

M-RETS Renewable Thermal Tracking System (RTC) Demo

Ammonia Energy Association 2023
Conference

M-RETS



Renewable Electricity



Renewable Thermal

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System Administrator

Background

Mission: M-RETS validates the environmental attributes of energy to serve as a trusted centralized gateway to environmental markets.



M-RETS
Renewable Thermal



M-RETS
Renewable Electricity

www.mrets.org



M-RETS creates and tracks Renewable Thermal Certificates (RTCs) and Renewable Electricity Certificates (RECs) across North America.

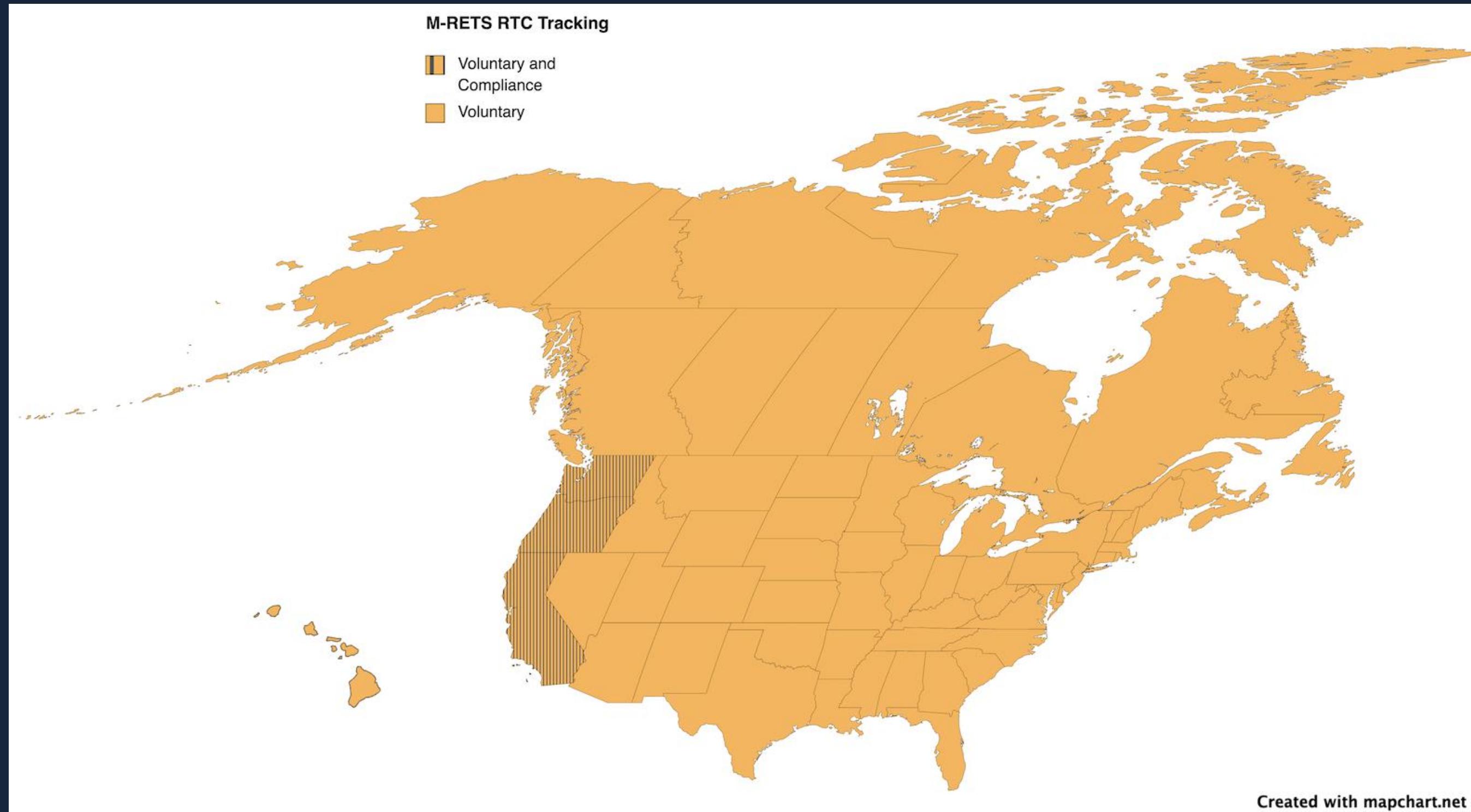


M-RETS RECs are able to contain hourly data information and peak/off-peak and RTC's may include verified carbon intensity data.



M-RETS supports RTC and REC compliance and voluntary markets in one easy to use platform that utilizes the latest software.

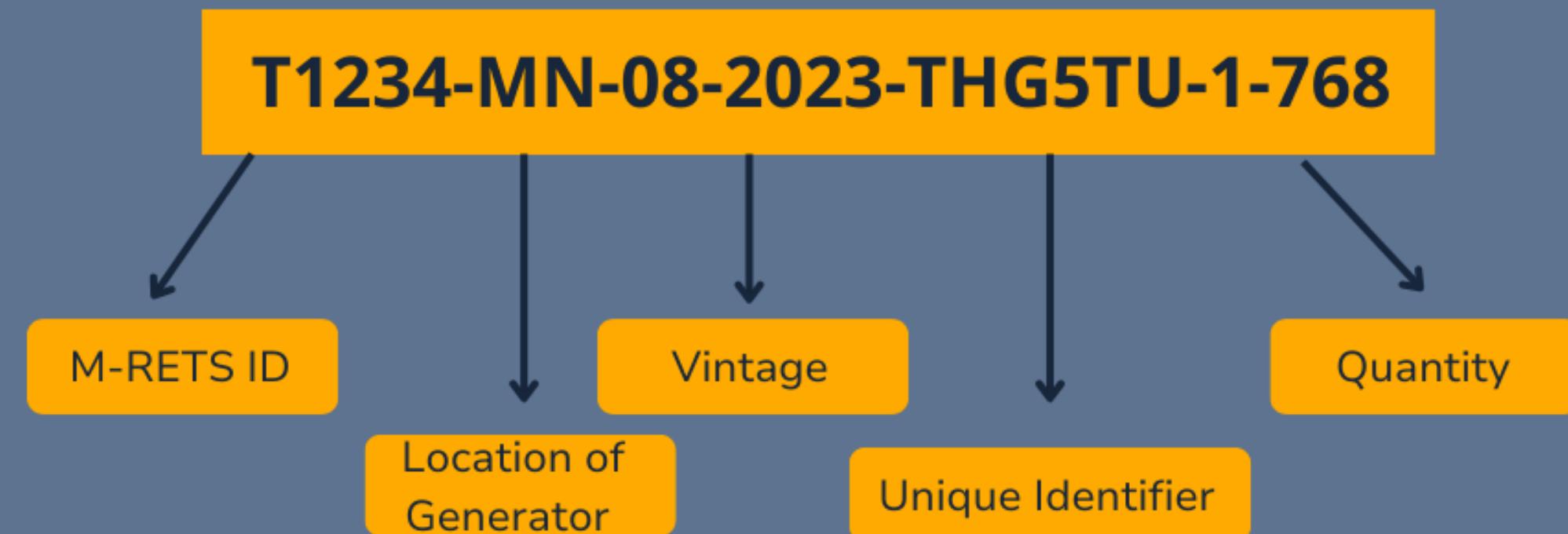
M-RETS Service Territory



Renewable Thermal Tracking System (RTC)

- A **Renewable Thermal Certificate (RTC)** is a unique representation of the Environmental Attributes associated with the production and use of one dekatherm (Dth) of renewable thermal energy.
- Tracking System Goals:
 - Increased market transparency
 - Higher level of integrity and assurance
 - Increased liquidity (both exchange-based and over-the-counter bilateral transactions)
 - Scientifically validated carbon intensities to facilitate GHG reduction claims

Anatomy of an RTC



Certificate Details Include:

- Serial Number
- Account
- Project
- Thermal Resource
- Feedstock
- Vintage
- Location
- Quantity

If applicable:

- Eligibilities
- Carbon Pathways
- Independent Reporting Entity

Verified

Demo

X M-RETS Main RT Organization ▾  Alice Super ▾

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Welcome to M-RETS!
We've improved our platform to better serve Renewable Energy Markets across North America.

QUICK LINKS

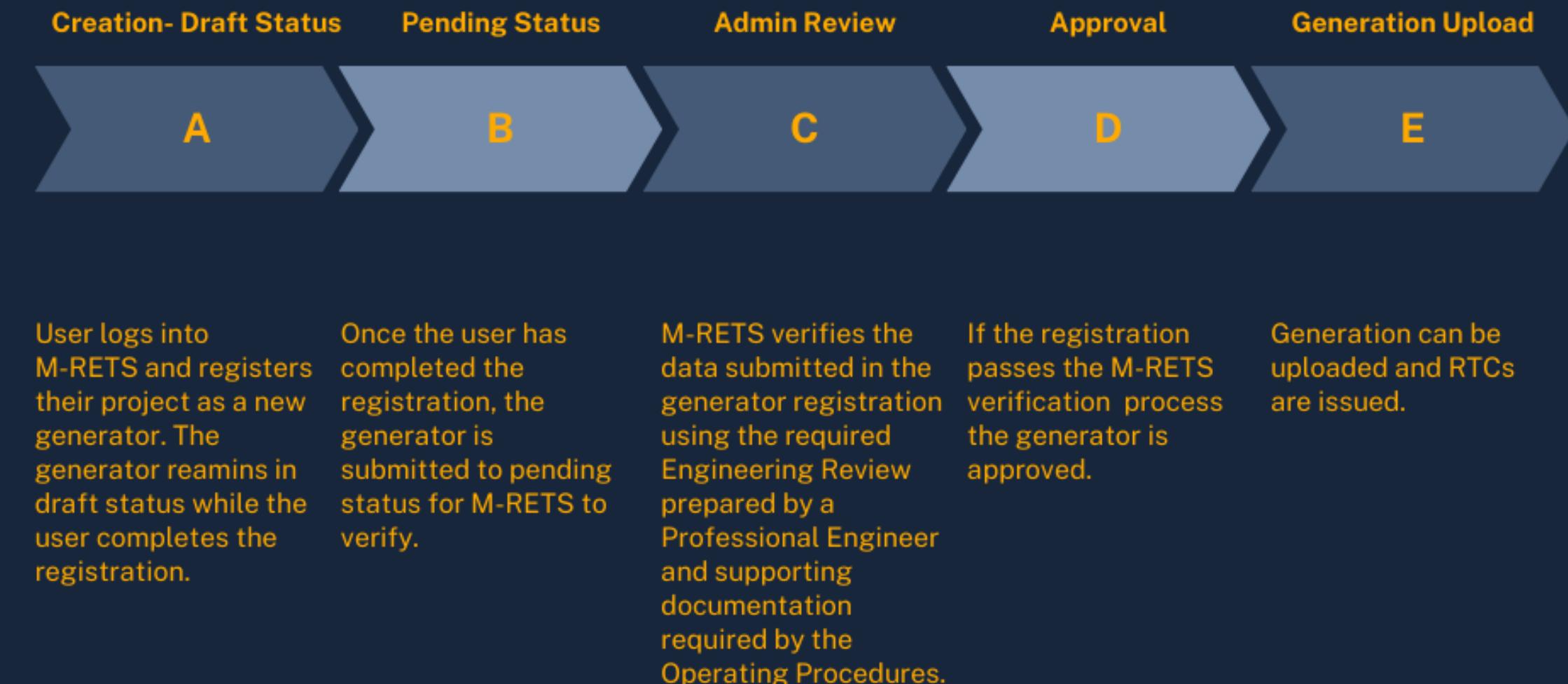
APIs Fully functional and stable API is now available. Open APIs	Documentation Read our documentation for anything related to certificates, transactions, fuels, generators and more. Go to Documentation	Help Head over to our help section if you need tips on using our new portal. Go to Help
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Need assistance? Head over to our [help section](#) or [contact our support team](#) to help you get started.

App Version: **4.13.0**
App Name: **demo**
App API Root: **<https://api-demo.mrets.org>**

M-RETS

RTC Generator Registration Process





60 S. 6th Street, Suite 2800, Minneapolis, MN 55402

Per Section 4.3.4.1 of the M-RETS Thermal Operating Procedures the following information is required to be submitted by a licensed professional engineer when registering a project in the M-RETS Renewable Thermal Tracking System.

Renewable Thermal Tracking System: Engineering Report Requirements

- A detailed description of the system and its components
- Documentation for measuring and verifying the quantities of each Feedstock
 - Fuel /Feedstock sources
 - Fuel processing
 - Description Interconnection/Injection point and measurement
 - Pipeline Details
 - End User
- Process Flow Diagram
- **(Third party PE Required)** Initial review of Carbon Pathways/Carbon Intensity
 - Analysis of the Carbon Intensity and assessment methodology
 - Review all inputs and outputs that could affect CI
- PE stamp and credentials

Registration of a Generator

M-RETS Main RT Organization ▾

New Generator Registration

General Owner Operator **Engineering** Fuel(s) Carbon Pathway Documents Administrator

CLASS

Injection Site * Interstate Pipeline Transportation System

Injection Site Name * RAA DEMO

Injection Site Latitude * 12345

Injection Site Longitude * -4567

ENGINEERING

Commenced Operation Date * 01/01/2021

Maximum Plant Capacity per Hour * 500 Dth

Maximum Plant Output per Month * 30000 Dth

Has this system been registered at any time to create and/or sell RINS or LCFS Credits? * Yes No

METERING INFORMATION

Is this a Revenue Quality Meter? * Yes No

A Revenue Quality Meter May Not Be Required
Depending on the Resource Type



Dashboard

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Edit Jones Farm

General

Owner

Operator

Engineering

Fuel(s)

Carbon Pathway

Documents

Administrator

Fields labeled with this icon will change this generator's status to PENDING.

Add New Thermal Resource

BIOGAS

Remove Biogas

Thermal Resource *

Biogas



Feedstock(s) *

Biogas (Generic)



Label (optional)

Program Eligibility

You can select multiple program eligibilities.

Disabled eligibilities are managed directly by the Program Administrator. Contact them directly for more information.

Independent Report Entity verified

Remove Independent Report Entity verified from Biogas

Oregon

Remove Oregon from Biogas

Main RT Organization ▾

Alice Super ▾

View All Active Generators

Jones Farm

General Owner Operator Engineering Fuel(s) **Carbon Pathway** Documents Administrator

M-RETS ID M1111 Status active

Thermal Resource	Feedstock	Tool Name	Name	Verification Date	End Date	CP Endpoint	Injection Point	CP Endpoint Description	Carbon Intensity
Biogas	Biogas (Generic)	GREET v1.3.0.13520	Landfill Gas	08/01/2018	08/01/2020	Full Life Cycle	-	Centerpoint Terminal 1	-78.0
Biogas	Biogas (Generic)	GREET v1.3.0.13239	Higher CI	01/01/2023	01/01/2025	Injection Point	1234,-8921	Higher CI example	-25.68

Add Carbon Pathway

Generator Fuel * **Renewable Natural Gas** Public document * Choose File 2023-11-09_11-24-53.png

Tool * **GREET v1.3.0.13868**

This document may be associated with this generator in public reports and should not include any trade secret or confidential information.

Name **RAA Demo** Private document * Choose File 2023-11-09_11-24-53.png

Verification Date * **01/01/2023** End Date **01/01/2025**

Carbon Pathway Endpoint * **Full Life Cycle**

Description * **MT RAA Demo**

Carbon Intensity * **-58**

Cancel Accept

Generation and Issuance of RTCs

M-RETS Main RT Organization Alice Super

Generation Activity Log Annual Production Pending

Add New Entry Reset  

Generator ↑	Pipeline Connected ↑	M-RETS ID ↑	Reporting Entity ↑	Activity Date ↓ ⓘ	Period Start ↑ ⓘ	Period End ↑ ⓘ	Posted Dth ↑	Thermal Resource ↑	Feedstock ↑	Status ↑	Adjustment Type ↑	Notes ↑
Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
My Biogas generator	No	M1111	-	10/12/2023 19:05	08/01/2023	08/31/2023	100	Biogas	Biogas (Generic)	Issued	-	-
My Biogas generator	No	M1111	-	10/12/2023 18:52	08/01/2023	08/31/2023	-100	Biogas	Biogas (Generic)	Accepted	-	-
My Biogas generator	No	M1111	-	10/09/2023 17:15	08/01/2023	08/31/2023	100	Biogas	Biogas (Generic)	Withdrawn	-	Rolled back by UserTrans
My Biogas generator	No	M1111	-	09/27/2023 18:44	08/01/2023	08/31/2023	1000	Biogas	Biogas (Generic)	Rejected	-	-
My Biogas generator	No	M1111	-	09/26/2023 21:21	01/01/2023	01/31/2023	1000	Biogas	Biogas (Generic)	Rejected	-	-
My Biogas generator	No	M1111	-	11/04/2018 00:00	10/01/2018	10/31/2018	50	Biogas	Biogas (Generic)	Issued	-	-
My Biogas generator	No	M1111	-	10/04/2018 00:00	09/01/2018	09/30/2018	500	Biogas	Biogas (Generic)	Issued	-	-
My Biogas generator	No	M1111	-	09/04/2018 00:00	07/01/2018	07/31/2018	90	Biogas	Biogas (Generic)	Issued	-	-
My Biogas generator	No	M1111	-	09/04/2018 00:00	08/01/2018	08/31/2018	100	Biogas	Biogas (Generic)	Issued	-	-
My Biogas generator	No	M1111	-	07/04/2018 00:00	11/01/2017	11/30/2017	50	Biogas	Biogas (Generic)	Issued	-	-
My Biogas generator	No	M1111	-	07/04/2017 00:00	11/01/2016	11/30/2016	6200	Biogas	Biogas (Generic)	Issued	-	-
My Biogas generator	No	M1111	-	07/04/2017 00:00	12/01/2016	12/31/2016	1000	Biogas	Biogas (Generic)	Issued	-	-

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1 → 2 → 3 → 4

Generator Allocation Documentation Review

GENERATOR *

Jones Farm

PERIOD

Start Date *

09/01/2023 X Calendar

End Date *

09/30/2023 X Calendar

TOTAL INJECTED DTH

Quantity Dth *
1000

Is this 100% renewable? *

Yes No

Back Next

1 2 3 4

Generator Allocation Documentation Review

ALLOCATION

Fuel allocation type

Percentage Quantity

Feedstock	Qualified Issuance	Percentage
Biogas	Partially Qualified for RTC creation	Edit Qualified Issuance
TOTAL		100 %

Back **Next**

Qualified Issuance

BIOGAS

Partially Qualified for RTC creation **1 selected**

Percent	Reason	Detail
055 %	Qualified Issuance	
45 %	LCFS	
100 %	TOTAL	

Cancel **Save**

Generator → Allocation → Documentation → Review

ALLOCATION

Fuel allocation type

Percentage Quantity

Feedstock	Qualified Issuance	Percentage
Biogas	All Qualified for RTC creation	Edit Qualified Issuance 075 %
Non-Renewable Additives		25 %
TOTAL		100 %

X M-RETS Main RT Organization ▾  Alice Super ▾

Dashboard Certificates Transactions Accounts Generators Generation Programs Help Documentation

Add Generation

Generator Allocation Documentation Review

DOCUMENTATION

Selected file

MN 100% CFE Memo .docx  Remove file

Back Review

Add Generation



GENERATOR

My Biogas generator

PERIOD 11/01/2023 to 11/03/2023

QUANTITY 1,000 Dth

Is this 100% renewable? YES

ALLOCATION

Feedstock	Qualified Issuance	Percentage
Biogas	All Qualified for RTC creation	View Qualified Issuance 100 %
TOTAL		100 %

DOCUMENTATION

Selected file

MN 100% CFE Memo .docx

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Make Changes

Save

Accept/Reject Generation Entry

X

Generator Name	My Biogas generator			
Generator ID	M1111			
Activity Date	2023-11-15			
Generation Period Start	2023-11-01			
Generation Period End	2023-11-03			
Submit Generation Quantity	1000 Dth			
Thermal Resources	Biogas, Non-Renewable Additives			
Feedstock	Biogas (Generic), Non Renewable Additives Added to Conform to Pipeline Quality Standards			
Fuel Allocation				
Feedstock	Allocation	Qualified Issuance	RFS	L
Biogas (Generic)	100%	100%	-	-
Injection Receipt Document				
MN_100__CFE_Memo_.docx				
Pending Reason				
In Holding Period				
Notes				
<input type="text"/>				
<input type="button" value="Cancel"/>		<input type="button" value="Reject"/>	<input type="button" value="Accept"/>	

RTC Batch Details



Serial Numbers T1111-ND-11-2023-4134E3B2-1 to 1200

Generator Unit Name	My Biogas generator
Generator Facility Name	Jones Farm
Asset ID	M1111
Account	My biogas account
Thermal Resource	Biogas
Vintage	2023-11-01
Quantity (RTCs)	1200

Carbon Pathways

Name	Tool Name	Carbon Intensity	grams CO2 / Dth	Date Range	CP Endpoint	CP Endpoint Description
Higher CI	GREET v1.3.0.13239	-25.68	-27092.4	2023-01-01 - 2025-01-01	Injection Point	Higher CI

Eligibilities

Oregon

Independent Report Entity verified

Injection Receipt: [MN_100_CFE_Memo_.docx](#)

Transaction of RTCs

Dashboard Certificates Active Retired Reserved

5,218 RTCs

Account	Account ID	M-RETS ID	Generator	Pipeline Connected	Thermal Resource	Feedstock	Vintage	Generation	Start Date
Another biogas account 1	AC34A888-0ADE	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	08/2018	08/01/2018	
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	07/2018	07/01/2018	
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	08/2023	08/01/2023	
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	09/2018	09/01/2018	
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	11/2016	11/01/2016	
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	12/2016	12/01/2016	
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	-	08/2023	08/01/2023	
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	09/2023	09/01/2023	

Transfer Retire Reserve Reset  

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Dashboard Certificates Active Retired Reserved

550 RTCs Vintage: 2023-09

Account	Account ID	M-RETS ID	Generator	Pipeline Connected	Thermal Resource	Feedstock	Vintage	Generation	Start Date
My biogas account	18F43471-DC15	M1111	My Biogas generator	No	Biogas	Biogas (Generic)	09/2023	09/01/2023	

Transfer Retire Reserve Reset  

1 row is selected.

Rows per page: 25 1-1 of 1

Transfer

Transfer RT Cs

1. RTCs quantities → 2. Select organization → 3. Review → 4. Success!

TRANSFER OVERVIEW

Total active RTCs **25**
RTCs will be transferred.

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Input the amount of RTCs

Asset Id	Serial Numbers	Thermal Resource	Vintage	Generator Location	Quantity (RTCs)	Max Available
M1111	T1111-ND-09-2023-78356298-1 to 550	Biogas	09/2023	ND	25	550

Transfer RT Cs

1. ✓ RTCs quantities → 2. ✓ Select organization → 3. Review → 4. Success!

TRANSFER OVERVIEW

RTCs will be immediately transferred to the organization listed at left.
You can go back to make changes to this transaction.

[Back](#) [Transfer](#)

Transferring 25 active RECs from

Account	Generator	Vintage	Generator Location	Quantity
My biogas account	My Biogas generator	09/2023	ND	25

to this organization:

Second RT Organization

Notes:

25 Dth to Mark Company

Retirement

Retire RTCs

1 2 3 4 5

RTCs quantities Select retirement options Select accounts Review Success!

Input the amount of RTCs

Account	Generator	Thermal Resource	Vintage	Generator Location	Carbon Pathway	Quantity (RTCs)	Max Available
My biogas account	My Biogas generator	Biogas	09/2018	ND	Landfill Gas GREET v1.3.0.1352€	46	499

RETIRE OVERVIEW

Total active RTCs
46

RTCs will be transferred.

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Dashboard

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Retire RTCs

RTCs quantities 2 Select retirement options 3 Select accounts 4 Review 5 Success!

What is your reason for retiring these RTCs? (select one)

Voluntary

Type * Voluntary

Reason * Beneficial Ownership

State/Province * Minnesota

Year * 2022

Quarter * Q1

Notes RAA 2023 TEST

Compliance

RETIRE OVERVIEW

Total active RTCs **46**

RTCs will be transferred.

Back **Next**

Retire RTCs



RTC quantities Select retirement options **Select accounts** Review Success!

Select the account(s) you would like to retire to.

Enter Account Name

Retirement account 1 WA-CCA-RNG-Q1

RETIRE OVERVIEW

Total active RTCs
46

RTCs will be transferred.

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Retire RTCs



Retiring 46 active RTCs from

Account	Generator	Vintage	Generator Location	Carbon Pathway	Quantity	
My biogas account	My Biogas generator	09/2018	ND	Landfill Gas GREET v1.3.0.13520 -78.0	46	Details

Retirement reason:

Voluntary

Retirement reason details:

RETIREMENT REASON: Beneficial Ownership
RETIRED TO: MN
PERIOD: 2022
QUARTER: Q1
NOTES: RAA 2023 TEST

RETIRE OVERVIEW

RTCs will be immediately transferred to the accounts listed at left.

You can go back to make changes to this transaction.

[Back](#)

[Retire](#)

Transaction Confirmation



Date: 11-09-2023

M-RETS Organization: Main RT Organization

Retiring 46 active RTCs

Account	ID	Project	Fuel Type	Vintage	Location	Quantity	Serial Number
My biogas account	18F43471-DC15	Jones Farm	Biogas	2018-09-01	ND	46	T1111-ND-09-2018-CB32DF-454-499

Transaction Notes:

RAA 2023 TEST

Carbon Pathways

CP Name	CP Tool	CP Carbon Intensity
Landfill Gas	greet_v1_3_0_13520	-78.0

Retirement reason:

Voluntary - Beneficial Ownership

Retirement reason details:

Retired for: MN

Period: 2022

Quarter: Q1

to this retirement account

Retirement account 1

Transaction Dashboard

M-RETS Main RT Organization Alice Super

Transactions Pending History Recurring Withdrawn

26 Transactions

Reset  

Date Started	Date	Source Organization	Destination Organization	Transaction Type	Status	Source Account	Destination Account	Feedstock	Thermal R
Filter...	Transaction Completed	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
11/09/2023	11/09/2023	Main RT Organization	Main RT Organization	Retirement	Complete	My biogas account	Retirement account 1	Biogas (Generic)	Biogas
11/09/2023	11/09/2023	-	Main RT Organization	Issuance	Complete	-	My biogas account	Biogas (Generic)	Biogas
11/09/2023	11/09/2023	-	Main RT Organization	Issuance	Complete	-	My biogas account	Biogas (Generic)	Biogas
10/30/2023	10/30/2023	Main RT Organization	Admin RT Organization	External Transfer	Withdrawn	My biogas account	-	Biogas (Generic)	Biogas
10/30/2023	10/30/2023	Main RT Organization	Main RT Organization	Retirement	Complete	My biogas account	Retirement account 1	Biogas (Generic)	Biogas
10/12/2023	10/12/2023	Main RT Organization	Second RT Organization	External Transfer	Complete	Another biogas account 1	-	Biogas (Generic)	Biogas
10/12/2023	10/12/2023	-	Main RT Organization	Issuance	Complete	-	My biogas account	Biogas (Generic)	Biogas
10/12/2023	10/12/2023	-	Main RT Organization	Issuance	Complete	-	My biogas account	-	Biogas
10/12/2023	10/12/2023	-	Main RT Organization	Issuance Rollback	Complete	-	My biogas account	Biogas (Generic)	Biogas
10/09/2023	10/09/2023	Main RT Organization	Main RT Organization	Retirement	Complete	Another biogas account 1	Retirement account 1	Biogas (Generic)	Biogas
10/09/2023	10/09/2023	-	Main RT Organization	Issuance	Complete	-	My biogas account	Biogas (Generic)	Biogas
09/27/2023	09/27/2023	Main RT Organization	Main RT Organization	Retirement	Complete	Another biogas account 1	Retirement account 1	Biogas (Generic)	Biogas
09/20/2023	09/20/2023	Main RT Organization	Main RT Organization	Retirement	Complete	My biogas account	Retirement account 1	Biogas (Generic)	Biogas
09/19/2023	09/19/2023	Main RT Organization	Main RT Organization	Retirement	Complete	Another biogas account 1	WA-CCA-RNG-Q1	Biogas (Generic)	Biogas
09/19/2023	09/19/2023	Main RT Organization	Main RT Organization	Retirement	Complete	My biogas account	WA-CCA-RNG-Q1	Biogas (Generic)	Biogas
09/19/2023	09/19/2023	Main RT Organization	Main RT Organization	Retirement	Complete	My biogas account	WA-CCA-RNG-Q1	Biogas (Generic)	Biogas

