January 29th, 2025

To: Commissioner Katie Sieben
The Minnesota Public Utilities Commission
121 7th Place East
#350
Saint Paul, Minnesota, 55101

From: Carbon Solutions Group, LLC

Subject: *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691*

COMMENTS BY CARBON SOLUTIONS GROUP

Pursuant to the "Notice of Comment Period and Updated Timeline" document issued by the Minnesota Public Utilities Commission ("PUC") on October 31st, 2024, Carbon Solutions Group ("CSG") respectfully offers the following comments and recommendations related to the proceeding *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691* (Docket No. E-999/CI-23-151).

By way of background, CSG develops digital infrastructure to support governmental energy programs; aggregates distributed energy resources; and provides technical expertise to legislators and regulators. CSG believes that properly structuring energy and environmental markets will lead to tangible advancements for U.S. infrastructure, economy, and climate. Specifically, CSG believes that clean energy markets can only function as intended when credible GHG accounting methodologies are upheld.

The Carbon-Free Standard ("CFS") offers the promise of significant statewide impact and CSG looks forward to its implementation. To that end, CSG thanks the PUC for its interest in, and leadership of, the critical question of GHG emissions accounting in Minnesota.

CSG's comments are structured as follows:

I. CSG'S RECOMMENDATIONS IN BRIEF

While much of the debate in this proceeding has focused upon the definition of "carbon-free," CSG maintains that, regardless of the final list of qualifying CFS Program resources, a stringent and credible method of accounting for unique carbon-free compliance claims must be uniformly applied. In support of this assertion, CSG's comments primarily address three of the prompts in the PUC's "Notice of Comment Period and Updated Timeline." CSG will briefly address each prompt in this present section (Part I). Parts II-V of this document will examine the same issues in greater detail.

PUC Question 2: By which criteria and standards should the Commission measure an electric utility's compliance with the CFS?

The Commission should account for CFS Program compliance with a serialized accounting instrument that can track unique carbon-free megawatt-hour ("MWh") claims. The best instrument for this purpose is an environmental attribute credit ("EAC")—such as a renewable energy credit ("REC")[1]—that can be retired in a public tracking system. CFS Program compliance itself would thereby be based upon the number of CFS-eligible EACs retired by an obligated entity relative to that entity's annual "total retail electric sales."

PUC Question 3: What considerations should the Commission take into account regarding the double counting of Renewable Energy Credits (RECs) to meet multiple requirements?

Double counting RECs, or any EAC, should be expressly prohibited. Double counting distorts markets; may result in greenwashing; misinforms policymakers and ratepayers; as well as likely undermines Minnesota statute. Double counting can occur i) across compliance and voluntary markets, ii) within the same compliance market, iii) as well as across interstate compliance markets. The most critical issue to address in this regard is accurately accounting for unbundled REC sales. When RECs are unbundled from the underlying electricity, that underlying electricity must be considered *null power* and *not* renewable or carbon-free. Therefore, any fuel mix calculation must account for unbundled REC sales in addition to electricity sales.

PUC Question 4: How should net market purchases be counted towards CFS compliance?

Net market purchases can only potentially count towards CFS compliance *after* REC retirements have been eliminated from the systemwide, subregional, or entity-level fuel mix. The process of subtracting REC retirements out of a fuel mix is called residual mix accounting. It should be noted that there may be no claimable carbon-free emissions left in a fuel mix after solving for an accurate residual mix. For example, at the systemwide level, net market purchases could only count towards CFS compliance to the extent that the Midcontinent Independent System Operator ("MISO") residual mix still contains carbon-free attributes that have gone unclaimed by voluntary buyers, obligated entities in Minnesota, or obligated entities outside of Minnesota.

[1] Also known as renewable energy *certificates* in other jurisdictions.

II. OVERVIEW: THE RISK OF DOUBLE COUNTING

The need for stringent emissions accounting applies to compliance claims associated with all forms of electricity procurement undertaken by a CFS-obligated entity, including i) generated electricity (i.e. self-procured), ii) *unspecified* market purchases, iii) *specified* market purchases, and iv) bilateral contracts, such as power purchase agreements ("PPAs") and unbundled REC transactions.

Emissions claim accounting is especially critical when it comes to unbundled RECs. Unbundled RECs can be separated from the underlying electricity and sold separately as an environmental commodity. In an unbundled REC transaction, the contractual right to make an emissions claim has been differentiated from the underlying electricity.

Inappropriate emissions accounting of carbon-free electricity transactions would likely lead to the *double counting* of emissions claims. Double counting occurs when multiple entities claim ownership of the same carbon-free or renewable MWh. Double counting results in a market distortion, in that emissions accounting entries overrepresent the actual carbon-free electricity generated. This misrepresentation impacts Minnesota's citizens and would potentially undermine Minnesota statute, including Minn. Stat. § 216B.1691 Subd. 9(a)(4).

The key double counting risk facing Minnesota's CFS Program concerns the interplay between Minnesota's compliance-impacted entities, other state compliance markets, and especially the voluntary market. In order to assess the risks associated with these markets, several fundamental accounting principles must be recognized:

> 1. If a Minnesota-sited unbundled REC is retired by a voluntary buyer outside of Minnesota, the emissions factor of Minnesota's fuel mix will *increase* accordingly. This issue is scalable and thus applicable at the level of MISO, a MISO subregion, a Local Resource Zone ("LRZ"), etc.
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> 2. If a Minnesota-sited REC is retired by a voluntary buyer within Minnesota, the emissions factor of Minnesota's *total* fuel mix may technically remain the same—but Minnesota's emissions factor will no longer accurately reflect the actual carbon-free status of *obligated entities* in Minnesota.
>
> 3. If a Minnesota-sited REC is retired by a CFS-obligated entity within Minnesota, the emissions factor of Minnesota's *total* fuel mix may technically remain the same—but Minnesota's emissions factor will no longer accurately reflect the actual carbon-free status of *each* obligated entity in Minnesota. In other words, the fuel mix may possibly reflect state-level compliance, but that state-level compliance would likely be achieved by one compliant obligated entity subsidizing another non-compliant obligated entity—potentially through double counted emissions.
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> 4. If a MISO-sited unbundled REC is retired in the PJM Interconnection region ("PJM"), or the Southwest Power Pool region ("SPP"), in order to satisfy another state's compliance obligation, the emissions factor of Minnesota's fuel mix will increase accordingly.

Put simply, accounting for REC retirements is an essential step in accurately accounting for a state's emissions. When an emissions factor is i) not responsive to unbundled REC retirements, or ii) not responsive to interstate or inter-RTO REC-based emissions claims, the risk of double counting significantly increases.

The complexity of this issue is partially due to the fact that, within the broad umbrella of carbon-free electricity procurement, there are different types of sellers and buyers that correspond

to distinct and wholly separate markets (i.e. compliance and voluntary). The complexity is also due to the fact that these separate markets, generally speaking, both meet obligations through *claims*-based accounting. In other words, an emissions *claim*—such as meeting the compliance obligation of a renewable portfolio standard ("RPS") or making a voluntary "100% renewable" claim to customers—is usually effectuated *not* by REC generation *or* REC procurement, but by an *exclusive* REC *retirement* on a digital tracking system, such as M-RETS.

The need to uphold and protect exclusive REC claims via exclusive retirement is generally supported by the U.S. Environmental Protection Agency ("EPA"), renewable portfolio standard programs across the U.S., major U.S. utilities, as well as leading guidance authorities in the voluntary market such as the Center for Resource Solutions ("CRS") and the RE100 group. These organizations all consider double counting to be an illegitimate accounting methodology. REC retirement exclusivity is also implicit in the functionality of REC tracking systems such as M-RETS or PJM-GATS.

In order to elucidate the concept, consider the simplified example illustrated in Figure 1. A solar facility generates 10 MWh of carbon-free electricity and sells 10 RECs to a data center that is matching its carbon-based electricity load (emissions at 4.5 tonnes CO_2e). The solar facility also wholesales the 10 MWh of electricity (underlying the RECs) to an electric distribution company ("EDC"). This unbundling of RECs necessitates the recalibration of the emissions associated with that underlying electricity. If both the data center and the EDC made a 10 MWh carbon-free emissions claim, it would depict 20 MWh of carbon-free generation in a system. As is evident, only 10 MWh was ever generated carbon-free. In this example, the underlying electricity should be referred to only as *null power*. *Null power* is the term used for underlying electricity that has been separated from an unbundled REC.[2]

Because it has been stripped of its attributes, the 10 MWh of null power in this example could not be used by the EDC to make a compliance claim nor a carbon-free claim to its customers. Instead, the solar facility's underlying electricity also assumes the emissions of the residual fuel mix (i.e. the natural gas generation) and takes on the 4.5 tonnes CO_2e of emissions.

To restate: *If an unbundled REC is retired, the emissions factor of the fuel mix will increase accordingly*. In other words, fuel mix accounting must be responsive to unbundled REC markets. Therefore, any credible accounting of emissions claims must track the REC *claims* and not merely the underlying electricity. As was noted in Part I, accounting for voluntary activity and other unbundled REC transactions is known as residual mix accounting. Specifically, residual mix accounting nets gross reported generation and market sales against bilateral PPAs, virtual PPAs ("VPPAs"), the sales of unbundled environmental attributes (e.g. RECs), and other contractual transfers of energy-based emissions claims that may not be picked up in raw generation or electricity sales data at the system level.

[2] Greenhouse Gas Protocol, World Resources Institute, and Mary Sotos. *GHG Protocol Scope 2 Guidance—An Amendment to the GHG Protocol Corporate Standard*. 2015. p. 44. <https://ghgprotocol.org/sites/default/files/2023-03/Scope%202%20Guidance.pdf>; *see also* Center for Resource Solutions (CRS). *Guidance for Calculating Residual Mix*. v.1.0. March 6th, 2024. pp. 4-5. <https://resource-solutions.org/wp-content/uploads/2024/03/030624.pdf>

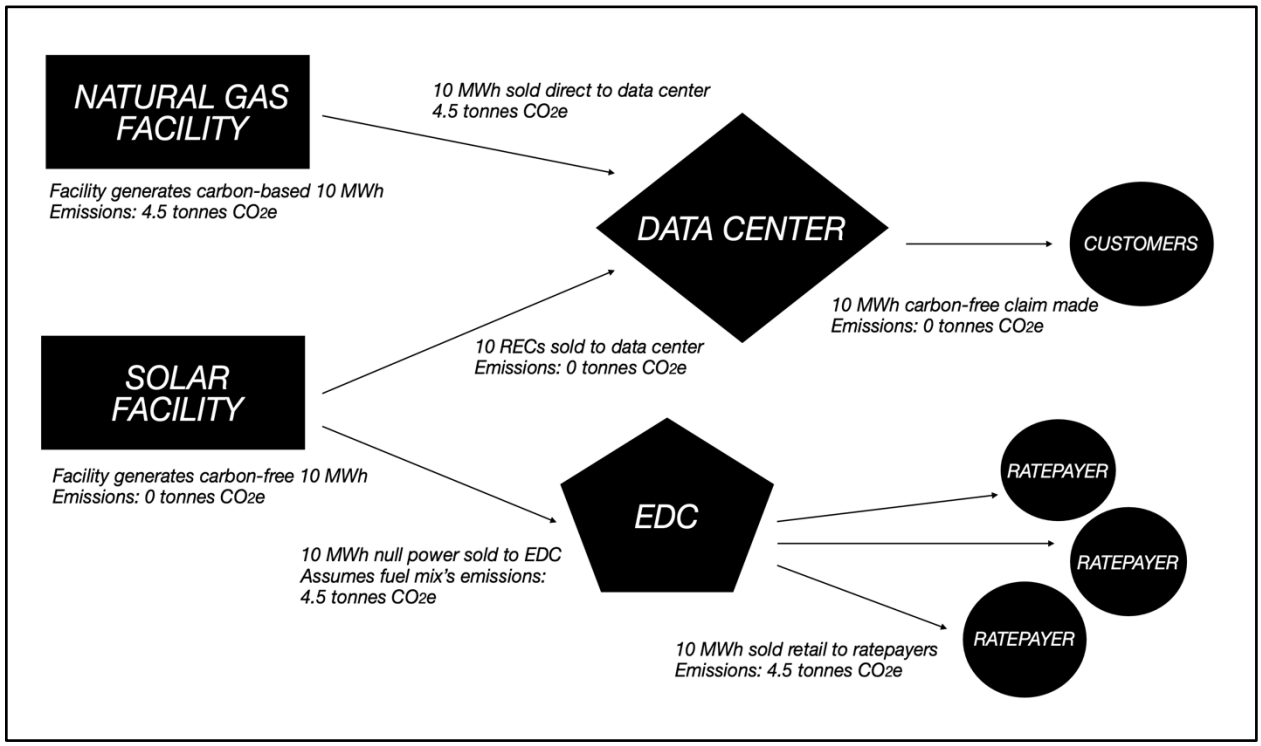

Fig. 1

If a compliance framework does not use RECs to substantiate compliance claims—but instead uses an alternative method—there is no credible way to account for unbundled REC retirements. A lack of requisite REC retirements could, in turn, lead to non-obligated entities claiming the RECs associated with compliance-impacted generation. Such a risk presents itself to Minnesota's CFS Program due to the ambiguity of statutory language in certain subsections.

As is known, Minn. Stat. § 216B.1691 Subd. 2g establishes the CFS Program. Specifically, Subd. 2g requires that an obligated entity "generates or procures" carbon-free energy[3] volumes that are equivalent to the CFS Program requirement for the years 2030, 2035, and 2040. The statutory usage of the terms "generates" and "procures" indicate that an obligated entity can achieve CFS compliance by i) self-generating its carbon-free electricity while netting sales, ii) procuring carbon-free electricity from a third-party while netting sales, or iii) utilizing a combination of both methods. In any of these cases, the obligated entity will make a claim of CFS Program compliance based upon the acquisition of carbon-free electricity. RECs *can* be used to make these CFS compliance claims, as per Minn. Stat. § 216B.1691 Subd. 4 and Subd. 7.

[3] CSG acknowledges that the question of which exact energy resources qualify as "carbon-free" remains undetermined at this time. CSG's references to "carbon-free" electricity, throughout this document, refer to those resources ultimately defined as such by the Commission.

However, Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii) includes additional accounting criteria:

> "(ii) an electric utility's annual purchases from a regional transmission organization net of the electric utility's sales to the regional transmission organization, but only for the percentage of annual net purchases that is carbon-free, which percentage the commission must calculate based on the regional transmission organization's systemwide annual fuel mix or an applicable subregional fuel mix."

This statutory language is ambiguous in two key areas. One point concerns the lack of a prescribed accounting instrument. In other words, RECs are not *clearly* statutorily required to account for net purchases, nor is any exact accounting instrument or methodology prescribed.

The second point of ambiguity concerns the statute directive that net purchases of carbon-free electricity should be calculated by the Commission based on one of two methodologies: 1) a "systemwide annual fuel mix" or, 2) "an applicable subregional fuel mix."[4] In the case of the second option, the exact methodology and scope of the proposed subregional fuel mix calculation also remains unclear.

Without further Commission clarification on the need for an accounting instrument (i.e. RECs) and further clarification of the two proposed fuel mix calculations, it is highly probable that obligated entities would inaccurately report carbon-free electricity in Minnesota for the reasons outlined thus far. To reiterate, the potential for the inaccurate accounting of emissions claims opens the door to the possibility of double counting emissions claims.

Due to the scope of its borders, and number of inputs therein, CSG contends that using a "systemwide annual fuel mix" would most inaccurately depict *actual* carbon-free electricity generation and consumption in Minnesota. As such, a systemwide annual fuel mix would likely not accurately depict the true state of carbon-free electricity claims across Minnesota's obligated entities.

As noted, the Commission does also have the option to set a calculation at the level of an "applicable subregional fuel mix," which could be theoretically rendered at a variety of scales such as an LRZ. While an LRZ-level calculation is inherently more accurate than a systemwide calculation due to its tighter parameters, an LRZ-level fuel mix would likely maintain the same critical data gaps and retain unnecessary program liability at a smaller scale. Namely, unless the subregional fuel mix is a *residual* mix—and thus accurately accounts for unbundled REC sales (i.e. emissions *claims*)—the subregional fuel mix retains the inaccuracies of a systemwide fuel mix.

The most accurate means to calculate an LRZ-wide residual subregional fuel mix would be to calculate the residual fuel mixes of obligated entities within a given LRZ—thereby accounting for each obligated entity's PPAs, VPPAs, unbundled RECs, and other contractual transfers of exclusive emissions claims that would potentially not register under the accounting of market-based net purchase data. Put simply, in order to credibly calculate an LRZ-level mix, one would likely have *de facto* calculated a utility-level residual mix in the process. It is also worth reemphasizing that, after accurately accounting for carbon-free claims at the utility-level, the residual LRZ-wide fuel mix could be effectively 0% carbon-free. This is because every carbon-

[4] Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii).

free emissions claim would have been tagged to a specific obligated entity and no unclaimed attributes would thereafter remain on the LRZ's generic fuel mix. In this scenario, the LRZ's remaining fuel mix would only be comprised of carbon-based electricity and/or *null power* that has assumed the emissions of the remaining carbon-based electricity.

The most efficient and accurate way to calculate a utility-level residual mix is to use the most widely accepted serialized accounting instrument: RECs. Such an approach would reflect nationally recognized best practices, which suggest that the procurement of renewable or carbon-free energy should be transacted using EACs such as RECs. To restate, RECs are defined as an acceptable compliance instrument for procured carbon-free electricity in the CFS Program.

Logistically, under such a REC-based residual mix methodology, CFS Program-obligated utilities would procure and retire eligible RECs for the purpose of CFS Program compliance across all carbon-free transaction methods.[5] These REC retirements could be made available to the Commission in the form of a "CFS Program Compliance Report." Such a report would allow the Commission to audit the carbon-free portion of an obligated utility's fuel mix at the level of unique MWh units. This accounting framework could be codified as follows:

> [*Specified* purchases calculated as REC retirements] + [residual mix balance of *unspecified* purchases matched with REC retirements] = CFS Program Requirement [% of total retail electric sales]

In such an approach, every MWh *claim* of compliance is accounted for through unique REC *retirements*. CSG sees no other method by which double counting could be avoided with certainty.

Using a *non*-residual fuel mix that does *not* incorporate RECs could undermine the directive outlined in Minn. Stat. § 216B.1691 Subd. 9(a)(4). That directive instructs the Commission to "take all reasonable actions," within the Commission's authority, to ensure "that all Minnesotans share (i) the benefits of clean and renewable energy, and (ii) the opportunity to participate fully in the clean energy economy."

Without requiring a REC-based residual fuel mix, this statute could be undermined due to the fact that the inaccurate accounting of carbon-free electricity would likely result in Minnesotans *not* fully sharing or participating in the CFS Program's benefits. Rather, under a non-residual fuel mix methodology, Minnesotans might only be sharing in duplicative accounting entries. More severely, in the event that the utility's cost of double-counted carbon-free electricity is recovered from ratepayers, those ratepayers may be paying for an environmental commodity that they did not actually receive.

While Commission Staff has noted that the calculation of a REC-based, utility-level residual mix may "fall beyond basic statutory requirements"[6] as *explicitly* written in Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii), the most effective and credible way to meet those basic statutory requirements—as well as uphold the citizen and ratepayer protection requirements of Minn. Stat. § 216B.1691 Subd. 9(a)(4)—would be to calculate a REC-based utility-level residual mix.

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[5] Namely: i) generated electricity, ii) *unspecified* market purchases, iii) *specified* market purchases, and iv) bilateral contracts, including unbundled RECs.

[6] Minnesota Public Utilities Commission Staff. "Staff Briefing Papers for Docket No. E-999/CI-23-151." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* September 26th, 2024. p. 4. Document ID: 20249-210176-01.

In summary, CSG recommends that the Commission specify that RECs, or an equivalent EAC, be required to substantiate all CFS Program compliance claims. This is fairly straightforward for all *specified* net purchases. Regarding *unspecified* net purchases, an obligated utility's remaining requirement should be calculated based upon an applicable subregional residual fuel mix at the utility-specific level. Should there be a program requirement balance left after the calculation of a residual utility-level fuel mix, the obligated entity should be directed to procure RECs to match that remaining requirement.

III. DOUBLE COUNTING IN THEORY

This section (Part III) takes a step back and examines several fundamental definitions, concepts, and market mechanics that should inform rulemaking.

A. *Program compliance rests upon valid compliance claims.*

Energy compliance programs incentivize obligated entities to pursue legislatively designed energy objectives. Therefore, compliance with a legally designated energy standard (such as Minnesota's Carbon-Free Standard) occurs when an obligated entity makes a public claim that it is following program criteria to the letter of the law. By making a compliance claim, the obligated entity is essentially stating that it is, individually, achieving the objectives intended by the legislators who devised the inciting legislation. Therefore, the integrity of compliance claims is a central question when it comes to assessing whether legislatively designed objectives have been met.

Validating compliance claims related to carbon-free or renewable electricity necessarily requires the analysis of units of compliance-impacted electricity, ideally on a per-kWh/MWh basis. If MWh units cannot be granularly tracked, then claims regarding electricity are, at best, projections. This is why the validation of carbon-free or renewable claims at the kWh/MWh level usually requires the usage of a serialized accounting instrument (such as RECs), as is the case in all known U.S. renewable portfolio standard programs. As noted, Minn. Stat. § 216B.1691 Subd. 4 indicates that qualifying RECs can be used to meet CFS Program obligations.

A.1. Compliance markets and voluntary markets are two separate markets bound by different sets of demand and accounting.

Entities obligated under Minn. Stat. § 216B.1691 participate in compliance markets, such as the EETS and CFS Program. As such, these obligated entities must meet the obligations established in legislation.

The purpose of the CFS Program requirement is to re-proportion the electricity fuel mix of utility service areas year-over-year with an increasing proportion of that fuel mix being made up of carbon-free electricity. The CFS Program sets a mandatory baseline for carbon-free electricity procurement by way of establishing a new and distinct class of carbon-free electricity buyer—the obligated entity. The compliance of this obligated buyer class is ensured by a legal enforcement mechanism, which includes, at the discretion of the Commission, financial penalties for non-

compliance.[7] Because compliance is legally enforced, it thus establishes a new, carbon-free status quo fuel mix for Minnesota.

Yet, previous to the enactment of H.F. No. 7, private corporations had already been procuring carbon-free electricity and/or RECs for various purposes, and from various geographies and vintages. These buyers constitute the *voluntary market*. Voluntary buyers generally enter into bilaterally negotiated PPAs, direct contracts with generation facilities, VPPAs, or otherwise procure unbundled RECs in order to meet 100% of a company's electricity consumption. Specifically, voluntary demand usually originates in perceived consumer desire, the ideological outlook of present leadership, or the influence of activist shareholder involvement.

In any of these cases, voluntary buyers are not obligated entities under legislatively instituted frameworks, such as the CFS Program. Voluntary demand is thus optional and does not face legal enforcement should a voluntary customer fail to meet its self-imposed obligation.

Bilateral contracts, such as those for unbundled RECs, exist outside of regional power markets and are unlikely to be incorporated into system fuel mixes. As a result, a regional or subregional fuel mix calculation would not necessarily capture carbon-free MWh usage claims made by voluntary customers as well as other non-obligated entities. This means that, unless claims by voluntary and other non-obligated entities are subtracted out from a compliance fuel mix calculation, those non-obligated entities would be potentially subsidizing the compliance of obligated entities and diluting the legislatively established carbon-free price signal.

Voluntary procurement is usually the leading edge of renewable or carbon-free price signal development in a jurisdiction. However, relying on perceived consumer demand or leadership ideology means that voluntary procurement can be unreliable as a steady and dependable source of carbon-free electricity demand over long periods of time. Likewise, the demand criteria for voluntary RECs is not always in sync with a state's political objectives. This is usually the reason why legislators will create a separate, legally enforceable buyer class—the obligated entity—in order to establish that steadily increasing baseline of renewable or carbon-free electricity procurement that meets the political objectives of the legislature.

B. *RECs substantiate carbon-free energy usage claims.*

A REC is a specific energy generation dataset that is used to make a specific energy usage claim. One REC represents 1 MWh of renewable energy generated. The REC's associated dataset—also known as "renewable energy attributes" or "environmental attributes"—include data points such as the facility and resource type (e.g. solar, geothermal, etc.), the emissions status (e.g. "renewable" or "carbon-free"), and the location of generation (e.g. Minnesota), etc. Because the source of electricity is indistinguishable once it hits the grid, RECs are minted at the level of generation in order to track those generated MWhs.

According to the U.S. Commodity Futures Trading Commission, RECs are a separate commodity (i.e. an environmental commodity), distinct from the underlying electricity, allowing the owners of RECs to make claims about their energy usage.[8] The specific data points in a REC

[7] *See* Minn. Stat. § 216B.1691 Subd. 7.

[8] *See* U.S. Commodity Futures Trading Commission ("CFTC"), 77 Fed. Reg. 48,208, 48,233-48,234 (proposed Aug. 13, 2012) ("The CFTC understands that market participants often engage in environmental commodity transactions in order to transfer ownership of the environmental commodity (and not solely price risk), so that the buyer can

determine the specificity of the energy usage claim. Importantly, one REC should be claimed only once by one entity for one purpose in order to avoid the accounting distortions and ensuing misrepresentations of double counting.

When 1 REC is generated for 1 MWh, a valid emissions *claim* related to that 1 MWh can only occur upon *retirement* of the REC. The generation or procurement of a REC does not result in an actual claim being made.

REC markets may see a REC change hands several times before an ultimate retirement occurs. In such occurrences, the *contractual right to make an exclusive emissions claim* changes hands correspondingly. To restate, the REC represents that *contractual right to make the claim* and the *retirement* of the REC effectuates that claim.

A REC is retired on a digital tracking system. Digital tracking systems facilitate the credible transacting and retirement of REC claims. M-RETS is the tracking system for the MISO region. PJM-GATS serves the PJM region. The usage of a REC tracking system is supported by Minn. Stat. § 216B.1691 Subd. 4(d):

> "The commission shall require all electric utilities to participate in a commission-approved credit-tracking system or systems. Once a credit-tracking system is in operation, the commission shall issue an order establishing protocols for trading credits."

In addition to the exclusivity of a REC retirement, REC eligibility and the purpose of a REC claim are also registered on a tracking system. Purposes include claims made for RPS/RES compliance or for a voluntary environmental claim. For example, Great River Energy ("GRE") described its engagement with M-RETS:

> "All renewable energy certificates intended for MN RES compliance and held in GRE's M-RETS account reflect MN RES eligibility via the M-RETS platform. M-RETS and MN PUC staff review all generators to ensure they meet MN's definition of eligible energy technology. The information reviewed includes the name, location, and fuel type of the generator (i & iii). All M-RETS issued certificates also reflect the vintage (date generated) and when the MN RES Program opens each year, the qualifying vintages are listed, and no ineligible certificates may be retired for MN RES compliance (ii)."[9]

To reiterate, only one claim should be stated per REC retirement. In the same way a single unit of electricity (1 MWh) can only be generated and consumed once, a REC (representing the emissions attributes of that 1 MWh) cannot be retired again for a new claim once it has been retired on a tracking system for a preexistent claim.

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consume the commodity in order to comply with the terms of mandatory or voluntary environmental programs. […] For the foregoing reasons, environmental commodities can be nonfinancial commodities that can be delivered through electronic settlement or contractual attestation."); *see also id.* at 48,317 ("The CFTC is clarifying that renewable energy credits are nonfinancial commodities and that transactions therein are eligible for the forward exclusion if they satisfy the terms thereof.").

[9] Great River Energy. "Comments of Great River Energy." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. August 2nd, 2023. p. [5]. Document ID: 20238-197952-01.

To look at it from another perspective: the only viable means to ensure exclusivity of a MWh claim is to use specified accounting instruments (i.e. RECs) that serialize unique units of energy generation and subsequently track those energy units to that ultimate energy usage/emissions claim.

C. *RECs are credibly procured in different forms and in different markets.*

As has been noted prior, REC transactions credibly occur in two different forms: *bundled* REC procurement and *unbundled* REC procurement.

Bundled REC procurement occurs when the underlying electricity is accompanied by the REC dataset (i.e. the environmental commodity). While the electricity is the energy that is physically consumed for practical purposes, the REC allows the energy consumer to make a public emissions claim about that energy consumption. This claim is made possible due to the use of serialized RECs as a means to track the carbon-free attributes of otherwise indistinguishable electricity on the grid.

Therefore, the entity that retires a bundled REC is *both* the presumed consumer of the electrons and the public claimant of that energy use. Bundled RECs are often used to identify carbon-free electricity transacted in a PPA, which can be negotiated bilaterally.

An *unbundled* REC is a REC that is procured separately from the underlying electricity. In this case, the environmental commodity is an asset sold distinct from the energy. Unbundled RECs act as a price signal for renewable generation, as buyers of unbundled RECs can finance renewable generation while not necessarily having physical access to renewable electricity. Most buyers of unbundled RECs, whether compliance-obligated entities or voluntary corporations, "re-bundle" or "match" RECs with accessible carbon-based electricity in order to be able to make a carbon-free or renewable emissions claim.

The ability to procure unbundled RECs has been essential in financing the expansion of renewable energy, particularly at the early stages of the industry. Unbundled contracts are most often negotiated bilaterally.

RECs—even when unbundled—are generally considered tantamount to renewable or carbon-free electricity for compliance purposes. For example, Minn. Stat. § 216B.1691 Subd. 4(a)-(b) clearly states:

> "Each kilowatt-hour of renewable energy credits must be treated the same as a kilowatt-hour of eligible energy technology generated or procured by an electric utility if it is produced by an eligible energy technology […] if the credit meets the requirements of each subdivision. […] In lieu of generating or procuring energy directly to satisfy a standard obligation under subdivision 2a, 2f, or 2g, an electric utility may utilize renewable energy credits allowed under the program to satisfy the standard."

Therefore, a qualifying REC, unbundled from its underlying electricity, could be used to satisfy a CFS Program obligation.

D. *Double counting should be expressly prohibited in compliance markets.*

The usage of RECs to validate contractual emissions claims allows regulators and other stakeholders to efficiently and accurately account for *net* transactions across compliance and voluntary markets. This is because RECs—whether bundled or unbundled—can be credibly claimed only once by one entity for one purpose on a tracking system. As has been described, when the same MWh is used to make two separate energy usage claims (e.g. a REC is retired by a voluntary buyer making a public marketing claim *and* that MWh is also claimed by an obligated utility making a compliance claim for a Carbon-Free Standard), it is termed double counting or *double claiming*. To put it another way, the easiest way to determine double counting would be through the requisite usage of RECs. When RECs are not used as an instrument for compliance, the risk of double counting increases.

Part I and II of this document noted that the risk of double counting is a particularly pertinent consideration under two scenarios: i) When different accounting methodologies and mechanisms are used across multiple markets, RTOs, standards, or other frameworks, and ii) When residual mixes are not calculated in the wake of renewable or carbon-free energy transactions, such as those that occur when unbundled RECs are retired separately from the underlying electricity.

Double counting results in negative effects ranging from severe economic distortion to the abuse of consumers' good will. Double counting can occur intentionally (i.e. financial fraud) or unintentionally (e.g. due to an inappropriate accounting methodology). The EPA describes double counting as thus:

> "The effect of double counting is that the environmental benefits of a certain REC are counted twice—once by the legitimate REC owner and once by the other claimant. […] Making an environmental claim (e.g., 'we use renewable energy') requires the retirement of the REC. Selling or transferring RECs after making environmental claims leads to double counting, as two different parties will claim the same environmental benefits from the green power purchase. For purchases of RECs that are tracked in tracking systems, the buyer should ensure that the RECs are retired in their name or retired on their behalf by their supplier. […] When pursuing a renewable energy contract, the terms and conditions for who will own the RECs must be laid out clearly. A contract that is silent on the ownership of RECs can create confusion about REC ownership, which is detrimental to renewable energy markets and may result in double selling or double counting. To avoid potential double claims, contracts should be explicit about what environmental attributes are included with the sale of the REC and over what term. Buyers and sellers should also clarify in the contract that the purchase conveys the exclusive rights to the attributes and that the RECs are not also being used for an RPS or any other regulatory requirement."[10]

CRS, in its 2024 *Green-e® Renewable Energy Standard for Canada and the United States*, also described double counting:

> "Eligible RECs or renewable energy can be used once and only once; making a claim (e.g. stating 'we buy wind power') is one example of a 'use' that results in retirement. Renewable energy or RECs (or the renewable or environmental attributes incorporated in that REC) that can be

[10] U.S. Environmental Protection Agency. *Double Counting*. Accessed via: <https://www.epa.gov/green-power-markets/double-counting> Last updated December 26th, 2024.

> legitimately claimed by another party may not be used in Green-e® Energy certified REC products."[11]

It is worth highlighting several brief examples of double counting provided by the EPA, in order to further illustrate this concept:

> "A utility counts the same renewable megawatt-hours (MWh) or RECs toward meeting its renewable portfolio standards (RPS) requirements and as a sale in its voluntary green pricing program.
>
> "A solar system owner claims to be using renewable electricity, while at the same time, another party is contractually purchasing the RECs associated with the solar system's output.
>
> "A facility with a power purchase agreement for on-site solar claims to be using renewable electricity, while at the same time, the system owner is selling the RECs to a utility to meet its RPS requirements."[12]

Rather than double count, it is recommended that voluntary customers pursue "regulatory surplus," that is to procure renewable or carbon-free energy outside of compliance-dictated volumes and obligations. The EPA describes:

> "Buyers of green power want their purchases to make a difference and demonstrate exclusive use of renewable electricity. To do so, the renewable electricity that they purchase or generate must go beyond what otherwise would have been available through the standard electricity mix or what the law requires or mandates to meet a compliance obligation. This is referred to as regulatory surplus because the additional renewable electricity being purchased is surplus to regulatory requirements."[13]

Minn. Stat. § 216B.1691 Subd. 4 appears to concur with the prohibition of double counting RECs:

> "The program must permit a [renewable energy] credit to be used only once, except that a credit may be used to satisfy both the carbon-free energy standard obligation under subdivision 2g and either the renewable energy standard obligation under subdivision 2a or the solar energy standard obligation under subdivision 2f, if the credit meets the requirements of each subdivision."

CSG supports this particular provision, so long as the MWh claimed by an obligated entity for CFS and EETS compliance is not claimed by any other entity within or outside Minnesota's borders.

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[11] Center for Resource Solutions. *Green-e® Renewable Energy Standard for Canada and the United States*. Version 4.4. 2024.
[12] U.S. Environmental Protection Agency. *Double Counting*. Accessed via: <https://www.epa.gov/green-power-markets/double-counting> Last updated December 26th, 2024.
[13] U.S. Environmental Protection Agency. *Regulatory Surplus*. Accessed via: <https://www.epa.gov/green-power-markets/regulatory-surplus> Last updated December 26th, 2024.

D.1. Double counting leads to greenwashing and the deception of citizens and policymakers.

To restate, a variety of agencies and entities encompassing various market boundaries (federal, state, and voluntary) recommend the prohibition of double counting emissions claims due to the widespread negative ramifications of the practice. For one, double counting leads to a type of greenwashing in that it misleads ratepayers and other customers into thinking they are receiving more renewable or carbon-free electricity than actually exists. For example, if carbon-free MWh are double counted, then it becomes unlikely that ratepayers would actually be receiving 100% of the carbon-free electricity they are paying towards. At best, ratepayers would be claiming contested carbon-free electricity that is considered illegitimate in the eyes of leading authorities at the federal level and other state RPS programs, as well as in the voluntary market. The EPA notes:

> "Double counting skews the marketplace by falsely depicting a greater number of organizations or people making claims about using renewable resources. For organizations, double counting can also lead to credible accusations of greenwashing and can severely hurt an organization's credibility."[14]

D.1(a). Example: Intrastate double counting between obligated utilities.

Consider the following simplistic example depicted in Figure 2.

Two utilities with generation assets sit in Minnesota. Minnesota Utility A is a net exporter. It has an annual retail customer load of 75 MWh but generates 100 MWh.

Minnesota Utility B is a net importer. It has an annual total customer load of 75 MWh but generates only 50MWh.

Total annual generation for both A and B is therefore 150 MWh for the state.

Of Utility A's 100 MWh annual generation, it generates 50 MWh in coal generation[15] and 50 MWh of carbon-free electricity. Therefore, on a gross accounting of generation, Utility A could be considered 50% carbon-free.

Utility B generates all 50 MWh of its load with natural gas-based energy[16] and imports 25 MWh. Therefore, on a gross accounting of generation, Utility B is 0% carbon-free.

Each year, Utility A retails 25 MWh of its 50 MWh of carbon-free electricity to its ratepayers and sells 25 MWh of that carbon-free volume wholesale to the importer, Utility B. Utility B in turn retails that 25 MWh of carbon-free electricity to its ratepayers.

Because Utility A gross generates 50 MWh of carbon-free electricity it makes a claim that it is 50% carbon-free (50 MWh carbon-free of 100 MWh total) on behalf of its ratepayers. Utility A's ratepayers then believe they are paying towards 50% carbon-free electricity.

Meanwhile, because Utility B retailed 25 MWh of Utility A's carbon-free electricity, Utility B has also made the claim that it is serving 33% carbon-free electricity to its customers.

In order for both of these utilities to make a credible and valid emissions claim, there would have to be 75 MWh of carbon-free electricity in circulation (50 MWh for A and 25 MWh for B).

[14] U.S. Environmental Protection Agency. *Double Counting*. Accessed via: <https://www.epa.gov/green-power-markets/double-counting> Last updated December 26th, 2024.
[15] Presuming no eligible CCS.
[16] Presuming no eligible CCS.

Yet, there was only ever 50 MWh of carbon-free electricity generated. Falsely believing there to be 75 MWh in carbon-free electricity could also lead voters and legislators to believe that the state's fuel mix is 50% carbon-free (75 MWh of 150 MWh total). In reality, the state's fuel mix is only 33% carbon-free (50 MWh of 150 MWh total), and each individual utility's fuel mix, in this case, is also only 33% carbon-free. This false sense of progress can confuse regulation and subsequent policymaking.

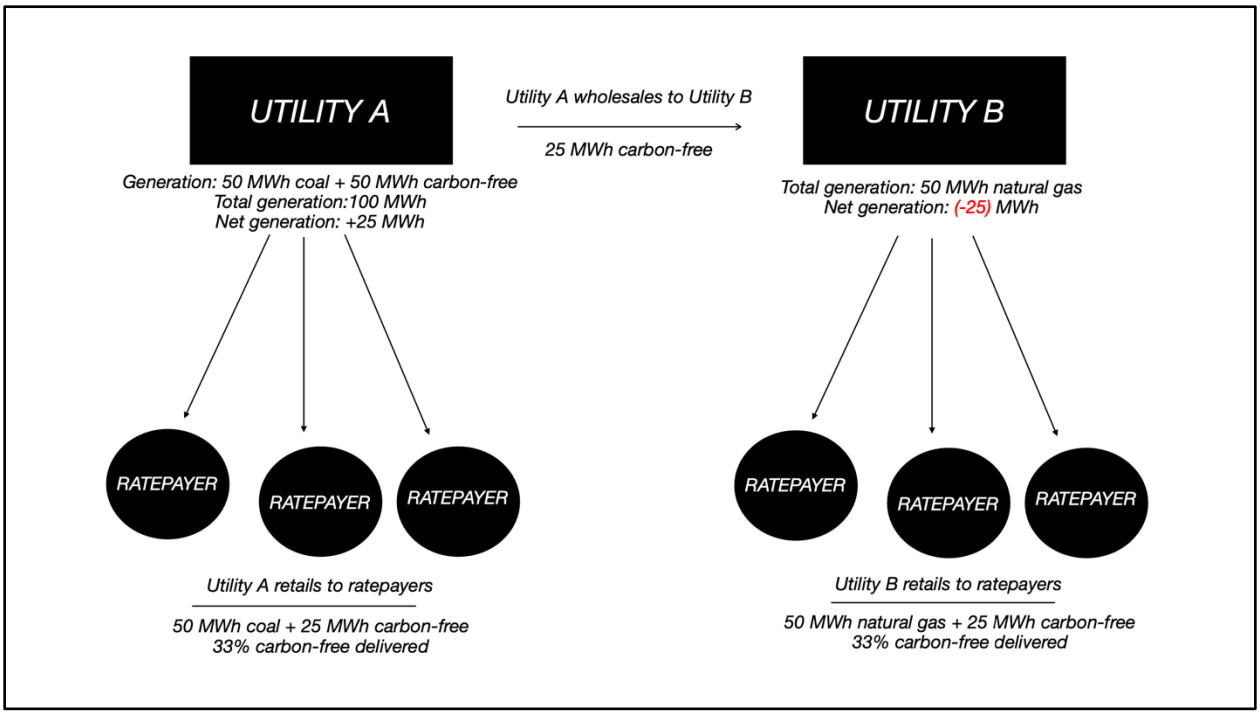

Fig. 2.

Minn. Stat. § 216B.1691 Subd. 2g requires that an obligated electric utility "generates or procures" carbon-free energy volumes that are equivalent to the CFS Program requirement. However, the operative word in that statute is "or." In other words, the same MWh cannot be claimed by both the generator and procurer. This is one reason for the existence of the "*net purchases*" provision in Minn. Stat. § 216B.1691 Subd. 2d. However, that provision proves to present its own accounting challenges, as will be detailed further.

D.2. Double counting leads to market distortions and undermines the expansion of carbon-free electricity.

From a market perspective, double counting dilutes the legislatively instituted demand for renewable or carbon-free energy. For example, double counting across competing energy usage claims (e.g. compliance versus voluntary markets) undercuts the CFS Program-instituted demand (or the price signal) for new carbon-free generation by allowing preexistent voluntary retirements to simultaneously satisfy multiple public energy usage claims (i.e. multiple sources of demand). The dilution of the CFS Program price signal for new generation thereby undermines the

legislatively instituted incentive for obligated utilities to invest in and develop that new carbon-free generation.

D.2(a). Example: Intrastate double counting across compliance and voluntary markets.

For another example, consider the following scenario depicted in Figure 3. There are two CFS Program obligated utilities in Minnesota.

Utility X is a public utility with total retail electric sales of 150 MWh in compliance year 2030. As per Minn. Stat. § 216B.1691 Subd. 2g, Utility X will need to make a claim that it has generated and/or procured 120 MWh of carbon-free electricity.[17] Utility X self-generates its full load—and of that total generation, 120 MWh is carbon-free.

Utility Y is a non-public utility with total retail electric sales of 40 MWh in compliance year 2030. It self-generates its full load but with 100% carbon-*intensive* energy. Correspondingly, Utility Y must procure 24 MWh of carbon-free electricity in order to satisfy the CFS Program compliance obligation.

Between the two obligated utilities, the total retail electric sales amounts to 190 MWh,[18] and a total CFS Program demand for 144 MWh[19] of carbon-free electricity in 2030.

Data Company Z, meanwhile, is a Minnesota data center that voluntarily procures unbundled RECs in order to make a 24/7 carbon-free energy claim to its investors and customers. Its annual unbundled carbon-free REC demand is 20 MWh.

Therefore, between Minnesota's compliance and voluntary market there is actually 164 MWh of annual carbon-free demand in Minnesota.[20]

Of its 120 MWh carbon-free generated, Utility X sells 20 unbundled carbon-free RECs to Data Company Z and 24 unbundled carbon-free RECs to Utility Y.

Data Company Z retires the RECs and makes its voluntary public claim. Utility Y retires its RECs and claims CFS Program compliance with the Commission.

Utility X might also claim compliance with this CFS Program because it points to having self-generated its program requirement of 120 MWh carbon-free electricity, which would not necessarily be contradicted by wholesale market data due to the unbundled nature of the REC sales.

Here again, if these three claims do not uniformly account for unbundled sales, it would appear that 164 MWh of carbon-free electricity was generated. Considering the total CFS Program demand was thought to be 144 MWh—this market appears oversupplied. But, in reality, only 120 MWh was ever generated and it is undersupplied—notwithstanding the fact that Utility X would also be out of compliance by 44 MWh.

[17] 80% of total retail electric sales. *See* Minn. Stat. § 216B.1691 Subd. 2g: "[…] [T]he electric utility generates or procures an amount of electricity from carbon-free energy technologies that is equivalent to at least the following standard percentages of the electric utility's total retail electric sales to retail customers in Minnesota by the end of the year indicated: [in 2030] 80 percent for public utilities; 60 percent for other electric utilities[.]"

[18] Utility X's 150 MWh + Utility Y's 40 MWh = 190 MWh

[19] Utility X's 120 MWh + Utility Y's 24 MWh = 144 MWh.

[20] Compliance (144 MWh) + Voluntary (20 MWh) = 164 MWh.

Furthermore, the total fuel mix of CFS-obligated entities is only 52.6% carbon-free and, thus, the aggregate fuel mix cannot meet the compliance threshold for either public or non-public utilities in 2030.

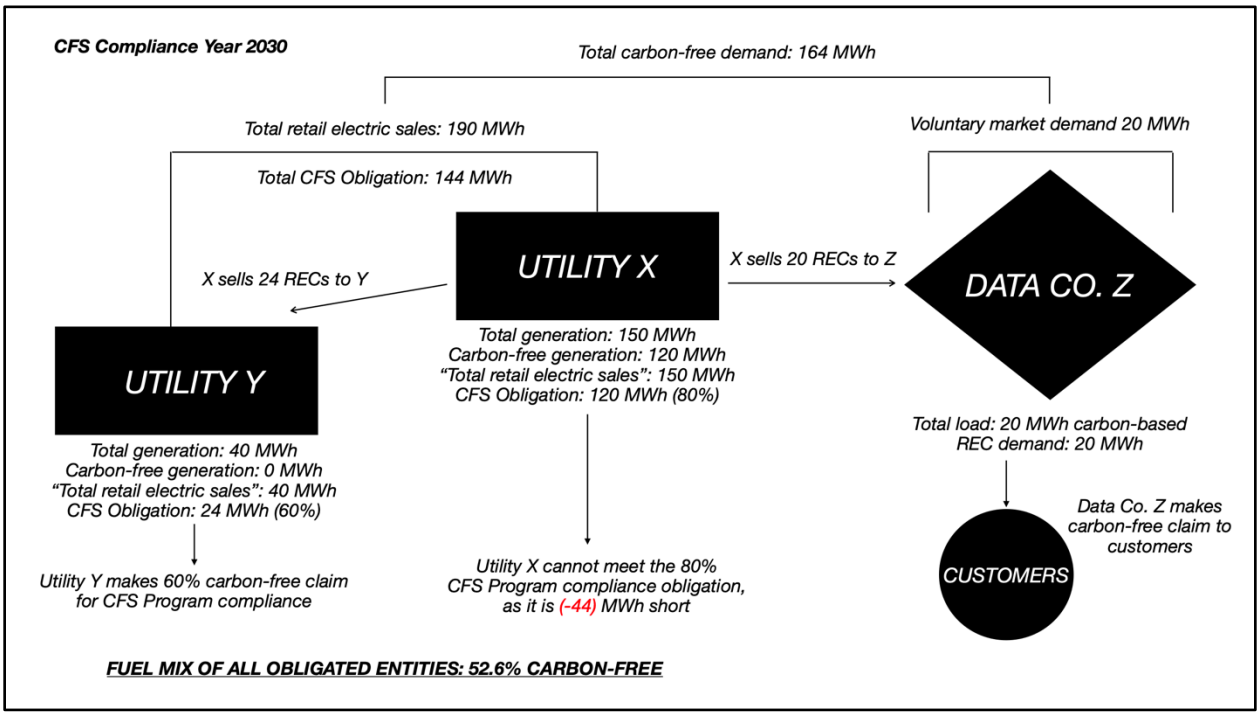

Fig. 3.

The perception of oversupply suggests that additional carbon-free generation is not needed to meet demand. This market landscape, in turn, generally cools investment in carbon-free technology.

D.3. Double counting increases legal and reputational liability for all stakeholders.

Double counted RECs, or other contractual emissions conveyances, are also essentially disputed assets or commodities. Thus, double counting, when discovered, can expose state programs to reputational and legal risk, as well as increase the likelihood of civil litigation or other contract disputes in the private sector.

Taking the previous example in Section D.2(a), Utility X would be short 44 MWh of compliance with the Carbon-Free Standard in 2030. If Utility X continued to double count emissions claims up until 2040 (when the program requirement is 100%), Utility X would be claiming to be 100% carbon-free, when in reality, it would likely not be 100% carbon-free. This would mean that Utility X was effectively greenwashing and misrepresenting its emissions to consumers. In the case of double counting across a voluntary and compliance obligation when RECs are not used, a greenwashing allegation could actually be made against both the voluntary buyer as well as the obligated utilities—as at least one entity, if not all, are making a false environmental marketing claim.

On one side, Utility X is potentially passing on the cost of carbon-free electricity to ratepayers, but the ratepayers are receiving electricity that is not actually carbon-free because the contractual right to make a carbon-free claim was already claimed by Data Company Z. Conversely, Data Company Z is also potentially greenwashing, because that company is advertising its "carbon-free" status to customers despite the utility making that same claim to its ratepayers for the same carbon-free MWh. It is also feasible to suspect that subsequent civil contract disputes would emerge between the utility and the data company in an effort to prove ownership of the emissions claim and thus evade prosecution or condemnation for greenwashing.

Depending on a utility's tariff and cost recovery structure, double counting can also lead to serious economic equity disparities between standard ratepayers, voluntary customers, and obligated utilities. For example, if voluntary customers seek reimbursement for voluntary RECs double counted against a compliance obligation, then standard ratepayers will likely subsidize voluntary procurement yet not reap the voluntary customer's benefits of achieving a 100% renewable or carbon-free status.

Criminal and/or civil litigation, voluntary market decertification, negative news media coverage, and consumer complaints would also all likely drain state, and specifically Commission, resources.

A lack of regulatory clarity around emissions claim accounting, especially a regulatory ruling that does not require the usage of a serialized accounting instrument like RECs, also greatly increases CFS Program complexity. This complexity extends to administration, verification, as well as market analysis and considerations of fairness to ratepayers.

E. *Double counting undermines Minnesota statute.*

Double counting undermines the directive of Minn. Stat. § 216B.1691 Subd. 9(a)(4), which directs the Commission to "take all reasonable actions," within the Commission's authority, to ensure "that all Minnesotans share (i) the benefits of clean and renewable energy, and (ii) the opportunity to participate fully in the clean energy economy." If double counted emissions claims were counted for Minnesota compliance, Minnesotans might not be sharing or participating in carbon-free electricity but rather, would only be participating in duplicative accounting entries.

It should also be reiterated that EETS compliance claims can potentially satisfy CFS Program claims—if the underlying resource satisfies both programs' eligibility criteria.[21] Indeed, commenters such as Xcel and the Minnesota Department of Commerce appear to have advocated for synonymous eligibility of resources across the EETS and the CFS Program.[22] CSG does not offer comment on the question of resource qualification criteria at this time. However, CSG does note that a cross-qualifying resource, if double counted, ports CFS Program risks over to the EETS by default, increasing the number of liability-impacted entities or frameworks.

[21] Minn. Stat. § 216B.1691 Subd. 4(a)-(b).

[22] *See* Minnesota Public Utilities Commission Staff. "Staff Briefing Papers for Docket No. E-999/CI-23-151." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* September 26th, 2024. p. 16. Document ID: 20249-210176-01.

IV. THE CARBON-FREE STANDARD IN PRACTICE

This section of the document (Part IV) examines the technical interplay between Minnesota statute and the credible accounting of carbon-free electricity.

A. *RECs track carbon-free claims across differing obligated transaction types.*

One critical accounting step in unbundled REC transactions—or similar independent transfers of exclusive emissions claims—involves recategorizing the underlying electricity to mitigate double counting risks. As has been noted, this process is generally referred to as *residual mix* accounting. Residual mix accounting tracks unbundled REC retirements and identifies *null power*. To restate *null power* is the designation given to underlying electricity that has been stripped of its environmental commodity. Identifying null power is one essential element in solving for net purchases.

Yet, prior to making such a calculation one must consider the fact that obligated entities may engage in a variety of procurement methods. Indeed, a review of the record in this proceeding suggests that obligated entities may engage in roughly four methods of carbon-free procurement:

1. An obligated entity generates *specified* carbon-free electricity, as per Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(i) and Subd. 2g (i.e. self-procurement).

2. An obligated entity purchases *unspecified* electricity in a power market (i.e. MISO).

3. An obligated entity purchases *specified* carbon-free electricity in a power market (i.e. MISO).

4. An obligated entity purchases *specified* carbon-free electricity in a bilateral contract for a bundled PPA, a VPPA, direct generation, or unbundled RECs.

Generally speaking, the carbon-free electricity (in MWh units) procured by obligated entities through these four methods will be calculated against the corresponding program requirement percentage of the "total retail electric sales" figure (i.e. 90% carbon-free CFS Program requirement in 2035).[23] Thus, if an obligated entity's total retail electric sales in 2035 was 100 MWh, the corresponding CFS Program requirement would be 90 MWh. Therefore, the obligated entity would need to have net generated (i.e. self-procured) and/or net purchased 90 MWh of carbon-free electricity by one or all of the four methods.

One way or another, the process of accounting for CFS Program compliance results in a fuel mix being applied at the level of an individual obligated entity. However, this fact alone does not necessarily mean that the applied fuel mix will be accurate. Rather, it is only by calculating the exact carbon-free portion of *each* obligated entity's fuel mix *at the entity-level* that compliance can be credibly achieved.

Accounting for the procurement methods 1, 3, and 4 (*specified* procurement) is relatively straightforward as the quantity of actual carbon-free MWh units is known. However, to avoid

[23] It should be noted that the definition of "total retail electric sales" encompasses at least some wholesale transactions.

double counting and related disputes, RECs or equivalent EACs should be used when an obligated entity makes a compliance claim based upon *specified* procurement.

B. *Net generation data still requires exclusive claims.*

Minn. Stat. § 216B.1691 Subd. 2g allows for compliance based upon an obligated entity generating *or* procuring carbon-free electricity. Taken in a vacuum, this option—generation or procurement—could suggest that generation data would be a sufficient basis for accounting for compliance by way of self-procurement.

In September 2023, Xcel asserted: "Generation from eligible technologies can be used for compliance regardless of the end use of the energy and retail sales can continue to be calculated at the retail customer meter."[24] This assertion was repeated, in part, on June 28th, 2024.[25] It should be acknowledged that, in this statement, Xcel was attempting to delineate potential qualifications for storage technologies. However, Xcel's assertion that generation "can be used for compliance regardless of the end use of the energy" is inappropriate based upon the guidance of the EPA, other state clean energy compliance programs, and leading guidance in the voluntary market. As has been shown, generation should be used for compliance "regardless of the end use of the energy," only so long as that "end use" has not been *claimed* by another entity. In the case of Xcel in this particular context, Xcel is likely making a claim *on behalf of* its retail customers—which CSG supports. CSG merely argues that the claim needs to be exclusive to avoid duplicative accounting.

C. Solving for a credible, accurate fuel mix supports the use of a serialized accounting instrument.

The retail issue examined in Section B extends to wholesales. As noted previously, Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii) states that an obligated utility can achieve partial compliance through *annual net purchases* of carbon-free electricity:

> "(ii) an electric utility's annual purchases from a regional transmission organization net of the electric utility's sales to the regional transmission organization, but only for the percentage of annual net purchases that is carbon-free, which percentage the commission must calculate based on the regional transmission organization's systemwide annual fuel mix or an applicable subregional fuel mix."

[24] Xcel Energy. "RE: Reply Comments: Letter of Clarification." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. September 8th, 2023. p. 1. Document ID: 20239-198815-01.
[25] Xcel Energy. "Initial Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. June 28th, 2024. pp. 3-4. Document ID: 20246-208107-01.

This statute would appear to apply to procurement methods #2 and #3 mentioned prior (i.e. market purchases). These purchases are presumed by most parties,[26] including CSG, to be wholesale purchases.

The Commission's determination regarding a CFS accounting methodology will be particularly crucial when addressing the compliance claims associated with these *unspecified* market purchases. In an unspecified market purchase, the actual generating resource associated with purchased electricity is unknown.[27] Therefore, the carbon-free status of that electricity is not known.

C.1. Annual Sales Data does not amount to emissions claim data.

Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii) notes that an obligated entity's compliance claims, based upon market transactions, should be *net*—meaning that sales of carbon-free electricity should not count towards carbon-free compliance but purchases of carbon-free electricity should count towards carbon-free compliance. The net purchase calculation would be conducted annually. However, the means by which that calculation occurs could lead to differing results when it comes to carbon-free claims. For example, in June 2024, Fresh Energy asserted the following:

> "The Commission should interpret this provision [Subd. 2d(b)2(ii)] to allow a utility that has net annual purchases from its RTO wholesale market to receive partial credit for those net annual purchases based on the carbon-free fuel mix of the RTO or a sub-region of the RTO. […] If a utility's wholesale purchases exceed its wholesale sales in a calendar year, then the eligible megawatt hours for partial credit compliance are those net annual purchases. For example, if a utility purchased 100 MWh in a calendar year from the RTO wholesale market, and sold 90 MWh into the RTO wholesale market that year, it would have 10 MWh eligible for partial compliance in that year. In this example, if the applicable fuel mix is 50% carbon free, then the utility would have 5 MWhs of carbon free generation for compliance. […] The 'fuel mix' is the percentage of each source of the electricity for all of the 'energy' or electricity provided in the RTO for that year."[28]

Commission Staff commented upon the implication of this proposal:

> "Critically, Fresh Energy specified that the carbon free mix percentage would be applied after annual net purchases have been calculated; this would mean that only the RTO's applicable fuel mix—not the utility's—need be considered in the calculation. This is because the RTO's applicable fuel mix is relevant to market purchases, whereas the utility's applicable fuel mix is relevant to market sales. This appears to align with MRES's recommendation that '…if 55% of the MISO North Region is

[26] *See for example* Fresh Energy. "Fresh Energy Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* June 28th, 2024. p. 5. Document ID: 20246-208105-01.

[27] *See* Minnesota Department of Commerce—Division of Energy Resources. "RE: Comments of the Minnesota Department of Commerce, Division of Energy Resources." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. June 28th, 2024. p. 3. Document ID: 20246-208098-01.

[28] Fresh Energy. "Fresh Energy Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* June 28th, 2024. pp. 5-6. Document ID: 20246-208105-01.

> carbon free in 2023, then 55% of an electric utility's net market purchases in 2023 should be considered carbon free.'"[29]

Connexus Energy has also stated that: "Statute clearly states that market purchases should be treated on a net annual basis and that market emissions calculations are only necessary for net purchases, not for net sales."[30]

The problem with the approach advocated by Fresh Energy and Connexus Energy is that solely tracking net purchases *or* net sales does not result in the tracking of the contractual conveyance of carbon-free emissions claims associated with those purchases and sales. If an obligated entity generates and then wholesales surplus carbon-free energy, then neither the wholesaling generator nor the market buyer can credibly claim that energy against its compliance obligation—unless one entity retained the RECs or otherwise contractually established its exclusive right to the carbon-free attributes of that surplus electricity. When a carbon-free REC is unbundled and sold to a voluntary buyer, neither the electricity generator nor the wholesale buyer of the underlying null power would be able to credibly make that carbon-free claim. In other words, using Fresh Energy's example—unless the Commission also accounted for actual emissions claims (i.e. REC retirements)—it is highly unlikely that the applicable fuel mix would actually be 50% carbon free. Instead, that 50% would likely be overreporting the actual carbon-free portion of the fuel mix. Therefore, any *net purchase* calculation would need to account for both the generation and sales of carbon-free electricity *as well as* the sales of bundled or unbundled RECs to third parties.

Fresh Energy's proposal of assessing the carbon-intensity of only the *net* difference in sales (i.e. the net 10 MWh available for compliance) is certainly simplistic and limits the accounting burden—but that simplistic approach cannot account for the contractual transfer of emissions claims, to which the entire load (100 MWh purchased *and* 90 MWh sold) is subject on an ongoing basis.

This issue is particularly important to consider in light of the fact that, when owners of intermittent resources make market purchases, those market purchases tend to involve carbon-intensive resources. By shifting perspective from presumed annual net totals to actual hourly load balancing activities, it becomes clearer that intermittent resources such as wind and solar (i.e. carbon-free) tend to produce surplus energy during certain hours (e.g. when it is very sunny or windy). This surplus can be sold wholesale during these certain hours of excess generation. The wholesaling of this surplus energy, however, results in the shedding of carbon-free emissions. At other hours in the same day—when the wind has reached its nadir and the sun has set—that owner of intermittent resources may procure firm baseload resources (e.g. coal or natural gas) to compensate for the shortfall in carbon-free energy. This means that for an owner of carbon-free

[29] Minnesota Public Utilities Commission Staff. "Staff Briefing Papers for Docket No. E-999/CI-23-151." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* September 26th, 2024. p. 71. Document ID: 20249-210176-01.

[30] Connexus Energy. [Reply]. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. September 19th, 2024. p. [2]. Document ID: 20249-210352-01.

resources, on balance, the majority of wholesale sales are carbon-free and the majority of wholesale purchases are fossil-based.

In short, balancing intermittency has an environmental cost. It costs the balancing entity greenhouse gas emissions. Although data clearly exists to aid in the calculation of a residual mix,[31] the Commission may not yet have the analytical resources at its disposal to regulate hourly emissions balancing. All the same, this does not negate the environmental hazard in neglecting to take stock of the emissions associated with balancing intermittent resources. To this end—while CSG disagrees with the Department of Commerce's advocacy for an "annual average for the system fuel mix"—CSG does agree with the Department in that advancements in tracking, such as hourly tracking with hourly RECs, should ultimately be pursued when feasible. The Department of Commerce stated:

> "[…] as mechanisms for tracking of generation timing evolve we recommend the Commission utilize the most accurate information that is currently available and which may include hourly or sub hourly emission information."[32]

That said, even if the hourly accounting of wholesale market purchases was embraced, that accounting would still be inaccurate unless unbundled REC sales were also accounted for in a residual mix calculation.

C.1(a). Example: Interstate double counting across compliance and voluntary markets.

For illustration purposes, consider the simplified example depicted in Figure 4. A CFS-obligated Utility D owns a Minnesota-sited solar facility. Utility D's solar facility wholesales 20 MWh of electricity to CFS-obligated Entity F, a Minnesota-based retail electricity distributor.

However, Utility D sells the 20 RECs associated with that same underlying 20 MWh of solar-generated electricity to an ESG-focused Iowa-based corporation looking to make a voluntary marketing claim around its energy procurement. The Iowa corporation, in turn, retires the 20 RECs on M-RETS, and effectively re-bundles those 20 RECs with 20 MWh of Iowa-sourced, carbon-based electricity. The Iowa corporation can then make a public environmental marketing claim of consuming 20 MWh of carbon-free electricity.

Whether Utility D submits gross generation data, or *net* electricity sales data that is resource-specific, it may appear as if the 20 MWh of solar-generated electricity was eligible for CFS Program compliance—either by Utility D or Entity F. However, the right to make a 20 MWh emissions claim was sold with the RECs into Iowa.

To reiterate, improperly accounting for these MWh units results in a misrepresentation. If Utility D and the Iowa corporation both claim those emissions it represents 40 MWh of carbon-

[31] *See recommendations at* Center for Resource Solutions. [Comments]. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. June 28th, 2024. Document ID: 20246-208076-01.
[32] Minnesota Department of Commerce—Division of Energy Resources. "RE: Comments of the Minnesota Department of Commerce, Division of Energy Resources." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. June 28th, 2024. p. 3. Document ID: 20246-208098-01.

free electricity in MISO instead of the 20 MWh actually generated. If Entity F likewise makes that emissions claim to its customers, it results in an alleged 60 MWh of "carbon-free" electricity when only 20 MWh was ever generated.

Fundamentally, any *net* calculation should rest upon the axiom that a carbon-free electricity claim (e.g. 1 carbon-free MWh) can only be claimed by the generator or the procurer of the *claim* itself. That 1 MWh carbon-free claim cannot be credibly claimed by multiple parties. The only way to verifiably track claims is through RECs. Therefore, RECs should be required, in addition to generation and sales data, when accounting for compliance by way of generation-based or net sales-based claims.

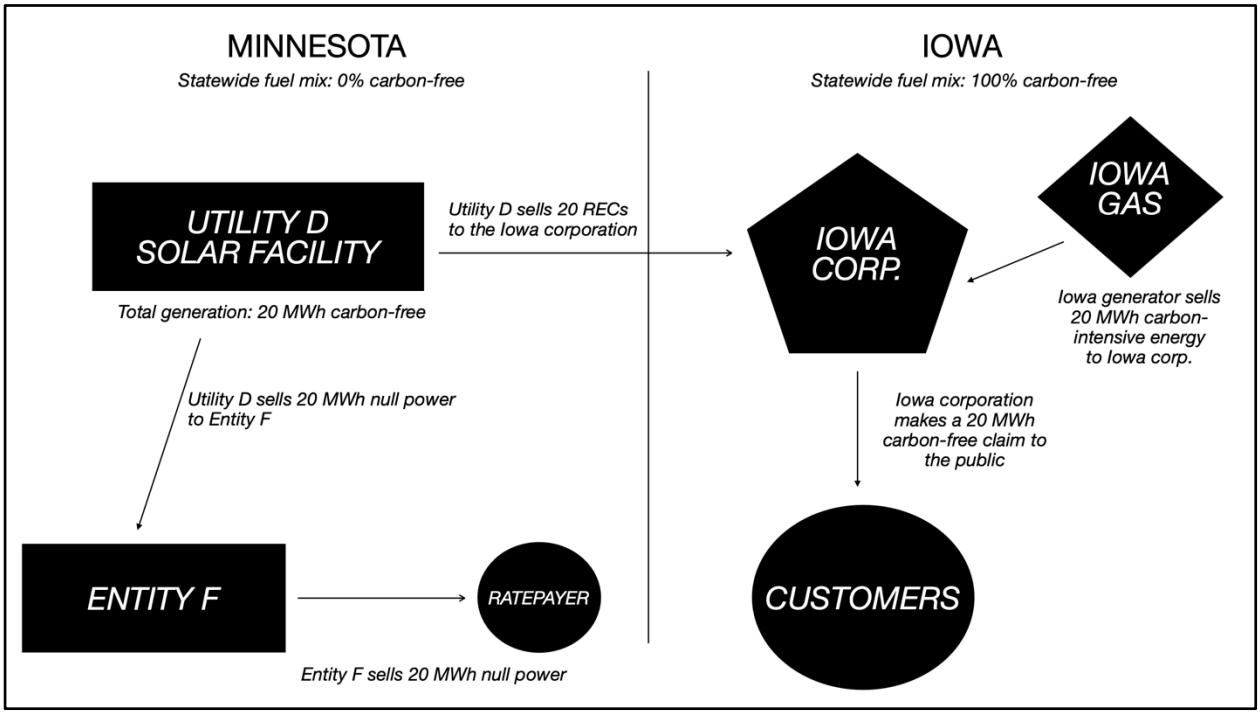

Fig. 4.

C.2. A systemwide fuel mix is unlikely to provide accurate data and thus should not be pursued by the Commission.

While RECs are a sensible and well-established means of tracking and transferring exclusive emissions claims, Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii) does state that the compliance achieved by a utility, through net purchases of carbon-free electricity, must be ultimately accounted for by one of two fuel mix calculations.[33] For either approach, RECs still prove to be the best means of making credible fuel mix calculations and, as will be described, the most credible fuel mix calculation exists at the level of an individual obligated entity.

The least accurate method of calculating a fuel mix would be a calculation that solves for a "systemwide annual fuel mix"—namely a fuel mix of the entire MISO region or an associated

[33] Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii).

EPA eGRID region. A systemwide fuel mix is the result of a mathematical projection of total generation in a specified region or state. For example, at present, CSG's understanding is that eGRID data is based upon *gross generation* accounting supplied via the U.S. Energy Information Administration ("EIA") Form-923 and Form-860. The data supplied via eGRID is important and helpful to gain a "big picture" view of generation-based emissions in a geography. However, as has been detailed, *gross generation* data is insufficiently granular when it comes to assessing the carbon-free *emissions claims* of specific compliance-impacted entities. Major accuracy shortfalls would, again, certainly exist when a *residual mix* is not calculated using RECs.

For example, Ohio, which sits in the PJM Interconnection region, has a renewable portfolio standard. Notably, Ohio RPS compliance can be met with RECs sourced from PJM-GATs *and* M-RETS, and thus Ohio RPS compliance can be met with RECs generated in the MISO region.[34] If MISO-sited unbundled RECs are retired for Ohio RPS compliance in PJM, those unbundled RECs could not credibly count towards both a MISO and a PJM emissions claim simultaneously. However, unless Minnesota's CFS Program and Ohio's RPS *both* recognize RECs as the harmonized instrument used to account for those MISO-generated emissions claims, there would be no way to accurately account for this transfer of emissions claims from Minnesota (MISO) to Ohio (PJM). If the same MWh was claimed by both a Minnesota utility using electricity sales data, and an Ohio utility using RECs, one or both sets of ratepayers would be deceived by duplicative emissions accounting. To restate, generation and/or procurement do not inherently amount to an exclusive *emissions claim*.

A CFS Program that is not based on exclusive net *emissions claims* lacks credibility and thus legitimacy. For these reasons, a systemwide fuel mix could misinform the Commission's assessment of obligated entity compliance.

C.3. A subregional fuel mix at the level of the MISO region or LRZ, that does not use RECs to achieve a utility-level residual mix, is also unlikely to provide accurate data and thus should not be pursued by the Commission.

Instead of a "systemwide annual fuel mix," Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii) also allows for an "applicable subregional fuel mix" calculation. Generally speaking, a subregional fuel mix is likely more accurate than a systemwide mix by virtue of tighter geographic parameters. This assertion appears to be supported by Commission Staff:

> "Staff notes that using a subregional fuel mix such as MISO North or Local Resource Zones 1, 2, and 3 would be more representative of the energy actually being generated and purchased by Minnesota utilities [as compared to a systemwide fuel mix]. […] Staff is left to conclude that using a subregional fuel mix is generally the more favorable option and is supported by more commenters."[35]

[34] Ohio Rule 4901:1-40-04 (C)(3)(b).

[35] *See* Minnesota Public Utilities Commission Staff. "Staff Briefing Papers for Docket No. E-999/CI-23-151." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* September 26th, 2024. pp. 77-78. Document ID: 20249-210176-01.

Fresh Energy noted that the subregional fuel mix should be based upon "meaningful powerflow with Minnesota."[36] Missouri River Energy Services ("MRES") advocated for the definition of MISO North as an "applicable subregional fuel mix." MRES argued:

> "Specifically, the carbon-free percentage of an electric utility's annual net purchases from any regional transmission organization should be calculated based on the MISO North region of MISO, which includes the State of Minnesota. For example, if 55% of the MISO North region is carbon free in 2023, then 55% of an electric utility's net market purchases in 2023 should be considered carbon free."[37]

However, if MISO North's fuel mix calculation does not subtract out unbundled REC sales, VPPAs, and other forms of bilateral agreements, then that MISO North fuel mix would inaccurately depict the actual carbon-free status of MISO North. Even if, using MRES' example, gross generation is 55% carbon-free, that does not mean those carbon-free claims have remained among CFS-obligated entities, nor that those carbon-free claims are even owned within the State of Minnesota—as was illustrated with the Ohio RPS example prior.

The problem is also possible in the reverse, as Minn. Stat. § 216B.1691 Subd. 4(a) and 4(c) indicate that non-Minnesota-sited RECs are viable for compliance. Therefore, if an obligated Minnesota utility imported carbon-free electricity from Wisconsin-sited RECs, those RECs would not necessarily be picked up in a *gross* fuel mix at the MISO North or LRZ level.

Thus, a subregional fuel mix that does not result in a *residual* subregional fuel mix still presents the same accuracy and thus credibility issues as a systemwide fuel mix. Neither does a subregional mix, at the level of a MISO subregion or an LRZ, necessarily result in accurately identifying which exact obligated entities are in compliance. Rather, a utility-level residual fuel mix would provide the most accurate means of validating CFS Program compliance claims. Commission Staff noted the feasibility of this approach:

> "Instead, individual PPA information is tracked by the participating parties. Therefore, if the recommendation is the latter (that each utility should remove emissions and sales associated with their own PPAs to create a utility-specific residual mix), this would be feasible."[38]

It is acknowledged that at least one commenter in this proceeding has argued that a utility-level fuel mix is not necessary for program efficacy. In a July 2024 letter, MRES claimed:

> "A utility-specific residual mix calculation should not be considered a 'subregional fuel mix' under the statute, because such a calculation is not derived from a specific subregion of the regional

[36] Fresh Energy. "Fresh Energy Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* June 28th, 2024. p. 6. Document ID: 20246-208105-01.
[37] Missouri River Energy Services. "RE: Initial Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691*. Docket No. E-999/CI-23-151. June 28th, 2024. p. 3. Document ID: 20246-208116-01.
[38] Minnesota Public Utilities Commission Staff. "Staff Briefing Papers for Docket No. E-999/CI-23-151." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* September 26th, 2024. pp. 78-79. Document ID: 20249-210176-01.

> transmission organization ('RTO'). […] MRES believes a subregional fuel mix should be interpreted to refer to a subregion of the RTO, such as the MISO North region or a specific Local Resource Zone(s) of the RTO."[39]

CSG maintains that the statute is ambiguous regarding what constitutes a "subregional fuel mix." While MISO North or a specific LRZ could certainly be considered "subregional," the statute does not explicitly direct the Commission to calculate a fuel mix at the level of an RTO subregion or LRZ. As Commission Staff pointed out in its comments in September 2024, the Minnesota Supreme Court has stated:

> "The first step in statutory interpretation is to determine whether the statute is ambiguous on its face. *Larson v. State*, 790 N.W.2d 700, 703 (Minn.2010). 'A statute is ambiguous only when the statutory language is subject to more than one reasonable interpretation.' *State v. Fleck*, 810 N.W.2d 303, 307 (Minn.2012)."[40]

The fact that MRES writes that it "*believes* a subregional fuel mix *should* be *interpreted*,"[41] indicates that the statute is "subject to more than one reasonable interpretation," as per the Minnesota Supreme Court's holding in *Fleck*. If this statute is in fact ambiguous, as CSG contends, then the Commission's interpretation of the statute should aim to effect the most credible calculation at any level below the regional level (i.e. "subregional"). CSG argues that the most credible calculation would be at the level of the obligated entity.

To this same point, while MRES alleges that a utility-specific residual mix is not derived from a specific subregion, MRES fails to recognize that a residual subregional mix—which is the only credible type of subregional mix—implicitly requires the calculation of a utility-specific residual mix. Namely, if the Commission backed into an LRZ-level residual fuel mix by directing obligated entities to "remove emissions and sales associated with their own PPAs,"[42] these utilities would be establishing their own accurate fuel mixes in the process.

For example, net electricity sales data at the LRZ-level does not appear to necessarily capture the voluntary or otherwise unbundled procurement of carbon-free attributes. A residual mix, on the other hand, that accounts for voluntary and unbundled sales, would likely provide an accurate LRZ-level fuel mix. But, in a situation when multiple obligated entities within one LRZ

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[39] Missouri River Energy Services. "Reply Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691*. Docket No. E-999/CI-23-151. July 24th, 2024. p. 2. Document ID: 20247-208920-01.

[40] *See* Minnesota Public Utilities Commission Staff. "Staff Briefing Papers for Docket No. E-999/CI-23-151." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* September 26th, 2024. p. 24. Document ID: 20249-210176-01.

[41] Emphasis added by CSG. *See* Missouri River Energy Services. "Reply Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691*. Docket No. E-999/CI-23-151. July 24th, 2024. p. 2. Document ID: 20247-208920-01.

[42] As per Commission Staff's interpretation. Minnesota Public Utilities Commission Staff. "Staff Briefing Papers for Docket No. E-999/CI-23-151." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* September 26th, 2024. p. 78. Document ID: 20249-210176-01.

have bought or sold carbon-free attributes, a "100% carbon-free" LRZ does not necessarily mean that *all* obligated entities within that LRZ are "100% carbon-free." It could be the case that within a so-called 100% carbon-free LRZ that some over-compliant obligated entities are actually subsidizing non-compliant obligated entities.

Yet, in order to calculate an accurate residual LRZ mix in the first place, the Commission would have needed to use a serialized accounting instrument (i.e. RECs) to account for the carbon-free MWh claims retired by specific utilities and voluntary buyers, or otherwise account for those claims by resource-specified power contracts that outline carbon-free claim exclusivity. As such, calculating the residual subregional fuel mix using appropriate accounting instruments would have *de facto* resulted in utility-level fuel mixes for that subregion. This point bears reemphasizing. While CSG agrees with MRES that the statute does not *explicitly* "mention any requirement that electric utilities must separately purchase and retire RECs corresponding to the utility's net market purchases that are considered carbon-free,"[43] CSG argues that the only viable means to calculate a credible subregional fuel mix would be to use RECs or a comparable accounting instrument of equivalent integrity. Doing so would result in the most accurate fuel mix calculation, which is, again, at the utility-level.

An additional critical point is that—after each entity accounts for all PPAs, unbundled contracts, and other direct contracts at the entity-level—the LRZ residual mix could likely be rendered 0% carbon-free. This leads back to Point #3 made in Part II of this document:

> 3. If a Minnesota-sited REC is retired by a CFS-obligated entity within Minnesota, the emissions factor of Minnesota's *total* fuel mix may technically remain the same—but Minnesota's emissions factor will no longer accurately reflect the actual carbon-free status of *each* obligated entity in Minnesota.

In such a scenario, the *non*-carbon-free portion of the residual subregional emissions factor will need to be accounted for by the obligated entity, if that entity has remaining *unspecified purchases* impacted by CFS Program compliance. If so, that entity will need to procure additional *specified* carbon-free electricity in order to meet the remaining requirement. This would likely be achieved through the procurement of RECs equal to the program requirement balance remaining in the residual fuel mix. To restate, Minn. Stat. § 216B.1691 Subd. 4(a)-(b) directs that "[in] lieu of generating or procuring energy directly to satisfy a standard obligation under subdivision 2a, 2f, or 2g, an electric utility may utilize renewable energy credits allowed under the program to satisfy the standard."

That all said, thinking about this issue from an LRZ residual mix standpoint is quite confusing and obscures the most straightforward compliance pathway. The most straightforward compliance pathway would be for the obligated entity to submit RECs for each MWh it claims for compliance, which also results in a subregional, utility-level fuel mix. This approach is encapsulated in the following way:

[43] Missouri River Energy Services. "Reply Comments." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691*. Docket No. E-999/CI-23-151. July 24th, 2024. p. 3. Document ID: 20247-208920-01.

[All *specified* purchases calculated as REC retirements] + [residual mix balance of *unspecified* purchases matched with retired RECs] = CFS Program Requirement [% of total retail electric sales]

Take another example: An obligated entity needs to generate or procure 100 MWh for CFS Program compliance. If that entity has i) net generated 20 MWh carbon-free, ii) entered into a PPA for 40 MWh carbon-free, and iii) procured 20 MWh of unbundled RECs—its remaining program requirement is 20 MWh. The obligated entity will need to therefore procure an additional 20 RECs to satisfy the compliance obligation.

While it is theoretically possible that there could be unclaimed carbon-free generation left over in a residual mix at the LRZ level, it would still be unclear which entity had the contractual right to claim that leftover carbon-free electricity because there would be no RECs associated with that electricity. Therefore, it would also be theoretically possible that the leftover carbon-free generation is being claimed by an entity outside of that subregion.

C.3(a). Example: A residual mix results in a 0% carbon-free fuel mix.

Consider this simplified example of how an RTO subregion or LRZ residual mix could likely render that subregion 0% carbon-free. There are three obligated entities in a Commission-designated subregion (see Figure 5).

Utility X generates 100 MWh, 50 MWh of which are carbon-free. In turn, Utility X generates 50 RECs for those carbon-free 50 MWh.

Utility B generates 50 MWh, 10 MWh of which are carbon-free. In turn, Utility B generates 10 RECs for those carbon-free 10 MWh.

Utility W generates 80 MWh, 0 MWh of which are carbon-free. As a result, Utility W cannot generate its own RECs. This creates a gross subregional fuel mix that is 26% carbon-free.[44]

Data Company Z buys 25 MWh of coal energy from Utility W and then matches that load with 20 RECs from Utility X and 5 RECs from Utility B.

When it comes time to calculate the subregional fuel mix for the three obligated entities, the Commission determines that a residual mix should be pursued in the name of credible and accurate accounting. In order to arrive at the residual mix, each utility must account for its REC *retirements* as well as the retirements made by voluntary buyers.

Utility X has a bank of 30 RECs, which it retires for compliance. Utility B retires its remaining bank of 5 RECs. Thus far, allocating these emissions to specific entities reduces the remaining claimable emissions in the subregional fuel mix to 11% carbon-free.[45] However, for the residual mix to be complete, the 25 RECs voluntarily retired by Data Company Z also need to be subtracted out of the fuel mix. Once this step has occurred, the carbon-free emissions in the residual subregional fuel mix is actually 0%. Therefore, any unspecified net market purchases in this subregion would be 0% carbon-free because all the carbon-free emissions claims have already been allocated. To restate: the only way to realize this fact is to undertake a utility-level residual mix calculation for the utilities in each subregion.

[44] 60 MWh carbon-free (Utility X's 50 + Utility B's 10) divided by 230 MWh in total generation (Utility X + Utility B + Utility W).

[45] 60MWh carbon-free in total minus the REC retirements of 35 MWh = 25 MWh. Then 25 MWh divided by 230 MWh in total generation.

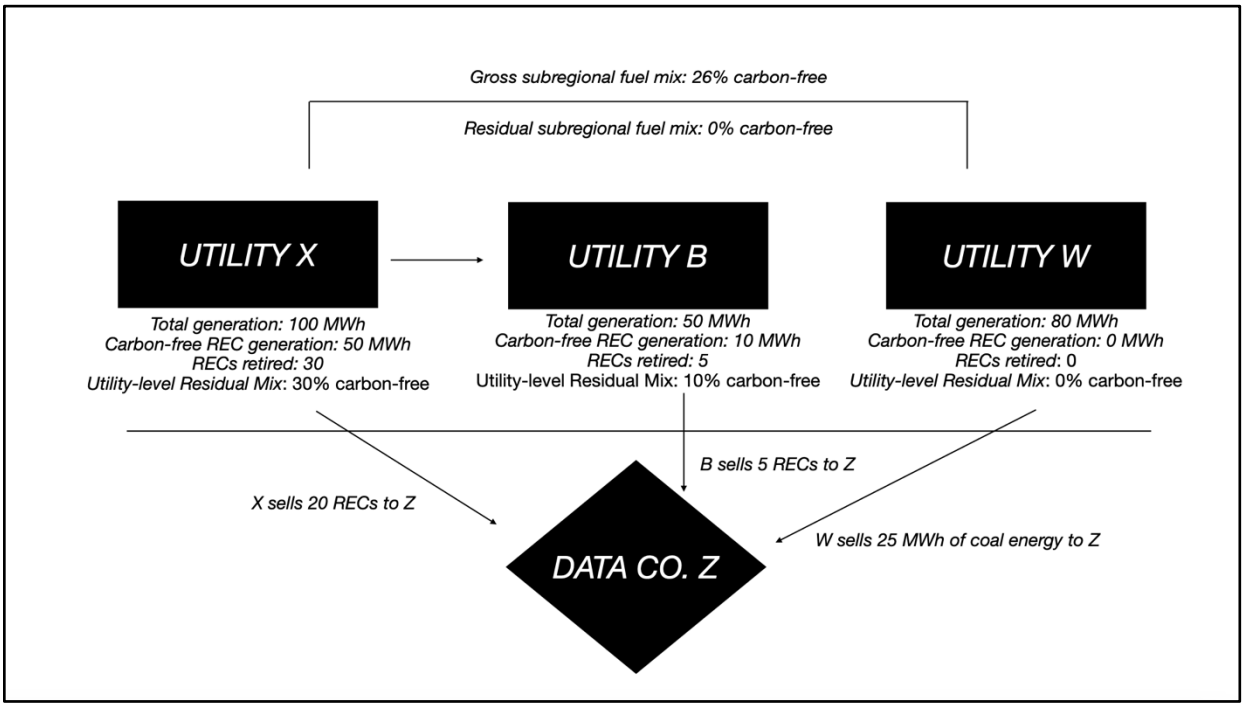

Fig. 5.

D. *Specified resource market purchases should utilize RECs to track claims.*

While CSG disagrees with the Minnesota Department of Commerce's recommendation to use a systemwide annual fuel mix for *unspecified* market purchases for the reasons outlined previously, CSG *does* partially agree with the Minnesota Department of Commerce regarding *specified* purchases. In June 2024, the Minnesota Department of Commerce stated: "In the case of specified power transactions, the carbon emissions associated with the energy are known and should be applied as appropriate."[46] Although these market purchases are likely subject to the same statutory fuel mix requirement as *unspecified* purchases, there is no reason that the emissions of specified resources could not be factored into a subregional mix, such as a utility-level fuel mix, as described previously.

Xcel appears to also support this straightforward approach. In September 2024, Xcel wrote: "When the utility's purchase is from a specified resource, such as a bilateral contract or PPA, then the utility should apply the purchase in the percentage of carbon-free accordingly."[47]

[46] Minnesota Department of Commerce—Division of Energy Resources. "RE: Comments of the Minnesota Department of Commerce, Division of Energy Resources." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. June 28th, 2024. p. 3. Document ID: 20246-208098-01.
[47] Xcel Energy. "Preferred Decision Options." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. September 24th, 2024. p. 3. Document ID: 20249-210446-01.

However, for the reasons outlined throughout this document—including the previous question of accounting for unspecified market purchases—CSG strongly recommends that specified resource contracts include the transfer of RECs and that those RECs be retired by the obligated entity for compliance. The retirement of RECs ensures the exclusivity of the compliance claim and assists the Commission in calculating how many carbon-free MWh are being claimed by the obligated entity in an authoritative fashion. In this way, a specified carbon-free resource purchase is only carbon-free if the corresponding RECs were retired by the obligated entity.

E. *A residual mix ensures that obligated entities can rightfully claim all eligible carbon-free purchases for CFS Program compliance.*

Thus far, CSG has explored the implications of procurement by way of generation (#1), unspecified market purchases (#2), and specified market purchases (#3). Regarding bilateral contracts, much of CSG's comments have thus far dwelt upon the negative effects of these contracts when combined with inappropriate accounting methodologies.

Yet, it is important to acknowledge that a stringent, exclusive claims-based accounting methodology is not only good risk management but also ensures that an obligated entity can claim the full value of its eligible carbon-free procurement. In other words, the accounting of unbundled RECs extends to RECs retired by obligated entities for CFS Program compliance. If the utility did indeed retain the RECs associated with its surplus generation, the utility would be clearly wholesaling only *null power* into the market. In turn, the buyer of that wholesale null power could not make any carbon-free claim, because the generator had retained the right to make the carbon-free MWh claim for compliance.

For example, consider Xcel's recommendation that when a specified resource is purchased from a bilateral contract, "then the utility should apply the purchase in the percentage of carbon-free accordingly."[48] Without the usage of RECs to account for that compliance, the utility is at risk of another party double counting those same emissions claims. Indeed, non-residual fuel mixes could inadvertently render a utility's bilateral REC procurement ineligible for compliance. For example, in June 2024, Connexus Energy recommended:

> "[...] that Commission staff work with MISO staff to produce a new MISO market report or modify an existing MISO market report to include a regional and/or subregional fuel mix that indicates the annual breakdown of MWhs sold in the market that are carbon-emitting and non-carbon emitting, based on definitions provided by the Commission. The Commission could then use this report to calculate the carbon-free percentage for annual net purchases in the compliance year."[49]

Connexus Energy later stated that: "Further record development on bilateral contracts, PPAs, and market purchases is unnecessary in our opinion."[50] CSG finds Connexus Energy's position on this

[48] *Id.*
[49] Connexus Energy. Reply Comments. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. June 28th, 2024. p. [2]. Document ID: 20246-208069-01.
[50] Connexus Energy. Reply Comments. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. September 19th, 2024. p. [2]. Document ID: 20249-210352-01.

matter confusing because it appears that Connexus actually engages in bilateral contracts as a buyer. CSG is unaware of the details of these contracts, but such a contract could presumably consist of bundled or unbundled RECs. For example, in July 2023, Connexus Energy had stated:

> "For context, historically, we did not contract directly with the owners and operators of the renewable energy resources in our resource portfolio; instead, we had a blanket bilateral contract for the products associated with a portfolio of resources. More recently, we have added renewable resources to our portfolio through direct contracts with owner/operator entities."[51]

If Connexus Energy is not procuring RECs in these "direct contracts" with renewable facilities, it is likely that Connexus Energy is not actually procuring the contractual right to make a "renewable" claim. Rather, in such a hypothetical scenario, Connexus Energy would be receiving only *null power*, and another entity would be likely claiming the RECs.

On the other hand, if these direct contracts included bundled or unbundled REC sales to Connexus Energy, it is possible that Connexus' own recommended CFS compliance approach—that of using a net annual sales MISO market report—would render Connexus' procurement of carbon-free RECs ineligible for the CFS Program or otherwise contested. CSG argues, in such a hypothetical scenario, that Connexus Energy should be able to use qualifying RECs procured in bilateral contracts for CFS Program compliance.

To this end, while Great River Energy has referenced the usage of "annual historic market energy mix data," that company does also recommend that "[a]ny energy therefore received from a bilateral transaction should be subject to the same treatment as any net purchases from MISO would be, with utilities subject to the CFS allowed to retire Renewable Energy Certificates for any non-carbon-free portion of those [MISO] purchases[.]"[52]

While CSG concurs that bilateral transactions should be accounted for in addition to net MISO purchases, CSG still maintains that a REC-based residual fuel mix calculation at the utility-level would be required to accurately account for those bilateral contracts, in addition to accounting for direct contracts with individual generating units and REC purchases in the voluntary market.

V. CLOSING REMARKS

Per Minn. Stat. § 216B.1691 Subd. 4(a), a REC may be used to satisfy "the carbon-free energy standard obligation under subdivision 2g [.]" However, as has been already indicated, Minn. Stat. § 216B.1691 Subd. 2d(b)(2)(ii) merely notes that, for *net purchases*, one of two types of fuel mixes need to be calculated to ascertain the portion of carbon-free compliance MWh from those net purchases.

Considering the complexities described throughout this document, CSG argues that raw generation and/or net sales data is not enough to substantiate a credible CFS Program compliance

[51] Connexus Energy. Reply Comments. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. July 12th, 2023. p. [2]. Document ID: 20238-197958-01.

[52] Great River Energy. "Reply Comments of Great River Energy." *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon Free Standard under Minn. Stat. § 216B.1691.* Docket No. E-999/CI-23-151. July 24th, 2024. pp. [3-4]. Document ID: 20247-208930-01.

claim. This is due primarily to the double counting risks inherent in an accounting methodology that is not based upon REC retirements.

Double counting emissions claims would likely undermine Minnesota statute. If citizens and/or ratepayers are not actually sharing in the benefits of the CFS Program—but are simply exposed to duplicative accounting entries—then the CFS Program may run counter to Minn. Stat. § 216B.1691 Subd. 9(a)(4). Additionally, not accounting for the exclusive transfer of emissions claims (as a commodity separate from electricity) would potentially expose the CFS Program to additional liabilities and contractual disputes.

A REC-based calculation at the level of individual utility compliance is, by far, the most straightforward and credible means to ensure that Minnesotans share and participate in carbon-free electricity. As such, REC, or equivalent EAC, *retirements* should be used to represent *each* MWh of carbon-free compliance across the various types of contracts in which an obligated entity may engage. Again, this accounting approach could be codified in the following way:

> [All *specified* purchases calculated as REC retirements] + [residual mix balance of *unspecified* purchases matched with retired RECs] = CFS Program Requirement [% of total retail electric sales]

This aggregate REC retirement data could be made available to the Commission in the form of a "CFS Program Compliance Report" during the reporting process. A CFS Program Compliance Report that enumerates carbon-free retirements would allow the Commission to audit CFS Program compliance claims at the level of actual MWh units. It appears that many obligated utilities are reporting in a similar, albeit partial, manner such as this already.

The straightforward nature of REC-based accounting, such as the usage of a unified "CFS Program Requirement Report" detailing REC retirements, also means that this method is potentially the most respectful approach when it comes to Commission resources.

The diligence and expertise of the Commission and Commission Staff are evident in the various filings in this docket. CSG greatly appreciates the opportunity to comment upon these matters of immense import, particularly before a Commission of such thoughtfulness.

Respectfully submitted,

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