..1	Estimated SH adder amount
actual_sh_adder_amount	Number	15,2	0..1	Actual SH adder amount
third_party_reviewer	String	100	0..1	Third Party Reviewer
est_kwh_sav_pres_measures	Number	15,3	0..1	Estimated kWh Savings Prescriptive Measures
est_peak_demand_sav_p_measures	Number	21,3	0..1	Estimated Peak Demand Savings Prescriptive Measures
est_kw_reduct_pres_measures	Number	15,3	0..1	Estimated kW Reduction Prescriptive Measures

act_kwh_sav_pres_measures	Number	15,3	0..1	Actual kWh Savings Prescriptive Measures
act_peak_demand_sav_p_measures	Number	21,3	0..1	Actual Peak Demand Savings Prescriptive Measures
act_kw_reduct_pres_measures	Number	15,3	0..1	Estimated kW Reduction Prescriptive Measures
est_kwh_sav_cust_measures	Number	15,3	0..1	Estimated kWh Savings Custom Measures
est_kw_reduct_cust_measures	Number	15,3	0..1	Estimated kW Reduction Custom Measures
act_kwh_sav_cust_measures	Number	15,3	0..1	Actual kWh Savings Custom Measures
act_kw_reduct_cust_measures	Number	15,3	0..1	Actual kW Reduction Custom Measures
creation_dt	Date		0..1	Creation Date
last_update_dt	Date		0..1	Last Updated Date
migrated_application	String	1	0..*	Migrated Application
upload_file_doc_id	Number	15,0	0..*	Facility Upload Document ID
upload_file_doc_name	String	500	0..*	Facility Upload Document Name

Field	Data Type	Data Size	Cardinality	Explanations
creation_dt	Date		0..1	Facility Upload Creation Date
custom_measure_id	Number	15,0	0..*	Custom Measure ID
prescriptive_measure_id	Number	15,0	0..*	Prescriptive Measure ID
site_visit_info_id	Number	15,0	0..*	Facility Site Visit Info ID
site_visit_name	String	200	0..*	Facility Site Visit Name
site_visit_date	Date		0..*	Facility Site Visit Date
stage	String	50	0..*	Facility Site Visit Stage
site_visit_note	String	4000	0..*	Facility Site Visit Note
evaluator_assigned	String	50	0..*	Facility Site Visit Assigned Evaluator
evaluator_company	String	255	0..*	Facility Site Visit Evaluator Company
doc_id	Number	15,0	0..*	Facility Site Visit Document ID
upload_file	String	255	0..*	Facility Site Visit Document Name
custom_measure_id	Number	15,0	0..*	Custom Measure ID
custom_measure_name	String	100	0..*	Custom Measure Name
custom_measure_category	String	50	0..*	Custom Measure Category
end_use	String	100	0..*	End Use

sub_category	String	255	0..*	Sub Category
sub_category_other	String	500	0..*	Sub Category other
base_case_description	String	4000	0..*	Base Case Description
energy_efficient_case_desc	String	4000	0..*	Energy Efficient Case Description
manufacturer	String	100	0..*	Manufacturer
model_number	String	50 or 100	0..*	Model Number
est_base_case_consumption	Number	15,3	0..*	Estimated Base Case Consumption (kWh)
est_energy_eff_case_consume	Number	15,3	0..*	Estimated Energy Efficient Case Consumption (kWh)
est_base_case_demand	Number	15,3	0..*	Estimated Base Case Demand (kW)
est_energy_eff_case_demand	Number	15,3	0..*	Estimated Energy Efficient Case Demand (kW)
actual_base_case_consumption	Number	15,3	0..*	Actual Base Case Consumption (kWh)
actual_nrg_eff_case_consume	Number	15,3	0..*	Actual Energy Efficient Case Consumption (kWh)
actual_base_case_demand	Number	15,3	0..*	Actual Base Case Demand (kW)
actual_nrg_eff_case_demand	Number	15,3	0..*	Actual Energy Efficient Case Demand (kW)
estimated_kwh_savings	Number	15,3	0..*	Estimated kWh Savings
actual_kwh_savings	Number	15,3	0..*	Actual kWh Savings
estimated_kw_reduction	Number	15,3	0..*	Estimated kW Reduction
actual_kw_reduction	Number	15,3	0..*	Actual kW Reduction
incentive_metric_pre_project	Number	15,3	0..*	Incentive Metric (kW or kWh) Pre-Project

Field	Data Type	Data Size	Cardinality	Explanations
calculated_incentive_pre_proj	Number	15,2	0..*	Calculated Incentive Pre-Project
incentive_metric_post_project	Number	15,3	0..*	Incentive Metric (kW or kWh) Post-Project
calculated_incentive_post_proj	Number	15,2	0..*	Calculated Incentive Post-Project
estimated_equipment_cost	Number	15,2	0..*	Estimated Equipment Cost
actual_equipment_cost	Number	15,2	0..*	Actual Equipment Cost
estimated_cost_summary	Number	15,2	0..*	Estimated Cost Summary
actual_cost_summary	Number	15,2	0..*	Actual Cost Summary
one_month_meter_load	Number	15,3	0..*	One Month Meter Load

mt_advance_incentive	String	1	0..*	M&T advance incentive?
tsm_advance_incentive	String	1	0..*	TSM advance incentive?
estimated_installation_cost	Number	15,2	0..*	Estimated Installation Cost
actual_installation_cost	Number	15,2	0..*	Actual Installation Cost
is_complete	String	1	0..*	Is complete?
engineered	String	1	0..*	Engineered?
creation_dt	Date		0..*	Custom Measure Creation Date
prescriptive_measure_id	Number	15,0	0..*	Prescriptive Measure ID
conservation_measure_name	String	255	0..*	Conservation measure name
measure_category	String	100	0..*	Measure category
manufacturer	String	100	0..*	Manufacturer
model_number	String	50 or 100	0..*	Model Number
estimated_quantity	Number	15,0	0..*	Estimated Quantity
actual_quantity	Number	15,0	0..*	Actual Quantity
measure_unit	String	100	0..*	Measure Unit
estimated_kw_reduction	Number	15,3	0..*	Estimated kW Reduction
actual_kw_reduction	Number	15,3	0..*	Actual kW Reduction
estimated_kwh_saving	Number	15,3	0..*	Estimated kWh Savings
actual_kwh_saving	Number	15,3	0..*	Actual kWh Savings
incentive_per_unit	Number	15,2	0..*	Incentive per Unit
adder_zone_ids	String	255	0..*	Measure adder zone IDs
adder_start_date	Date		0..*	Adder start date
adder_end_date	Date		0..*	Adder end date
adder_type	String	50	0..*	Adder type
adder_value	Number	15,2	0..*	Adder value
zone_based_visibility	String	1	0..*	Zone based visibility flag
estimated_adder	Number	15,2	0..*	Estimated adder
actual_adder	Number	15,2	0..*	Actual adder

Field	Data Type	Data Size	Cardinality	Explanations
estimated_calculated_incentive	Number	15,2	0..*	Estimated Calculated Incentive

actual_calculated_incentive	Number	15,2	0..*	Actual Calculated Incentive
measure_description	String	1024	0..*	Measure description
energy_saving_per_unit	Number	15,3	0..*	Energy Saving per Unit
demand_saving_per_unit	Number	15,2	0..*	Demand Saving per Unit
peak_demand_savings	Number	20,5	0..*	Peak Demand Savings
est_peak_demand_savings	Number	20,5	0..*	Estimated Peak Demand Savings
act_peak_demand_savings	Number	20,5	0..*	Actual Peak Demand Savings
cas_measure_id	Number	15,0	0..*	CAS Measure ID
is_quasi	String	1	0..*	Is Quasi?
var_a_name	String	100	0..*	Variable A Name
var_a_min	Number	15,5	0..*	Variable A Minimum value
var_a_max	Number	15,5	0..*	Variable A Maximum value
estimated_var_a_value	Number	15,5	0..*	Estimated Variable A value
actual_var_a_value	Number	15,5	0..*	Actual Variable A value
var_b_name	String	100	0..*	Variable B Name
var_b_min	Number	15,5	0..*	Variable B Minimum value
var_b_max	Number	15,5	0..*	Variable B Maximum value
estimated_var_b_value	Number	15,5	0..*	Estimated Variable B value
actual_var_b_value	Number	15,5	0..*	Actual Variable B value
var_c_name	String	100	0..*	Variable C Name
var_c_min	Number	15,5	0..*	Variable C Minimum value
var_c_max	Number	15,5	0..*	Variable C Maximum value
estimated_var_c_value	Number	15,5	0..*	Estimated Variable C value
actual_var_c_value	Number	15,5	0..*	Actual Variable C value
var_d_name	String	100	0..*	Variable D Name
var_d_min	Number	15,5	0..*	Variable D Minimum value
var_d_max	Number	15,5	0..*	Variable D Maximum value
estimated_var_d_value	Number	15,5	0..*	Estimated Variable D value
actual_var_d_value	Number	15,5	0..*	Actual Variable D value
var_e_name	String	100	0..*	Variable E Name
var_e_min	Number	15,5	0..*	Variable E Minimum value
var_e_max	Number	15,5	0..*	Variable E Maximum value
estimated_var_e_value	Number	15,5	0..*	Estimated Variable E value

actual_var_e_value	Number	15,5	0..*	Actual Variable E value
var_f_name	String	100	0..*	Variable F Name
var_f_min	Number	15,5	0..*	Variable F Minimum value

Field	Data Type	Data Size	Cardinality	Explanations
var_f_max	Number	15,5	0..*	Variable F Maximum value
estimated_var_f_value	Number	15,5	0..*	Estimated Variable F value
actual_var_f_value	Number	15,5	0..*	Actual Variable F value
var_g_name	String	100	0..*	Variable G Name
var_g_min	Number	15,5	0..*	Variable G Minimum value
var_g_max	Number	15,5	0..*	Variable G Maximum value
estimated_var_g_value	Number	15,5	0..*	Estimated Variable G value
actual_var_g_value	Number	15,5	0..*	Actual Variable G value
var_h_name	String	100	0..*	Variable H Name
var_h_min	Number	15,5	0..*	Variable H Minimum value
var_h_max	Number	15,5	0..*	Variable H Maximum value
estimated_var_h_value	Number	15,5	0..*	Estimated Variable H value
actual_var_h_value	Number	15,5	0..*	Actual Variable H value
var_j_name	String	100	0..*	Variable J Name
var_j_min	Number	15,5	0..*	Variable J Minimum value
var_j_max	Number	15,5	0..*	Variable J Maximum value
estimated_var_j_value	Number	15,5	0..*	Estimated Variable J value
actual_var_j_value	Number	15,5	0..*	Actual Variable J value
incentive_vars	String	150	0..*	Variables for Incentive
incentive_formula	String	1	0..*	Formula for Incentive
kwh_savings_vars	String	150	0..*	Variables for kWh savings
kwh_savings_formula	String	1	0..*	Formula for kWh savings
kw_reduction_vars	String	150	0..*	Variables for kW reduction
kw_reduction_formula	String	1	0..*	Formula for kWh reduction
peak_demand_savings_vars	String	150	0..*	Variables for Peak Demand Savings
peak_demand_savings_formula	String	1	0..*	Formula for Peak Demand Savings
inc_lifecycle_cost_vars	String	150	0..*	Variables for Incremental Lifecycle Cost

inc_lifecycle_cost_formula	String	1	0..*	Formula for Incremental Lifecycle Cost
estimated_inc_lifecycle_cost	Number	15,2	0..*	Estimated Incremental Lifecycle Cost
actual_inc_lifecycle_cost	Number	15,2	0..*	Actual Incremental Lifecycle Cost
end_use	String	255	0..*	End-use
eligibility_criteria	String	1000	0..*	Eligibility criteria
is_complete	String	1	0..*	Is complete?
es_dlc_code	String	50	0..*	ES/DLC Code
assumed_base_case	String	255	0..*	Assumed Base Case
creation_dt	Date		0..*	Prescriptive Measure Creation Date

3.5.4 Sample Request

```
{
  "organization_Id": 123456,
  "application_id": 123,
  "facility_id": 125
}
```

3.5.5 Sample Response

```
{
  "facility": {
    "application_id": 123456,
    "application_name": "Test 1",
    "facility_id": 234516, "facility_name": "Test Facility 1",
    .....
  },
  "documents" [
    {
      "upload_file_doc_id": 101038,
      "upload_file_doc_name": "ManufacturerSpecSheet.pdf",
      "creation_dt": "2023-08-09T06:34:08Z",
      "custom_measure_id": null,
      "prescriptive_measure_id": 117978
    }
    .....
  ],
  "site_visits" [
    {
      "doc_id": 101038,
      "upload_file": "site.pdf",
      .....
    }
    .....
  ],
  "custom_measures" [
    {
      "custom_measure_id": 153467,
      "custom_measure_name": "custom measure test",
      .....
    }
    .....
  ],
  "prescriptive_measures" [
    {
      "prescriptive_measure_id": 153468,
      "prescriptive_measure_name": "prescriptive_measure test",
      .....
    }
    .....
  ]
}
```

]
}

3.6 Retrieve a Pre-Project or Post-Project Facility Document

- 53. The application Service Provider shall be able to retrieve a document uploaded with the facility
- 54. The application Service Provider shall be able to retrieve a document related to the facility to which they have been assigned to as a Satellite LDC.
- 55. This function will allow the retrieval of either Facility File Upload documents or Site Visit Documents.

Attribute	Details
URI Suffix	/rft-sp-v1-facdoc
HTTP Method GET/POST/PUT	GET
Response Content Type	application/octet-stream

3.6.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
application_id	Number	Mandatory	Application ID
facility_id	Number	Mandatory	Facility ID
document_id	Number	Mandatory	Facility Document ID

3.6.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is invalid	400	{ "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" }
application_id is invalid	400	{ "message": "Validation Failed", "details": "application_id is invalid or was not provided" }

Application is not found	404	{ "message": "Record Not Found", "details": "Could not find an application with the input parameters in the Retrofit system" + application_id }
facility_id is required	400	{
Validation Rule	HTTP Status Code	Examples/Explanations
		"message": "Validation Failed", "details": "facility_id is invalid or was not provided" }
Facility is not found	404	{ "message": "Record Not Found", "details": "Could not find a facility with the input parameters in the Retrofit system" + facility_id }
document_id is required	400	{ "message": "Validation Failed", "details": "document_id is invalid or was not provided" }
Document is not found	404	{ "message": "Record Not Found", "details": "Could not find a document with the input parameters in the Retrofit system " + document_id }
Application closed	400	{ "message": "Application is closed" "details": "This application is in the closed status. You can view the documents by visiting the record in Appian. " }
Document size exceeds 250 MB	400	{ "message": "Validation Failed" "details": "The document cannot be retrieved as the file size exceeds 250 MB " }

3.6.3 Sample Request

```
{
  "sp_organization_id": 123456,
```



```
"application_id": 1234,
"invoice_id": 123,
"document_id": 123,
}
```

3.6.4 Sample Response

Key	Value
<input checked="" type="checkbox"/> Authorization	Basic dXNlcjp1c2Vy
<input checked="" type="checkbox"/> Content-Type	application/octet-stream
New key	Value

cache-control → no-cache, no-store, max-age=0, must-revalidate
content-disposition → inline; filename="test.docx"
content-length → 33510
content-type → application/octet-stream
date → Thu, 04 Oct 2018 00:55:35 GMT
expires → 0
pragma → no-cache

Figure 3-2: Facility Document Sample Response

3.7 Retrieve Applicants and Applicant Representatives

56. A Service Provider shall be able to retrieve the unique list of all applicants and applicant representatives associated to applications in which the organization is the designated Service Provider.

Attribute	Details
URI Suffix	/rft-sp-v1-persons
HTTP Method GET/POST/PUT	GET

3.7.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
person_id	Number	Optional	Person ID

last_updated_dt_from	Date	Optional	Person Last Updated Date From
last_updated_dt_to	Date	Optional	Person Last Updated Date To
start_index	Number	Optional	Response will be limited to a predefined batch size starting at record 1 if the start index is not provided. If the number of total records exceeds the batch size the requester must provide a start_index greater than the batch size to retrieve the subsequent batch of records.

3.7.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is required	400	{ "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" }
Last Updated Date From is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date From is invalid. Last Updated Date From is required if Last Updated Date To is present." }
Last Updated Date To is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date To is invalid. Last Updated Date To is required if Last Updated Date From is present." }
Validation Rule	HTTP Status Code	Examples/Explanations
Last Updated Date To is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date To should be greater than Last Updated Date From." }

Start index exceeds total record count	400	{ "message": "Start Index Invalid", "details": "The requested start index exceeds the total number of records " + start_index }
Person not found	404	{ "message": "Record Not Found", "details": "Person ID does not exist or is not associated with any applications for selected Organization ID" }
person_id is invalid	400	{ "message": "Validation Failed", "details": "person_id is invalid" }

3.7.3 Response

Field	Data Type	Data Size	Cardinality	Description
sp_organization_id	Number	15, 0	0..1	Service Provider Organization ID
sp_organization_name	String	75	0..1	Service Provider Organization Name
person_id	Number	15, 0	0..1	Person ID
first_name	String	50	0..1	First Name
last_name	String	50	0..1	Last Name
phone	String	30	0..1	Phone Number
Field	Data Type	Data Size	Cardinality	Description
email	String	100	0..1	Email Address
address_id	String	30	0..1	Address ID
address1	String	100	0..1	Address 1
address2	String	50	0..1	Address 2
address3	String	50	0..1	Address 3
city	String	50	0..1	City
province	String	20	0..1	Province
postal_code	String	20	0..1	Postal Code

country	String	20	0..1	Country
applicant_flag	String	1	0..1	Applicant Flag (Y/N)
applicant_rep_flag	String	1	0..1	Applicant Representative Flag (Y/N)
save_on_energy_source	String	50	0..1	Save on Energy Source
creation_dt	Date		0..1	Creation Date
last_update_dt	Date		0..1	Last Update Date
start_index	Number	3	0..*	Start Index
batch_size	Number	3	0..*	Batch Size
total_count	Number	3	0..*	Total Count

3.7.4 Sample Request

```
{
  "sp_organization_id": 123456
}
```

3.7.5 Sample Response

```
{
  "start_index": 1,
  "batch_size": 200,
  "total_count": 21,
  "users": [ {
    "sp_organization_id": 123456,
    "person_id": 100001,
    "first_name": "John",
    "last_name": "Doe",
    .....
  },
  {
    "sp_organization_id": 123456,
    "person_id": 100002,
    "first_name": "Jane",
    "last_name": "Doe",
    .....
  }
}
```

3.8 Retrieve Pre-Project or Post-Project Application Comments

57. The application Service Provider shall be able to retrieve the list of pre-project or post-project application comments.

Attribute	Details
URI Suffix	/rft-sp-v1-appcomments
HTTP Method GET/POST/PUT	GET

3.8.1 Request Parameters

Parameter	Data Type	Optionality	Explanations
sp_organization_id	Number	Mandatory	Service Provider Organization ID
application_id	Number	Optional	Application ID
last_updated_dt_from	Date	Optional	Application Comments Last Updated Date From
last_updated_dt_to	Date	Optional	Application Comments Last Updated Date To
start_index	Number	Optional	Response will be limited to a predefined batch size starting at record 1 if the start index is not provided. If the number of total records exceeds the batch size the requester must provide a start_index greater than the batch size to retrieve the subsequent batch of records.

3.8.2 Request Validation Rules

Validation Rule	HTTP Status Code	Examples/Explanations
sp_organization_id is required	400	{ "message": "Validation Failed", "details": "sp_organization_id is invalid or was not provided" }
Last Updated Date From is required	400	{ "message": "Validation Failed", "details": "Last Updated Date From is invalid. Last Updated Date From is required if Last Updated Date To is present." }

Validation Rule	HTTP Status Code	Examples/Explanations
Last Updated Date To is required	400	{ "message": "Validation Failed", "details": "Last Updated Date To is invalid. Last Updated Date To is required if Last Updated Date From is present." }
Last Updated Date To is invalid	400	{ "message": "Validation Failed", "details": "Last Updated Date To should be greater than Last Updated Date From. " }
Start index exceeds total record count	400	{ "message": "Start Index Invalid", "details": "The requested start index exceeds the total number of records" + start_index }

3.8.3 Response

Field	Data Type	Data Size	Cardinality	Description
action_id	Number	15,0	0..*	
app_ldc_organization_id	Number	15,0	0..*	Application Lead LDC Organization ID
app_ldc_organization_name	String	75	0..*	Application Lead LDC Organization Name
sp_organization_id	Number	15,0	0..*	Service Provider Organization ID
sp_organization_name	String	75, 0	0..*	Service Provider Organization Name
application_id	Number	15,0	0..*	Application ID
facility_id	Number	15,0	0..*	Facility ID
object_type	String	11	0..*	Object Type - Application or Facility
action_type_id	Number	15,0	0..*	Action Type ID
action_type_name	String	100	0..*	Action Type Name
action	String	4000	0..*	Action
comments	String	4000	0..*	Comments
account_id	String	100	0..*	Account Id
user_role	String	200	0..*	User Role
submitted_to	String	200	0..*	Submitted To

action_date	Date		0..*	Action Date
Field	Data Type	Data Size	Cardinality	Description
start_index	Number	3	0..*	Start Index
batch_size	Number	3	0..*	Batch Size
total_count	Number	3	0..*	Total Count

3.8.4 Sample Request

```
{
  "sp_organization_id": 123456,
  "application_id": 100501
}
```

3.8.5 Sample Response

```
{
  "start_index": 1,
  "batch_size": 200,
  "total_count": 10,
  "comments": [ {
    "action_id": 104532,
    "app_ldc_organization_id": 100000
    "app_ldc_organization_name": "Test LDC",
    "sp_organization_id": 123456,
    "sp_organization_name": "Service Provider ABC",
    "application_id": 100501,
    "facility_id": null,
    "object_type": "Application",
    "action_type_id": 13,
    "action_type_name": "Reviewed by Lead LDC",
    "comments": "Application information confirmed",
    "account_id": "doej",
    "user_role": "TEST LDC Lead LDC Analyst",
    "submitted_to": "Applicant",
    "action_date": "2018-12-09T11:12:32Z",
  },
  "action_id": 104532,
  "app_ldc_organization_id": 100000
  "app_ldc_organization_name": "Test LDC",
  "sp_organization_id": 123456,
  "sp_organization_name": "Service Provider ABC",
  "application_id": 100501,
  "facility_id": null,
  "object_type": "Application",
  "action_type_id": 21,
  "action_type_name": "Submitted by Applicant",
  "comments": "Please review",
  "account_id": "applicant@applicant.com",
  "user_role": "Applicant",
  "submitted_to": "Lead LDC Analyst",
  "action_date": "2018-12-01T11:12:32Z",
}
}
```


– End of Section –

4. Retrofit Application Status Codes

58. The Retrofit application status is the status that the application can have during different phase of the application. The following is a list of application status codes with a brief description of each code.

Table 4-1 Retrofit Application Status Codes

Code	Description
1	Pre-Project Application Saved As Draft
2	Pre-Project Application Sent To Applicant
3	Pre-Project Application Submitted For Approval
4	Pre-Project Application Under Review
5	Pre-Project Facility Review Submitted
6	Pre-Project Application Returned As Ineligible
7	Pre-Project Application Returned For Edits
8	Pre-Project Facility Review Returned For Edits
9	Pre-Project Application Approved
11	Post-Project Submission Saved As Draft
12	Post-Project Submission Sent To Applicant
13	Post-Project Submission Submitted For Approval
14	Post-Project Submission Under Review
15	Post-Project Submission Returned As Ineligible
16	Post-Project Submission Returned For Edits
17	Post-Project Facility Review Submitted
18	Post-Project Facility Review Returned For Edits
19	Post-Project Submission Approved
21	Transferred to CAS
22	Settled with IESO
27	Pre-Project Advance Incentive Invoice Initiated
28	Pre-Project Advance Incentive Invoice Submitted
29	Pre-Project Application Amendment Initiated
30	Pre-Project Application Amendment Submitted

31	Pre-Project Advance Incentive Returned for Edits
33	Post-Project Final Invoice Initiated
34	Post-Project Final Invoice Submitted
35	Post-Project Final Invoice Returned for Edits
36	Project Closed
Code	Description
37	Pre-Project Application Amendment Returned to Applicant
38	Pre-Project Application Amendment Under Review
39	Pre-Project Advance Incentive Invoice Under Review
40	Final Invoice Under Review

– End of Section –

5. Retrofit Application Geographical Zones

59. A geographical zone is assigned to Interim Framework (IF) applications based on the postal code of the facilities in an application. The list of geographical zones are listed below.

Geographical Zone ID	Geographical Zone Name
1	Toronto
2	Greater Toronto Area
3	South West
4	North + East
5	Toronto
6	Central
7	South Western
8	Eastern
9	Northern

References

Document Title	Document ID

Related Documents

Document Title	Document ID
Manage Retrofit Program - Information Model	MDL-126
Manage Retrofit Program - Information Catalogue	CAT-21

– End of Document –