

CleanEnergy DC Omnibus Amendment Act of 2018

VIA ELECTRONIC DELIVERY

October 23, 2018

Chairwoman Mary Cheh
Environment and Transportation Committee
Council of the District of Columbia
1350 Pennsylvania Ave. N.W., Suite 108
Washington, D.C. 20004

***Re: Renewable Portfolio Standard Policy Recommendations for the
CleanEnergy DC Omnibus Amendment Act of 2018***

Dear Chairwoman Cheh:

The Environmental Markets Association (“EMA”) appreciates the opportunity to provide input to the CleanEnergy DC Omnibus Amendment Act of 2018 (the “Act”). EMA applauds the Council’s efforts in making Washington, D.C. (the “District”) a leader in clean energy and commends the Public Service Commission (“PSC”) for its effective implementation to date of the District’s renewable portfolio standard (“RPS”). DC’s RPS policy has been successful at incentivizing new clean and renewable energy generation since its enactment and currently serves as an example for other policymakers. We look forward to participating in this process to ensure the District accomplishes its economic and environmental sustainability policy objectives in the most efficient and cost-effective manner.

The EMA is a US-based trade association representing companies that have interests in the trading, legislation, and regulation of environmental markets. EMA was founded in 1997 as a 501(c)(6) not-for-profit organization. The members have decades of extensive, first-hand experience with market instruments related to federal and regional cap-and-trade programs in sulfur dioxide (SO₂), nitrogen oxide (NO_x), renewable fuels (RINs), and greenhouse gas emissions (Carbon Allowances and Offsets), as well as state-driven renewable energy certificate (“REC”) programs. EMA’s diverse member group represents a wide variety of participants in the clean energy markets, from utilities and electricity suppliers to renewable energy project developers and investors. Our members have extensive operational experience with RPS compliance, REC trading, and renewable energy investment and, collectively, have significantly contributed to the aggregate economic investment to achieve the District’s RPS. The EMA has a vested interest in the continued success of market-based mechanisms and RPS programs. Given this, we believe that the EMA is uniquely qualified to share its experience with the Council as it relates to the District’s RPS and its continued use as the primary policy framework on the path toward 100% clean energy.

One of the primary recommendations from the CleanEnergy DC plan, finalized on August 27, 2018, was to “investigate how best to design and manage the Renewable Portfolio Standard (RPS) to drive increasing investments in new renewable electricity generating capacity and maximize GHG reductions”.¹ To achieve a 100% RPS that also promotes renewable energy investments within the District, policymakers will be required to maintain a delicate balance between fostering a robust environment for the development of the clean energy resources it seeks, while at the same time closely scrutinizing and minimizing the cost to ratepayers. EMA strongly believes that using a market-based policy solution with competitive market elements will be the most cost-effective path toward a 100% clean energy future. As such, the EMA recommends that the District accelerate its progress toward this goal by building upon the competitive REC market model that is successfully in place today.

To these points, EMA members are pleased to share a pair of guiding documents created by the collaboration of our experienced members: *Best Practice Principles for Renewable Energy Certificate Markets* (attached as Appendix A) and a *Supplemental Guidance Document* (attached as Appendix B). In them, EMA explains areas that are crucial to a well-functioning and efficient REC market that can maximize RPS benefits. Specifically, these principles are:

1) Tradeable Products

The District should continue to achieve its RPS targets using tradable RECs. Tradable RECs allow for **accountable policy objectives, compliance flexibility, and financial innovation**².

2) Market-Based Pricing

The District should allow market participants to facilitate the price discovery process for RECs. Market-based pricing will allow for **pricing transparency, policy cost-effectiveness, ratepayer protection**³, **information feedback signals**, and a more **diverse participant base**.

¹ CRE.1 Design and manage the RPS to drive renewable energy generation and GHG reductions | p137

² Financial innovation refers to the creative usage of financial instruments for commercial purposes including, but not limited to, project financing, investment certainty, risk management, and price hedging, all of which contribute to competitive outcomes that ultimately benefit ratepayers. 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.

³ A significant and compelling advantage of well-designed RPS mechanisms is that they leverage private investment and utilize competitive markets to achieve the standards. For example, floating REC prices ensure that when markets become oversupplied ratepayer costs also decline. RPS policies that place obligations on electricity suppliers and use tradable RECs to incentivize and account for renewable energy targets yield many benefits to ratepayers, one of the most important being that private investors, not ratepayers or taxpayers, bear the risk of clean energy investments.

3) Market Design that Fosters Transparency, Competition, and Liquidity

The District should continue to promote competition among all technologies and for all REC classes (DC Tier I, DC Tier II, DC SREC) by maintaining all RPS obligations with electricity suppliers as opposed to electric distribution companies. The District should avoid placing long-term contracting obligations on any electricity supplier or on ratepayers. In circumstances where tradable RECs may not achieve the District's policy objectives, the District should ensure that the design of a long-term contracting program does not displace or interfere or damage the integrity of the pricing signals of the District's other REC classes or the District's competitive retail electricity supply market. Well-designed REC markets allow for **market efficiency, liquidity, investor certainty**, and **lower costs of capital** that support cost-effective RPS achievement.

4) Market Oversight

The District should continue to maintain market oversight through the PSC and the use of the PJM-GATS environmental registry to collect data, report on RPS progress, and identify, monitor, and address any fraud or manipulation in the markets. Additionally, the District should ensure that the PSC provides sufficient market data, including information on exempt and non-exempt load, in order to allow all market participants to fairly assess supply and demand in the District's REC markets.

5) Market Integrity and Stability

The District's RPS mechanism has been successful because it facilitates private investment at the risk of private investors, not ratepayers, and is designed to accommodate, not preempt, other federal, regional, and state policies. The District should promote **Market Integrity and Stability** by maintaining the fundamental structure of its RPS to achieve 100% clean energy. Policy stability and long-term certainty is not only crucial to investor confidence but also for ratepayer protection.

EMA's principles and supplemental design practices encourage private market investment and result in well-functioning and efficient markets that achieve the stated goals at the most competitive price to ratepayers. EMA's REC market principles are intended to maintain the integrity of the RPS mechanism, which is effective and is designed to efficiently work with the District's retail electric choice policy to the benefit of ratepayers.

The progress achieved by the District's RPS policy to date through the use of tradeable products is undeniable and should serve as an indicator to policymakers and stakeholders to continue relying on competitive market mechanisms containing tradeable products to achieve the targets proposed in the pending Act. The following table contains a summary of key District RPS data:



DC RPS Policy Overview ⁽¹⁾			Renewable Energy Metrics		Additionality Metrics		In-State Capacity Metrics	
DC Renewable Energy Certificate Market	DC RPS 2032 Targets	Tradable Instruments	DC RPS Certified Projects (#)	DC RPS Certified Capacity (MW)	COD Since 2007 (MW)	COD Since	RPS Certified Capacity (MW)	COD Since 2007 (MW)
DC Tier I ⁽²⁾	50%	Yes	179	5,984	5,455	91%	14	14
DC Tier II	0%	Yes	61	2,706	110	4%	0	0
DC SREC	5%	Yes	6,326	80	79	99%	56	56
DC RPS Total			6,566 (#)	8,770 (MW)	5,644 (MW)		70 (MW)	70 (MW)
Eligible DC RPS Clean Energy Production				EMA Est. Historical RPS Compliance Costs				
	CY2017 Minting	CY2007 Minting	Growth		Est. Cumulative Compliance Cost		%	
DC Tier I	15,378,610	2,695,165	5.7x		\$15 Million		8.50%	
DC Tier II	9,570,386	1,802,036	5.3x		\$1.5 Million		0.85%	
DC SREC ⁽³⁾	72,649	80	908.1x		\$160 Million		90.65%	
DC RPS Total	25,021,645 (MWh)	4,497,281 (MWh)	5.6x		\$176.5 Million		100%	

(1) PJM-GATS Registry data downloaded 9/4/2018. | (2) 80% of DC Tier I Capacity is PJM-sited. | (3) Since CY2008

This data yields interesting conclusions and insights for policymakers and stakeholders:

- Scale:** The District’s RPS currently supports 8,770 megawatts (“MW”) of renewable energy within the Eastern Interconnection that produced 25,021,645 megawatt-hours (“MWh”) of clean, verified, electricity in calendar year (“CY”) 2017. District-certified solar energy production has seen a 908.1x increase since the DC SREC market launched in CY2008. The District’s RPS policy is extremely effective at ensuring large-scale capacity development and renewable energy procurement in the legislated timeframes.
- Additionality:** The District’s RPS supports additionality. Since enactment, the DC Tier I standard has seen 91%, or 5,455 MW, of renewable energy capacity come online. More than 80% of Tier I capacity is within the PJM control area, the District’s home grid-operator territory.
- In-Jurisdiction vs. Out-of-Jurisdiction Generation Capacity:** The District’s solar renewable energy certificate (“SREC”) market has supported significant generation capacity within the District, one of the most challenging development footprints in the nation. Cumulative solar energy installations in the District have grown eightfold since 2011 and solar installation rates have averaged approximately 15 MW per year over the last two calendar years. The District’s Tier I REC market has mostly encouraged build outside of the District but within the Eastern Interconnection (PJM states and states adjacent to PJM). There has been a long-standing debate among stakeholders about the merits of procuring in-jurisdiction vs. out-of-jurisdiction generation through RPS policy design. This data suggests that there is an inherent trade-off in cost between incentivizing in-jurisdiction and out-of-jurisdiction clean energy resources. Although Tier I and Tier II resources now procure almost 15% of the District’s clean energy at an estimated cumulative cost of \$16.5 million to date, solar resources produce only 1% of the District’s electricity needs at a cost of \$160 million to date (90% of cumulative RPS costs since enactment). This is merely an observation. In-jurisdiction clean energy resources provide additional benefits⁴ in the form of local employment, tax revenue, and grid resiliency, but these additional benefits

⁴ The Office of the People’s Counsel [Value of Solar Study](#) discusses these benefits in depth and calculated that solar energy in the District yields net benefits in the range of \$132.66 per MWh to \$194.40 per MWh of generation in 2015 dollars.



appear to come at higher ratepayer cost and a lower penetration rate than out-of-jurisdiction resources. Procuring out-of-jurisdiction resources, through a tradable REC market where prices have been able to respond to supply and demand, has been incredibly cost-effective in achieving the District's RPS and protecting ratepayers so. As the District's RPS targets continue to increase, and the market share of in-jurisdiction distributed generation increases, the continued regional participation through a tradable DC Tier I REC market is crucial to containing ratepayer costs while achieving a 100% RPS target.

- **Tradable REC Markets vs. Long-term Contracts:** There is also a long-standing debate between the use of tradable REC markets and administratively designed programs through long-term contracts or feed-in tariff policies. To date, the District's RPS has achieved its DC Tier I target through tradable REC markets without the need to obligate ratepayers to long-term contracts or feed-in tariffs. The DC SREC market has also been extremely effective at accelerating hundreds of millions of dollars of investment into the District for new solar renewable energy capacity without the need for long-term contracts. Other jurisdictions have made the mistake of sacrificing the benefits of competitive REC markets for long-term contracting programs, often at the expense of both environmental and economic impact. It is also useful to note that any well-designed RPS program with tradable RECs will naturally facilitate forward contracting markets and bilateral long-term purchase agreements that can be used to support project finance.

EMA believes that the District's RPS accomplishments to date would not have been possible without the reliance on, and oversight of, competitive electricity and REC-based marketplaces. Looking ahead, EMA encourages policymakers to place greater reliance on competitive markets, with the explicit goal of encouraging and ensuring the emergence of new entrants who can foster innovations and bolster price competition. More specifically, EMA offers the following observations and recommendations to the Council to provide more information to the policy-making process and to help improve the District's RPS policy and its competitive REC markets:

- 1) **Geographic Eligibility Footprint and non-PJM Generators:** Narrowing the District's new generator eligibility to the PJM Interconnection region for new renewable sources for the Tier One standard will help support greater renewable energy additionality for the District's RPS and make the District's geographic eligibility provision more aligned with other PJM states that have also reciprocated with a strong RPS commitment. However, since the RPS policy is fundamentally designed to leverage private investment to develop new clean energy capacity at the risk of private investors and not ratepayers, the EMA recommends grandfathering already-certified-RPS generators who have invested to achieve the District's RPS targets in good faith. This is important to Market Integrity and Stability, which in turn is important for achieving the RPS in a cost-effective manner. Retroactive decertification of already certified generators harms investor confidence and can increase the cost of capital associated with achieving RPS targets in the long run. Retroactive decertification not only results in lost future revenue streams and lower cost-recovery for qualified technologies,



but can also result in substantial financial damages to the renewable energy community that is working hard to fulfil the District's RPS. If indefinite grandfathering of already certified non-PJM tier one generators is not an acceptable outcome to the Council, a fair and orderly retroactive decertification process that takes into account the time non-PJM generators have had for cost-recovery within the District's RPS should be used as a guiding principle so as not to harm newer investments over older ones.

- 2) RPS Percentage and Alternative Compliance Payment Rate Schedules:** EMA recommends the establishment of fixed and transparent RPS percentage and alternative compliance payment ("ACP") schedules that are as forward looking as possible. These features are essential to facilitating price discovery, market transparency, and liquidity. Long-term schedules give producers and compliance buyers the information they need to develop and purchase renewable energy. ACP rates should be set sufficiently high enough and as far out as possible to facilitate the underwriting and valuation process that many projects must undertake in order to secure financing. Any use of formulaic approaches to setting RPS obligations or ACP rates is highly discouraged as it creates substantial uncertainty in the market and ultimately increases ratepayer costs through higher risk premiums.
- 3) Continue Using Tradable RECs for RPS Compliance:** When REC markets become oversupplied, prices fall and contain ratepayer costs. When REC markets become short-supplied, prices rise towards the ACP and send price signals to developers to build. High pricing unlocks long-term bilateral contracting opportunities⁵ farther out on the forward curve as buyers seek to secure new supply below the ACP rate. These long-term forward bilateral contracts can be used to manage risk and enable project finance. Allowing REC prices to adjust to market conditions is essential to the protection of ratepayers. Investors and participants that fail to manage price risk in falling markets or fail to preserve project economics in the development cycle will be harmed; ratepayers will not. If REC markets become oversupplied, it is a sign of success relative to the targets that the Council has established. If the Council seeks strong or accelerated additionality through its RPS, it has the power to do so by setting stronger and/or more accelerated renewable energy percentage schedules and ACP rates.
- 4) Do Not Mandate Retail Electricity Suppliers to Comply with the RPS via Long-term Contracts in Any Form:** The use of long-term REC-only contracts on electricity suppliers is not an effective way to promote RPS additionality and would lead to much higher ratepayer costs by damaging the District's retail choice policy. There are a few reasons for this. First, not all electricity suppliers are investment-grade counterparties. Long-term contracts held with non-investment grade counterparties are not bankable from a project finance

⁵ It is important to distinguish between long-term contracts that are facilitated at arm's length between market participants (renewable energy producers and retail electricity suppliers) in the over-the-counter market and long-term contracts that are facilitated by the District on behalf of ratepayers through PEPCO or electricity suppliers. The latter shifts investment risk back onto ratepayers whereas the former maintains investment risk with private investors.



perspective or will require much higher costs of capital, which ultimately get passed on to ratepayers. Second, competitive retail electricity supply markets promote lower ratepayer costs. Retail electricity suppliers voluntarily serve load in the District. Since many electricity suppliers only serve load out a few years, mandating retail electricity suppliers to sign long-dated legal liabilities creates a mismatch in their assets and liabilities as a business. This would result in retail electricity suppliers either leaving the District outright (which would reduce competition and increase ratepayer costs), or it would increase ratepayer costs through higher risk premiums.

- 5) Do Not Mandate Standard Offer Service (“SOS”) Electricity Suppliers to Fulfil their RPS Obligations through Long-term Bundled Energy and REC Contracts:** Requiring electricity suppliers to fulfil SOS through long-term bundled energy and REC contracts harms competition and will increase ratepayer costs substantially while not providing any real additionality or carbon reduction benefits over the procurement of tradable RECs. This kind of approach does not take into account four important things: First, SOS is a complex product to procure for District electricity customers who do not choose a third-party retail electricity supplier. Current solicitations through PEPCO are full-requirements and require energy, capacity, RECs, and transmission to be procured as part of electricity supply bids. Some of these attributes which are procured through SOS auctions are mandated at the federal level (e.g. capacity), while others are requirements of the physical electricity grid operator (e.g., transmission). Second, participating in SOS auctions is voluntary and many electricity suppliers would choose either not to compete in these auctions, require far higher risk premiums to bid, or require some form of long-term economic guarantee secured by ratepayers. This would be due to a mismatch in electricity supplier assets (1-3 years of SOS award) vs. their liabilities (7+ year bundled contracts). Less competition will increase ratepayer costs substantially. Third, not all electricity suppliers are investment grade so long-term contracts held with them may not be bankable for project finance purposes unless some form of credit enhancement is provided, which would again increase cost. Fourth, requiring SOS to be procured through new long-term bundled contracts runs the risk of increasing SOS prices above retail electricity offers. This would cause customer switching and could harm electricity suppliers or ratepayers by leaving them saddled with long-term liabilities without corresponding assets⁶.
- 6) Do Not Reregulate the District’s RPS by Placing RPS Obligations on PEPCO in Order to Facilitate Long-term Contracts:** As discussed above, it is extremely problematic to interfere with competitive wholesale or retail electricity supply markets that facilitate electricity service in the District. Mandating long-term contracts in any form in competitive markets will lead to less competition and substantially higher ratepayer costs. The EMA is also opposed to any efforts to facilitate long-term contracts through the electric distribution company because this locks ratepayers into long-dated electricity contracts and reverses the most

⁶ This exact situation has occurred before in other jurisdictions that have attempted to achieve their SOS / RPS targets through long-term renewable energy contracts.



important principle of a deregulated electricity and REC market: generation investment risk sits with private investors and not ratepayers or taxpayers. Procuring energy or RECs solely through PEPCO would be a step back towards reregulation and would harm ratepayers. Shifting RPS obligations away from electricity suppliers to PEPCO would also cause irreparable harm to the local and regional renewable energy industry that has grown over the last decade to serve the District's RPS. One-buyer markets do not promote competition and the price discovery, transparency, liquidity, or ratepayer protection benefits that come with competition.

As federal policy changes, such as through the expiration of tax incentives, the actions of the District and that of its fellow member states in the PJM region will become even more important to supporting renewable energy development and carbon emission reductions. It is imperative for policymakers to understand that when federal subsidies for renewable energy expire or weaken, there must be robust market mechanisms in place to ensure that the District will be able to cost-effectively achieve its clean energy targets. Failing to make sure competitive markets remain in place for the achievement of these RPS goals will create substantial risk to District ratepayers in the future and will not promote technology innovation on the grid.

Separate from these RPS policy recommendations, the EMA also encourages policymakers and stakeholders to begin to explore how the use of energy efficiency credit trading programs can be used to create compliance flexibility and the cost-effective achievement of the building energy performance standards included in this Act.

Thank you for your consideration of our comments. The EMA is ready to offer any additional assistance as needed by the Council or the PSC as the District moves towards its clean energy future.

Sincerely,

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Appendix A – 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 | ✓ Investor Certainty |
| ✓ Pricing Transparency | ✓ Information Feedback Signals |
| ✓ Compliance Flexibility | ✓ Market Efficiency & Liquidity |
| ✓ Policy Cost-Effectiveness | ✓ Financial Innovation |
| ✓ Ratepayer Protection | ✓ Lower Costs of Capital |
| ✓ Market Integrity & Stability | ✓ 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](#).

Appendix B – Supplemental Guidance Document



Supplemental Guidance Document
Best Practice Principles for
Renewable Energy Certificate Markets

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



Supplemental Guidance Document **Best Practice Principles for** **Renewable Energy Certificate Markets**

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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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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	<ul style="list-style-type: none"> ▪ 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.
<p>Fixed Alternative Compliance Payment (ACP) Rates and Forward-Looking ACP Schedules</p>	<ul style="list-style-type: none"> ▪ 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.
<p>Applicable Electricity Sales and Exemptions</p>	<ul style="list-style-type: none"> ▪ Applicable retail sales, exemptions, and the obligated entities required to procure for RPS compliance should be clearly defined.



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	<ul style="list-style-type: none"> ▪ 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.
<p>REC Banking (Useful Life)</p>	<ul style="list-style-type: none"> ▪ 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. <ul style="list-style-type: none"> ○ 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. ○ 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.
<p>REC Multipliers, Factors, and Forward Crediting (Borrowing)</p>	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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.



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- ◆ Tradable RECs support accountable policy objectives and information transparency by ensuring that RPS achievement is measured, tracked, and reported on in a timely manner. EMA supports the usage of secure and robust tracking mechanisms and methodologies to provide certainty of REC ownership. Well-implemented REC registry systems will avoid double counting of RECs and the dilution of RPS benefits. Failure to implement a system to track ownership of environmental compliance products can undermine the success of the market. Developing such registry mechanisms and methodologies must be a part of the market design process and must be completed prior to implementing any new REC market. Any issues with attribute ownership, claims of benefits, or means of tracking the RECs must be clarified before the start of any program. Failure to do so can greatly undermine confidence in the market, stifle liquidity, and hinder the program's full potential of benefits.
- ◆ EMA supports legislative, regulatory, and rulemaking efforts to establish stable, clearly-defined, and transparent market regimes. EMA promotes the inclusion of experienced market participants at all stages of the development process and post-implementation market review process in order to contribute to the overall strength and vibrancy of the markets. Both the design process and the post-implementation review process must be transparent to all stakeholders.
- ◆ Maintaining market integrity is the responsibility of both market participants and regulators.

About EMA

EMA is a U.S.-based trade association representing the interests of companies that are involved in the trading, legislation, and regulation of environmental markets. EMA was founded in 1997 as a 501(c)(6) not-for-profit organization. Our members have decades of extensive, first-hand experience with market instruments related to Federal and regional cap-and-trade programs in SO₂, NO_x, and GHG emissions as well as state-driven RPS programs throughout the U.S. The EMA represents a wide variety of participants in the clean energy markets, from utilities and load-serving entities to renewable project developers and investors. EMA members have extensive operational experience with RPS compliance, REC trading, and renewable energy investment and, collectively, have made significant historical contributions to achieving state RPS targets. The EMA has a vested interest in the continued success of market-based mechanisms and RPS programs throughout the U.S. and encourages active discussion and collaboration among all industry participants. Inquiries about the EMA, or these Best Practice Principles for REC Markets may be directed [here](#).