

I. Introduction

M-RETS would like to thank the Vermont Public Utilities Commission (“Commission”) for providing us with the opportunity to provide these comments pursuant to the Commission’s Order Issuing Draft Rule and Setting a Deadline for Comments dated October 1, 2024.¹ Under Public Act 18 (2023 Vt., Bien. Sess.) (“Act 18”), the Vermont Legislature directed the Vermont Public Utility Commission (“Commission”) to develop a proposed Clean Heat Standard (“CHS”). As part of that process, The Commission’s report identified that other states, “have developed digital platforms to manage data and process related to the implementation of low-carbon fuel standards like the Clean Heat Standard ...[and that] while such platforms can reduce administrative complexity over time, they are costly to develop and maintain.”² M-RETS provides these comments to assuage the Commission’s concerns related to the above concerns specific to digital data management platforms. M-RETS would like to further engage with the Commission to demonstrate that the existing M-RETS platform could already act as a plug and play implementation tool without substantial modifications or long term and/or financial commitments from the state.

M-RETS is a non-profit, mission-driven organization whose environmental attribute tracking platform facilitates economy-wide decarbonization. M-RETS’ passion does not stop simply at providing scalable and replicable digital solutions to help solve environmental problems at local, regional, and national levels, it also involves providing thought leadership and support to growing

¹ <https://epuc.vermont.gov/?q=node/64/190907/FV-BDIssued-PTL>.

² Draft CHS at 5.

environmental attribute markets. On the data side, M-RETS accomplishes this mission with innovative digital infrastructure and a team of dedicated energy and technical experts.

The M-RETS Renewable Energy Certificate (“REC”) and Renewable Thermal Certificate (“RTC”) registries provide key data that serve new and existing voluntary and compliance markets across North America. M-RETS facilitates REC markets by issuing a unique, traceable digital certificate (i.e., one REC) for every megawatt hour (“MWh”) of verified renewable energy recorded on the platform. Similarly, M-RETS facilitates RTC markets by issuing a unique, traceable digital certificate (i.e., one RTC) for every dekatherm (“Dth”) of verified renewable energy recorded on the platform.

Launched January 1, 2020, M-RETS RTC platform is the first-of-its-kind in North America. The Oregon Public Utilities Commission adopted the M-RETS RTC platform as a compliance tool under Senate Bill 98.³ Quickly following, California adopted M-RETS as the recognized compliance tool for implementing Senate Bill 1440.⁴ In 2022 both Oregon and Washington adopted the use of M-RETS to track RNG under their respective state clean fuel programs.⁵

³ *In re* Rulemaking Regarding the 2019 Senate Bill 98 Renewable Natural Gas Programs (2020) OR. P.U.C. Dec. No. 20-095. (see Appendix A pg. 8 of 31).

⁴ Cal. P.U.C. Dec. No. 22-02-025 (see pg. 50 of the decision).

⁵ Wash. Admin. Code § 173-424-420(e) (2024), OAR 340-253-0640(1)(A) (stating If the biomethane-based volumes are being reported using a book-and-claim methodology, the registered party must submit records showing the retirement of RTCs representing the biomethane environmental attributes from that facility in M-RETS Renewable Thermal system or another approved and recognized tracking system with the quarterly report.), see also Renewable Natural Gas Reporting Using a Book and Claim Accounting Methodology and M-RETS, <https://www.oregon.gov/deq/ghgp/Documents/cfpRenewNGrep.pdf> [Accessed 12 September 2024].

M-RETS users can retire certificates either to comply with state mandates and/or to fulfill their voluntary commitments, while preventing the risk of double counting across the markets M-RETS serves. M-RETS registers projects in all U.S. states and Canadian provinces and will support imports and exports with any registry in North America that meets our specific security and operational requirements specific to the risk of double counting.

M-RETS verifies all data in its system. M-RETS does not determine eligibility for specific state/provincial, federal, or voluntary programs. M-RETS develops and implements software code to support regulators of voluntary and compliance programs to ensure all retirements meet their specific needs. M-RETS is policy neutral; however, it often acts as a resource to policy makers, state utility commissions, and other energy regulators given its expertise in assisting these bodies in overseeing voluntary and compliance renewable energy programs. M-RETS routinely provides advice on how to set up programs to meet the specific demands of individual state, federal, or voluntary programs in the most cost-effective way possible.

As a non-profit, M-RETS can provide unbiased feedback to regulators about the most efficient way to achieve their policy goals. By working with M-RETS in the initial stages of program design, regulators are often able to save significant dollars by better understanding the platform's technical capabilities. M-RETS is governed by a nonprofit Board of Directors includes state regulators, investor-owned, cooperative, and municipal utility representatives, and other diverse experts.

II. M-RETS Software

Clean electrons and clean molecules are the inputs that will drive the decarbonized economy of the future. The ability to seamlessly, transparently, and credibly track these molecules and electrons as they move through the economy—whether it is biomethane to clean heat applications or—is a critical part of the infrastructure required to validate that the goods and service offered as part of the decarbonized economy are what they say they are. M-RETS provides the solution, a single platform that tracks renewable and clean electricity through RECs and Alternative Energy Certificates (AECs) on the REC platform, and RTCs on the RTC platform.⁶

The importance of tracking all of this on one integrated platform provides North America with a unique opportunity with an industry leading not-for-profit software provider that acts in the best interest of the industry and not corporate shareholders. This opportunity includes unequaled transparency, clear ownership of data, and no required annual commitments from regulatory authorities, and as close to plug and play technology as possible in the renewable thermal space. Moreover, our modern API-first infrastructure, agile software development philosophy, and our not-for-profit corporate structure all provide Vermont regulators, market participants, and ratepayers enormous benefits.

⁶ AECs support the tracking of non-renewable resources that are still considered environmentally beneficial. For example, nuclear generation can create AECs as nuclear generation, although not defined as renewable, produces zero carbon emissions.

M-RETS is a modern software application consisting of a backend application (this refers to the database) built using Ruby on Rails and a decoupled frontend application (this refers to the user interface that a customer interacts with) built using React. M-RETS hosts (this refers to where the application lives in the cloud) our platform on Heroku and AWS, two of the largest and most ubiquitous cloud computing platforms currently operating. Users are separated by organization and role-based permissions, offering more predictable performance, security and consistency than operating separate instances per-customer to separate areas of concern.

Both Heroku and AWS are scalable platforms used by both large enterprise level firms such as Citrix as well as startups.⁷ Heroku manages over 60+ billion requests per day.⁸ AWS operates the largest software infrastructure in the world, taking a 31% share of all Cloud Computing worldwide. Both provide M-RETS instant scalability during times of heavy usage and preserve resources during periods of slower usage.⁹ The scalability and cost-effective nature of the platform provides real benefits to system users, allowing us to save on costs when usage is low and meet demands when usage grows.

III. What Makes M-RETS Unique?

a. Full North America Coverage

⁷ See <https://www.heroku.com/what#heroku-grows-with-you>.

⁸ See *id.*

⁹ See *id.*

The M-RETS RTC System launched in January of 2020 as the first of its kind system to track biogas, biomethane/RNG, clean hydrogen, and other renewable thermal technologies, this system was and remains the first of its kind serving North American markets. M-RETS remains unaware of an existing or in-development system that can track volumes of biomethane and other renewable thermal fuels for both voluntary and compliance markets with carbon intensity scores.

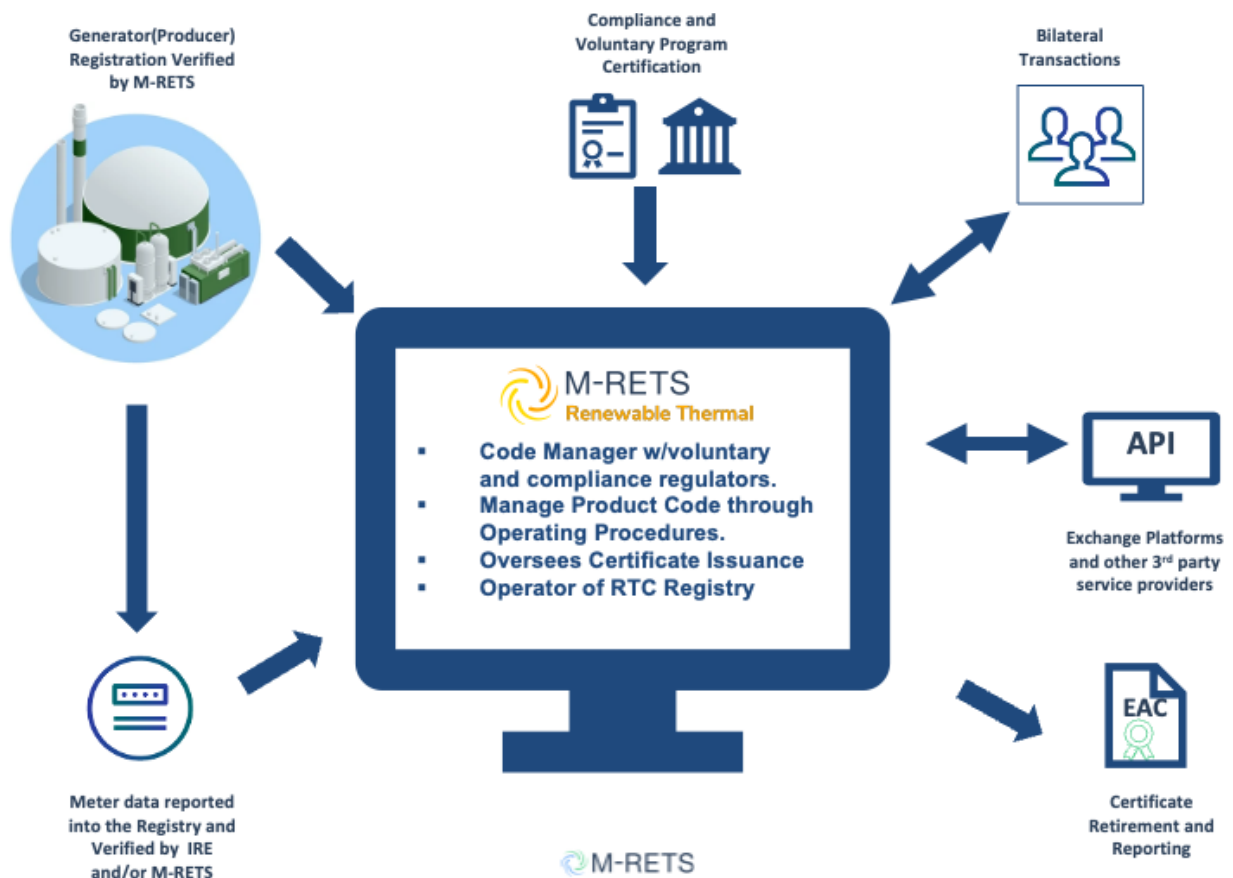
b. State and Voluntary Market Regulators Decide Which Generation Technologies Receive Certificates in their Programs.

Any Generator that produces non-electric thermal energy within North America may register in the M-RETS RTC Registry. This includes, but is not limited to biogas, renewable natural gas (“RNG”) also known as biomethane, solar thermal, renewable gas (i.e. hydrogen produced using renewable energy), heat produced by a combined heat and power system using recognized clean and/or renewable feedstock (e.g., biomass, wood waste, etc.), compost heat exchange system, ground source heating and cooling pumps, and geothermal energy. M-RETS would be happy to work with Vermont to implement other thermal resource types that the Commission approves to create clean heat credits under 30 V.S.A. § 8123 (2024). This could include calculations that support new thermal resource types for measured actions defined within a program, for example weatherization savings and/or combined cooling and heating programs.¹⁰ M-RETS maintains a long history of working with regulators to implement industry leading programs.

c. Comprehensive Governance Structures

¹⁰ See *Bottom Line on Energy Savings Certificates*, <https://www.wri.org/research/bottom-line-energy-savings-certificates> (providing information on Energy Savings Certificates).

Below is a visual of the M-RETS process and governance. M-RETS works with regulators to implement code and Operating Procedures as needed to ensure compliance with state or provincial regulatory or legislative requirements, just like Vermont would engage with their respective REC registry NEPOOL-GIS.



d. Avoidance of Costly Long-Term Commitments and Traditional Technology Risk

The lack of a reasonable alternative to M-RETS at this time in North America is not a surprise given the fact that the market is small, and the startup costs and barriers are significant, and companies—especially innovative technology firms—avoid government technology projects, also

known as, “gov tech.”¹¹ There are a lot of reasons for this, in *Recoding America: Why Government Is Failing in the Digital Age and How We Can Do Better*, author Jennifer Pahlka states: “Whether for good or for ill, the essence of the digital revolution is that it has become easier to implement ideas of all kinds—business, cultural, and social,” she writes. “Inside government, however, the digital revolution has played out very differently. Even as our expectations about the immediacy and accuracy of services have skyrocketed, the implementation of laws has become anything but easier.” Compounding this problem is that regulatory structures and RFPs are not “designed to empower technology designers in their process.”¹²

Well-intentioned legislation can direct regulatory implementation bodies to implement processes that are not well aligned with modern technology practices. This can lead to software that is expensive to build and maintain, sometimes resulting in contractual lock in between the government entity and the software provider which results in high long-term program costs. M-RETS situation as a not-for-profit with government and stakeholder representation seeks to break this mold. It is our mission to engage with legislators, regulators, and market participants that meet their regulator goals but also work for the market with modern conveniences such as an advanced user interface, API, and advanced security like multi-factor authentication.

¹¹ *Government technology is famously bad. It doesn't have to be*, MIT Technology Review, <https://www.technologyreview.com/2023/10/18/1081374/new-york-city-government-low-tech-solutions-hard-problems/>.

¹² *See id.*

Software development is notoriously fickle. M-RETS not only developed the software but also collaborated with industry and market experts to develop governing policies and procedures. Initiating discussions, gathering business requirements, and engaging stakeholders began in 2018, with development and implementation of the platform and the system launched a little less than two years later, on January 1, 2020. Overall, it took M-RETS about two years—and thousands of hours from M-RETS staff—to design, implement, and launch the RTC System. This included comprehensive market research conducted through direct stakeholder discussions—including Vermont Gas which is one of the first utilities M-RETS engaged as a recognized leader in RNG—and in national forums like the National Association of Regulatory Utility Commissioners, North American biogas and biomethane associations, and the Association of Issuing Bodies based in Europe.

Two years is a brief time to go from inception to software delivery in a new product and market like clean heat. While M-RETS would like to claim the timeline was due to our own ingenuity and dedication, the reality is that M-RETS built the RTC system off the existing infrastructure of our REC System. Software go to market depends on a multitude of complex factors and planning; however, even in the best case, it is highly unlikely that a new system could start operations in less than one year from the final decision date (i.e., signed contract) to system launch.

In contrast, developing a new system for Vermont would require at least one to two years, including but not limited to:

1. Identifying a software provider
2. Contracting
3. Stakeholder engagement and requirement gathering
4. Project planning (scope, timeline, budgeting, expectations)
5. User interface and experience design
6. System architecture
7. System rules, logic, and operations, which in EAC markets are typically done through Operating Procedures
8. Front-end (user interface), back-end (database), API development (application programming interface which is how the front and back end communicate and it also allows users to develop their own software to connect internal or external systems to speak directly to the database)
9. Software testing, which include Unit (modular), integration (how the different units interact), user acceptance (actual users testing the system to ensure it meets the needs), functionality, performance (does the system perform with appropriate speed), security, and compatibility testing (does all the environments that developers use to build the system work together as intended).
10. Software fixes prior to release
11. Full Release (also known as deployment)
12. Documentation and training creation

13. Database development, with software development work taking an additional year.¹³

Before deciding to embark on a software development process it is critical to read the book *How Big Things Get Done: the surprising factors that determine the fate of every project, from home renovations to space exploration and everything in between* by Bent Flyvbjerg and Dan Gardner. In a Harvard Business review article published in September 2011, Flyvbjerg found in a study of 1,471 IT projects that the average cost overrun was 27%. Given that 92% of the sample size came from public agencies and 83% of those were U.S. based projects, the Commission and stakeholders should not disregard this information.¹⁴ More worrisome is that “one out of six projects studied had a cost overrun of 200% and a schedule overrun of almost 70%” meaning that, “an unusually large proportion of [IT projects] incur massive overages.”¹⁵ Flyvbjerg emphasizes that these overages “apply with uncomfortable frequency” and stakeholders should ask whether they can absorb a project that could go 400% or more over budget and if the project only realizes 25% to 50% of the projected benefits.¹⁶

Utilizing the existing system as a platform to build the RTC market saved M-RETS time and money. Consequently, Vermont stakeholders and ratepayers will derive significant benefit through using M-RETS existing solution. Furthermore, the product and software engineering teams

¹³ *Web Application Development & Testing Made Easy*, BrowserStack, <https://www.browserstack.com/guide/web-application-development-guide>.

¹⁴ *Why Your IT Project May be Riskier Than You Think*, Harvard Business Review, <https://hbr.org/2011/09/why-your-it-project-may-be-riskier-than-you-think>.

¹⁵ *See id.*

¹⁶ *See id.*

understood the data and other technical needs of such a system. Even an existing registry provider runs the risk of the expected time and investment are exponentially more than expected, which is another reason to elect M-RETS operational, scalable, and trusted system.¹⁷

e. Vermont should carefully consider the benefits and risks of traditional software procurement processes.

Traditional RFP procurement processes are often the reason software in EAC markets are not customer friendly, are inaccessible, and lack transparency. This problem is not specific to EAC systems and is a problem “when purchasing off-the-shelf or cloud software.”¹⁸ A requirement for hard cost caps on software as well as annual pricing does not facilitate a customer centric development philosophy. Unfortunately, it usually leads to cutting corners, poor user interface/user experience (“UI/UX”) or even worse, poorly managed backend database frameworks that can cause security and/or failure risk. Moreover, it provides an incentive to over charge for features later in the process to make up for early losses.

Evaluating and building off live cloud-based platforms like M-RETS provides a streamlined approach without long-term contractual risk. This eliminates one of the biggest RFP risks that often require evaluating software that is nonexistent (vaporware) or the situation where an overly

¹⁷ *See id.*

¹⁸ *12 ways to fix the traditional but broken software RFP selection process*, CIO, <https://www.cio.com/article/247089/12-reasons-why-the-traditional-software-rfp-process-is-broken-and-how-to-fix-them.html>.

optimistic vendor over promises but under delivers.¹⁹ Moreover, traditional RFP processes often result in a disfavored software development method known as Waterfall Software Development, versus the more preferred Agile environment that provides a more dynamic and cost-effective approach.²⁰

f. M-RETS Customers

M-RETS provides tracking service to the full North American market for voluntary purposes.

M-RETS does not charge state or provincial regulators to use the platform. M-RETS develops and adapts the software as needed at the request of a regulatory body. This also prevents the need for government agencies or regulators to spend money when they request an upgrade, as the costs of feature development come out of the M-RETS fee structure.

- i. M-RETS provides official compliance tracking for the following:
Arkansas, Illinois, Indiana, Iowa, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Montana, North Dakota, Ohio, South Dakota, Texas, and Montana, and the Canadian Province of Manitoba. These represent the core compliance clients for the M-RETS REC platform upon inception of the organization.

¹⁹ *See id.*

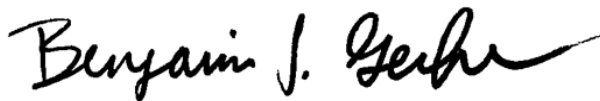
²⁰ *See id.*

- ii. California Public Utilities Commission – M-RETS is considered the official tracking platform for the implementation of SB1440, which is the California RNG Bill.
- iii. Oregon Public Utilities Commission – M-RETS is the official tracking platform for the implementation of SB 98, which is the Oregon RNG law that requires every gas utility in Oregon to offer customer options for RNG and to track goals using M-RETS.
- iv. The Washington State Clean Fuels program requires program participants to use M-RETS to track biomethane commitments in their program.
- v. The Western Renewable Energy Generation Information Service (WREGIS) uses the M-RETS platform to track RECs across the Western Electricity Coordinating Council (WECC): WECC is a non-profit corporation that exists to assure a reliable Bulk Electric System in the geographic area known as the Western Interconnection. WECC includes all or part of Alberta, British Columbia, Arizona, California, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, Oregon, South Dakota, Texas, Washington, Utah, Wyoming, and Baja, Mexico.
- vi. The Independent Electricity System Operator (“IESO”) of Ontario adopted M-RETS as their official tracking platform as did Nova Scotia. SaskPower uses M-RETS, however, the province has not officially required the use of M-RETS.

IV. Path Forward

M-RETS does not believe that tracking of environmental attributes for a CHS should be an impediment to program implementation. In fact, M-RETS is in the unique position of already operating a system that tracks clean heat applications, and our flexible system with some small additions could easily provide for requirements specific to the needs of Vermont's rules and regulations. This would allow Vermont to join a system where costs are spread out among North American users, one of the concerns raised regarding program implementation costs. M-RETS looks forward to engaging with staff and stakeholders to chart a path forward.

Respectfully submitted,



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