

FREE Policy Brief Series

Number 5



The FREE Policy Brief series offers a topic-by-topic discussion of issues relevant to the overall mission statement of FREE.

The institutional landscape of sustainable energy in the United States has seen remarkable diversification. The Sustainable Energy Organization (SEO) stands out as an innovation that goes beyond conventional programming and financing of sustainable energy delivery.

A Center for Energy and Environmental Policy (CEEP) research report documents the landscape and context. This Policy Brief offers a concise summary of this research effort.

Sustainable Energy Organizations: Evolution and Opportunity

The first Policy Brief ^A in this series outlined the basic characteristics of the Sustainable Energy Utility (“SEU”): a goal of matching energy supplies to actual needs of local communities, using innovative financing approaches to realize the match, relying on participation and cooperation of a diverse group of stakeholders to govern the utility, and pursuing independence from any government body or utility. The second Brief discussed the business model behind the SEU and the value it creates through its focus on conservation and renewable energy investments.

This Policy Brief examines several organizations in the U.S. that are similar to an SEU and two that have adapted the SEU concept to different requirements and settings. It draws upon a research effort to map the landscape of Sustainable Energy Organizations (SEOs) in the United States. The Policy Brief distinguishes several defining characteristics of the SEOs that are currently in operation. The SEU promise is compared with the context of the wider SEO landscape. In addition, this Policy Brief documents some of the steps involved in establishing SEOs.

^A The FREE Policy Brief Series is available at: <http://freefutures.org/free-policy-briefs/policy-briefs>

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The SEO as a New Addition to the Energy Decision-Making Landscape

The SEO as an organizational entity in the U.S. is often traced back to Energy Efficiency Vermont and the Energy Trust of Oregon as the two oldest organizations.^{1,2,3} In 1997, the Public Service Board in Vermont recognized that energy efficiency and saving energy held great value for the state.⁴ After two years of negotiations between the Vermont Department of Public Service, 22 electric distribution utilities, consumer, and environmental groups, and with the governor's approval, Senate Bill 137 was passed into law in 1999. The Public Service Board was granted authority to create and regulate an independent state-wide energy efficiency entity to provide least cost savings on utility services to ratepayers. Energy Efficiency Vermont (now called Efficiency Vermont) became the first ratepayer-funded energy efficiency utility providing statewide energy efficiency services in the U.S. Similarly, Oregon's Senate Bill 1149 of 1999 created the non-profit Energy Trust as a way to help offset a portion of the cost of developing renewable energy resources in the state at a time when the cost of renewables far exceeded the market price of electricity.⁵ The Trust began operations in 2002 and now offers programs that cover investments in energy efficiency as well as renewable energy generation.

However, the landscape of Sustainable Energy Organizations (SEOs) is diverse. For instance, the Connecticut Clean Energy Fund (CCEF) was created by the Connecticut Legislature as a part of Public Act 11-80 in 2000. It funded over \$150 million in renewable energy projects, emerging technology investments, and education and awareness programs statewide. The Clean Energy Finance and Investment Authority (CEFIA)^B was formed in June of 2011 as the successor to CCEF for the purpose of supporting the governor's and legislature's

^B Now called the Connecticut Green Bank

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mission of achieving cleaner, cheaper, and more reliable sources of energy and energy efficiency.⁶

An important innovation in the SEO landscape is represented by the SEU. Several SEU organizations are currently in operation and, as documented in previous Policy Briefs, international attention is being given to the concept likely leading to its further diffusion in the United States and beyond. For instance, the Sonoma County, CA Water Agency (SCWA) recently launched an SEU program to finance energy efficiency, renewable energy, and water conservation retrofits, using a scaled down version of the Delaware SEU tax-exempt energy efficiency bond program. The \$30-\$50 million sustainable energy bond series program is designed to fund energy efficiency and renewable energy measures in schools, hospitals, and municipal buildings. Most recently, the Pennsylvania Treasury and the Foundation for Renewable Energy & Environment (FREE) partnered to create PennSEF – the Pennsylvania Sustainable Energy Finance Initiative.^{C, 7} For both the Sonoma County and Pennsylvania programs, as in Delaware, participants work with pre-qualified engineering, construction and energy service companies to complete energy and water conservation improvements and to install onsite clean energy generation. Project and financing costs are fully covered by the savings guaranteed to participants and monitoring and verification of the savings is included in the project plans and costs.⁸ Both programs provide incentives to invest in capital intensive retrofits as well as those with shorter payback periods.⁹

Other SEO programs include the Washington DC SEU (modeled directly after the Delaware SEU), the Cambridge Energy Alliance, the Greater Cincinnati Energy Alliance, and the New Jersey Clean Energy Program (see Table 1^D at the end of the policy brief). T

^C More information on the PennSEF initiative can be found at: <http://freefutures.org/pennsef/>

^D Table 1 can be found at the end of this policy brief.

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The Washington DC SEU was created by the District of Columbia City Council as part of the Clean and Affordable Energy Act of 2008, and began operations three years later in 2011.¹⁰ The DC SEU supports local households, businesses, and institutions in saving both energy and money through energy efficiency and renewable energy programs. Like the Delaware SEU, the DC SEU has established a broad presence through a wide array of different programs.¹¹ The Cambridge Energy Alliance (Massachusetts) aims to reduce greenhouse gas emissions in the city by making buildings and residences in the city smarter and more efficient. In addition, the organization aims to facilitate the deployment of renewable energy resources. The Greater Cincinnati Energy Alliance (Ohio) assists homeowners, non-profit organizations, and commercial building owners to understand ways to reduce their energy usage and the financing options available to them. The New Jersey Clean Energy Program similarly offers financial incentives and programs to help program participants save money and energy while reducing environmental harm.

The organizations all have similar mission statements that include the following components:

- helping electricity customers benefit from cost-effective energy efficiency and renewable energy programs and initiatives;
- improving the delivery of such programs to underserved areas;
- making it easier for businesses to invest in energy efficiency and renewable energy services;
- strengthening the local economy, to reduce energy costs; and
- protecting the environment.^{12,13}

Diversity of the SEO Landscape

The main findings of the CEEP study on SEOs illustrate the diversity that exists within the current SEO landscape. In particular, the study evaluated differences in administrative model, financing sources,

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program offerings, and organizational governance. This Policy Brief briefly summarizes the main findings of the CEEP report, adding information on the most recently formed SEO, Pennsylvania's *PennSEF*.

SEO Administrative Models

The flexibility in selecting an administrative structure is vital to enable an SEO to adapt to diverse political circumstances thus expanding its feasibility. Table 1 below (column 4) depicts this diversity in administrative models adopted by SEOs.^E

Some SEOs like the Cambridge Energy Alliance and Sonoma County Sustainable Energy Programs, adopt the *Agency Model* i.e., the SEO is an agency of the state, regional or local governmental bodies, and operates under the directions and guidelines prescribed by the government. In contrast to this, Efficiency Vermont adopted the *Portfolio Model* where a third party is hired on contract to oversee the functions and responsibilities of the SEO. A third party can include a single or a group of private entities, unlike the agency model where the members of the staff of the SEO are employees of the government. New Jersey Clean Energy Program and the DC SEU follow the portfolio model of administration as well.

The Delaware SEU had originally adopted the portfolio manager model but has since moved to an *Independent Non-Profit Organization Model*. This model is also followed by the Greater Cincinnati Energy Alliance, Energy Trust of Oregon, Connecticut Clean Energy Finance and Investment Authority and PennSEF. Independence from government tends to allow the SEO to operate outside restrictive structures often required for government agencies (for example, procurement rules and policies). Under the model, the effectiveness

^E The categorization of the administrative models employed by the SEOs is based on an examination of their operations and extensive discussions with key informants/experts in the industry. Terms used for the models (indicated in italics in this section) are carefully chosen based on existing usage, definitions, and meanings accorded to members of the industry and policy communities.

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of the SEO depends on mechanisms that make it answerable to the communities it serves.

The SEOs may, whenever deemed necessary, offer competitive contracts for part or full implementation to independent businesses. This can occur regardless of the larger administrative model adopted by the SEO.

Financing Sources

As briefly described in previous iterations of the Policy Brief Series, several financing sources are available to SEOs. Financing can come from philanthropic sources, energy bill surcharges, capital markets, and state/local funding (Table 1, Column 5).

For instance, Efficiency Vermont receives funding mostly from two sources: first, electricity users pay an energy efficiency charge to assist Vermonters in using electricity more efficiently; Efficiency Vermont obtains funds from the Regional Greenhouse Gas Initiative (RGGI)^F and from selling energy efficiency savings to the region's Forward Capacity Market – an auction market for the sale and acquisition of future electrical capacity. In addition, Efficiency Vermont can assist homeowners in applying for a variety of incentives/rebates or in qualifying for Property Assessed Clean Energy (PACE) Financing.¹⁴

A primary finding by the CEEP study is that newer SEOs tend to rely on a greater variety of funding sources. For instance, New Jersey's Clean Energy Program and the Energy Trust of Oregon^G are in the

^F RGGI is a market based regulatory program to cap and trade CO₂ emissions in the mid-Atlantic region. Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont participate in and govern the program. RGGI sets a regional cap on the CO₂ emissions by the power sector and allowances are sold in state administered auctions. The proceeds are invested in energy efficiency, renewable energy and consumer benefit programs.

^G Energy Trust programs are supported by the 3% public purpose surcharge on electric utility customers' bills that was created with the enactment of the state's 1999 energy restructuring law. Natural gas customers also pay a portion of their bills to fund the Trust's energy efficiency programs.

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process of diversifying their financing sources in order to reduce impacts on customer utility bills. In addition, approaching capital markets is a more recent choice, led by the Delaware SEU and followed by the Sonoma County Sustainable Energy Program, the Connecticut Green Bank and PennSEF.

Likewise, the financial flows available to SEOs can be applied in a variety of different ways (Table 1: Column 6). For instance, SEOs can use the funding to provide rebates for renewable energy or energy efficiency measures or they can support low-interest loans to advance sustainable energy.

As mentioned in previous Policy Briefs, the Delaware SEU pioneered the use of private capital markets to implement energy saving measures. Such financing flows allow for deep retrofits. In addition, the Delaware SEU also pioneered the creation of a single market for the purchase and sale of solar renewable energy credits (SRECs) on long-term contracts in an attempt to halt boom-and-bust cycles that affected states throughout the U.S.

Types of Programs

Various programs are deployed by SEOs in order to meet their mission. These programs can target different income or customer groups, differ in program lifetime, or be instated for a host of purposes and objectives. The diversity in programs is illustrated in Table 1 (Column 7).

A key distinction in program type is between those which support diffusion of devices such as LED lights and those which promote infrastructure-scale investment (for instance, community solar, 'net zero' cities and multi-measure, multi-building commissioning). The latter is being pioneered especially in Delaware and Connecticut.

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SEO Program Benefits

The SEO programs offer a variety of benefits. For instance, as reported in their annual reports:

- *Efficiency Vermont*: Net economic benefits of the work done by this SEO in 2013 were \$62 million.¹⁵ Customers saved 88,000 MWh in electricity and 110,000 MMBtu in heating energy. In addition, 13.1% of the state's electric needs were met through energy efficiency rather than new generation.
- *Energy Trust of Oregon*: Since 2002, Energy Trust program participants have saved over \$1.7 billion on their energy bills. In 2013 alone, Energy Trust customers saved \$309 million in energy costs.¹⁶ Trust programs created about 1,100 full time jobs in 2013 and added over \$175 million to the local economy.
- *Connecticut Clean Energy Finance and Investment Authority*: According to the CEFIA Annual report, \$220 million in investments in 2013 led to the deployment of 27 MW of clean energy, the creation of nearly 1,200 jobs, and the prevention of 250,000 of greenhouse gas emissions.¹⁷
- *DC SEU*: In 2013, replacement of the inefficient light bulbs with CFLs and LEDs achieved an estimated \$1.5 million in energy savings.¹⁸ Overall, the DC SEU documented 50,000 MWh in total electricity savings and 53,000 Mcf in natural gas savings. Those savings resulted in 45,000 tons of carbon dioxide emission prevented.
- *Delaware SEU*: the savings profile of the Delaware SEU were documented in Policy Brief No. 2. Despite the fact that it has only 900 thousand residents, annual clean energy investments exceed \$200 million (including its solar program, rebate and loan programs, and bond program for pooled investments in the public and non-public sectors).

The SEU Difference

Experimentation in administration, governance, financing, and programming has produced a maturing SEO landscape. The SEU

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model offers innovative characteristics that have contributed to this maturation process. For instance, the innovative financing strategy pioneered by the Delaware SEU is now being applied by Connecticut and, more recently, by the Pennsylvania Treasury. Other organizations are exploring different program and financing innovations.

As the landscape continues to mature, additional experimentation will likely draw out other lessons from which all SEOs can benefit. Here, the SEU model has a lot to offer:

- *Programming:* A unique combination of many organizational elements and financing approaches. The SREC financing strategy detailed in Policy Brief No.2., for instance, could inform New Jersey efforts where boom-and-bust cycles of SREC prices have been damaging;
- *Independence:* The Delaware SEU is neither an arm of the government nor is it affiliated with any utility serving the area;
- *Community Utility:* The SEU remains independent yet accountable to the public it serves. The SEU engages in close cooperation with a wide group of stakeholders, including policy leaders, businesses, farms, contractors, and residents;
- *Financing:* The SEU has introduced a practical strategy to capitalize on the deep reductions in energy use;

One consideration looking forward to the further maturation of the SEO landscape is the introduction of additional SEUs. This raises the question: how could other communities develop their own SEU-type programs and organizations? The FREE Education and Advisory Service works with communities across the country and beyond to take advantage of the SEU model and support its successful application. From previous experience with, for instance, the Delaware SEU, the DC SEU, the California Statewide Communities Development Authority, and Pennsylvania, the following

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considerations can function as a guideline of thinking about SEU implementation.

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1. ORGANIZATIONAL LEVEL	2. NAME OF THE ORGANIZATION	3. FIRST YEAR OF OPERATION	4. ADMINISTRATIVE MODELS			5. SOURCES OF SEO FINANCING						6. TYPES OF PROGRAM FINANCING			7. TYPES OF PROGRAMS OFFERED									
			Agency Model	Portfolio Manager	Independent Non-Profit	Philanthropic	RGGI	Energy Bill Surcharge	Capital Markets	2009 ARRA	Federal Grants	FCM	State/Local Funding	Rebate	Low Interest Loans	Low Interest Financing	PACE†	RECs††	Product Give-aways	Energy Audits	Weatherization	Education	On-site RE Generation	Deep Efficiency
CITY	Cambridge Energy Alliance	2007	x			x	x			x	x	x	x	x					x	x	x		x	
	DC SEU	2011		x		x			x				x	x	x			x	x	x		x		
COUNTY/ REGIONAL	Greater Cincinnati Energy Alliance	2009			x	x			x			x	x						x	x	x		x	
	Sonoma County Sustainable Energy programs	2009/2012	x						x	x	x	x	x	x	x				x	x	x		x	
	Vermont Energy Efficiency	2000		x					x	x		x	x		x		x	x	x	x		x	x	x
STATE	Energy Trust of Oregon	2002			x				x							x			x	x		x	x	x
	New Jersey Clean Energy Program	2007		x								x		x		x			x		x	x	x	x

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CEFIA	2011	x*	x	x	x	x	x	†††	x	x	x	x	x	x	x
DE SEU	2007	x**	x	x	x	x	x	x	x	x	x	x	x	x	x
FREE-PA Treasury Program	2014	x***	x		x				x	x			x	x	x

* The Connecticut Clean Energy and Finance Investment Authority (CEFIA) is a quasi-public agency. However, it operates as an independent organization as defined in the CEEP study.

** Initially, the DE SEU pursued a portfolio manager model.

*** Under a grant from West Penn Power Sustainable Energy Fund, PennSEF was established as a program operated by FREE in partnership with Pennsylvania's Treasury Department, which provides no funding to the program but advises the program and chairs the advisory committee of PennSEF. The advisory committee is comprised of public and non-public leaders in the sustainable energy space.

†Property Assessed Clean Energy Financing. Delaware's SEU has developed innovative financing programs which capture many of the opportunities intended in PACE programs. Both PACE and the Delaware SEU rely on tax exempt bond financing.

†† REC= Participation in a Renewable Energy Credit market.

††† Connecticut is transitioning away from rebates.

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Establishing an SEU

At the core of the SEU approach is the notion that we all share responsibility for creating a healthy environment and democratically governed energy system. Thus, any SEU-type program requires the support of the local community or communities it will serve – individuals, businesses, institutions, potential financiers, and members of government. The formal SEU organization then comes into being

1. Through the passage of legislation like that which established Efficiency Vermont or the Delaware SEU,
2. Under the aegis of an existing program, as exemplified by the Efficiency Finance Program of the Sonoma County Water Agency, or
3. By the creation of an independent program administered by non-profit organization (e.g., PennSEF administered by FREE in partnership Pennsylvania Treasury).

Key elements to consider when developing the SEU include:

- Establishing the SEU as the one-stop-destination for conservation and renewable energy.
 - The SEU provides energy and water efficiency, renewable energy, and affordable energy services under the auspices of one coordinated system. The SEU can work on behalf of the end-user, providing information or educational programs, engaging qualified contractors, or arranging financing. In the end, the SEU can reduce administrative costs associated with providing all of those services independently.
- Matching energy supplies to actual energy needs, and catering solutions to the end-user.
 - The focus on the needs of the end-user rather than the promotion of a particular technology gives an SEU the flexibility in program and delivery. An SEU can effectively

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serve an energy-intensive industry just as well as it can serve a low income household.

- Developing flexible incentives and financial tools.
 - An SEU is flexible not only in terms of providing services, but also in terms of the financing options it can offer. Financing tools can include rebates, low interest loans, or payment plans based on energy savings. An SEU also can design programs to cover the full incremental cost of sustainable energy services for certain customers, making energy efficiency more affordable and inclusive of all consumer groups. Flexibility allows an SEU to respond more quickly and to tailor financing the end-user's particular situation.
 - An SEU addresses two fundamental financial concerns: first, flexible financing tools help end-users overcome the initial cost of renewable energy or energy efficiency projects; and second it keeps value in the local economy through an emphasis on the use of local contractors, the local fabrication of equipment to meet energy needs, and the reliance on nearby distributed generation rather than large, distant, centralized electricity sources. An SEU offers a comprehensive alternative to conventional utilities and current policy approaches.

Setting up Specific Programs

Every program offered under an SEU must be tailored to the specific needs and capabilities of the community or communities it is intended to serve. As a result, community outreach and assessment should be the first step in an SEU undertaking. What follows are some general steps that can be followed in setting up some programs like those undertaken by the Delaware SEU and others.

Rebate/incentive programs:

- Clearly understand the audience for the rebate/incentive audience.

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- Devise targeted advertising programs to inform that audience of the start and stop dates of the programs, exactly what they must do to qualify for the incentive or rebate, and where they can go/who they can contact for more information.
- Offer real-life examples/stories of people who have benefited from this or similar programs. How much money can participants save? What quantity of carbon dioxide emissions will be avoided?
- Remind potential participants when the program is about to expire.
- Evaluate and document the strengths/weaknesses of the program.

Bulk purchase of energy saving products:

- Establish the energy savings and dollar savings (replacement costs, maintenance costs) associated with a given product, such as LED street lighting.¹⁹
- Educate potential participants on the benefits of the product and secure their involvement in the program.
- Draw up a Request for Proposals (RFP) on behalf of all participants.
- Obtain volume pricing for the group.
- Rely on the knowledge of local technology experts to ensure quality and suitability of purchases.
- Arrange for recycling of old products.

Tax exempt bond financing of sustainable energy programs:²⁰

- Potential program participants attend an orientation and education program which introduces the financing concept, the types of projects that can be included under the sustainable energy umbrella, and the results of projects already completed. Interested participants sign a non-binding letter of interest (LOI).
- LOIs are shared with pre-qualified energy services companies (ESCOs).
- Program participants and interested ESCOs meet to share energy data/bills and sites and facilities.

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- Participants select an ESCO, which then conducts a no-cost pre-contract audit and presents a formal proposal. Participants and ESCOs discuss the findings and negotiate the items of the final contract. If the parties agree to continue, an investment grade audit agreement is prepared and final measure selections are made.
- ESCOs conduct investment grade energy audits to establish the energy savings from projects. The results as well as the monitoring and verification plan are discussed with the participants.
- If the parties agree to continue, final contracts – the Guaranteed Savings Agreement (GSA), Installment Payment or Lease Agreement, and Program Agreement – are negotiated, finalized, and signed by parties.
- In parallel, bond ratings are obtained and bond issuance activities take place.
- Construction takes place.
- Third party monitoring continues throughout a project’s lifetime to ensure the contracted savings are realized.
- Participants pay for the project according to the agreed upon schedule from their energy savings.

In Short...

The SEO landscape continues to show substantial differentiation and maturation. Similarly, since its introduction, the SEU concept has undergone considerable evolution and the concept has found new uses and new settings for its application. For instance, expanding beyond the original renewable/sustainable energy mandate, newer SEU models – such as the one in Sonoma County, California – explore applying the SEU modalities to materials and water conservation, further extending the already significant promise of the SEU model. National and international efforts to implement SEUs will also contribute to its evolution and refinement to various institutional landscapes, broadening its field of application. FREE

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Policy Brief 4 is planned to review some of those international applications of the SEU model to date.

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About the Foundation for Renewable Energy & Environment (FREE)

The Foundation for Renewable Energy and Environment (FREE) is a non-profit, international organization established to promote a better future based on energy, water and materials conservation, renewable energy use, environmental resilience, and sustainable livelihoods. Guided by experts and distinguished academics, FREE sponsors research, supports graduate education and consults with organizations on strategies to create new sustainability models, to advise policy makers and other societal leaders, and to provide outreach to communities seeking to transform energy-environment relations. Managing an active agenda of conferences, films, exhibitions, seminars, and publications, FREE works with cities, non-profits, governments, businesses, and academic institutions around the world on environment and renewable energy issues.

The Policy Brief Series is drafted by the FREE research team (<http://freefutures.org/about/free-team/free-research-team/>). For more information, contact FREE Program Manager Pam Hague (pam@freefutures.org).

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