Environmental Markets Association
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HOUSE BILL 6 – OHIO CLEAN AIR PROGRAM

PRESERVE OHIO'S RENEWABLE PORTFOLIO STANDARD

VIA ORAL DELIVERY **June 18, 2019**

Chairperson Steve Wilson
Energy and Public Utilities Committee
Ohio Senate

Testimony of the Environmental Markets Association on House Bill 6

- Chairperson Wilson, members of the Energy and Public Utilities Committee, thank you for the opportunity to testify as an opponent to House Bill 6
- My name is Christian Hofer and I'm honored to be able to address this Committee on behalf of the Environmental Markets Association
- The Environmental Markets Association is an industry trade association representing utilities, energy market participants, and infrastructure players that have an interest in the development and operation of clean energy resources in Ohio
- The mission of the Environmental Markets Association is to promote market-based solutions that generate economic development benefits, while supporting environmental sustainability
- Our members have extensive, first-hand operational experience in both physical and financial energy and environmental commodity markets, in infrastructure finance, project development, and with a long list of clean air programs, energy regulatory frameworks, and environmental policies across the Country, including those in Ohio
- **The Environmental Markets Association is here today to ask you to preserve the Renewable Portfolio Standard ("RPS") policy** and we seek to provide you with decision-useful information as to why there are so many more good reasons to preserve the RPS than there are to repeal the RPS
- Our testimony, and the data we have submitted to this Committee, argues that the RPS works, it is good public policy, it is good for economic development in the State of Ohio, and it is good for your constituents
- The RPS is a proven and successful policy vehicle that attracts private investment, generates jobs, delivers clean air, and creates new state of the art infrastructure assets

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- House Bill 6 is the most impactful piece of energy legislation that has moved through this Chamber in a decade. The implications of this bill, as currently written, are far reaching and highly consequential when measured in terms of financial impact to ratepayers, the regulatory precedents established, and the future of clean energy in Ohio

- This bill is so significant because it deals with three major state energy policies that affect both generation resources and the functioning of Ohio's competitive electricity markets. These three policies are hereinafter referred to as:

    - Ohio's Nuclear Policy as currently envisioned in House Bill 6 and related to Ohio's two nuclear generation plants owned by First Energy Solutions,
    - Ohio's Electricity Security Policy related to two coal plants deemed National Security Generation Resources that are partially owned by Ohio's electric utilities via the Ohio Valley Electric Corporation; and,
    - Ohio's RPS Policy, which is a competitive and market-based solution actively driving the development of new renewable energy generation resources

- Each one of these state energy policies has a lifetime cost in excess of a billion dollars. With such large sums on the table, it is important that when it comes to the evaluation of Ohio's energy policies, this Committee has the information it needs to deliberate carefully on not just the cost of these three policies, but also on the merits and benefits that each policy provides to the State
- The Environmental Markets Association argues that the RPS policy is not only the least-cost policy of the three, but it is also the best policy for generating the highest economic development benefits to the state per $ invested. We believe that the testimony and data we have submitted in this proceeding, when objectively analyzed, offers compelling evidence in support of this conclusion
- The remainder of our testimony will focus on clearing up misconceptions surrounding Ohio's RPS policy, the advantages of Ohio's RPS, and how the RPS policy, if preserved, can be used as a policy tool to promote in-state economic development, job creation, and cleaner air

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- While listening to ongoing debates and to proponent arguments made in support of this bill, it has become clear that there has been limited time for the Senate to digest and analyze the immense amount of information being shared with it. It is tough to see the big picture.
- Moreover, there have been many misleading statements made by the proponents, that may impede the ability of this Committee to develop a balanced and informed perspective of the RPS for what it is: a proven and successful State energy policy
- Two of such statements are as follows:

"There are no free markets in electricity"

    - This statement is simply untrue. Free markets in the electricity sector have a name. Free markets are synonymous with "competitive energy markets." Ohio has established and operational competitive energy markets. The majority of Ohio's electric service is currently procured through a competitive wholesale electricity market (PJM), a competitive retail electricity supply market (also called retail choice), and a competitive renewable energy certificate market

(created by the RPS). Ohio's competitive energy market policies are proven and cost-effective with verifiable benefits to Ohio consumers and businesses.

- The hallmarks of a competitive energy market policy are: (A) that generation resource investment risk sits with entrepreneurs as opposed to ratepayers or taxpayers; and (B) supply and demand drive pricing and resource allocation.
- The RPS policy is designed to value and price economic externalities in Ohio's electricity sector and to incentivize the development of clean energy resources and their associated clean air attributes. It operates efficiently with Ohio's suite of competitive energy market policies, and despite its frequent categorization as a "mandate," it contains all the hallmarks of a competitive energy policy. The EMA has provided an educational primer on RPS policies and renewable energy certificate markets as appendices to our testimony in case a better understanding of this policy is helpful.

"The RPS is a failed policy"

- Similar arguments are that the RPS is expensive or the RPS is a jobs killer. These statements couldn't be further from the truth. The RPS is a proven and successful policy that has cost-effectively delivered clean energy in Ohio
- For context, the RPS policy and the Energy Efficiency Portfolio Standard are completely different policies in terms of their structure and cost profile. We encourage you to analyze these policies independently of each other
- The RPS policy has been highly successful even in the face of repeated attacks by the Ohio Legislature, such as the RPS freeze and wind set-back restrictions introduced in 2014, and the constant discussion of RPS repeal that continually undermines investor confidence. In 2014, the Ohio Legislature even removed a provision from the RPS which required that at least 50% of clean energy resources be procured from within Ohio's borders
- The RPS works because it is a transparent and accountable, market-based mechanism that facilitates private investment to cost-effectively achieve legally established and enforceable renewable energy targets
- In its 10-year operating history, the RPS policy has delivered verifiable economic benefits to the state. It has created 10,000 clean energy jobs, channeled billions of dollars of private investment into Ohio-based project assets, grid infrastructure, and manufacturing facilities, and has become a growing source of tax and lease revenue to municipalities and landowners across the state, not to mention the electricity cost savings that accrue to renewable energy adopters, many of whom are high profile corporations that also bring jobs to Ohio
- On top of this, the lifetime cost of Ohio's RPS to date has been deminimis at less than a 0.32% ratepayer impact when compared to the total amount of money that Ohio spent on electricity during the same timeframe
- This supports our claim that the RPS provides cost-effective clean air to Ohio while simultaneously yielding economic development benefits to the State

- These misconceptions must be addressed if this Committee intends to have a fair, intellectually honest, and productive conversation regarding the RPS policy and to understand why it is in the public interest to preserve it.

- In summary, the progress achieved by Ohio's RPS is real, verifiable, and undeniable. It should serve as an indicator to policymakers to continue relying on the RPS as its primary policy tool in the creation of new clean energy generation resources
- Proponents have claimed that House Bill 6 is about preserving jobs and clean air. We believe that the RPS checks both of those boxes and then goes one step further in its ability to support new economic development
- Key advantages to preserving the RPS are:
    - It is a market-based solution that efficiently integrates with Ohio's competitive energy markets to deliver least-cost clean energy. It is highly compatible with capital markets and financial institutions have become comfortable with the policy mechanism
    - The RPS policy is the cheaper clean energy solution and it generates more economic development benefits and jobs per $ invested when compared, in the aggregate, to both Ohio's Nuclear and Electricity Security policies
    - The RPS policy, if preserved, will continue to accelerate in-state clean energy infrastructure investment and the creation of good paying jobs in all counties

- As this Committee continues to deliberate on the matters at hand in House Bill 6, we believe that it is a fair question to ask if it is smart for the Ohio Legislature to "cash in" its RPS policy to pay for its Nuclear and Electricity Security policies? Why does the outcome have to be mutually exclusive?
- Logically, If Ohio is willing to pursue billion-dollar ratepayer funded Nuclear and Electricity Security policies, why wouldn't it also be willing to invest a comparable amount of ratepayer funds into a policy that does more than just preserve existing jobs and maintain the status quo on air quality?
- The truth of the matter is that the RPS is the best policy option available to achieve Ohio's environmental goals while simultaneously maximizing in-state economic development benefits. As a hypothetical illustration, our analysis shows that if Ohio were to increase its RPS policy until it matched the generation from the Nuclear and Electricity Security generation fleets, which is just under 20%, the RPS would be capable of doing so for hundreds of millions of dollars less than the amount of total subsidies that will be spent on Ohio's other two State energy policies
- If continued investment in the RPS would create more jobs, more economic activity, and more clean energy generation in the end, don't these outcomes justify the preservation of the RPS, at a minimum, in House Bill 6?
- Thank you for your time and consideration of our comments. We stand ready to offer this Committee any assistance necessary that may help inform the process.

Sincerely,

Christian Hofer

Christian Hofer
Market Principles Committee Chair
Environmental Markets Association

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Appendix A: Summary State Energy Policy Information In the Context of H.B. 6.

State Energy Policy Analysis	RPS Policy	Nuclear Policy (HB 6)	Electricity Security Policy
Generation Resources [1]			
Technology	Renewable Energy	Nuclear	Coal
In-State Power Plant Count (#)	2,529	2	1
Aggregate Policy Cost Analysis [2]			
2020-2026 Cost ($)	$ 691,156,541	$ 1,326,382,205	$ 461,817,646
Lifetime Cost ($)	$ 1,213,208,150	$ 1,326,382,205	$ 1,364,578,728
Employment Analysis [3]			
Total Current Jobs - #	10,000	5,000	1,000
Lifetime Cost Per Current Job - #	$ 121,321	$ 265,276	$ 1,364,579
Future Jobs (2026) - #	22,727	5,006	1,000
Lifetime Cost Per Future Job - #	$ 53,381	$ 264,958	$ 1,364,579
Policy Generation Analysis [4]			
% of Total Electricity Sales	12.5%	15.5%	3.8%
Lifetime Cost	$ 1,213,208,150	$ 1,326,382,205	$ 1,364,578,728
Policy Equivalency Analysis			
% of Total Electricity Sales (Proforma)	19.3%		19.3%
Incremental Cost to Achieve (Proforma)	$ 1,351,141,775	$	2,040,577,500
Lifetime Cost of Policies (Proforma)	$ 1,873,193,384	$	2,690,960,933

(1) Clifty Creek, one of OVEC's two coal plants, is located in Madison, Indiana.
(2) Lifetime cost for the Electricity Security Policy determined by attributable OVEC plant operating losses to Ohio Electric Distribution Companies based on ownership percentage, adjusted down for PJM capacity revenue.
(3) Jobs data sourced from public FES and OVEC operating data, adjusted upward for indirect jobs, and Clean Jobs Midwest.
(4) Compared to the applicable rate base that policies apply too. Excludes Coop and Muni sales.

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Appendix B – Best Practice Principles for Renewable Energy Certificate Markets

Best Practice Principles for Renewable Energy Certificate Markets

The Environmental Markets Association (EMA) is focused on promoting market-based solutions for environmental challenges through sound public policy, industry best practices, effective education and training, and member networking. EMA represents a diverse membership including large utilities, renewable energy certificate (REC) traders and brokers, financial exchanges, law firms, project developers, investors, consultants, academics, non-governmental organizations, and government agencies. EMA strongly supports the utilization of markets to achieve environmental policy goals. Well-designed markets yield many benefits including, but not limited to, transparent price signals determined through competition, risk mitigation opportunities, incentives for technological innovation, efficient allocation of capital and resources, investor certainty, and ratepayer protection. In support of RPS objectives, EMA endorses the following set of Best Practice Principles for REC Markets:

EMA Best Practice Principles for REC Markets

1. **Tradable RECs**
2. **Market-Based Pricing**
3. **Market Design That Fosters Transparency, Competition, and Liquidity**
4. **Market Oversight**
5. **Market Integrity and Stability**

In the case of Renewable Portfolio Standards (RPS), EMA believes that market-based programs will enable the most cost-effective, flexible, and innovative approach to maximizing renewable energy. EMA further believes that this is best accomplished through open, transparent, and competitive markets, and the use of tradable RECs as the primary means of RPS compliance. As such, well-designed RPS policies and REC markets offer stakeholders many advantages toward achieving their economic, social, and environmental objectives:

EMA RPS Advantages from Best Practice Principles

- ✓ **Accountable Policy Objectives**
- ✓ **Pricing Transparency**
- ✓ **Compliance Flexibility**
- ✓ **Policy Cost-Effectiveness**
- ✓ **Ratepayer Protection**
- ✓ **Market Integrity & Stability**
- ✓ **Investor Certainty**
- ✓ **Information Feedback Signals**
- ✓ **Market Efficiency & Liquidity**
- ✓ **Financial Innovation**
- ✓ **Lower Costs of Capital**
- ✓ **Diverse Participant Bases**

For additional information about these Best Practice Principles for Renewable Energy Certificate Markets and their RPS advantages, please view our Supplemental Guidance Document for REC Markets here.

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Appendix C – Supplemental Guidance Document

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1. Tradeable RECs

- EMA supports the use of tradeable RECs for renewable portfolio standard (RPS) compliance. Clearly defined tradeable RECs (e.g., by vintage period, useful life, resource and compliance eligibility) provide a means for facilitating commercial transactions through bilateral markets that enable participants to trade RECs on the spot market (for immediate delivery) and in the forward market (for future delivery). Spot markets facilitate the monetization of RECs. Forward markets facilitate the management of risk. Bilateral REC markets occur when participants trade directly among each other outside of a centralized procurement or auction process. RECs obtained at auction can be later resold through bilateral markets.
- Tradable RECs allow for market participants, who may not have entitlements or compliance obligations, to provide market liquidity and risk management services to those entities with future entitlements to the product (e.g., renewable resource developers) and to those entities with future compliance obligations (e.g., load-serving entities).
- Open and competitive REC markets attract a more diverse participant base, which in turn increases market liquidity. For renewable resource developers, this translates into more counterparties to purchase RECs. For compliance entities, this means more flexibility to procure RECs at times, and in volumes, that match RPS obligations. For all market participants, this results in more avenues to meet specific transactional needs and credit requirements. Open and competitive markets are essential to creating efficient REC price discovery and liquid trading on a forward basis (i.e., for future compliance vintages).

2. Market-Based Pricing

- EMA supports the price discovery of RECs through market-based mechanisms as opposed to the assignment of prices through administrative processes by government agencies. Collectively, REC trading participants will always have access to more information through markets. As such, the formation of REC prices should be driven by information and competition that accounts for the economic and risk preferences of market participants.
- Market-driven REC prices provide transparent and dynamic economic signals to participants for investment and resource allocation decisions. This enables efficient compliance by helping participants to dispatch the lowest cost solutions that fulfil the RPS.
- RPS design that allows for "floating" REC prices that can respond in real-time to new information is an important concept. Allowing prices to adjust in real-time to changes in supply and demand and other existing policies (e.g., the Public Utility Regulatory Policies Act, net energy metering, and tax law) guides

the market towards the most cost-effective achievement of RPS objectives. Benefits include ratepayer protection and the establishment of reference prices for financial innovation:

- Ratepayer Protection – While high REC prices are a signal to invest, low REC prices are a signal to slow the development of new resources vs. current RPS targets established by law. Allowing prices to fall when renewable technologies become cheaper, when other policy-based incentives are at play, or when markets become oversupplied is critical to protecting ratepayers from unnecessary or irresponsible investment and forces market participants to be more thoughtful about expenditures, risk management, and resource allocation. If investments exceed stated regulatory targets, or are negatively impacted by company governance or exogenous market factors, ratepayers are protected from investment losses. This supports overall market efficiency.
- Financial Innovation – Tradable RECs priced by vintage create reference prices for both physical and financial REC contracts (e.g., forward and futures contracts, respectively) that can be used to facilitate project investment through contracted revenue and to manage price risk. By helping to lower the risk of an economic activity, or by giving market participants tools to transfer risk, the availability of financial products can lower the cost of capital for renewable resource investments. This supports lower REC prices and lower RPS costs.

- Generally, the more compliance entities, producers, market makers, and financial participants that take part in a market, the more effective that market will be in facilitating price discovery, price transparency, market liquidity, and the efficient allocation of resources. Centralized compliance obligations with a single entity or a small group of entities should be avoided, if possible, to decrease the risk of market manipulation and increase market liquidity. Likewise, central procurement mechanisms that do not take advantage of the benefits from competitive market participation should be avoided or minimized.

3. Market Design That Fosters Transparency, Competition, and Liquidity

- Transparency, competition, and liquidity are mutually reinforcing market phenomena that will help promote the cost-effective achievement of RPS policies. The more cost-effective resources become at fulfilling RPS targets, the higher that RPS targets can be set without adversely impacting ratepayers.
- EMA supports market design features that create transparent and reliable price signals capable of facilitating market or auction objectives that channel RECs to participants who most highly value them.
- RPS design components should ensure that all participants have both an incentive and interest to ensure that efficient price discovery occurs and is revealed to the market in a timely and transparent manner.

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- If design components include features such as price boundaries, such as alternative compliance payments (ACPs) or price floors, such features must be transparent to market participants on a forward-looking basis, must facilitate competitive market outcomes, and must support the integrity of the market. Statutory price floors in and of themselves will not necessarily support pricing or liquidity in an oversupplied market without an additional back-stop mechanism or capitalized facility.
- EMA supports market design that enables diverse participation and competition in environmental markets, since a competitive market reduces liquidity risk and ensures that no one entity can unduly influence the market.
- Any regulation should be carefully evaluated as to its impact on market liquidity, transparency, competition, and costs to participants. EMA does not support efforts to limit participation in REC markets or REC auctions to only those entities with compliance obligations.

Key RPS Design Components and REC Market Features	
RPS Component	**REC Market Feature**
REC Tier / Class Product Definitions	▪ REC tier / class product definitions include technology type, generator vintage (i.e., online) eligibility dates, and other environmental attribute considerations. ▪ REC tiers within an RPS should be clearly defined to distinguish between existing and new entry renewable resources, which may require different revenues to adequately account for different cost-recovery rates. ▪ Each REC tier will have its own distinct REC market if it has a unique ACP schedule and requires obligated entities to fulfill compliance targets with REC purchases. Although REC tier pricing may be influenced indirectly by other REC markets in jurisdictions that have resource eligibility overlap, it will exhibit unique supply / demand fundamentals and price signals to market participants. ▪ If separate RPS tiers are created to support less commercialized technologies, or to accelerate already commercialized technologies that provide unique RPS benefits, these tiers should be additional to other technology tiers and each tier should deploy best practice market design principles if possible and cost-effective. ▪ REC standard of units (e.g., megawatt hours of power generation per single REC issuance) should be clearly defined and to the extent possible, standardized with adjacent RPS jurisdictions. ▪ REC tiers should be clearly defined as to whether they are carve outs of another tier, or a set aside (an additional, cumulative, target) within the overall RPS.
Vintage Periods	▪ Vintage period should be clearly defined in regard to the span of dates in which generation from an eligible resource can issue a compliance-eligible REC for use in a particular compliance year(s). Calendar Year and Energy Year is common. ▪ Vintage-based compliance periods ensure RPS policy accountability through periodically verified REC retirements (annual retirements are encouraged).

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Compliance Eligibility	▪ REC tiers should be clearly defined in regard to which resources can generate compliance-eligible RECs for compliance. ▪ Compliance-eligible REC vintages for a given reporting year (e.g., RY2018) should also be clearly defined (this is often referred to as REC banking or useful life). ▪ Compliance due dates for REC retirements should be clearly posted and have administratively straightforward reporting processes. ▪ ACP payments should be required in a timely manner following the end of an RPS compliance requirement year.
Resource Eligibility	▪ Broad RPS technology eligibility among a diverse array of clean energy technologies is encouraged. ▪ The more technologies that are RPS eligible, the greater the number of potential REC producers in a market and the greater the competitive pricing benefits (e.g., economic and employment) across multiple industries. Allowing multiple technologies to compete for grid access also supports electrical grid fuel diversity and resiliency. ▪ Resource eligibility has an extremely high impact on the supply / demand fundamentals of a REC tier and therefore a high impact on whether a market exhibits low or high REC pricing vs. the ACP schedule. ▪ The number of vintage periods a generator is certified to issue RECs for RPS compliance within a particular REC tier (sometimes referred to as "qualification life"), should be clearly defined in advance, even if only to confirm that no vintage eligibility limitations apply to RECs issued by RPS certified generators. ▪ Generator vintage eligibility (the date in which a generator is considered to have come on line for the purposes of an RPS) should be clearly defined for each REC tier within an RPS.
Geographic Eligibility	▪ Geographic, or jurisdictional, eligibility of renewable resource generators should be clearly defined for each REC tier. A narrow definition of geographic eligibility is in-state located resources. A broad definition is national eligibility. Variations exist for adjacent state and regionally located resources. ▪ Geographic eligibility has an extremely high impact on the supply / demand fundamentals of a REC tier and therefore a high impact on whether a market exhibits low or high REC pricing vs. the ACP schedule. ▪ REC import eligibility (with or without the energy transfer) has an extremely high impact on the supply / demand fundamentals of a REC tier and therefore a high impact on whether a market exhibits low or high REC pricing vs. the ACP schedule.
Fixed RPS Compliance Targets and Forward-Looking RPS Schedules	▪ First, RPS compliance schedules should be fixed at pre-set percentage levels of retail electricity sales in advance of compliance years. EMA recommends that RPS targets (and therefore compliance action) step up annually according to a pre-set schedule that is transparent to market participants. Percentage-based targets ensure that REC demand is responsive to load variation, which provides an additional cost-containment mechanism to ratepayers in the event of load decline or ensures that as load grows so does the mix of renewable resources and associated clean energy benefits.

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	▪ Second, RPS compliance year schedules should have tenor (i.e., be transparently established as far into the future as possible) to support long-term market and investment certainty. This creates transparency and is important to enabling tradability and investor confidence. ▪ Third, RPS target terminal years (sometimes referred to as sunset language) should be clearly defined. Terminal year RPS targets should always be maintained at their final levels (i.e., the procurement percentage should not drop down to zero or begin to decline once achieved) to ensure that RECs generated from investments post the last compliance year can continue to be sold and delivered to compliance entities and that the overall penetration of renewables in the electricity mix continues to comply with the law. ▪ Fourth, under no circumstances should a compliance year's RPS target ever be set lower than any previously established compliance year target.
Fixed Alternative Compliance Payment (ACP) Rates and Forward-Looking ACP Schedules	▪ ACP mechanisms are a pre-requisite for REC market trading and timely, accountable, RPS compliance, since they create penalties on obligated entities for failing to procure and retire RECs. ▪ ACP rate schedules should be forward-looking and align with the RPS compliance year schedules (on a vintage-by-vintage basis) to support long-term market certainty. This creates transparency and is important to enabling investor confidence, a lower cost of capital, and cost-effective RPS achievement. ▪ ACP rates should be fixed and set at sufficiently high enough levels that both encourage renewable energy investment and market tradability / liquidity. High ACP rate schedules should not be interpreted to imply high RPS compliance costs. ▪ Whenever possible, ACP rates should be set at levels which reflect regional circumstances to address REC shuffling / attrition between RPS jurisdictions. ▪ ACP payments should also be required after each compliance year and payments should be required in a reasonable timeframe. ▪ Non-published ACP schedules, or opaque formulas pegged to complicated calculations or market pricing, creates market uncertainty and should be avoided. ▪ ACP rates should be the only cost-containment mechanism built into an RPS. Other forms of cost-containment mechanisms, such as when an RPS freeze is tied to electricity price increases beyond a certain percentage threshold create considerable investment uncertainty and should be avoided. ▪ Reductions to ACP schedules post establishment is strongly discouraged. If ACP schedules are adjusted downward, considerable thought should be given as to the lower ACP schedules impact on pre-existing investments and forward sale REC contracts (which may become invalidated by change-in-law provisions). ▪ The general use of ACP proceeds should be disclosed to market participants. Policymakers that want to limit the impact of ACP payments on ratepayers can implement a pro-rata bill credit based on total ACP proceeds to ease RPS costs in short supplied markets.
Applicable Electricity Sales and Exemptions	▪ Applicable retail sales, exemptions, and the obligated entities required to procure for RPS compliance should be clearly defined.

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	▪ Generally, electricity exemptions, which reduce total applicable retail sales applied to RPS requirements, weaken demand for renewable resources, may create uncertainty in calculating REC demand, and may mislead the public about published RPS targets.
REC Banking (Useful Life)	▪ Clearly defined banking of RECs (useful life) is encouraged. Banking of RECs helps facilitate a more efficient market by ensuring that RECs issued in previous years maintain value long enough for participants to transact them. o For producers, this gives them the option to hold RECs into fundamentally short years, which defers current cashflow in exchange for the potential to earn a higher price later. o For compliance entities, this gives them the opportunity to bank lower cost RECs from oversupplied years into fundamentally undersupplied years, thereby providing the option to manage their compliance costs in response to the market environment or specific capital / credit constraints.
REC Multipliers, Factors, and Forward Crediting (Borrowing)	▪ Multipliers provide higher incentives to projects through awarding each megawatt hour of generation a greater proportional amount of RECs. All else equal, this increases the amount of revenue a project receives for the same unit of production, but dilutes published RPS targets and may lower REC pricing through increased supply. The use of REC multipliers should be weighed against the potential for market distortion and decreased market liquidity. ▪ Factors provide lower incentives to projects through awarding each megawatt-hour of generation a lower proportional amount of RECs. All else equal, this lowers the amount of revenue a project receives for the same unit of production. Factors have the potential to create economic attribute waste (i.e., clean energy generation that does not count towards RPS achievement but still provides environmental benefits) if the non-factor proportion of generation cannot issue other RECs saleable for RPS compliance. REC factors should be avoided if they apply to the main, or overarching, tier of an RPS. ▪ Multipliers and factors must be considered carefully as they have wide ranging impacts on different project segments (e.g., utility, commercial, residential). If implemented improperly, they can distort market pricing and make the market allocate capital less efficiently, meaning power purchasers (and ultimately end-users or ratepayers) pay more for electricity. In practice, this can cause expensive projects to deploy at the expense of economically more efficient new entry units (for example, smaller but higher cost projects which have access to net energy metering at retail rates vs. larger but lower-cost projects with economies of scale that must compete in the wholesale markets). Multipliers can end up weakening overall RPS targets if implemented poorly. ▪ Forward Crediting, or the borrowing of RECs from future production periods that can be sold today, distorts market pricing and should not be deployed in any environmental market. Since REC issuance and cashflow would occur upfront with forward crediting, this decreases the incentive to maintain the project and increases the risk that the project will not deliver its RECs for future RPS compliance. Forward crediting runs the risk of creating an artificially

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	oversupplied REC market with lower prices that subsequently damages the investment signal participants require to develop new resources.
Long-term Contracting Programs	▪ Tradable RECs and long-term contracting programs can successfully coexist; however, long-term contracting programs should not be legislated in replacement of, or at the expense of, open and competitive tradable REC markets that go above and beyond the designated contract volumes in the long-term contracting programs. ▪ Long-term contracting programs that award a REC offtake contract in advance of when a generator comes online should make sure that adequate financial security is posted until the project comes online. This will discourage bidders from bidding into procurements with unrealistic economic assumptions that tie up scarce resources (i.e., contract awards) that may prevent other, more viable, projects from being developed.
RPS Reporting	▪ RPS compliance reports should be written and released to the public for each requirement year on a timely basis. Wherever possible, RPS compliance reports should provide sufficient data (e.g., on applicable retail electricity sales and exemptions, RECs retired, RECs banked forward, etc...) that is helpful to participants in assessing the status of the RPS and its REC markets.
Interaction with Compliance Carbon Cap-and-Trade Programs	▪ REC markets and carbon allowance / carbon offset markets can coexist in the same jurisdictions. Current best practice keeps fungibility separate (i.e., RECs cannot be used for carbon market compliance and carbon allowances / carbon offsets cannot be used for RPS compliance). Clear and thoughtful definitions of which environmental attributes are embodied by each environmental commodity can help eliminate confusion between market participants and regulators while promoting market liquidity.
Private Investment	▪ Market design should foster private investment and market participation. ▪ Leveraging private investment and capital markets in achieving RPS policy is important. Well-designed RPS policies and competitive REC markets will shift investment risk away from ratepayers or taxpayers to private investors. If a project fails, it does not receive cost-recovery through REC payments (because it does not generate any RECs). If a project receives a lower investment return because of overly optimistic REC price forecasts, ratepayers are shielded from this economic miscalculation.

4. Market Oversight

- EMA supports clearly-defined independent market oversight, with stakeholder input, to maximize the benefits of competitive commercial behavior in achieving policy goals and providing transparency, while guarding against fraud and manipulation and minimizing systemic risk. Successful RPS design must include measures that protect the market from activity that is illegal or detrimental to the market's function.

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- EMA supports independent oversight of the market structure and operation, which may include periodic review, and as needed, recommendations with stakeholder input for addressing any identified market design flaws.
- Over-the-counter spot and forward REC contracts currently qualify for the forward exclusion definition of a "swap" under the Commodity Exchange Act (CEA) if intended for physical delivery. As such, RECs are classified as non-financial commodities by the Commodity Futures Trading Commission (CFTC) and regulated accordingly under the CEA. Financial REC futures and options contracts are regulated by the CFTC and must trade on an approved commodity exchange.

5. Market Integrity and Stability

- RPS laws, regulations, and regulatory guidance documentation should strive to maintain the integrity of REC markets and RPS policy in all aspects. Long-term regulatory and policy certainty will allow a robust market-based system to evolve with healthy price discovery and liquidity. Flawed market design rules, even minor ones, can have a harmful impact on market liquidity and increase RPS compliance costs. When establishing and enforcing local preferences (e.g., resource eligibility, generator vintage eligibility, biomass emissions limits) regulators should be careful not to interfere directly with a market's price discovery process. RPS frameworks mobilize private investment that generates environmental and economic benefits. Long-term certainty and stability in the political institutions can help lower the cost of capital by instilling integrity in the regulatory commodity.
- Frequently changing rules creates investment uncertainty and can stifle market development. Regulatory policy changes that are applied retroactively to a market (such as the lowering of an ACP schedule once established or the retroactive decertification of previously qualified RPS generators) damage investor confidence and should be avoided. Vague or ambiguous regulatory language also damages investor confidence, all of which increases the cost of capital for renewable energy investments.
- High, low, or volatile REC pricing, at points in time, should not be interpreted as a sign of market failure. Prices, in essence, represent information. In competitive tradable markets, when information changes, prices change. Indeed, price fluctuations are an indication of a healthy market that is responding to information and adjusting to changing operating conditions. When RPS policies are well-designed, high REC prices will encourage the development of new renewable energy resources that in turn eventually lowers market pricing and vice versa.