Memorandum

TO: MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

FROM: SUSTAINABLE ENERGY ADVANTAGE AND SYNAPSE ENERGY ECONOMICS

DATE: MAY 8, 2023

RE: SURVEY OF CREDIT-BASED POLICIES

Purpose

In order to inform DEP in developing a Clean Heat Standard (CHS), this memo provides a survey of potentially relevant clean energy-focused portfolio standards from various jurisdictions that utilize tradable credits as the fundamental building block for policy compliance, as well as other emission-reduction initiatives with economically significant features that may be instructive in the design of a CHS. The memo focuses on crediting aspects of the programs, such as how the programs influence consumer behavior.

Key Policy Design Considerations Identified from Survey of Relevant Policies

Identifying the Primary Strategic Objective

Based on our survey, we have identified that both policy and portfolio standard design features will be driven by alignment with the main strategic objective motivating the creation of the policy and/or portfolio standard.

In the context of a potential CHS, we understand that the primary driving force is the legal requirement to meet statutory greenhouse reduction targets under the Global Warming Solutions Act (described in the CECP). While the standard can directly or indirectly promote various other benefits (e.g., economic development, technological innovation, energy efficiency, low- and moderate-income customer assistance, environmental justice enhancement, energy cost savings and other benefits), delivering building sector emission reductions over the long term is the purpose of the program.

Obligated Entities, Scope, and Level of Application

Portfolio standards place an obligation for compliance on specific entities, often referred to as obligated entities. The obligated entities are the parties subject to the standard who (in credit-based systems) must generate or procure and retire credits to demonstrate compliance. For electric portfolio standards, retail sellers of electricity are obligated entities. For a clean heat standard, broader questions of scope—the applicable fuel(s) covered by the standard—as well as the level in the supply chain at which the obligation is applied (wholesale distributor, end-user), are also relevant dimensions to defining the obligated entities.

Eligible Resources

Credit-based policies must determine what actions or resources are eligible to earn credits. Our survey identified that different policies have taken different approaches, tailored to their particular needs. This is a key area where policy design shapes the practical impact of what happens as a result of the policy. Similarly, the choice of eligible clean heat resources will effectively determine the heating fuels prioritized for substitution. In general, portfolio standards are by their nature designed to encourage competition among eligible resources to meet a set target, with the competition among eligible resources favoring those with lower cost (or in presence of co-incentives, lower residual cost). The core energy standard model is resource neutral, stimulating head-to-head competition among eligible resources earning the same value for the benefit created (e.g., 1 REC per renewable energy MWh generated). However, when an eligible resource that is not least cost (or faces non-monetary barriers to development) is desired or favored for other reasons (such as the desire to drive adoption and scale economies for immature but promising technologies), designers of portfolio standards deploy design features such as distinct tiers, technology carve-outs, or multipliers available to a subset of eligible technologies to encourage deployment that would not result from head-to-head competition in the absence of such design features. There may also be policy reasons to disfavor allowing some low-cost resources to dominate compliance. For the CHS, one key decision is whether and to what extent different types of biofuels would be considered an eligible resource.

Selection of Units of Measure

Fundamentally, a portfolio standard using a credit-based compliance mechanism must have a very clear and well-grounded basis for the units in which the credit is denominated (i.e., MWh produced, dollars saved, emissions reduced, square footage of zero-emission heat, or a hybrid of one or more of these three). This unit value must also be well known and understood by the market actors impacted by the compliance obligation. Depending on the design, performance may be measured, calculated or 'deemed' based on assumed typical performance. This choice is not only crucial for design continuity throughout the policy, it is also the most fundamental choice in designing the policy itself, because once the fundamental unit of the policy is chosen, many of the most important policy design decisions flow from that choice. Some approaches include the following:

- ***Units of Electric Energy (e.g., MWh):*** Since most portfolio standards are in the electricity sector, the most basic building block of such standards is the Renewable/Clean Energy Certificate or Credit (REC/CEC). A REC or CEC, unless subject to multipliers or fractional "factors," is typically equivalent to one megawatt-hour (MWh) of eligible renewable and/or clean electricity, and earned by virtue of production of a MWh (or equivalent) by an eligible resources. Similarly, the Clean Peak Energy Credit (CPEC) is simply a MWh of clean electricity (injected onto the grid or saved) during seasonal peak periods. In the electric sector context, such a measure is simple, given that watt-hours form the energy basis of all electricity generation, and can thus be counted in total and compared against the energy generated from clean sources. Further, heat pumps—the most promising decarbonization technology for space and water heating—use electricity to produce heat. However, MWh are an uncommon measure of heating energy in the Northeast, where most heating is derived from fossil fuels measured in gallons or therms. This makes MWhs an unintuitive choice.[1] Furthermore, because the emissions rate for electricity generation depends on the resource mix, there is no fixed conversion between MWh and emissions. Similar issues would arise for other potential heating fuel units, because of the range of fuels used for heating in the state.

- ***Units of Mass-Based Emission Reduction:*** A mass-based approach in which credits are denominated in terms of emissions reduced is perhaps the approach that maps most consistently with meeting greenhouse gas limits and sublimits for the buildings sector. Such an approach (whether in terms of metric tons, short tons, kilograms, or other units) is likely to be the most straightforward approach that applies broadly to a variety of forms of fossil fuel heating.
- ***Units of Rate-Based Emission Reduction:*** The third potential approach is to combine an emission reduction target with a non-energy-based unit, such as the square feet of buildings in the buildings sector.
    - Though the policy was not part of our specific policy survey (given that it is not a credit-based policy), an example of this approach is the City of Boston's updated Building Emissions Reduction and Disclosure Ordinance (known as "BERDO 2.0"), which requires emission reductions in buildings exceeding a size threshold. Specifically, BERDO 2.0 is a policy that sets targets in kilograms of carbon dioxide equivalent per square foot of large buildings. A potential benefit of such an approach is that compliance could simply be determined by knowing the number of square feet of buildings heated by clean heat solutions (or equivalent) (along with the grid emission factors necessary to estimate heat pump-driven net emissions reductions, depending on how electric sector emissions are treated in the CHS context), and could (if desired by DEP) obviate the need for credits and/or trading of said credits. On the other hand, one potential drawback is that such an approach could be difficult to enforce in smaller buildings, including homes, small commercial buildings, schools, and other structures. Furthermore, if a structure were heated by both clean and fossil heating solutions, this approach could require allocation or scaling based on the contribution of clean heat solutions relative to fossil fuels.
- ***Unit Sales of Clean Heat Solutions:*** Still another approach could be based on minimum standards for the fraction of sales of heating solutions served by clean heat solution providers. This is the approach taken by the Zero-Emission Vehicle regulation approach for vehicles, for example. Our team assesses the benefits of this approach to be similar to the rate-based approach described above, while the potential drawbacks also pertain mainly to enforcement, tracking, and monitoring of said sales.

Directness of Incentives for End-Use Consumer Behavior

While all policies surveyed have some effect on end-use energy consumers, they vary materially in terms of how directly end-use consumers are addressed by the policy, and how or to what degree the

[1] "Tier III" of Vermont's renewable energy standard uses MWh units in order to allow comparability between RECs and fossil fuels avoided by electrification and efficiency measures. The conversion factor was the source of noticeable stakeholder confusion during the startup of the policy.

incentive directly animates consumer demand or stimulates consumer behavior. An RPS, for example, operates at a level in the market where it is largely invisible to end-use consumers, and consumers are generally treated equally by the sector-wide standard. While all consumers fund an RPS, only some are also looked to for investment in certificate-creating resources, and often more directly though co-policies. Some consumers (in some cases enabled by municipal aggregation) choose to use the REC structure established by the RPS to pursue individual goals for 100 percent renewable electricity (or other levels in excess of the state-mandated level), but the policy is primarily aimed at energy suppliers. This is part of why using the RPS to drive adoption of distributed solar PV required adoption of separate policies within the RPS framework that were more consumer-facing (see the box below).

Policies which operate closer to the level of, and more directly incenting consumer behavior, vary across a spectrum of how visible they are to consumers, and how directly they aim to change consumer behavior. Mass Save interacts directly with consumers, attempting to change their purchasing behavior, but the consumer generally sees lump-sum dollar-based incentives while the tracking of units of savings for compliance purposes is entirely hidden from participants. The SREC programs provided certificates to consumers, and left them with general expectations of value but with uncertainties as to the number and value of those certificates over time (and, at times, either relying on vendor representations of that value or disclaimers as to the ultimate value). SMART is explicit in terms of compensation for production, and the associated paperwork makes clear that Class I RECs are transferred to the EDC as part of the transaction. The ZEV regulation is measured directly in terms of the success of the automakers in selling ZEVs to end-use customers, but the number and value of ZEV credits associated with any given vehicle sale, and how manufacturers shift the pricing of cars to reflect this transaction, and not visible.

One benefit of policies that operate without direct visibility to customers is that they do not add complexity to consumer purchase decisions. The ZEV regulation does not complicate the purchase of a vehicle. No consumer needs to know how many ZEV credits their vehicle represents; they simply negotiate the purchase price with the seller. Energy efficiency programs that operate through incentives offered mid-stream (to retailers) or upstream (to manufacturers) simplify the consumer experience by avoiding the need to submit rebate forms. Some contractors chafe at the imposition of program rules for specific equipment eligibility or paperwork adding complexity to an already complex sale process for efficiency or electrification.

On the other hand, policy visibility can also help customers understand the actions they are being urged to take. Being explicitly offered a coupon or visible discount to take an action can encourage a consumer to take that action. Many Mass Save programs operate this way, and the SMART program compensation is explicitly accounted for in the solar system economics presented to customers. Installers use the declining-block structure of the SMART program to encourage customers to take action now, rather than waiting to later when the compensation will be lower.

Visibility can result in complexity, as shown by the examples of the Massachusetts SREC and APS programs, which required some customers to directly participate in the process of selling their credits. The box below discusses how Massachusetts's policies supporting the development of distributed solar generation have evolved to better meet policy objectives, in part by changing how the policies expect that end-use consumers will interact with the policies.

The Evolution of Massachusetts' Distributed Solar Support Policies

Prior to 2008, distributed solar in Massachusetts, while eligible for the Class I RPS since its inception in 2003, was far more expensive than alternatives, and required incentives well in excess of the Class I RPS. Deployment was limited to a small number of early adopters incentivized by upfront rebate-only incentives offered by the Massachusetts Renewable Energy Trust (MRET). Because MRET incentives were funded by System Benefit Charge collections, this incentive structure was not materially scalable. Project hosts earned RPS Class I RECs to monetize in the market. To develop a scalable and sustainable solar market that reduces dependence on state subsidies, the 2008 Green Communities Act granted DOER authority to specify a percentage of the Class I targets to be met through energy generated from a specific technology or fuel type, and set on-site ACP rates at levels sufficient to stimulate the development of new on-site renewable energy generating sources.

In 2010, DOER formalized a distinct RPS tier for solar, the solar carveout referred to as the Solar Renewable Energy Credit (SREC) program (later referred to as SREC I), with a materially higher ACP to be earned for a period of 10 years from the close of the program, designed to provide a sufficient rate of return to incent investment. For cost control, unlike the rebate program, the SREC carve-out subsidy did not differentiate by project size or $/W installed cost, and employed a declining S-ACP Rate to match expected decreases in PV costs over time. The SREC I program was initiated with a 400 MW capacity limit, which was quickly saturated by mid-sized (0.5 MW – 5 MW) projects. This prompted DOER to raise the capacity ceiling from 400 MW to 650 MW in the spring of 2013 before the SREC I program closed in 2014. To reduce the incentive amounts while still encouraging solar development, the RPS solar carveout II and SREC II program was launched in 2014 with a capacity limit of 1,600 MW. The program utilized 'SREC factors', which are multipliers ranging from 0.5 to 1 that determine how much energy is needed to generate one SREC II certificate (denominated in MWh). The SREC factors were aimed to differentially incent small-scale (under 25 kW), residential solar projects that were canopy mounted or sited on disturbed land. The factors also benefitted projects serving LMI customers or projects with multiple off-takers. In both the SREC I and SREC II programs, generators retained the generation attributes (the SRECs) associated with their project. This meant that solar owners typically had to work with a broker in order to sell their SRECs, and residential installers often offered a service to monetize SRECs on behalf of solar hosts. Additionally, in both SREC programs, there was no formal requirement specifying which entity (the developer, the solar-owner, the utility, etc.) had to complete the program application, which sometimes led to completed and eligible projects not participating in applicable SREC programs.

In the Fall of 2018, DOER closed the SREC II program and launched the Solar Massachusetts Renewable Target (SMART). Unlike the SREC programs which had a fixed capacity ceiling (leaving projects to race to qualify), the SMART program uses a 3,200 MW standard offer (or feed-in tariff) structured with a declining block incentive base rates (declining as capacity blocks are filled) with "adders" to incentivize specific types of projects (such as projects sited on disturbed land or serving LMI ratepayers). The tariff-based incentive is paid by the EDC directly to the system owner, for a fixed term of 10 to 20 years (varying by project type). In the SMART program, the generation attributes (RECs) are retained by the interconnecting electric delivery company (EDC); the EDCs also own the production meters and are responsible for collecting meter data. Solar installers are required submit SMART program applications on behalf of customers, and system owners sign a REC assignment form acknowledging the EDCs ownership of the RECs before enrolling in tariff. EDCs either retain the RECs for use towards their own Class I RPS compliance, or resell excess RECs into the RPS market. The automatic transfer of RECs to EDCs means that customers are fully insulated from the REC market, but this automatic transfer, especially when paired with the requirement that installers enroll system owners in the SMART program, ensures that eligible systems are enrolled in the applicable incentive program.

While each of the Massachusetts solar incentives have existed within the RPS tradable credit program, as the programs have evolved the tradable credit aspect of the programs have become increasingly invisible to system owners. During this transition through the SREC programs, installers and brokers were critical in monetizing REC revenue on behalf of system owners. Through SREC and continuing into SMART, installers have taken on a critical role in interfacing with and communicating details of program incentives and their value, including facilitating program registration. Given the analogies between incenting on-site solar and heat pump purchases (that is, large, long-lived energy equipment purchases of similar magnitude), the Commonwealth's successful experience incenting solar investment provides insights into the potential success of similar program structures in incenting heat pump purchases.

Policy Role in Context: Backstops, Market Drivers, and Co-Policies

Credit-based policies often work as part of suites of policies, associated with co-policies to collectively deliver policy outcomes. Policies in the suite can play different roles: they can provide a clear means of accounting and assurance that policy objectives are met, and they can serve as the primary active means to encourage participant investments (and thereby enable credit creation) across some portion of the relevant market. In some cases, a non-credit-based program or policy is the primary driver of market participant choices, but the economic incentive from the credit-based policy supplements this and assures overall policy goal achievement. In other cases, the credit-based policy is the central pillar of the policy suite and co-policies serve to support and supplement its performance.

From our survey of relevant credit-driven policies, our team classified the surveyed credit-based policies into three categories:

- ***Policies that Serve as a "Pure Backstop":*** Most of the portfolio standard policies which we analyzed fall into the category of being a policy that, as designed, is intended to serve as a backstop mechanism for achieving certain goals. By "backstop", we mean that the policy provides a clear means of accounting for progress towards meeting the target. Examples of this include typical Northeastern "growth" renewable portfolio standards, the Massachusetts Alternative Portfolio Standard (APS), the California Zero-Emission Vehicle (ZEV) standards, the Regional Greenhouse Gas Initiative (RGGI), the California Low Carbon Fuel Standard (LCFS), European Union "white certificates."

These policies provide a supply- and demand-driven price response intended to incentivize supply to meet demand. However, in our experience, many such "backstop" policies are not precisely calibrated to fully provide the price signal such resources need to be financed and be placed in service without use of more blunt instruments such as fixed-price, long-term attribute (or energy) purchase agreements. For example, instead of setting alternative compliance payment (ACP) levels at higher levels that could serve as a price signal for deployment of merchant renewable energy projects (as was intended at the outset of most state RPS policies), state legislatures and regulators alike tend to prefer to set ACP thresholds at levels more intended to limit policy cost than encourage efficient price signaling through REC or other clean attribute pricing. Thus, for these types of "backstop" policies, other "market driver" co-policies tend to be needed to stimulate market activity and eligible portfolio standard supply.

- ***Policies that Serve as a "Pure Market Driver":*** Unlike "backstop"-style policies, there are other policies that serve less specifically as pure portfolio standards and more as policies intended to serve as incentive mechanisms to directly drive markets to create compliance supply and meet compliance demand. In many cases, such policies are adopted in preferred market sectors of a larger policy, such as for solar PV (contributing towards meeting RPS targets) or within the bounds of a major energy efficiency policy (contributing towards general emissions reductions goals). Examples of each of these types of policies from Massachusetts are the Solar Massachusetts Renewable Target (SMART) program and the Mass Save program, respectively.

- ***Policies Representing a Hybrid of "Backstop" and "Market Driver":*** Other policies fall into a category in which the "market driving" co-policies are directly incorporated into the overall framework of an otherwise "backstop"-oriented portfolio standard as a means to prompt market supply for satisfying compliance demand. Examples of this in the Massachusetts context include the Solar Carve-Out I and II (SREC I and SREC II) policies and the Clean Peak Energy Standard (CPES). Though SREC I and II were a carve-out from the RPS, both policies had an auction mechanism (as well as supply-responsive demand) that was intended to bolster credit prices over time and incent market adoption, followed by a transition after 10 years of project operation for projects to generate Class I RECs. Similarly, the CPES has as a feature in which the EDCs must engage in procurements of clean peak resources. Though the Massachusetts Department of Public Utilities has not yet proposed, approved, or rolled out a procurement element of the policy, the mechanism, as initially proposed by DOER, has many similarities to the role played by SREC I and II (though the CPES takes a more technology-neutral approach to serving periods of peak demand with clean resources). That said, we expect the procurements to involve a fixed-price purchase of CPECs over a fixed term. This is approach may have lower policy costs than a more market-based design with more intermediaries/counterparties and more revenue and volatility risk.

In general, our experience with such policies leads us to find that most successful clean energy policies (and portfolio standards in particular) tend to have robust means for fulfilling both the "backstop" and "market-driver" functions, or otherwise benefit from the existence of a specifically designed co-policy. This is because the combination can, if well designed, create substantial compliance market supply while also setting compliance demand expectations that are in line with policy targets. However, these policies also tend to change over time. For example, we observe that policy makers often initially opt for policies that appear to, in a single package, both drive compliance supply and compliance demand by harnessing market forces (e.g., an RPS). Though the market-based focus of these approaches is appealing, policy makers also tend to be concerned about the cost to affected customers of such policies; thus, they often set cost caps or other alternative compliance payments levels in a way that reduces policy cost. The act of setting such a limit on policy costs, though, can also limit the market's flexibility in inducing sufficient supply to meet compliance demand. This then creates the need for other co-policies to drive that demand. In short, a pure credit-based policy with a high ACP (or no ACP) could be sufficient to achieve the policy's objectives, but the associated costs in terms of volatility and occasional very high prices lead to adjustments to the policy design and use other complementary tools to meet their objectives.[2]

Over time, however, such policies tend to be redesigned to be less market-based. This is, in significant part, because market-based policies can cost affected customers more (at least at times). Market-based policies have prices that are more variable and volatile than policies in which there is a single large and well-capitalized buyer. Because credit markets rely on a manufactured concept (the tradable credit) for which there is no inherent demand, the presence of real or perceived policy uncertainty or instability has undercut investor confidence in long-term market fundamentals (particularly in competitive electric markets). This contributes to the need to add procurement-based approaches to the underlying credit-based framework.

A clear example of such an evolution in the Massachusetts context is the shift in supply from largely merchant-driven regional resources of the RPS to a heavy reliance on the fixed-price, long-term procurements authorized by Section 83C (offshore wind) and Section 83D ("clean energy generation", under which the New England Clean Energy Connect (NECEC) project has been procured). A similar situation can be seen in the state's distributed renewable energy programs, including the Solar Carve-Out I and II programs (which were directly incorporated into the RPS), which shifted eventually to the fixed-price-basis and standard offer-based SMART program.

Our policy survey suggests an tendency towards bundled procurements of certificates and other energy market products to meet "backstop"-style portfolio standard compliance demand. Functionally, such simplification in terms of policy design appears to represent, short of statutory or regulatory repeal, an equilibrium state for the design of most clean energy policies.

As part of our survey, we considered whether some of the policies we surveyed could have promise as co-policies with the CHS. We considered whether any existing co-policies are likely to yield sufficient CHC supply to meet the CHS obligation, whether such co-policies need to be modified to fit the task, or whether a new co-policy altogether is required. In the case of a potential CHS, the main existing co-

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[2] This is similar to the use of a capacity market alongside an energy market in wholesale electricity markets. ERCOT (Texas) has an energy-only market and needs to allow that market to offer occasional very high prices in order to incentivize generators to have enough capacity to serve load during times of scarcity. On the other hand, ISO New England uses forward capacity markets, which offer some price certainty for resource availability in advance, and an energy price cap. As a result, energy prices stay more stable and predictable.

policy is the Mass Save suite of programs, through which many of the state's clean heat solutions are incentivized. Though the interaction between Mass Save and a CHS must be carefully managed for maximum benefit, it is also possible that new co-policy mechanisms may be needed to meet the state's building sector greenhouse gas limits and sublimits, if it is determined that the CHS should serve primarily as a "backstop" policy. We describe two potential co-policies in general terms below.

- ***Bundled Purchase for Small- to Medium-Scale Clean Heat Resources**:* Our team's survey of credit-based policies and experience with clean energy policy design indicates that "market-driver"-type policies tend to provide for a "standard offer" bundled purchase of a mix of energy and environmental (or simply just environmental) attributes for a fixed price and/or over a standard or fixed period of time. In the clean heat context, such a bundled purchase could include the exchange of clean heat credits from a clean heat resource or solution (and its benefits) from the seller to the buyer, in return for a rebate/cash incentive, and in the process, the seller transfers to the buyer its rights (either directly or via a centralized Clearinghouse, per the Commission on Clean Heat report) to retire a stream (either forward-minted, or minted on an ongoing basis) for that clean heat resource or solution. However, this poses a series of related questions, including (but not limited to) the following:
    - Whether, for purposes of administrative simplicity, such credits should be forward-minted (i.e., provided prior to project performance)
    - Whether such credits, if forward-minted, would require verification of performance to have financial rewards either issued or clawed back
    - Which measures such a purchase can and should be applied to (and why)
    - Whether value for other environmental attributes (such as carbon credits or emissions allowances) should also be exchanged
- ***Procurements for Larger-Scale Clean Heat Resources:*** While bundled purchase approaches tend to be best-suited for smaller scale resources, larger-scale clean resources (whether generating heat for buildings, or electricity) tend to be developed, constructed, and operated by more sophisticated economic entities, which have the means and ability to develop bids for such resources into a broader resource procurement. In the CHS context, we anticipate that such larger scale resources could include (but are not limited to) the following:
    - Networked geothermal resources
    - Zero-emission (or near-zero emission) district energy
    - Large purchases of green hydrogen or renewable natural gas (if considered to be eligible resources)

  Nevertheless, we suggest that DEP utilize cost and other clean heat measure-based information to carefully consider what such resources might be candidates for such a larger-scale procurement. Other related questions for further study include the following:

    - What entity is best suited to manage these procurements?
    - Who pays for the credits (or, conceivably, serves as a medium through which ultimate buyers and ultimate sellers exchange credits/other attributes, clean heat solutions, and money)?

Credit Market Dynamism

A question closely related to the "backstop" or "market-driver" decision point is the degree of desired market trading. This is closely related to the resulting (and desired) degree of market liquidity. Typically, such liquidity and dynamism exist when there are a lot of potential buyers and sellers, even if some of these buyers and sellers are sufficiently large to wield some degree of market power. When there is little trading, there is almost not a "market price," and what price transparency or discovery there is does not inform market participants about the underlying costs and structure of the market.

As noted above, in our experience, programs initially tend to favor market-based approaches with a heavy emphasis on encouraging market forces, largely based on the expectation that such market-based approaches will drive prices down. Nevertheless, in our experience, such policies tend to have relatively similar odds of producing relatively high and/or volatile prices, particularly if there is insufficient supply. In many cases, a particularly sharp spike in prices (or a particularly large drop in prices) causes policymakers to either settle upon substantial changes that limit the volatility and/or trading range, or simply restructure the market to place a large, credit-worthy "monopsony" buyer at its center (such as a regulated utility). This is because, over time, such an approach tends to appeal to the risk tolerances of both producers (who want a more stable price) and consumers (who also want a more stable and lower price). This choice tends to be central to the evolution of portfolio standards (and/or their co-policies) over time.

In the context of a CHS, customers' willingness to deal with volatile pricing may vary based on which aspect of their energy expenditure is subject to that volatility. Customers are accustomed to volatile energy prices, so to the extent that CHC price volatility is expressed in energy prices (as it might be for biofuels, for example) this may not spur the need for co-policies or other stabilizing actions. However, customers are not accustomed to unpredictability in the net cost of capital purchases (such as vehicles, heating systems, or solar panels), volatility in ongoing compensation for credits that are not forward-minted, or uncertainty in the value of upfront sale of credits. As such, over time, policies are more likely to evolve in the direction of greater stability and predictability.