

M-RETS Renewable Thermal Tracking System (RTC) Demo

Ammonia Energy Association 2023
Conference

M-RETS

 **Renewable Electricity**

 **Renewable Thermal**

Background

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



www.mrets.org



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

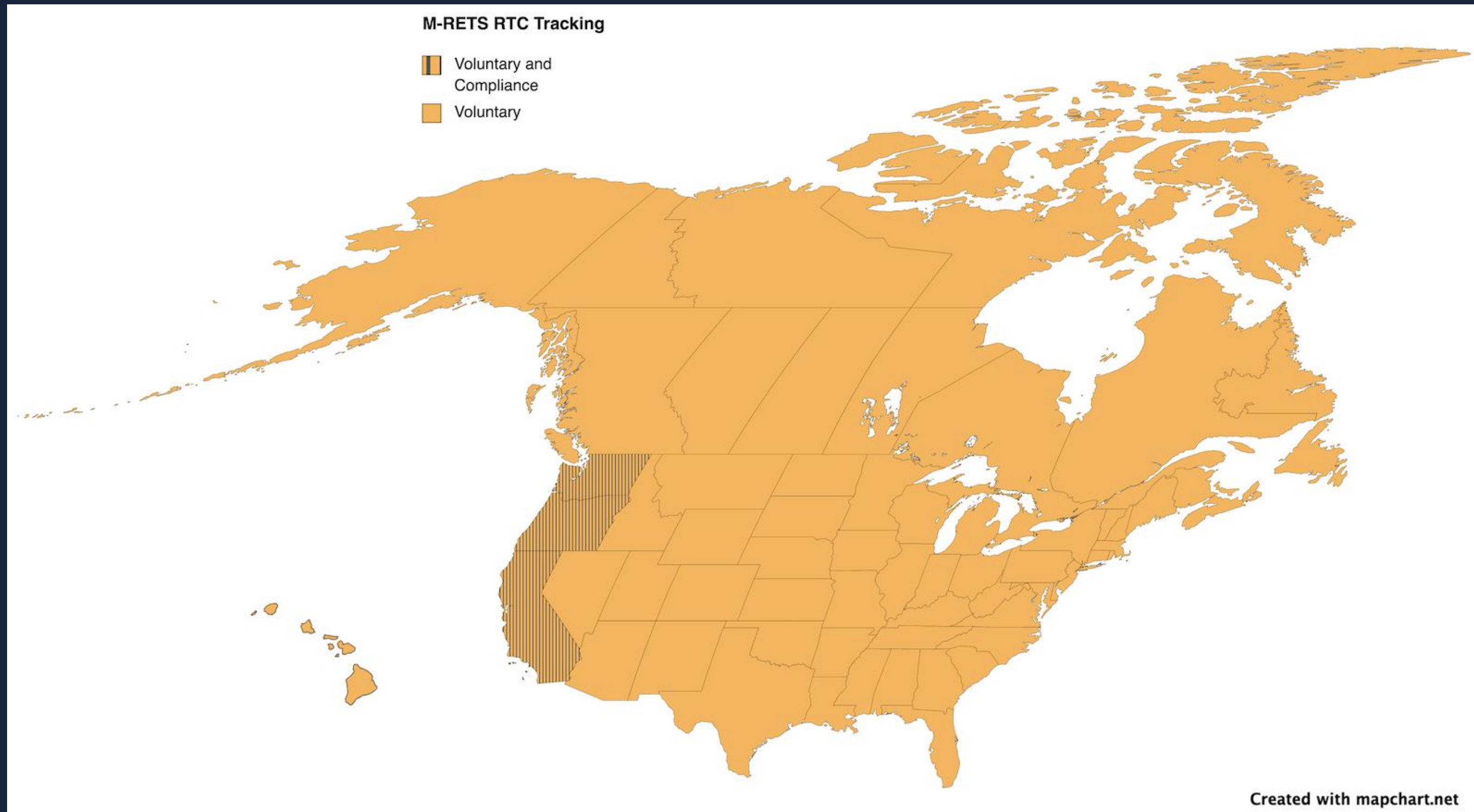


M-RETS RECs are able to contain hourly data information and peak/off-peak and RTC's may include verified carbon intensity data.



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

T1234-MN-08-2023-THG5TU-1-768

M-RETS ID

Location of
Generator

Vintage

Unique Identifier

Quantity

Certificate Details Include:

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

If applicable:

- Eligibilities
- Carbon Pathways
- Independent Reporting Entity Verified

Demo

- Dashboard
- Certificates
- Transactions
- Accounts
- Generators
- Generation
- Programs
- Help
- Documentation

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](#)

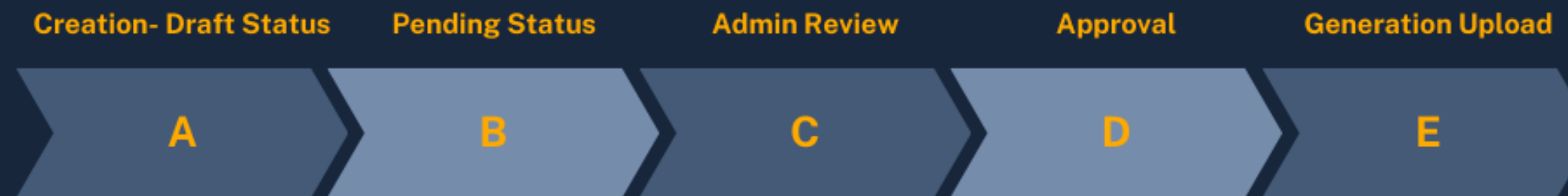
Help

Head over to our help section if you need tips on using our new portal.

[Go to Help](#)

Need assistance? Head over to our [help section](#) or [contact our support team](#) to help you get started.

M-RETS RTC Generator Registration Process



User logs into M-RETS and registers their project as a new generator. The generator remains in draft status while the user completes the registration.

Once the user has completed the registration, the generator is submitted to pending status for M-RETS to verify.

M-RETS verifies the data submitted in the generator registration using the required Engineering Review prepared by a Professional Engineer and supporting documentation required by the Operating Procedures.

If the registration passes the M-RETS verification process the generator is approved.

Generation can be uploaded and RTCs are issued.



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 Edit Clone

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 ▼

Tool *

GREET v1.3.0.13868 ▼

Name

RAA Demo

Verification Date *

01/01/2023 ✕ 📅

End Date

01/01/2025 ✕ 📅

Carbon Pathway Endpoint *

Full Life Cycle ▼

Description *

MT RAA Demo

Carbon Intensity *

-58

Public document *

Choose File 2023-11-09_11-24-53.png

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

Private document *

Choose File 2023-11-09_11-24-53.png

This document will be available to current and future generator owners in the M-RETS System, any compliance (e.g. state government regulatory bodies such as an air regulator or Public Utilities Commission) and/or Voluntary Program Administrators (e.g. Green-e renewable thermal), with a Program Administrator login, and the M-RETS System Administrator.

Cancel Accept

Generation and Issuance of RTCs

M-RETS Main RT Organization Alice Super

Generation Activity Log Annual Production Pending

Add New Entry Reset Download Settings

| Generator | Pipeline Connected | M-RETS ID | Reporting Entity | Activity Date | Period Start | Period End | Posted Dth | Thermal Resource | Feedstock | Status | Adjustment Type | Notes |
|---------------------|--------------------|-----------|------------------|------------------|--------------|------------|------------|------------------|------------------|-----------|-----------------|--------------------------|
| 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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Generator

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Allocation

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Review

GENERATOR *

Jones Farm

PERIOD

Start Date *

09/01/2023

End Date *

09/30/2023

TOTAL INJECTED DTH

Quantity Dth *

1000

Is this 100% renewable? *

Yes No

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Generator



Allocation



Documentation



Review

ALLOCATION

Fuel allocation type

Percentage

Quantity

| | | |
|-----------|--------------------------------------|------------------------------------|
| Feedstock | Qualified Issuance | Percentage |
| Biogas | Partially Qualified for RTC creation | <input type="text" value="100"/> % |
| TOTAL | | 100 % |

Edit Qualified Issuance

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Qualified Issuance



BIOGAS

Partially Qualified for RTC creation

1 selected

| Percent | Reason | Detail |
|------------------------------------|--------------------|--------|
| <input type="text" value="055"/> % | Qualified Issuance | |
| <input type="text" value="45"/> % | LCFS | |
| 100 % | TOTAL | |

Cancel

Save



ALLOCATION

Fuel allocation type

Percentage Quantity

| | | | |
|-------------------------|--------------------------------|---|------------------------------------|
| Feedstock | Qualified Issuance | | Percentage |
| Biogas | All Qualified for RTC creation | Edit Qualified Issuance | <input type="text" value="075"/> % |
| Non-Renewable Additives | | | <input type="text" value="25"/> % |
| TOTAL | | | 100 % |

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- 🕒 **Generation**
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- 📄 Documentation

Add Generation



DOCUMENTATION

Selected file

MN 100% CFE Memo .docx ⊖ Remove file

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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

Back

Make Changes

Save

Accept/Reject Generation Entry



| | | | | |
|-----------------------------------|--|-------------------|---------------------------|------------|
| 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 |
| | Biogas (Generic) | 100% | 100% | - |
| Injection Receipt Document | MN_100__CFE_Memo_.docx | | | |
| Pending Reason | In Holding Period | | | |

Notes

Cancel

Reject

Accept



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 Endp Descripti |
|-----------|--------------------|------------------|-----------------|-------------------------|-----------------|-------------------|
| 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

Transfer Retire Reserve Reset

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

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Dashboard Certificates Active Retired Reserved

550 RTCs Vintage: 2023-09

Transfer Retire Reserve Reset

1 row is selected.

| <input checked="" type="checkbox"/> | Account ↑ | Account ID ↑ | M-RETS ID ↑ | Generator ↑ | Pipeline Connected ↑ | Thermal Resource ↑ | Feedstock ↑ | Vintage ↑ | Generation Start Date ↑ |
|-------------------------------------|-------------------|---------------|-------------|---------------------|----------------------|--------------------|------------------|-----------|-------------------------|
| <input checked="" type="checkbox"/> | My biogas account | 18F43471-DC15 | M1111 | My Biogas generator | No | Biogas | Biogas (Generic) | 09/2023 | 09/01/2023 |

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Transfer

Dashboard | Certificates | Transactions | Accounts | Generators | Generation | Programs | Help | Documentation

Transfer RTCs

View RTCs

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

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 | <input type="text" value="25"/> | 550 | Details |

TRANSFER OVERVIEW

Total active RTCs
25
RTCs will be transferred.

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Dashboard | Certificates | Transactions | Accounts | Generators | Generation | Programs | Help | Documentation

Transfer RTCs

View RTCs

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

Transferring 25 active RECs from

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

to this organization:

Second RT Organization

Notes:

25 Dth to Mark Company

TRANSFER OVERVIEW

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

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Retirement

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Retire RTCs

- 1 RTCs quantities
- 2 Select retirement options
- 3 Select accounts
- 4 Review
- 5 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 | <input type="text" value="46"/> | 499 | Details |

RETIRE OVERVIEW

Total active RTCs

46

RTCs will be transferred.

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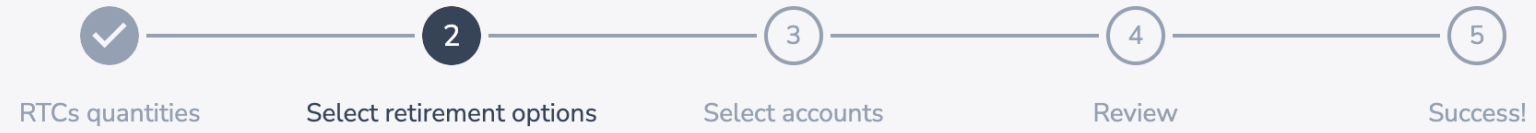
Generation

Programs

Help

Documentation

Retire RTCs



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

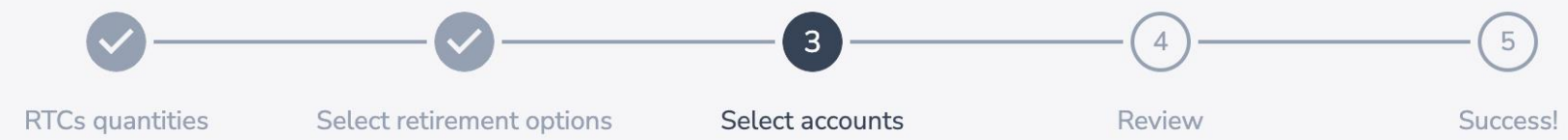
46

RTCs will be transferred.

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Retire RTCs



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

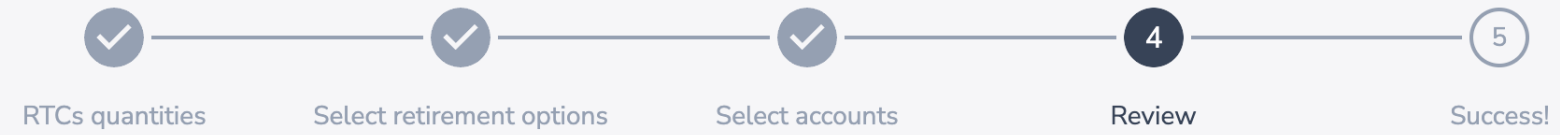
46

RTCs will be transferred.

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Review

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 ▾

🏠 Dashboard
📄 Certificates
↔ Transactions
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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... | 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 |

