

## RFP Cover Sheet

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|------------------------|---------------------|
| <b>Offeror's Name:</b> | Optimal Energy Inc. |
|------------------------|---------------------|

| RFP Information |   |
|-----------------|---|
| Title of RFP:   | Policy & Program Planning Consultant Services |
| RFP Number:     | EERMC-2020-01                                 |

| Offeror Information  |   |
|--|---|
| Legal Name of Offeror:   | Optimal Energy Inc.                             |
| Type of Entity (i.e. corporation, partnership, sole proprietorship): | Corporation                                     |
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| Phone Number:  | 802-482-5600                                    |
| Website:   | www.optenergy.com                               |

| Contact Person for the Offeror |   |
|--------------------------------|---|
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Signature of Authorized Person

8/3/2020  
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Date

Eric Belliveau, Vice President  
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Printed Name, Title

**Technical Proposal**  
**Policy & Program Planning Consultant Services**

**Rhode Island**  
**Energy Efficiency and Resource Management Council**

**Response to RFP Number EERMC-2020-01**

**Prepared for**  
**Rhode Island Energy Efficiency**  
**and Resource Management Council**

**By Optimal Energy Inc.**

**August 3, 2020**

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## **A. OVERVIEW: LEADERSHIP FOR RHODE ISLAND'S CLEAN ENERGY FUTURE**

Optimal Energy Inc. and our partners are pleased to offer the Rhode Island Energy Efficiency and Resource Management Council (EERMC or Council) this proposal to provide policy and program planning consultant services. The Optimal team offers the expertise required to support Rhode Island's clean energy future. We have the proven ability to bring new ideas and attainable solutions to the EERMC and the necessary creativity to help Rhode Island continue its leadership into the new decade.

The Optimal team has the skills to support the EERMC through this time of rapid transformation in clean energy, coupling know-how from other jurisdictions with an understanding of the Council's history and priorities. Our team members lead the way in energy efficiency programming around the region and the country. With key staff located in our Providence office and a strong and enduring record of success in the State, the Optimal team understands the context of energy efficiency in Rhode Island.

Energy planning is undergoing rapid evolution, shaped by new technology options, changing consumer expectations, and policy and regulatory goals. Large amounts of clean energy supply are coming online, older energy infrastructure faces new stress, and the State's aggressive clean energy and climate goals, which once seemed far off, grow ever more pressing. We can no longer address separately energy efficiency, demand management, energy supply, and distribution of energy resources. These must be integrated. That requires new approaches to planning and implementation to ensure that system-level reliability and resiliency are consistently met at the least cost. Perhaps most pressing for energy efficiency plans, market transformation and rising minimum standards mean that high-efficiency lighting will no longer be the low-cost engine of efficiency programs – other technologies and delivery innovations will need to fill the gap. The Optimal team is at the leading edge of efficiency policy and programs, integrated approaches, and emerging issues. As the EERMC ushers in a new generation of energy efficiency and optimization programs, the Optimal team is the right team to help guide Rhode Island through this changing landscape.

Rhode Island's success in energy efficiency policy and program execution is shown by its high ranking in the American Council for an Energy-Efficient Economy (ACEEE) state scorecard, including a perfect score in the utility programming and policy category. We are honored to be part of the collective effort that led to this achievement. We hope to continue supporting Rhode Island's sustained leadership as it delivers the value of least cost procurement (LCP) to ratepayers in a time of rapid change.

### **Planning for 2021 and Beyond**

The next several years are pivotal for Rhode Island's energy efficiency and energy systems planning work. Significant challenges are on the horizon or have already appeared and exposed the limits of the current implementation model. Foremost among

these is the market adoption of LED lighting, which rapidly diminishes the largest source of attributable savings from efficiency programs. While lighting has been the largest contributor to program savings, it is not the dominant source of energy consumption. The energy used by heating and cooling our buildings dwarfs that of lighting and represents a tremendous opportunity for energy savings. Rhode Island is one of the first states in the region to grapple with this new reality in the timeframe of its next multi-year energy efficiency plan; the EERMC will be the first Council with the imperative to develop and monitor a “post-lighting” portfolio.

Rhode Island’s ambitious clean energy policy framework, including the target of 100 percent renewable electricity by 2030, will begin to impact the energy system as several large renewable sources come online. Meanwhile, the adoption of electric vehicles and building electrification ushered in by the Heating Sector Transformation effort will change the amount and timing of electricity consumption across the State. Rhode Island’s Power Sector Transformation initiative has shown agencies, utilities, and regulators the need for coordinated efforts on a range of related issues, including:

- addressing the time and locational value of energy efficiency
- actively shifting load to address peak demand requirements
- incorporating energy storage technologies
- supporting distributed energy resources
- evaluating less expensive alternatives to infrastructure expansion
- considering strategic electrification to support long-term carbon reduction
- absorbing new loads from electrification of vehicles and space and water heating

Rhode Island must address these challenges and take advantage of new opportunities to maintain system reliability, achieve least cost procurement, and reach its greenhouse gas (GHG) reduction goals. The EERMC has the opportunity to position Rhode Island’s energy efficiency programs and LCP framework to drive significant, sustained reductions through efficiency, grid and load management, generation, technology innovation, public-private partnerships, and workforce development.

The scope of energy efficiency program planning and execution will evolve so that the State can continue to realize all the benefits that are created from robust energy efficiency programs. Councilors will be expected to assess emerging technologies and approaches and increasingly consider energy optimization opportunities. The Consultant Team<sup>1</sup> will need to prepare EERMC members to weigh in on new program delivery mechanisms and interventions.

The Optimal team brings the needed expertise to support the EERMC in this environment. Our team understands Rhode Island’s unique policy and energy efficiency program context and brings expertise on best practices developed around the region and

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<sup>1</sup> We use *Consultant Team* when discussing specific work requirements that support the Council. We use *Optimal team* when referring to the team that we are proposing to fulfil those requirements.

the country. We bring forward-thinking strategies to maximize the benefits of energy efficiency as the lowest-cost source of energy and the cornerstone of the State's approach to GHG reduction. We offer three strategies to address the scope of this Request for Proposals (RFP) in a coordinated, integrated fashion. These are the ways in which we propose to achieve objectives set by the EERMC and maintain the State's leadership in energy efficiency.

### **Local Presence, National Expertise**

Locating key staff in Providence, with a core of Rhode Island residents, allows the Optimal team to maintain close and engaged working relationships with Councilors and key stakeholders. We have steadily expanded our Rhode Island office and are committed to developing the next generation of local talent, as exemplified by the addition of 2018 Brown University graduate Adrian Caesar, and the commitment to continue to bring Rhode Island-based student interns into our projects.

At the same time, the team brings necessary regional expertise and a national perspective to our work for the EERMC. The Optimal team works in dozens of jurisdictions across the United States, including in neighboring states that have similar policy and regulatory contexts for energy efficiency and that face many of the same challenges as Rhode Island. Our front row seats assisting regional stakeholders fuel a robust exchange between leading states that fosters the spread of the best ideas. Our team includes nationally recognized experts from Optimal Energy and Energy Futures Group (EFG), and a team of independent consultants. Each member of the Optimal team brings excellent credentials to the tasks.

### **Driving Innovative Solutions within a Local Framework**

While every three-year program cycle is different, this one will mark the end of the vast majority of claimable lighting savings. Additional pressures – from climate targets to system reliability stresses due to increases in distributed generation – will bring important challenges to the EERMC. The Optimal team recognizes the EERMC's need for significant expert support to address these new challenges, including the need for program innovation to tackle all energy end uses and measures, the fundamental re-shaping of the energy supply system, and the imperative to address the time and locational value of energy efficiency.

States across the country are testing new models of energy efficiency, grid transformation, and tackling the challenges of climate change, but their solutions cannot always be taken off the shelf and applied to Rhode Island. Understanding context – from the policy and regulatory framework, to the state of the energy efficiency workforce, to the needs and interests of key stakeholders – is critical to ensure that innovative solutions are adapted so that they can be successful locally. For example, our team is now working on regional efforts to apply best practices to ensure that efficiency is considered in the

necessary ventilation system upgrades for K-12 schools as they contemplate safely reoccupying buildings at the start of the academic year. The Optimal team brings its history in the State, and its relationships with the Councilors, National Grid, and other stakeholders to ensure that information and recommendations are appropriately adapted for Rhode Island.

The team will continue to pursue innovation that builds on the existing strengths of National Grid's delivery infrastructure, Rhode Island trade allies and workforce, and local partner institutions. Our strategy groups will continue to work collaboratively with National Grid and key stakeholders to identify and evaluate new savings opportunities, emerging technologies, and innovative program service delivery models that can work within the State's policy and regulatory framework. For example, over the past year, the Optimal team completed RFP development, contractor solicitation, and contract management for the Rhode Island Energy Efficiency Market Potential Study, an analysis that effectively identified all cost-effective savings to inform EERMC's recommendation for three-year targets.

### **Maximum Value and Efficient Resource Utilization**

Optimal has put together an integrated and comprehensive team that provides expertise in energy efficiency, demand response, energy optimization, and other topics to provide comprehensive support and flexibility to the EERMC. We have added to our expertise on income eligible program design and energy equity, which are even now more important in the delivery of COVID-safe energy efficiency services.

As project lead, Optimal Energy has demonstrated its capability to integrate teams that deploy expertise at highest and best use and to provide nimble, coordinated support that meets budget and schedule needs. Our experience tells us that much of the necessary EERMC support work is planned in advance, but there are always unanticipated tasks that arise based on changing Council priorities, program results, proceedings of the Public Utilities Commission (PUC), and other external factors. The Optimal team has a track record of efficiently and effectively meeting EERMC's identified needs, and bringing emerging areas to the Council's attention. Importantly, our reserve of skilled professionals and national contacts mean we can commit to having appropriate expertise and sufficient staff to provide supplemental support in any area, recurring or new.

The core of our team is located in-state and available for impromptu meetings and other onsite needs. Other team members are nearby, so we do not require travel reimbursement. As detailed in later sections, the Optimal team's experience as EERMC Consultant Team enables us to provide the EERMC with all of the core responsibilities and tasks requested of its Consultant Team and additional tasks that arise.

Our first-year cost proposal, submitted as a separate file as required, projects the expected costs for meeting all requirements of the RFP. We have proposed a realistic yet

flexible budget for the first year that will allow the team to concisely cover all scope requirements and be prepared to handle contingencies that might arise.

### Organizing the Team for the Work Scope

The RFP lists 31 work scope items, categorized into four broad areas, which we frame as tasks to align with the organization of the RFP and the Cost Proposal:

1. Responsibilities related to EERMC Oversight
2. Responsibilities related to the Development of Work Products and Representation of the EERMC
3. Responsibilities related to Energy Efficiency and System Reliability Program Design and Delivery
4. Responsibilities related to Advancing Integrated Approaches and Addressing Emerging Issues

The Optimal team’s tried-and-true system for this work provides a small group of local, trusted advisors who develop and maintain close working relationships with Councilors and key stakeholders. These advisors draw on experts who offer subject matter knowledge and extensive regional and national experience. This allows Optimal to effectively support and represent the EERMC at the team’s highest and best use. The team will be led by Mike Guerard, Optimal Managing Consultant, who has supported the EERMC since 2009.

The team will be organized into five groups to cover every component of the work scope, as summarized below.

| Groups                                       | Roles  |
|--|--|
| <b>Policy &amp; Regulatory</b>               | Supply the EERMC and other stakeholders with a sharp, consistent perspective on all energy issues that interface with LCP and the EERMC’s charge. Represent the EERMC at regulatory proceedings, in policy discussions and in other venues as needed.                |
| <b>Residential &amp; Low-Income Strategy</b> | Provide day-to-day oversight of LCP and system reliability programs. Identify innovative strategies to help National Grid and its contractors position programs for long-term success. Support EERMC and individual Councilors in their oversight of these programs. |
| <b>Commercial &amp; Industrial Strategy</b>  |  |
| <b>EM&amp;V Strategy</b>                     | Support evaluation, measurement, and verification (EM&V) that validates savings and is used as feedback to continually improve program delivery.   |
| <b>Education &amp; Communication</b>         | Provide Councilor, stakeholder, and public education on the process and value of LCP and the ways in which energy efficiency, energy conservation, and energy resource diversification and management can be achieved.   |



## B. WORK PLAN

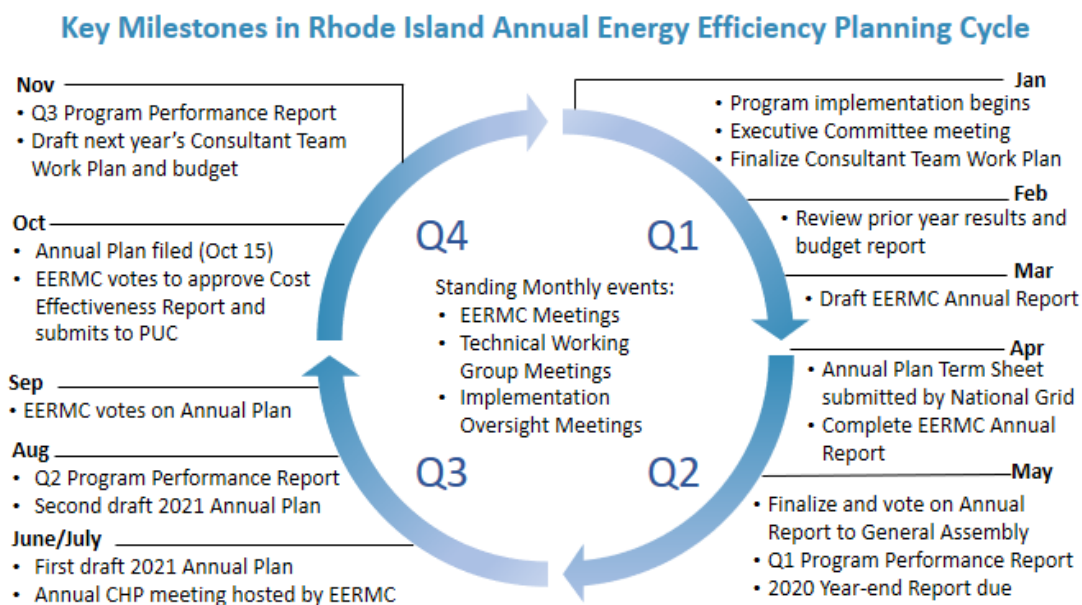
The Optimal team’s Work Plan addresses all activities in the RFP scope, and anticipates new areas informed by our knowledge of coming industry change. We constantly strive to improve deliverables and maximize efficiency.

For each of the tasks, we outline the objectives that will be met through our services, and provide tables detailing the frequency and timing of the critical meetings and activities required to successfully support all of the EERMC’s legislated roles and responsibilities. The team has always put a high priority on effective education and communication; we believe this is one of the main reasons that Rhode Island is a national leader in energy efficiency. We coordinate the work of the many parties critical in energy efficiency planning and implementation, including the Office of Energy Resources (OER), the Division of Public Utilities and Carriers (the Division), National Grid, and members of the technical working groups (TWG). We expect this level of coordination will be even more important in the future to align efforts, build consistent approaches to planning, streamline delivery, and foster effective collaboration and partnership.

We assume that the COVID-19 public health emergency will continue to require limited in-person exposure through at least the first half of 2021. When restrictions are lifted, our team is able to attend in-person meetings. Regardless if meetings are in-person or via video- or teleconference, appropriate team members will be available.

For each task, we provide a list of deliverables, excluding for the sake of space those normal preparation and follow-up items that the EERMC is accustomed to receiving from us. This thorough documentation of the four tasks ensures that we cover every bulleted item contained in the RFP.

The plan for each of the four tasks contains clear indication of task timing. The annual timeline of Council activities can be illustrated as follows:



## Task 1 - Responsibilities Related to EERMC Oversight

The primary objective of Task 1 is to support Councilors as they perform their assigned roles and responsibilities. This includes providing substantive and clear information for Councilors in a timely fashion, which will be more important than ever in the upcoming program cycle. With rapid change in the energy landscape, a solid base of information of critical industry, technology, policy, and regulatory advances will be vital for the Council to guide and drive the evolution of Rhode Island’s energy efficiency efforts. In 2021 and beyond, we anticipate that Councilors will seek support from the Consultant Team to build their knowledge of emerging program strategies and topic areas to ensure that the State can continue to maximize the benefits of LCP. An essential role of the Consultant Team is to ensure that individual EERMC members feel supported and empowered to provide strong energy efficiency leadership and, as a collective body, to serve as stewards of Rhode Island’s LCP law.

The purpose and frequency of activities associated with this task are shown below.

| Supporting Task 1 – EERMC Oversight  |                      |
|--|----------------------|
| <b>EERMC meetings</b> – Agendas designed to assure Council meets all legislated and regulatory objectives; provides forum for presentations on critical topic areas and key points for deliberation.   | Monthly              |
| <b>EERMC Executive Committee meeting</b> – Per the EERMC By-laws, at least one Executive Committee meeting must be held each year.   | Annually             |
| <b>EERMC Councilor briefings</b> – Individual briefings for voting members and the non-voting representative for delivered fuels, targeting at least two per member.   | As needed            |
| <b>EERMC Annual Retreat</b> – Support orientation of new members and expansion of current member knowledge of legislated and regulatory roles and responsibilities; cover evolving issues in energy efficiency innovation and clean energy developments.             | Annually             |
| <b>Energy Efficiency Technical Working Group (EE TWG)</b> – Coordinated by National Grid, the EE TWG consists of EE stakeholders that meet at least once a month to inform the development, implementation, and evaluation of National Grid’s EE program plans.      | Monthly              |
| <b>System Reliability Procurement Technical Working Group (SRP TWG)</b> – Coordinated by National Grid, the SRP TWG consists of stakeholders that meet at least once a month to inform the development, implementation, and evaluation of National Grid’s SRP plans. | Monthly              |
| <b>EERMC Education Subcommittee</b> – Includes Council members, OER, and National Grid; reviews opportunities to achieve EERMC objectives of public education on the benefits of LCP (e.g., recent lecture series administered by the University of Rhode Island).   | Monthly or as needed |
| <b>OER/Division/Consultant Team</b> – Biweekly meetings to review EERMC-related activities and to prepare for upcoming Council meetings.   | Biweekly             |
| <b>OER/National Grid/Consultant Team</b> – Biweekly management meeting to coordinate timing and deliverables required to meet all deadlines.   | Biweekly             |

The Optimal team has identified several additional discrete tasks that we anticipate will be necessary to ensure that EERMC members have well-rounded and thorough understanding of the key issues they will be asked to consider:

- **Further develop EERMC educational tools**, including an EERMC educational handbook and white papers. Timeframe: ongoing and as needed.
- **Coordinate and manage the work of additional consultants**. The Optimal team has experience in all components of onboarding and overseeing activities of vendors, including development and issuance of RFPs, contractor selection, contracting, oversight, and management to ensure timelines and deliverables are met. Most recently, we provided these services for the Market Potential Study delivered to the Council in 2020. Timeframe: as needed.
- **Maintain and enhance website**. The Optimal team supported the development, design and launch of the EERMC website in 2018 and has continuously maintained and improved the site and its contents. Our experienced staff will continue this function, and engage the website designer for additional necessary enhancements. Timeframe: ongoing with updates every month.

## Task 2 - Development of Work Products and Representation of the EERMC

The Optimal team’s focus will be on effective communication and representation of the results of the EERMC’s successful work with key stakeholders, institutions, and agencies impacting or being impacted by LCP. Part of this responsibility is to inform and/or influence decision-makers and participants in the broader energy efficiency market to build support for continued efforts that will maintain Rhode Island’s national leadership in energy efficiency.

We anticipate the following products and engagement associated with this task:

| Supporting Task 2 – Development of Work Products and Representation of the EERMC   |                |
|--|----------------|
| <b>Annual Report to the General Assembly</b> – To support development of the statutorily required Annual Report, the Consultant Team coordinates a kick-off call and monthly update meetings with National Grid and OER to source and assemble content, leading to delivery of final version to EERMC for its approval in May.   | February - May |
| <b>State and Regional Policy engagement</b> – The extent and nature of this work varies from year to year, but it is expected to be important in 2021 due to the expiration of the LCP statute in 2024. We anticipate that the Consultant Team will be asked to represent the EERMC at meetings including with the Rhode Island General Assembly and Executive branch agencies and ISO-New England. In addition, the Consultant Team must continue to represent the EERMC at regional meetings on the Avoided Energy Supply Cost study through the anticipated carry-over work into 2021.              | As needed      |
| <b>Stakeholder forums</b> – The following three primary channels serve this purpose: Individual meetings with active stakeholders such as Acadia Center, Green Energy Consumers Alliance, and Rhode Island Infrastructure Bank, to supplement TWG and other public input opportunities; meetings with local groups about program designs and strategies (Capital Good Fund, community action program directors, RIHousing, and program vendors and contractors); and regional initiatives coordinated by the Northeast Energy Efficiency Partnerships (codes, appliance standards, building labeling). | Monthly        |

In addition, we have identified two discrete tasks and deliverables that help to support coordination across the task:

- **Create an annual timeline** clearly representing all major events and activities for each month, subject to EERMC review and approval. The timeline is adjusted as needed based on new developments, with updated versions issued. Timeframe: presented at the December meeting to cover the ensuing calendar year.
- **Provide quarterly written progress reports** on all deliverables, activities, and events and additions or revisions made through the year. Timeframe: schedule for quarterly reports will be finalized in consultation with the EERMC and OER.

### Task 3 - Energy Efficiency and System Reliability Program Design and Delivery

This task includes the activities necessary to meet the fundamental objective of State’s LCP law, which is to design and successfully deliver SRP and energy efficiency programs and services that also maximize the resulting benefits for all Rhode Islanders. The next years will be very different: the loss of most savings from lighting, the current and pending impacts of COVID-19 and the expiration of the standing LCP statute are some of the significant challenges facing the EERMC. The Optimal team will bring the most applicable approaches to the Council for its consideration.

The Optimal team proposes an approach that builds on our record and prepares for the new challenges that will come in the “post-lighting world.” Our approach will ensure that the EERMC continues to achieve the clearly documented objectives for Plan development and delivery codified by the PUC in the LCP Standards, including detailed review of plans to ensure that proposed costs are reasonable and justified and to assure cost-efficiency as well as cost-effectiveness.

| Supporting Task 3 – Energy Efficiency and System Reliability Program Design and Delivery   |   |
|--|---|
| <b>Residential &amp; Low-Income Sector meetings on implementation oversight</b> – Review program data and optimize program performance to support achievement of the objectives of the 2021 approved Plan.   | Monthly   |
| <b>Commercial &amp; Industrial (C&amp;I) Sector meetings on implementation oversight</b> – Review program data and optimize program performance to support achievement of the objectives in the 2021 approved Plan.  | Monthly   |
| <b>EM&amp;V: C&amp;I Studies</b> – Monthly meetings with National Grid, OER, and the Division to review status of all studies underway and assure process of study development, review, and approval stays consistent.   | Monthly   |
| <b>EM&amp;V: Residential Studies</b> – Monthly meetings with National Grid, OER, and the Division to review status of all studies underway and assure that the process of study development, review, and approval stays consistent.  | Monthly   |
| <b>2022 Annual Plan Development</b> – The C&I and Residential & Low-Income Strategy Groups will supplement 2021 implementation oversight meetings with monthly meetings on 2022 Annual Plan development between May and October; additional planning meetings on financing, codes, performance incentives, and other priority areas as needed with National Grid, OER, the Division, and other stakeholders. | Monthly, each sector, May–October, or as needed |

|  |   |
|--|---|
| <b>CHP Annual Public Meeting</b> – Per legislation, the EERMC must hold a public meeting on combined heat and power (CHP) opportunities and strategies.  | 2 <sup>nd</sup> quarter                   |
| <b>PUC Technical Sessions &amp; Open Meeting on 2021 EE and SRP Annual Plans</b> – We estimate at least two pre-filing topic areas and two post-filing technical sessions, plus open meetings for PUC ruling on plans. | 3 <sup>rd</sup> / 4 <sup>th</sup> Quarter |

In addition, Optimal has identified three additional discrete tasks and deliverables that will support Task 3:

- **Analyze and report on cost-effectiveness of efficiency plans.** Per the LCP Standards, the EERMC is required to submit a Cost-Effectiveness Report to the PUC. In 2020, the Consulting Team completed this analysis, ensuring that the Plan comported with Technical Reference Manual standards and met cost-effectiveness testing. The Consultant Team coordinates with EERMC legal counsel to ensure that the report is submitted to the PUC on time. Timeframe: first draft delivered for the September Council meeting; final report for vote submitted for the October meeting concurrent with Council votes on Plans.
- **Provide oversight of third-party analyses and studies** commissioned by the EERMC, including market potential studies, to ensure they are effectively used to support related processes and objectives. Timeframe: as needed.
- **Provide quarterly memos and/or presentations** to the Council on energy efficiency and system reliability progress. Timeframe: schedule for quarterly reports will be finalized in consultation with the EERMC and OER.

#### **Task 4 – Integrated Approaches and Addressing Emerging Issues**

This task highlights two overarching themes that the Optimal team believes will emerge as critical areas of focus in the next few years:

- adoption of new technologies and program strategies to continue to capture high levels of savings when LED lighting savings are not included, and
- the increasing interconnectedness of traditional energy efficiency with load management, energy optimization, and grid and system changes.

The Optimal team has been an early voice in many jurisdictions highlighting the imperative to work across areas of energy policy and programs that have historically existed in silos. The process of developing and managing plans that address the integration of cross-cutting solutions and approaches will require a team able to draw on experts across the spectrum of clean energy resources and policies; our team has repeatedly shown it can do this.

The task also directs support and assistance to OER as it delivers its key function as the agency charged with leading critical activities addressing climate change and resiliency. The Optimal team is prepared to provide the necessary expertise to assist OER in leading Rhode Island to a secure, cost-effective, and sustainable energy future.

## Supporting Task 4 – Integrated Approaches and Emerging Issues

|   |           |
|---|-----------|
| <b>Scoping meetings with OER and/or EERMC</b> – To define objectives and deliverables associated with necessary analysis, research, and documents to support all areas of integration and innovation listed in Task 4. At least six such areas were identified in 2020. | As needed |
|---|-----------|

We add the following item to the associated activities to support Task 4:

- **Analysis, research papers, white papers, etc.** Timeframe: to be established in scoping meetings.

### C. COMPANY PROFILE

Founded in 1996, Optimal Energy provides a full range of energy efficiency consulting services. We specialize in assessing, developing, designing, planning, and launching efficiency programs and policies that effectively address the needs of all stakeholders in a cost-effective, balanced fashion. These efforts are supported by broad experience gathering both quantitative and qualitative data from many sources and synthesizing it into meaningful, defensible, and actionable conclusions and recommendations. Our primary objective is to help our clients recognize opportunities and support their efforts to lead the industry. We are unapologetic advocates for the fact that achieving all cost-effective energy efficiency is the easiest, least expensive, and first step in reducing GHG emissions and combatting climate change.

In our work in Rhode Island and elsewhere, Optimal Energy supplements its own core staff of policy and analytic experts with others who are at the leading edge in new and emerging areas of policy and programming. Optimal does not retain experts based on legacy roles and refreshes its teams based on the needs at hand. This flexibility in project staffing allows us to bring the best talent to the task in a highly cost-effective way.

Optimal Energy maintains an office in Providence, Rhode Island, specifically to serve the needs of the EERMC, in terms of location, expertise, and budget. This allows us to be highly responsive, to participate in meetings locally when needed without attendant travel costs, and to maintain a finger on the pulse of the State, the OER, and the EERMC. In addition to our Providence office, Optimal Energy has an office in Vermont and employees in Massachusetts, New York, and Delaware.

### D. RELEVANT EXPERIENCE

Optimal Energy has a long and successful history of work in this area. We have served this function in Rhode Island, first as a subcontractor from 2008 to 2017, and then as the prime contractor since 2018. We have served a similar role in Massachusetts and Delaware, as technical consultants to the Energy Efficiency Advisory Council in each of those states, since their inceptions. Within the last year, in both of those states, our contracts were extended as we have again brought winning proposals to continue to serve as technical consultants to the councils.

In our support role, Optimal helps the councils to chart their course, drawing on our internal experts and advising consultants who are leaders in clean energy programming. The teams evolve over time as policy and programming needs change, but retain the institutional history that makes our operations efficient and effective.

In addition to advising similar councils, Optimal Energy has other long-term client engagements, some going back to our founding in 1996. By focusing on the changing needs of our clients and providing the best advising on national and regional trends, we help keep our clients in leading positions in the industry. In fact, Optimal has advised 8 of the top 10 states ranked for efficiency policy and programs by the ACEEE.

## E. EXAMPLES OF PRIOR WORK

We are very proud of our work products for the Council. We assume the review team is familiar with those, and so we do not include them here. Rather here are links to two examples of recent work in Massachusetts wherein we helped the EEAC explore the challenges that we have articulated in this proposal. With these two examples, we cover both C&I and Residential markets, and provide samples of a full paper and presentation.

- [White paper on the future of C&I lighting](#)
- [Presentation on opportunities for 2019-2021 Residential programs](#)

## F. REFERENCE INFORMATION

We provide as references the principal contacts for two of our contracts of similar scale and scope, which are described in the above section on Relevant Experience.

- **Maggie McCarey**, Manager of Energy Resources, Massachusetts Department of Energy Resources; [maggie.mccarey@state.ma.us](mailto:maggie.mccarey@state.ma.us); 617-626-1036.
- **Robert Underwood**, Energy Administrator, Division of Climate, Coastal, & Energy, Delaware Department of Natural Resources and Environmental Control; [robert.underwood@delaware.gov](mailto:robert.underwood@delaware.gov); 302-735-3489.

## G. IDENTIFICATION OF STAFF AND SUBCONTRACTORS

### H. STAFF RESPONSIBILITIES

### I. STAFF EXPERIENCE

**This section covers all three required sections on staffing** called for in the RFP.

The Optimal team is organized to facilitate effective coordination of work while allowing for flexibility for both variability in the anticipated needs defined in the RFP and unanticipated requirements that may arise. This structure supports the EERMC by providing clear lines of communication and responsibility; active coordination and integration with key stakeholders, including OER, the Division, and National Grid; and two-way channels to facilitate education and communication with the public.

Our staffing plan balances a core of members with proven track records, institutional knowledge, and well-established relationships while also enhancing and expanding the team to assure that evolving challenges and needs are addressed. We organize our team into five primary groups: Policy & Regulatory; Residential & Low-Income Strategy; C&I Strategy; EM&V Strategy; and Education & Communication.

Overall **project management** will be provided by **Mike Guerard** (Optimal in Rhode Island). **Craig Johnson** (Optimal in Rhode Island) will lead the **Residential & Low-Income Strategy Group**. The **EM&V Strategy Group** will be led by Sam Ross (Optimal in Rhode Island). Rhode Island-based independent contractor **Rachel Sholly** will lead the **Education & Communication Group**. **Eric Belliveau** (Optimal) will lead the **Policy & Regulatory Group**, and **Adam Jacobs** (Optimal) will lead the **C&I Strategy Group**.

All group leads and members are well-versed in the current status of Rhode Island implementation and planning; most also have similar roles in our council support work in other states, as well as ongoing or recent project work in the other Northeast and Mid-Atlantic states. This supports real-time transfers of successful approaches and practices in neighboring states, especially those that share contractors, vendors, and infrastructure.

The following organizational chart shows the roles and members of the Optimal team. While each member is listed only once in their primary area of concentration, many team members actively participate in multiple groups:

| Name   | Affiliation    | Role / Function   |
|--|----------------|---|
| <b>Management and Administration</b>         |                |   |
| <b>Mike Guerard</b>                          | Optimal Energy | Project Manager   |
| <b>April Clodgo</b>                          | Optimal Energy | Contract Administrator                                  |
| <b>Policy &amp; Regulatory</b>               |                |   |
| <b>Eric Belliveau</b>                        | Optimal Energy | Lead  |
| <b>Arah Schuur</b>                           | Optimal Energy | Subject Matter Expert - Energy Efficiency; Optimization |
| <b>Phil Mosenthal</b>                        | Optimal Energy | Subject Matter Expert - Codes & Standards, Policy       |
| <b>Matt Socks</b>                            | Optimal Energy | Subject Matter Expert - ADR, AESC, ISO                  |
| <b>David Hill</b>                            | EFG            | Subject Matter Expert - Renewables, Distributed Energy  |
| <b>Residential &amp; Low Income Strategy</b> |                |   |
| <b>Craig Johnson</b>                         | Optimal Energy | Lead  |
| <b>Margie Lynch</b>                          | Independent    | Core Member   |
| <b>Elizabeth Chant</b>                       | Optimal Energy | Subject Matter Expert - Low-Income; Equity              |
| <b>Richard Faesy</b>                         | EFG            | Core Member   |
| <b>Commercial &amp; Industrial Strategy</b>  |                |   |
| <b>Adam Jacobs</b>                           | Optimal Energy | Lead  |
| <b>George Lawrence</b>                       | Independent    | Core Member   |
| <b>Jen Chiodo</b>                            | Independent    | Core Member   |
| <b>Dan Mellinger</b>                         | EFG            | Core Member   |
| <b>EM&amp;V Strategy</b>                     |                |   |
| <b>Sam Ross</b>                              | Optimal Energy | Lead  |



|                                      |                |  |
|--------------------------------------|----------------|--|
| <b>Ralph Prah</b>                    | Independent    | Technical Lead                               |
| <b>Glenn Reed</b>                    | EFG            | Subject Matter Expert - Residential programs |
| <b>Education &amp; Communication</b> |                |  |
| <b>Rachel Sholly</b>                 | Independent    | Lead   |
| <b>Adrian Caesar</b>                 | Optimal Energy | Support - Website, Retreat                   |

Many of these team members are known by the EERMC and the OER. Resumes of all team members are in Appendix A. We will not take your time here to repeat the qualifications of known team members but will highlight members who are taking on new roles or may be less familiar to the Council.

**Eric Belliveau, Policy & Regulatory Lead.** Eric leads council consultant teams in Massachusetts and Delaware, with a focus on supporting and guiding key policy issues and overall strategic direction. He is also now advising New Jersey’s Board of Public Utilities in its work to devise a new program strategy to meet aggressive legislative goals. Eric has also worked with dozens of program administrators and efficiency stakeholders in other states and countries.

**Arah Schuur, Policy & Regulatory.** Arah will be providing expert support on energy efficiency and energy optimization regulatory and policy matters. Arah brings 15 years of experience in energy efficiency policy and program design and implementation with a focus on modernizing energy systems to meet efficiency and climate goals. Before coming to Optimal Energy, Arah was Vice President, Climate and Energy, at Acadia Center and prior to that was Director of Energy Efficiency at Massachusetts Department of Energy Resources.

**Adam Jacobs, C&I Strategy Lead.** Adam plays a similar role in our work in Massachusetts, and brings experience as Energy Manager for the City of Boston, where he led Boston’s successful efforts to maintain the top position as #1 in the ACEEE City Energy Efficiency Scorecard. Adam has also worked at Johnson Controls, serving as the primary M&V specialist on a multi-million dollar energy savings performance contract.

**Margaret Lynch, Residential & Low-Income Strategy.** Margie leads a similar team for the Massachusetts EEAC. Her consulting is informed by insights and relationships developed from work with more than 100 different program administrators from 45 U.S. states and 7 Canadian provinces at the Consortium for Energy Efficiency.

**Elizabeth Chant, Residential & Low-Income Strategy.** Elizabeth is an expert on low-income programs and energy equity. Elizabeth brings more than 25 years of low-income policy and programming in urban and rural settings. Elizabeth is a member of the Equity Working Group established by the Massachusetts EEAC, and advises on improving equity in program design and delivery.

**David Hill, Policy & Regulatory.** David provides expertise in renewable energy policy and programs as well as the latest in distributed energy resources. He joined EFG in 2020 after years as the Director of Distributed Energy Resources at VEIC. His expertise

on long-term strategies to transition to clean energy are nationally and internationally renowned.

The Optimal team plans to continue its use of student interns, providing opportunities for students at local universities to work for a semester or summer on energy efficiency issues. Historically, it has led to bringing some of Rhode Island's best and brightest into careers in this important work.

## **J. CONFLICTS OF INTEREST**

The Optimal team has no conflicts of interest with any distribution companies or affiliates of the distribution companies. The Optimal team has no conflicts of interest with any member of the EERMC.<sup>2</sup> Should any conflict of interest or appearance thereof arise, Optimal will bring it to the attention of OER and the EERMC.

## **K. LITIGATION**

Optimal Energy has no litigation, disputes, claims or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving offeror or an affiliate of offer, and relating to providing services to report.

## **L. INVESTIGATION**

Optimal Energy confirms that it, and its directors, employees, and agents, are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by state or federal law in any jurisdiction involving conspiracy, collusion, or other impropriety with respect to bidding on any contract.

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<sup>2</sup> Optimal Energy currently rents Providence office space from Peter Case, who is a member of the EERMC. Mr. Case disclosed this when he was approached for Council membership, and it was not communicated to us that this was a conflict.

## **APPENDIX A: FIRM QUALIFICATIONS AND STAFF RESUMES (ANNEX TO PROPOSAL SECTION I)**

### **Firm Qualifications**

Optimal Energy

### **Staff Resumes**

#### **Optimal Energy**

Eric Belliveau, Partner in Charge, Policy

Mike Guerard, Project Manager

Adrian Caesar, Analyst, Records

Elizabeth Chant, Low Income, Equity

Adam Jacobs, C&I

Craig Johnson, Residential, EM&V

Phil Mosenthal, Codes & Standards, Policy

Sam Ross, EM&V, Financing

Arah Schuur, Policy

Matt Socks, Analytics

#### **Energy Futures Group**

Richard Faesy, Residential

David Hill, Renewables, Distributed Energy Resources

Dan Mellinger, C&I

Glenn Reed, Residential, EM&V

#### **Independent Consultants**

Jennifer Chiodo, C&I

George Lawrence, C&I

Margaret Lynch, Residential

Ralph Prah, EM&V

Rachel Sholly, Education & Communication

## OPTIMAL ENERGY CORPORATE QUALIFICATIONS

Founded in 1996, Optimal Energy provides a full range of energy efficiency consulting services to investor and municipally owned utilities, program administrators, state and federal energy offices, regulatory commissions, advisory councils, and advocacy groups. We specialize in assessing, developing, designing, planning, and launching efficiency programs and policies that effectively address the needs of all stakeholders in a cost-effective, balanced fashion. These efforts are supported by broad experience gathering both quantitative and qualitative data from a variety of sources and synthesizing it into meaningful, defensible, and actionable conclusions and recommendations. Our primary objective is to help our clients recognize opportunities and support their efforts to be a leading organization in their industry.

### EXPERTISE

Optimal Energy offers unparalleled expertise and technical support in all aspects of energy efficiency. We help our clients develop the organizational capacity and expertise needed to acquire all cost effective energy efficiency. Using our proprietary tools, our consultants provide in-depth technical analysis that is well regarded by the industry for its comprehensiveness and accuracy. We are nationally-recognized for our assistance to policy-makers at all levels.

Our subject matter experts work on a range of energy related challenges.

- Conducting in-depth market assessments to characterize various technologies or market segments and identify opportunities for market transformation, intervention, or promotion.
- Performing comprehensive studies to determine the technical, economic, and achievable potential for energy efficiency, demand response, fuel switching and renewable energy measures or programs
- Analyzing the costs and benefits of demand-side management energy resources, including the treatment of many ancillary and non-energy costs and benefits that are often overlooked by others in the industry
- Integrated technical and economic analysis and optimization of diverse energy resources to assess the ability of demand-side strategies to defer or replace more costly supply-side investments
- Developing Technical Reference Manuals and other support for monitoring and verification with algorithms for estimating the energy savings and non-energy benefits of electric and gas efficiency measures, and documenting associated costs, impact factors, and data sources
- Measure and program impact evaluation, measurement, and verification and process evaluation focused on actionable recommendations on improved program design and delivery.

## RECENT REPRESENTATIVE PROJECTS

### **Massachusetts Energy Efficiency Advisory Council, Consulting Services, 2009-present**

Optimal Energy is the lead consultant to the Council, and has just been selected to continue in this role for the 2020-2022 period. Optimal, along with key partners, helps the Council with strategic planning and goal-setting; program review; and EM&V oversight to support the energy efficiency plans. Specific tasks have included: researching and characterizing new efficiency technologies; developing and analyzing energy efficiency programs and budgets; assessment and monetization of non-energy impacts and cost-benefit analysis; developing utility performance metrics and tracking progress towards utilities' spending and savings targets and performance metrics; modeling of emissions impacts; training, education and staff oversight of program implementation; evaluation planning and verification; and the development of marketing and training materials.

### **Delaware Department of Natural Resources and Environmental Control, Energy Efficiency Advisory Council, Program Development and Support, 2013-present**

Optimal Energy provides broad program planning, analysis, and strategic guidance to the DNREC and the Delaware EEAC, with the objective of dramatically increasing energy savings and demand reduction. Optimal leads a team of experts and provides program design review and economic analysis; EM&V regulation promulgation; TRM development; and stakeholder engagement. Additionally, we provide DNREC and the Council with support services, including agenda development, annual report development and production, and meeting management tasks.

### **Connecticut Energy Efficiency Board, Technical Consulting Services, 2016-present**

Optimal Energy is part of the consulting team that provides technical expertise to the CT EEB on C&I efficiency programs and markets, residential programs and markets, EM&V, financing, and demand issues. The team works with Eversource and United Illuminating, the Program Administrators, and the Connecticut Department Energy and Environmental Protection to advise and inform the Council. Services include program planning, program savings analysis and reporting, review of three year plans, and developing incentive and delivery strategies.

### **New Jersey Board of Public Utilities, Potential Study and Technical Advising, 2019-present**

New Jersey's 2018 Clean Energy Act mandated completion of an energy efficiency potential study to inform the Board as it established targets. Optimal Energy was competitively selected to complete the work, which had to meet a very tight legislative deadline. The project included estimation of ten-year energy efficiency potential, demand response potential, and potential for savings from combined heat and power. Optimal provided recommendations on five-year efficiency targets and a structure for performance incentives and penalties that complied with legislative mandates. Subsequent to completing an energy efficiency potential study for New Jersey, Optimal Energy has been advising the NJ BPU as it devises a new program administrative structure, performance targets, incentives and penalties, stakeholder engagement, and M&V.



## **ERIC J. BELLIVEAU, PARTNER**

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### **PROFESSIONAL EXPERIENCE**

#### **Optimal Energy**, Hinesburg, VT. *Partner*, 1999-present

Eric Belliveau's partner responsibilities include managing the senior consultants on Optimal's staff, providing strategic direction and marketing, and overseeing financial management of the firm. He manages many of Optimal's largest projects and provides expert advice on many others. Mr. Belliveau leads Optimal's design and development of residential, commercial and industrial efficiency services delivery practice: developing program sales and marketing staff; researching market segmentation approaches and performance incentive mechanisms; and working with business-focused groups to improve marketing. He specializes in leading teams of energy experts to design, analyze, evaluate, and support program implementation for large stakeholder groups. He provides business planning and product development consulting for retail energy service providers in Delaware, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Washington, DC. His work in evaluating energy system investment opportunities in a wide range of commercial and industrial businesses is ongoing.

#### **Vermont Energy Future**, Burlington, VT. *Managing Director*, 1998–2001

Mr. Belliveau was responsible for developing the business plan, securing funding, hiring staff, and establishing all business systems to establish the Energy Co-op of Vermont (ECVT). He researched options for a 10,000-member buyer cooperative that provides fossil fuel, energy efficiency, and renewable energy. He developed partnerships with a local electric coop and a local credit union for joint service delivery. He was responsible for increasing energy affordability for low to moderate-income members by lowering consumption through efficiency. After Mr. Belliveau left ECVT, he served as Board Chairman for 7 additional years.

#### **Waterbury Fresh Foods**, Burlington, VT. *General Manager/Vice President of Operations*, 1994-1998

#### **Vermont Department of Agriculture**, Montpelier, VT. *Marketing/Small Business Specialist*, 1991-1994

#### **New England Housewrights**, Charlotte, VT. *Construction Planner/Manager*, 1989-1991.

#### **Vermont Pasta Company**, Burlington, VT. *Founder/Owner*, 1980-1989

### **EDUCATION AND LICENSING**

#### **University of Maine**, Orono, ME

Bachelor of Arts, International Affairs with an Economics and German emphasis, 1981

### **PROFESSIONAL ACTIVITIES AND MEMBERSHIPS**

LEED Accredited 2010

**Instructor**, Post and Beam House Construction

## REPRESENTATIVE PROJECT EXPERIENCE

### **Massachusetts Energy Efficiency Advisory Council, Technical Consulting Services (2010-present)**

Optimal Energy serves as the lead technical consultant to the Massachusetts Energy Efficiency Advisory Council (EEAC) and has since 2010. Optimal's role includes supporting the EEAC on all aspects of negotiating efficiency programs, plans, goals, performance incentives, and budgets with the program administrators, and oversight of all program implementation and evaluation, monitoring and verification activities. Belliveau manages all aspects of the 21-member consultant team's interactions with the EEAC, program administrators, and myriad stakeholders in advising, designing, and supporting implementation of the Mass Save programs. The team is tasked with overseeing the planning and implementation of Massachusetts \$2.4 billion Three-Year Plan as the technical consultants to the Council. The Optimal team oversees and advises on the 25 commercial and industrial (C&I), residential, multifamily, low-income programs and initiatives, leads the \$70 million EM&V effort (approximately 45 studies ongoing at any one time), and advises and analyzes demand response efforts. The 2019-2021 Plan is the most aggressive set of energy efficiency and demand reduction programs in North America. Belliveau is currently the lead consultant on COVID mitigation strategies and the development of the 2022-2024 Three-Year Plan.

### **New Jersey Board of Public Utilities, Potential Study and Consulting Services (2019-present)**

New Jersey's 2018 Clean Energy Act mandated completion of an energy efficiency potential study to inform the Board as it establishes targets. Optimal Energy was selected in a competitive bid to complete the work, which had to meet a very tight legislative deadline. Mr. Belliveau led the project, which included estimation of ten-year energy efficiency potential, demand response potential, and potential for savings from combined heat and power. Optimal was then retained to provide expert services as the BPU structures program implementation. Mr. Belliveau heads the Optimal team as it advises on program administrative structure, performance targets, incentives and penalties, stakeholder engagement, and measurement and verification. The New Jersey BPU recently released the *Proposal for New Jersey's Energy Efficiency and Peak Demand Reduction Program* and subsequent Board Order outlining the energy efficiency implementation plan for commencement in 2021. Mr. Belliveau supported the BPU staff in crafting the order including all calculations of savings, budgets, and performance mechanisms. He also led the process of creating a proposal for the New Jersey Cost Test, which is currently out for comment.

### **Delaware Department of Natural Resources and Environmental Control, Energy Efficiency Advisory Council Program Development and Support (2013-present)**

Optimal Energy provides broad program planning, analysis, and strategic guidance to the Delaware Energy Efficiency Advisory Council as it develops a new model for joint utility and public-sector delivery of energy efficiency services, with the objective of dramatically increasing energy savings and demand reduction. Mr. Belliveau manages all aspects of 10-member team of experts. Belliveau provides program design review and economic analysis; evaluation, measurement, and verification regulation promulgation; technical reference manual development, database development, and stakeholder engagement. Optimal Energy was recently selected to continue as the technical lead for the DCCE adding to its responsibilities the implementation oversight the Energy Efficiency Investment Fund, a commercial and industrial efficiency program offering technical assistance, and prescriptive and custom incentive offers.

### **District of Columbia Sustainable Energy Utility (DCSEU), C&I Programs Manager (2011-2013)**

Mr. Belliveau led the jump team that designed and implemented the start-up programs for the DCSEU. He was responsible for all aspects of implementing the District's first C&I programs, which met all first-year targets on time and on budget.



## **MICHAEL GUERARD, CONSULTANT**

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### **PROFESSIONAL EXPERIENCE**

**Optimal Energy**, Providence, RI. *Managing Consultant*, 2008 – Present.

At Optimal Energy, Mr. Guerard provides project management, research, stakeholder coordination and technical analysis to support clients' development of strategies for achieving energy efficiency goals and integrated resource solutions. His project work includes designing and developing statewide and utility-specific efficiency programs and supporting program implementation for both public and private-sector clients.

**Conservation Services Group**, Westborough, MA. 1991 - 2008

*Senior Project Manager, 2006-June 2008*

Primary responsibility to direct CSG's research, development, and delivery of LEED for Homes provider services; the launch of a Northeast regional green building program, Earth Advantage; and multi-family new construction initiatives.

*Program Manager, Pacific Northwest New Construction Programs, 2004-2006*

Developed, launched, and managed the ENERGY STAR™ Home Program in the Pacific Northwest for the Energy Trust of Oregon and the Northwest Energy Efficiency Alliance, covering Oregon, Washington, Idaho, and Montana

Served on board of PNW Technical Review Committee, to establish and advance program technical standards and protocols

*Director, New England Residential Energy Services, 2000-2003*

Overall management of over 50 staff delivering thousands of energy audits and new home certifications annually throughout New England, along with the associated building science training and contractor infrastructure development required to successfully complete production levels.

*Program Management Roles, 1991-2000*

### **EDUCATION**

**University of Kansas**, Lawrence, KS

Graduate studies in Journalism & Mass Communications, 1988

**University of Rhode Island**, Kingston, RI

Bachelor's degrees in Philosophy and Psychology, 1986



## **REPRESENTATIVE PROJECT EXPERIENCE**

### **Rhode Island Energy Efficiency and Resource Management Council, Policy and Program Planning Consulting**

Optimal Energy manages a team of consultants providing support to the Rhode Island Energy Efficiency and Resource Management Council on topics ranging from high-level policy and legislative issues down to the oversight of program design and implementation oversight and infrastructure development. The team provides research, budget analysis, cost-effectiveness modeling, data tracking, and general oversight to the Council as well as strategy and general support to the Rhode Island Office of Energy Resources. Mr. Guerard has been part of management team guiding this work since 2009.

### **New Jersey Board of Public Utilities, Potential Study and Consulting Services (2019-present)**

New Jersey's 2018 Clean Energy Act mandated completion of an energy efficiency potential study to inform the Board as it establishes targets. Optimal Energy was selected in a competitive bidding process to complete the work, which had to meet a very tight legislative deadline. Optimal was then retained to provide expert services as the BPU structures program implementation. Mr. Guerard coordinated the team's activities for its role in advising on program administrative structure, performance targets, incentives and penalties, stakeholder engagement, and measurement and verification.

### **Pascoag Utility District (2019-Present)**

Optimal Energy provides energy efficiency consulting services for the Pascoag Utility District (PUD) in support of its energy efficiency investments filed annually with the Rhode Island Public Utilities Commission. Mr. Guerard has managed the project since it was initially awarded and works closely with PUD management and in coordination with the Rhode Island Office of Energy Resources to align their contributions to PUD efforts to serve Pascoag businesses and residents.

### **Connecticut Municipal Electric Energy Cooperative, Conservation and Load Management Consulting, 2006-present**

Optimal has provided energy efficiency consulting services to the Connecticut Municipal Electric Energy Cooperative (CMEEC) since the inception of their conservation and load management programs. Services include program planning, program savings analysis and reporting, developing incentive and delivery strategies, and managing CMEEC's participation in the ISO-NE Forward Capacity Market. The latter has included drafting M&V plans specifying procedures for meeting all ISO-specified M&V rules and developing a web-based data tracking and reporting system. Optimal also helps CMEEC develop strategy for and manage participation in new FCM auctions and arranges for required annual certification reviews. Mr. Guerard has been managing this project since 2017.

### **Delaware Department of Natural Resources and Environmental Control, Energy Efficiency Advisory Council Program Development and Support, 2013-present**

Optimal Energy provides broad program planning, analysis, and strategic guidance to the Delaware Energy Efficiency Advisory Council as it begins developing a new model for joint utility and public-sector delivery of energy efficiency services, with the objective of dramatically increasing energy savings and demand reductions in that state. Mr. Guerard supported the initial development and filing of energy efficiency program portfolios.



## ADRIAN CAESAR, ANALYST

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### PROFESSIONAL EXPERIENCE

**Optimal Energy**, Hinesburg, VT. *Analyst*, 2019-present

At Optimal, Mr. Caesar provides research, analysis, and writing and presentation support on a range of projects including advisory council technical services, potential studies, white papers, and policy reports for state and local governments. His expertise lies in economic analysis, statistical programming, and energy efficiency program evaluation.

**Fortitude Systems**, Denver, CO. Junior Account Executive/Hiring Consultant, 2018-2019

While working at Fortitude, Mr. Caesar collaborated with Senior Consultants to produce technical labor market insights for dozens of Fortune 500 clients in industries including oil and gas, telecommunications, healthcare, and e-Commerce. He provided consultation based on both primary and secondary research which aided in the fulfillment of over 12 projects and onboarding of over 25 functional/technical staff members.

**Brown University, CareerLAB**, Providence, RI. *Strategy Consultant*, 2017-2018

During his time at Brown's CareerLAB, Mr. Caesar worked in concert with four student team members to devise metrics of user engagement and satisfaction with BrownConnect, a networking, internship search, and career development web application for Brown University undergraduate students, graduate students, and alumni. His work entailed mediating three focus groups, administering website evaluation surveys to 14 participants, and modeling data on over 2,000 users using Excel and MySQL databases to aid in optimizing the survey designs and providing suggestions for improving BrownConnect to the CareerLAB Directors.

**Northwestern Mutual**, Providence, RI. Financial Representative Intern, 2017

At Northwestern Mutual, Mr. Caesar worked alongside life, disability income, long-term care, investment, accident, and health insurance specialists to prepare comprehensive financial planning analyses for clients. His primary focus was the development of Personal Planning Analyses based on financial risk management, wealth accumulation, and wealth distribution strategies using financial modeling and forecasting tools.

### EDUCATION

**Brown University**, Providence, RI

Bachelor of Arts, Business, Entrepreneurship & Organizations, Economics Track (2018)

## **REPRESENTATIVE PROJECT EXPERIENCE**

### **Rhode Island Energy Efficiency and Resource Management Council, Policy and Program Planning Consulting (2019-Present)**

Optimal Energy manages a team of consultants providing support to the Rhode Island Energy Efficiency and Resource Management Council (EERMC) on topics ranging from high-level policy and legislative issues down to the oversight of program implementation and infrastructure development. Mr. Caesar leads monthly and quarterly utility data reporting for the consultant team. In addition, Mr. Caesar supports Optimal Energy's work for the EERMC in a range of areas related to ongoing program design, annual planning, measurement and verification, and research of emerging trends in the energy efficiency and clean energy space.

### **Pennsylvania Statewide Evaluator Team Member, Market Potential Study Support (2019-Present)**

Optimal Energy has been actively involved with the Pennsylvania Statewide Evaluator team for Phase IV of Act 129 as the Energy Efficiency Market Potential Study Lead. In addition, Optimal provides methodological guidance and written memos covering a range of topics including cost-benefit analysis, discount rates, avoided cost calculations, the application of baseline data to developing actionable policy insights, and regular meetings with Public Utility Commission Technical Utility Staff. Mr. Caesar has been responsible for an array of activities which includes Potential Study Scenario Analysis, Potential Study Report drafting, and Combined Heat and Power Potential Study support.

### **Massachusetts Energy Efficiency Advisory Council, Technical Consulting Services (2019-present)**

Optimal Energy serves as the lead technical consultant to the Massachusetts Energy Efficiency Advisory Council (MA EEAC) since its inception in 2006. Optimal's role includes representing the EEAC on all aspects of negotiating efficiency programs, plans, goals and budgets with the program administrators, and oversight of all program implementation and evaluation, monitoring and verification activities. As a technical services core member, Mr. Caesar provides technical services including recording and production of meeting minutes for full Council and executive committee meetings, as well as subcommittee or other meetings on an ad hoc basis. Mr. Caesar also provides analytical support for a variety of Council activities, including development, review, and implementation oversight of energy efficiency programs.

### **Delaware Department of Natural Resources and Environmental Control, Energy Efficiency Advisory Council Program Development and Support (2019-Present)**

Optimal Energy provides broad program planning, analysis, and strategic guidance to the Delaware Energy Efficiency Advisory Council as it begins developing a new model for joint utility and public-sector delivery of energy efficiency services, with the objective of dramatically increasing energy savings and demand reductions in that state. In support of the Council, Mr. Caesar conducts research and analysis in a range of areas related to ongoing program design, measurement and verification, and emerging trends in the energy efficiency and clean energy space. Mr. Caesar also supports data analysis and reporting requirements for the Regional Greenhouse Gas Initiative.



## ELIZABETH CHANT, MANAGING CONSULTANT

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### PROFESSIONAL EXPERIENCE

#### **Optimal Energy**, Hinesburg, VT; *Managing Consultant*, 2018-present

Ms. Chant leads Optimal's business development processes and supports client work on equity issues in the sustainable energy industry, including low-income programs and programs to reach more deeply into communities that have been underserved by the clean energy economy.

#### **Vermont Energy Investment Corporation**, Burlington, VT; *Principal Consultant*, 2010-2018

Ms. Chant led VEIC's sustainable energy policy and programming related to low-income people and multifamily buildings. She co-led the team that explored the use of commercial PACE for affordable multifamily housing (2018). She was responsible for the development of VEIC's original winning proposal and its rebid to provide services as the Washington, DC, Sustainable Energy Utility (DCSEU) in 2010 and 2016. She was part of the launch team for the DCSEU as the first Multifamily Program Manager. She was part of the R&D team on the nation's first public-purpose energy services company, Commons Energy (2014), a financing and program delivery model that is a variation of a traditional ESCO. Ms. Chant provided expert testimony in front of the Nova Scotia Utility and Review Board (2015), and was subsequently invited back to keynote a conference held by the Nova Scotia Department of Energy.

#### **CVOEO Weatherization**, Burlington, VT; *Weatherization Director*, 2002-2010

At CVOEO Weatherization, Ms. Chant directed a staff of 30 auditors and crew members to weatherize low-income homes in Vermont. In her first years there, she improved productivity of the organization by more than 40%, ensuring that program dollars went as far as possible to serve Vermont's low-income people. This readied the organization for a doubling of production in the final two years of her tenure, as a result of American Recovery and Reinvestment Act.

#### **Vermont Energy Investment Corporation**, Burlington, VT; *Multifamily Program Manager*, 1997-2002

Ms. Chant designed, developed, and directed the Residential Energy Efficiency Program, an award-winning and innovative statewide offering to implement energy efficiency as a strategy for the preservation of affordable multifamily housing. Subsequently, she was involved in VEIC's original bid to become Efficiency Vermont, the nation's first energy efficiency utility. She launched Efficiency Vermont's multifamily programs, which were rated exemplary by ACEEE.

#### **CVOEO Weatherization**, Burlington, VT, *Administrative Coordinator*, 1995-1997.

This was Ms. Chant's entrée into energy efficiency for low-income people. She was responsible for income verification of clients, data management, and fiscal reporting for multiple funding sources.

### EDUCATION

#### **Georgetown University**, Washington, DC

Bachelor of Science in Business Administration with honors, Finance Concentration, 1982

## REPRESENTATIVE PROJECT EXPERIENCE

### **Massachusetts Energy Efficiency Advisory Council, 2018-present**

Ms. Chant is a member of the Equity Working Group that has been established by the EEAC, providing her expertise on energy equity and justice issues. She works with the EEAC in its attempts to broaden the depth of services to historically underserved groups, including people of color, renters, and moderate income residents.

### **Delaware Department of Natural Resources and Environmental Control, 2018-present**

Ms. Chant is a member of a task force that is redefining the scope of the Delaware Energy Efficiency Advisory Council's Low-Income Working Group. She provides advice on the effectiveness of low-income programs, and oversees production of annual reports from DNREC's programs.

### **Energy Efficiency for All (a project of Elevate Energy, Energy Foundation, National Housing Trust, and Natural Resources Defense Council), 2017-18.**

Co-Principal Investigator, exploring the use of commercial Property-Assessed Clean Energy financing (C-PACE) for affordable multifamily housing in the U.S. Explored the policy and financial factors helped or hindered implementation and use of C-PACE for efficiency financing.

### **Maine Office of Public Advocate (ME OPA), Technical Advisor, 2016-18.**

Reviewed Efficiency Maine plans and programs for ME OPA; participated in hearings and workshops before the Maine Public Service Commission with ME OPA.

### **Energy Action Centre, Testimony before the Nova Scotia Utility and Review Board (NS UARB) on Efficiency One Three-Year Plan, 2015.**

Developed and provided testimony before the NS UARB on the proposed budget and plan for Efficiency Nova Scotia's Triennial Plan.

## REPRESENTATIVE PUBLICATIONS

Chant, E., "Driving toward the Greater Good: A Framework and Indicator Tool for Incorporating Resident Benefits in Efficiency Decisions," *Stewards of Affordable Housing for the Future*, 2019.

Chant, E., and Huessy, F. 2018. "Justice for All: Measures of Equity for Low-Income Programs." *Proceedings of the 2018 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy-Efficient Economy (ACEEE).

Adamczyk, P., Chant, E., Morse, S., and Calahane, K. 2018. *Commercial PACE for Affordable Multifamily Housing*. Washington, DC: Energy Efficiency for All.

Chant, E., Schaaf, R., and Ast, T. 2016. "Swiftly and Massively: Moving 115,000 Units of Multifamily Affordable Housing to Higher Efficiency." *Proceedings of the 2016 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC. 2:1-12.

Chant, E. 2015. "In the Matter of EfficiencyOne Application for Approval of a Supply Agreement for Electricity Efficiency and Conservation Activities between EfficiencyOne and Nova Scotia Power, Inc.," Direct Evidence on Behalf of Ecology Action Centre, Nova Scotia Utility and Review Board, M06733.

Chant, E., Adamczyk, P., Barash, D., and Sachs, B. 2014. "Looks Like Finance, but It's All about Solutions: The Public-Purpose ESCO Enterprise Model." *ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC. 2014: 6-26 – 6-35.

Chant, E. 2014. "Public Purpose ESCO for Multifamily Affordable Housing," *ACEEE Energy Efficiency Finance Forum*.



## ADAM JACOBS, CONSULTANT

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### PROFESSIONAL EXPERIENCE

#### **Optimal Energy**, Hinesburg, VT. *Consultant*, 2019-present

Mr. Jacobs leads the C&I teams for Optimal's state-level advising to multiple advisory councils, drawing on his expertise in C&I programs, energy data management, measurement and verification, strategic planning, consensus building for groups of diverse stakeholders, and developing workforce training initiatives. Additionally, he leads and supports projects reviewing energy efficiency programs from both a technical and policy perspective.

#### **City of Boston**, Boston, MA. *Energy Manager*, 2015-2019

Mr. Jacobs was responsible for tracking the City's \$45M annual municipal energy budget and completing all relevant annual reporting obligations including the Municipal GHG inventory, U.S. Department of Energy Better Buildings Challenge, and Green Communities Annual Report. Mr. Jacobs overhauled the utility bill auditing and payment process for the City, leading to the recovery of over \$1.4M credits. He developed in-house capabilities to monitor performance of 5.7 megawatts of combined heat and power generators across Boston Public Schools in real-time, proving over \$1.2M in annual utility savings. Mr. Jacobs also organized and delivered a 74-hour utility-funded Building Operator Certification training for 28 facilities managers from the City of Boston and neighboring municipalities. His leading efforts helped Boston maintain the #1 ranking in ACEEE's City Energy Efficiency Scorecard in 2017 and 2019.

#### **Johnson Controls**, Falls Church, VA. *Energy Analyst*, 2012-2015

Mr. Jacobs performed annual M&V to prove \$1.5 million in savings under performance contract. He completed ASHRAE Level 2 energy audits and modeled energy performance using Power Usage Effectiveness (PUE) across 21 data centers globally. He presented quarterly sustainability updates to the client's executive staff. Mr. Jacobs also managed compliance with the UK Environment Agency and served as energy manager for ISO14001 and ISO50001 certification project team.

#### **EnerNOC**, Boston, MA. *Energy Markets Intern*, 2012

Mr. Jacobs performed legal review of demand response contracts before counter-signing for C&I customers. During DR dispatches, Mr. Jacobs review customer energy reduction plans, coached facilities personnel, and monitored electric load curtailment using real-time interval trend data.

#### **Ceres**, Boston, MA. *Electric Power Sector Intern*, 2011-2012

Mr. Jacobs profiled electric utilities and summarized arguments for a shareholder resolution on emissions disclosure, and renewable and energy efficiency compliance strategies. Mr. Jacobs also analyzed EIA 861 data to calculate utility energy efficiency program savings.

### EDUCATION

#### **Northeastern University**, Boston, MA

Master of Science, Energy Systems, 2016; Certificate in Engineering Leadership, 2016

#### **Boston University**, Boston, MA

Bachelor of Arts, Environmental Analysis and Policy, Minor in Economics, 2012

## REPRESENTATIVE PROJECT EXPERIENCE

### **Massachusetts Energy Efficiency Advisory Council, Technical Consulting Services (2019-present)**

Optimal Energy serves as the lead technical consultant to the Massachusetts Energy Efficiency Advisory Council (EEAC) and has since its inception in 2006. Optimal's role includes representing the EEAC on all aspects of negotiating efficiency programs, plans, goals, and budgets with the program administrators, and oversight of all program implementation and evaluation, monitoring and verification activities. To support the EEAC, Mr. Jacobs serves as the lead on commercial and industrial efficiency program planning and analysis by tracking and analyzing quantitative and qualitative data as well as developing memos, presentations, and other work products.

### **Rhode Island Energy Efficiency and Resource Management Council, Policy and Program Planning Consulting, (2019 – present)**

Optimal Energy manages a team of consultants providing support to the Rhode Island Energy Efficiency and Resource Management Council on topics ranging from high-level policy and legislative issues down to the oversight of program design and implementation oversight and infrastructure development. The team provides research, budget analysis, cost-effectiveness modeling, data tracking, and general oversight to the Council as well as strategy and general support to the Rhode Island Office of Energy Resources. To support the EERMC, Mr. Jacobs serves as the lead on commercial and industrial efficiency program planning and analysis by tracking and analyzing quantitative and qualitative data as well as developing memos, presentations, and other work products.

### **Delaware Department of Natural Resources and Environmental Control, Energy Efficiency Advisory Council Program Development and Support (2019-present)**

Optimal Energy provides broad program planning, analysis, and strategic guidance to the Delaware Energy Efficiency Advisory Council (EEAC) and Delaware Department of Natural Resources and Environmental Control (DNREC) as it develops a new model for joint utility and public-sector delivery of energy efficiency services, with the objective of dramatically increasing energy savings and demand reductions. Mr. Jacobs provides technical support and review of commercial and industrial energy efficiency projects through DNREC's Energy Efficiency Investment Fund (EEIF) and Energy Efficiency Industrial (E2) programs. Mr. Jacobs also provides analytical support for the Cool Switch program, which works to reduce greenhouse gas emissions from commercial refrigeration systems.

## PUBLICATION

"Energy Data Optimization: Dashboards, Utility Bill Verification and Open Data," with A. Guzzo, *U.S. Department of Energy Better Buildings Challenge – Solutions at a Glance*, Washington, D.C., May 2017.



## CRAIG JOHNSON, CONSULTANT

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### PROFESSIONAL EXPERIENCE

**Optimal Energy**, Providence, RI. *Consultant*, 2020-present; *Senior Analyst*, 2019-2020; *Analyst*, 2014-2018.

Mr. Johnson provides technical services for Optimal Energy's efforts to promote energy efficiency and renewable energy by researching and analyzing energy efficient and renewable energy technologies, programs, and evaluations to support planning and implementation. His project work includes analytical support in the development, review, and implementation oversight of energy efficiency programs for several clients, including the Rhode Island Energy Efficiency and Resource Management Council, Massachusetts Energy Efficiency Advisory Council, and Connecticut Municipal Electric Energy Cooperative. Mr. Johnson also provides technical and analytical support in the form of screening projects for cost-effectiveness, drafting communications pieces for a variety of public and private sector clients, and characterizing measures for energy efficiency potential studies.

**Acadia Center (formerly Environment Northeast)**, Providence, RI. *Climate Change and Policy Intern*, 2013.

Mr. Johnson performed quantitative and qualitative analysis, with a primary focus on sustainable transportation. His research areas included conversion of freight shipping fuel from diesel to natural gas, electric vehicle incentives and policies, and alternative options for funding transportation projects. Mr. Johnson also participated in collaborative processes with stakeholders during the development and implementation of Rhode Island's Energy Efficiency Program Plans.

**Bard Center for Environmental Policy**, Annandale-on-Hudson, NY. *Teaching Assistant, Dr. Jennifer Philips*, 2012-2013.

Mr. Johnson researched and led discussions on sustainable farming practices and GHG emissions associated with agricultural systems.

**Lyndon State College Atmospheric Department**, Lyndonville, VT. *Research Assistant, Dr. Nolan Atkins* 2010-2012.

Mr. Johnson collected and photogrammetrically analyzed data of severe thunderstorms during the Verification on the Origins of Rotation in Tornadoes Experiment (VORTEX2). He also produced graphics for peer-reviewed research publications and presented results at national and regional conferences.

### EDUCATION

**Bard Center for Environmental Policy**, Annandale-on-Hudson, NY

Master of Science, Climate Science & Policy, 2014

Master's Thesis: *Driving Sustainability: Estimating Lifecycle Private Costs of Electric Vehicles*

**Lyndon State College**, Lyndonville, VT

Bachelor of Science, Atmospheric Sciences, 2012



## **REPRESENTATIVE PROJECT EXPERIENCE**

### **Rhode Island Energy Efficiency and Resource Management Council, Technical Consulting Services (2014-present)**

Optimal Energy leads the Technical Consultant team for the Rhode Island Energy Efficiency and Resource Management Council (EERMC). Mr. Johnson contributes to this project by reviewing implementation plans and results of energy efficiency programs, participating in proceedings of the Public Utilities Commission, and providing ongoing analytical support for Council activities. These efforts have included setting targets of energy efficiency program potential, reviewing energy efficiency potential assessments, tracking and analyzing current and historical program performance, and assessing cost-effectiveness and total cost to achieve energy savings. Mr. Johnson has also coordinated residential sector evaluation, measurement, and verification (EM&V) teams.

### **Massachusetts Energy Efficiency Advisory Council, Technical Consulting Services (2014-present)**

Optimal Energy serves as the lead technical consultant to the Massachusetts Energy Efficiency Advisory Council (EEAC). Mr. Johnson provides technical services including recording and production of meeting minutes for full Council and Executive Committee meetings, as well as subcommittee or other meetings on an as-needed basis. Mr. Johnson also provides analytical support for a variety of Council activities, including development, review, and implementation oversight of energy efficiency programs as well as communication pieces.

### **Connecticut Municipal Electric Energy Cooperative, Conservation and Load Management Consulting (2015-present)**

Optimal Energy has provided energy efficiency consulting services to the Connecticut Municipal Electric Energy Cooperative (CMEEC). Mr. Johnson contributes to the full range of these services, including program planning, program savings analysis and reporting, reviewing projects for cost-effectiveness on an as needed basis, and managing the collection and processing of CMEEC's program data. The latter has included the development of an online technical reference library and savings calculation engine database. As part of CMEEC's annual reporting requirements to the Connecticut Energy Efficiency Board, Mr. Johnson also quantifies the GHG impacts of CMEEC's programs. Since 2019, Mr. Johnson has also managed CMEEC's participation in the ISO-NE Forward Capacity Market.

### **Wallingford Electric Division, Conservation and Load Management Consulting (2015-present)**

Optimal Energy has provided energy efficiency consulting services to the Wallingford Electric Division (WED) since the inception of its conservation and load management programs. Mr. Johnson contributes to program planning, program savings analysis and reporting, and developing incentive and delivery strategies. Mr. Johnson also has conducted on-site, pre- and post-retrofit audits of lighting and HVAC projects for WED's commercial and industrial customers.

### **Pascoag Utility District (2019-Present)**

Optimal Energy provides energy efficiency consulting services for the Pascoag Utility District (PUD). Mr. Johnson has provided guidance and recommendations on the planning, development, and implementation of PUD's demand side management programs and assistance with data review and analysis for PUD's regulatory reporting requirements.

### **New Jersey Board of Public Utilities, Potential Study and Consulting Services (2019-Present)**

New Jersey's 2018 Clean Energy Act mandates completion of an energy efficiency potential study to inform the Board as it establishes targets. Mr. Johnson developed measure characterizations used in the analysis for both the residential and commercial and industrial sectors. He then provided key analytic support developing program budgets and savings targets.



## PHILIP H. MOSENTHAL, PARTNER

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### PROFESSIONAL EXPERIENCE

**Optimal Energy**, Hinesburg, Vermont. *Founding Partner*, 1996-present

As the Founding Partner Mr. Mosenthal is responsible consulting and analysis for numerous electric and gas utilities, government entities and other non-utility parties on energy efficiency, resource planning, regulatory issues, program design, and evaluation and market assessments. Mr. Mosenthal has over 30 years' experience in energy efficiency consulting, including facility energy management, utility and state planning, regulatory policy, program design, implementation, evaluation, and research. He has particular expertise in efficiency regulatory policy, assessment and integrated analysis of demand-side energy resources, valuation of energy resources and cost-benefit analysis, and program planning, design, and evaluation.

Mr. Mosenthal has developed numerous utility, state, and regional integrated resource and DSM plans, and has designed and evaluated energy efficiency programs throughout North America, Europe, and China. He has also led numerous efficiency and renewables potential studies and is a nationally recognized expert on efficiency resource assessment and valuation. Mr. Mosenthal has played key roles in many utility-stakeholder processes and successfully worked to build consensus. This work has included leading policy and planning initiatives related to goal setting, EM&V frameworks, cost recovery, and performance incentives. Mr. Mosenthal has testified before numerous regulatory commissions and state legislatures.

**Resource Insight**, Middlebury, Vermont. *Senior Research Associate*, 1995-1996

**Xenergy, Incorporated (now DNV-GL)**, Allendale, New Jersey. *Chief Consultant*, 1990-1995

### EDUCATION

**University of Pennsylvania**, Philadelphia, Pennsylvania  
Master of Science, Energy Management and Policy, 1990

**University of Pennsylvania**, Philadelphia, Pennsylvania  
Bachelor of Arts, Design of the Environment, 1982

### REPRESENTATIVE PROJECT EXPERIENCE

**New Hampshire Office of Consumer Advocate, Technical Consulting Services Related to Policy, Program Planning, and Stakeholder Engagement (2015-present)**

Optimal Energy supports the NH OCA's engagement in the Energy Efficiency Sustainable Energy Board. Mr. Mosenthal leads the development of all gas and electric DSM efforts, and has participated in numerous working groups including ones related to cost recovery and lost revenue policy and estimation, performance incentive design, DSM plan development and program design, and EM&V. Key areas of focus have included: designing NH's first Energy Efficiency Resource Standard (EERS) and negotiated its initial targets; analyzing and critiquing the methods for calculating lost revenue and its

subsequent reform; negotiating policy issues around cost recovery practices related to lost revenue and amortization of program costs; design and implementation of performance incentive mechanisms; critical review, negotiations, and testimony on the utility gas and electric plans; development and updates of the TRM and other EM&V issues; review and negotiations on efficiency potential and baseline studies; and analyzed and made recommendations on electric grid modernization.

**Illinois Office of the Attorney General, Advisor on Energy Efficiency Policy, Planning, Design, Implementation and Evaluation (2007 – present)**

Mr. Mosenthal has served as project manager and lead advisor on the statewide utility collaborative. He led the development of a statewide collaborative stakeholder process with utilities and other parties, on behalf of the IL AG, and continues to be a lead technical consultant in this collaborative. Mr. Mosenthal has also assisted in developing laws and policies (including the recent statute establishing a cost recovery and shareholder performance incentive model), provided expert testimony in numerous dockets before the Illinois Commerce Commission, assisted in development of grid modernization rules and policies, and advised on electric procurement.

**Massachusetts Energy Efficiency Advisory Council, Technical Consulting Services (2006 – present)**

Optimal Energy has led the Technical Consultant team for the Massachusetts EEAC since its inception. Mr. Mosenthal has served in various roles on this team, including overall Team Manager, Team lead for the C&I sector, and senior advisor on efficiency policy, planning, programs, and EM&V. Optimal represents the EEAC negotiating efficiency policies, programs, plans, goals and budgets with program administrators, and oversees program implementation and EM&V.

**New Jersey Board of Public Utilities, Potential Study and Consulting Services (2019-present)**

New Jersey's 2018 Clean Energy Act mandates delivery of aggressive efficiency efforts, the development of all policies and administrative and EM&V frameworks to guide efficiency, and the completion of an energy efficiency potential study to inform the Board as it establishes savings goals and other metrics. Mr. Mosenthal is an integral part of the team, working on the assessment of potential, and leading work on the establishment of targets and performance incentives / penalties, EM&V framework, and cost-effectiveness policies.

**Rhode Island Energy Efficiency and Resource Management Council, Technical Consulting (2006-present)**

Optimal Energy has led the Technical Consultant team for the Rhode Island Energy Resource Management Council (ERMC) since its inception. Mr. Mosenthal has served in various roles, including as the team lead for the C&I sector, and senior advisor on policy, planning, programs, and EM&V. Optimal's role includes representing the EERMC on all aspects of negotiating efficiency policies, plans, programs, goals, and budgets with National Grid, the program administrator. We also provide oversight of all program implementation and evaluation, monitoring and verification activities.

**Natural Resources Defense Council, Efficiency Assessment and Development of a New Policy Framework and Targets for a New Gas and Electric Efficiency Resource Standard for New York (2018)**

Mr. Mosenthal was the project manager and lead investigator in development of a proposal in support of Governor Cuomo's plans for new efficiency resource policy and goals. This project included proposing an aggressive new EERS to achieve efficiency savings of 3% per year for electric and 1.5% per year for gas. We developed a new all-fuel EERS framework and shareholder incentive recommendations that would encourage both efficiency and beneficial electrification. Announced by the governor on Earth Day, it has led to New York having the most aggressive electric efficiency goals in the U.S., as well as an innovative new beneficial electrification policy and goals for heat pump deployment.



## SAMUEL C. ROSS, CONSULTANT

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### PROFESSIONAL EXPERIENCE

**Optimal Energy**, Hinesburg, VT. *Consultant*, 2018-present; *Senior Analyst*, 2017-2018.

Mr. Ross provides analytical services on a range of projects and subject matter expertise on data analysis tools, benefit-cost analysis, energy efficiency finance, and environmental economics. His project work includes conducting energy efficiency market potential studies, policy analysis and design for statewide energy efficiency programs, and developing energy efficiency finance solutions, which are tailored to clients' specific needs and context. Though he concentrates on electric and gas energy efficiency, Mr. Ross continues to expand his expertise to include integrating energy efficiency with clean energy and storage, quantifying non-energy impacts, and other emerging trends in the energy sector.

**Data Consultant**, London, UK. 2016-2017.

Mr. Ross transitioned to an independent consulting role with his prior employer, the National Investment Center for Seniors Housing and Care (NIC), where he supported mission-critical data quality and analytical work for NIC's data and analytics team.

**National Investment Center for Seniors Housing and Care (NIC)**, Annapolis, MD. *Data and Analytics Team Manager*, 2015 – 2016; *Quality Assurance Analyst*, 2014-2015.

Mr. Ross managed a four-person team in charge of the firm's core research and analysis work, and he led hiring and managed personnel for the data and analytics team. Mr. Ross developed, implemented, and automated systems in R, MySQL, and Excel to ensure data quality both on import and analysis. Further, he led the firm's data quality, analysis, and quarterly reporting for their subscription website and data service, which was responsible for nearly 50% of firm revenue. He also initiated and led efforts to document key roles, processes and responsibilities across NIC to build institutional knowledge and reduce operational risk.

**DC Energy, LLC**, Vienna, VA. *Analyst*, 2012-2014.

Mr. Ross developed software to facilitate robust automated process infrastructure and data acquisition, parsing, normalization and storage in MySQL databases. He developed metadata acquisition systems to ensure efficient debugging and error reporting, and supported OTC and auction-based electricity futures trading through software development and automated tracking systems.

### EDUCATION

**London School of Economics**, London, UK

Master of Science with Distinction in Environmental Economics and Climate Change, 2017

**Dartmouth College**, Hanover, NH

Bachelor of Arts in Economics, Environmental Studies, 2012

## **REPRESENTATIVE PROJECT EXPERIENCE**

### **Rhode Island Energy Efficiency and Resource Management Council, Policy and Program Planning Consulting (2017-present)**

Optimal Energy manages a team of consultants providing support to the Rhode Island Energy Efficiency and Resource Management Council (EERMC) on topics ranging from high-level policy and legislative issues down to the oversight of program implementation and infrastructure development. Mr. Ross supports Optimal Energy's work for the EERMC in a range of areas related to ongoing program design, measurement and verification, in addition to key contributions to energy efficiency and clean energy finance tools developed in collaboration with EERMC and other Rhode Island energy sector stakeholders. Mr. Ross oversaw the contractor that completed a market potential study for the state of Rhode Island in 2020. He is also leading the process of translating the information that resulted into actionable policy options.

### **Pennsylvania Statewide Evaluator Team Member, Market Potential Study Lead (2019-present)**

Optimal Energy is a member of the Pennsylvania Statewide Evaluator team for Phase IV of Act 129. Optimal leads the Energy Efficiency Market Potential Study, and has supported a wide range of other activities, including updating Pennsylvania's Technical Reference Manual, supporting the Demand Response and Combined Heat and Power Potential Studies, and significant contributions to a detailed efficiency measure cost analysis widely utilized by Pennsylvania utilities in program planning. In addition, Optimal provides methodological guidance and written memos covering a range of topics including cost-benefit analysis, discount rates, avoided cost calculations, and application of baseline data to actionable policy insights.

### **New Jersey Board of Public Utilities, Market Potential Study with Recommended Targets (2019)**

Optimal Energy completed an Energy Efficiency Market Potential Study for the State of New Jersey, with estimates of 20-year achievable potential for electricity and natural gas. The Clean Energy Act of 2018 specified minimum levels of efficiency targets for New Jersey's public utilities, and the potential study determined whether targets should be at the minimum level specified by legislation or higher. Mr. Ross contributed to the analysis underlying Optimal Energy's recommended targets, quantitative performance indicators, and performance incentives to meet or exceed the goals established by the Legislature.

### **Delaware Department of Natural Resources and Environmental Control, Energy Efficiency Advisory Council Program Development and Support (2017-present)**

Optimal Energy provides broad program planning, analysis, and strategic guidance to the Delaware Energy Efficiency Advisory Council as it begins developing a new model for joint utility and public-sector delivery of energy efficiency services, with the objective of dramatically increasing energy savings and demand reductions in that state. In support of the Council, Mr. Ross led the next generation of energy efficiency market potential study for the state of Delaware, which supported the determination of electric and gas energy savings targets. In addition, Mr. Ross contributes to a range of research tasks related to the energy and environmental nexus, including driving the development of the 'Cool Switch' program, which includes incentives for businesses to reduce emissions of climate-damaging refrigerants.

### **Minnesota Statewide Energy Efficiency Potential Study (2018)**

Optimal Energy and partner Center for Energy and Environment (CEE) collaborated to prepare a statewide natural gas and electric energy efficiency and carbon saving potential study on behalf of the State of Minnesota. This study informed decision-makers with Minnesota's Conservation Improvement Program (CIP) about market sectors, geographic areas, utility service territories, end uses, measures and programs that should be targeted to help realize demand-side management potential in Minnesota. Mr. Ross provided technical expertise in the collection, aggregation, and integration of industrial-sector data and avoided costs data across all sectors, in addition to developing a suite of customized tools to meet client needs to iterate over a large number of input data sets and to report resulting data.



## ARAH SCHUUR, MANAGING CONSULTANT

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### PROFESSIONAL EXPERIENCE

**Optimal Energy**, Providence, RI. *Managing Consultant*, 2020-present

Ms. Schuur provides project management and client support for the development and implementation of comprehensive energy plans, energy efficiency programs, and state and local energy policies and regulations. She provides expertise in energy optimization, energy efficiency finance and contracting, and greenhouse gas mitigation and climate resilience planning.

**Acadia Center**, Boston MA. *Vice President, Climate and Energy*, 2019-2020

Ms. Schuur led program staff across New England on research and policy advocacy work in clean energy, low-carbon transportation, grid modernization, and energy systems planning. She led an organization-wide effort to complete Acadia Center's first strategic plan and develop a framework for growth and development for the organization.

**Massachusetts Dept. of Energy Resources (DOER)**, Boston, MA. *Director, Energy Efficiency*, 2015-2018

Ms. Schuur led energy efficiency policy and program portfolio, overseeing work with the stakeholder body responsible for planning and implementation of the state's nation-leading energy efficiency investment plans. During her tenure, Massachusetts incorporated fuel switching into its energy efficiency plans for the first time and expanded its focus on demand response and peak reduction. Ms. Schuur planned and oversaw a portfolio of clean energy projects, including the DOER's first grant program for active demand response. She directed the team responsible for the implementation of key energy efficiency policies and regulations such as a new commercial PACE program, home energy scorecard, and energy efficiency regulations for new industries. She led the development of partnerships with other agencies and contributed her expertise to DOER's responses to utility rate cases, state policy formation, low-income clean energy initiative, and comprehensive energy planning.

**U.S. Dept. of Housing and Urban Development**, Washington, DC. *Senior Advisor for Energy*, 2014–2015

Ms. Schuur implemented clean energy initiatives and executed President Obama's Climate Action Plan goals at HUD, including energy efficiency projects, building energy codes, and solar energy targets. She advised Secretary Julián Castro on energy issues and completed the expedited development of a new HUD clean energy finance policy.

**U.S. Department of Energy, Office of Energy Efficiency**, Washington, DC.

*Director, Commercial Buildings Integration*, 2012-2014

*Senior Advisor to the Deputy Assistant Secretary of Energy Efficiency*, 2011-2012

Ms. Schuur helped establish the Better Buildings Challenge, forging partnerships with real estate organizations to advance best practices in energy efficiency planning, finance, contracting, and implementation. She also led DOE's work to deploy energy efficient technologies in commercial and multifamily buildings. Ms. Schuur developed successful partnerships across the federal government to increase DOE's impact. As an authority on buildings and energy efficiency, she provided input on energy efficiency finance, labeling, and utility data-sharing policies.

**C40 Program, Clinton Climate Initiative, New York, NY. Director, Energy Efficiency Building Retrofit Program, 2007-2011**

Ms. Schuur joined the Clinton Foundation to build a new program to accelerate the planning, development, and implementation of large-scale energy efficiency retrofit projects. In this role, she oversaw a global team that built partnerships with governments, global real estate organizations, and financial and technical companies to execute energy efficiency projects. The team developed and disseminated new contracting and financing mechanisms for energy efficiency retrofits. Ms. Schuur provided subject matter expertise to President Clinton, Foundation leadership, the Clinton Global Initiative, and Bloomberg Philanthropies.

## **EDUCATION**

**Massachusetts Institute of Technology, Cambridge, MA**

Master of City Planning, Department of Urban Studies and Planning, 2005

Master of Science in Real Estate Development, Center for Real Estate, 2005

**Yale University, New Haven, CT**

Bachelor of Sciences in Biology, 1993

## **PROFESSIONAL ACTIVITIES AND MEMBERSHIPS**

New England Women in Energy and the Environment (NEWIEE)

Northeast Sustainable Energy Association (NESEA)

## **REPRESENTATIVE PRESENTATIONS AND PUBLICATIONS**

Schuur, A., Farnsworth, D., Markowitz, P., Miziolek, C., and Musher, D., 2017. "Next Generation Energy Efficiency," *Proceedings of the New England Sustainable Energy Association (NESEA) Annual Conference*.

Schuur, A., Rodrigues, G., Hepp, R., Kiddie, and R., Nouel, C., 2016. "Infrastructure Modernization Affects Us All," *Proceedings of the Association of Energy Services Professionals (AESP) and the Northeast Energy Efficiency Council (NEEC) Annual Join Conference*.

Schuur, A. and Phillips, G., 2016. "Massachusetts' New Three-Year Energy Efficiency Plan, an Overview," *Proceedings of the Association of Energy Engineers, New England Chapter*.

Schuur, A. and Counihan, R. 2016. "Massachusetts Energy Efficiency: Demand Reduction, Technology & Innovation," *Proceedings of the National Association of State Energy Offices (NASEO) Energy Policy Outlook Conference*.

Walraven, B., Wilson, S., Schuur, A., Greener, C. and Fedrizzi, R. 2008, "The Business Case for Going Green," *BOMA International Conference General Session*.



**MATTHEW T. SOCKS, PE, CEM, SENIOR CONSULTANT**

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**Matthew Socks**, PE, CEM, Senior Consultant, joined Optimal Energy in 2007 and serves a leading role in efficiency program engineering, economic analysis, and implementation support for clients across North America. With expertise in the field of efficiency measure research and characterization, he has developed standardized methodologies for determining savings from efficiency measures and programs in more than a dozen states. Mr. Socks has served as a primary contributor to numerous energy efficiency potential analyses, many of which have formed the foundation for jurisdictional efficiency savings targets. Having provided clients with efficiency program design and implementation support, he has both developed novel program approaches from the ground up, and provided strategic assessment of existing program portfolios. An experienced analyst, Mr. Socks has led targeted market research efforts on both building sectors and efficient technologies. Finally, in addition to managing Optimal Energy's suite of analytical tools, Mr. Socks has developed customer-facing tools for project-level cost-benefit analysis and data collection management.

## **PROFESSIONAL EXPERIENCE**

**Optimal Energy**, Hinesburg VT. *Senior Consultant*, 2007–present

**NSK Corporation**, Ann Arbor, MI. *Engineering Intern*, 2000–2003

## **EDUCATION, LICENSING, AND CERTIFICATIONS**

**Massachusetts Institute of Technology**, Cambridge, MA

Bachelor of Science, Mechanical Engineering, 2006

**Professional Engineer (PE)**, State of Vermont, 2013-present

**Certified Energy Manager (CEM)**, Association of Energy Engineers, 2010-present

**Certified Building Energy Simulation Analyst (BESA)**, Association of Energy Engineers, 2012-2015

**Lighting Certified (LC)**, National Council on Qualifications for the Lighting Professions, 2011-2015

## **REPRESENTATIVE PROJECT EXPERIENCE**

### **New Jersey Board of Public Utilities, Energy Efficiency Potential Study, 2019**

New Jersey's 2018 Clean Energy Act mandated completion of an energy efficiency potential study to inform the Board as it establishes targets. The project included estimation of ten-year (2020 – 2029) energy efficiency potential, demand response potential, and potential for savings from combined heat and power. The potential then needed to be allocated to the electric and gas public utilities. Mr. Socks led the potential study team.



### **Northeast Energy Efficiency Partnerships, Mid-Atlantic Technical Reference Manual (2010-2017)**

Optimal Energy developed efficiency measure costs and savings estimation protocols for a novel, multi-state Technical Reference Manual for use by utilities in the Mid-Atlantic region. The project required comparative analyses between regional energy efficiency savings estimation methodologies and working with stakeholders to reach consensus on the characterizations. From 2016 on, Optimal led the development of both residential and commercial & industrial measure entries. On this project, Mr. Socks led the development of the commercial and industrial measures and facilitated stakeholder engagement.

### **Natural Resources Defense Council, Energy Efficiency for All, Potential Study for Energy Savings In Affordable Multifamily Housing (2014-present)**

In support of Energy Efficiency for All, a joint initiative of the Natural Resources Defense Council, the National Housing Trust, and others, Optimal Energy developed a study of energy efficiency potential in affordable multifamily housing covering electricity, natural gas, and fuel oil potential in nine states. Mr. Socks served as project manager and technical lead and developed a novel method of parameterizing the potential analysis to provide justifiable results for across disparate regions. He has continued to support these efforts through educational outreach and additional focused analyses.

### **Enbridge Gas Distribution, Evaluation Audit (2013-2015)**

Optimal served as the EM&V auditor for all Enbridge Gas Systems evaluations, on behalf of Enbridge and the Ontario Energy Board. This involved reviewing the processes and analyses used for the impact evaluation and making recommendations on ways to improve the programs, as well as developing realization rates for each program. Mr. Socks led the review and validation of findings presented in a series of industrial custom project savings verification (CPSV) reports developed by third-party Technical Evaluators (TEs). Mr. Socks provided detailed feedback on the quality, reasonableness, and accuracy of project savings estimates, and developed revised project savings estimates, as appropriate. Mr. Socks also led the review of deemed savings values for EGD's high-impact prescriptive measures that accounted for a significant portion of claimed prescriptive savings.

### **New York Power Authority, BuildSmart NY Support Services (2013-2015)**

Optimal Energy supported the New York Power Authority (NYPA) with the development and implementation of BuildSmart NY, the initiative established to implement Executive Order 88 (EO88). The Order, signed by Governor Cuomo in December 2012, directs New York State Agencies to reduce average source energy use intensity by 20% by 2020. Optimal researched other regional energy efficiency goals to instruct NYPA how best to measure EO88 compliance and developed standardized normalization methodologies to account for weather and changes in facility use. Further, Optimal developed a comprehensive tracking database for energy usage at the account level for all state agencies subject to EO88 and assisted with tracking and interpreting initial consumption trends. Mr. Socks served as project manager and led all project deliverable development.

### **New York Power Authority and New York Governor's Office, New York State Government Facilities Energy Efficiency Study (2011-2012)**

Optimal Energy conducted a study of the energy efficiency and renewable energy potential for New York State government facilities. Building upon previous analyses conducted by Optimal Energy for the State of New York, Optimal developed energy efficiency potential estimates for the ten largest state agencies. A parallel analysis of renewable energy potential was also completed. The study led directly to Executive Order 88 and BuildSmart NY, an initiative by Governor Cuomo to release \$450 million in state financing with the goal of reducing energy consumption in State buildings by 20%. Mr. Socks served as overall project manager and technical lead of the energy efficiency potential development.

## Professional Summary

Richard Faesy is a principal and co-founder of Energy Futures Group in Hinesburg, Vermont. With more than 30 years' experience in the clean energy industry working with hundreds of clients and programs throughout the U.S. and Canada, he is highly regarded as a national expert and reliable project manager. As a Certified Energy Rater, LEED Accredited Professional, and DOE Home Energy Score Assessor, he specializes in residential buildings, technologies and markets, with expertise in residential new construction and retrofits, strategic electrification, energy rating and labeling, building codes, financing, green building and effective energy efficiency policy, program design and implementation. Richard helped create the national home energy rating industry, was the founding president of the board of the Northeast HERS Alliance and was a founding board member of the Residential Energy Services Network (RESNET), including a term as president. Richard was featured in a national Dateline/NBC story on energy efficiency and was awarded RESNET's Lifetime Achievement Award. He currently works with clients in California, Connecticut, Massachusetts, Maine, New York, Rhode Island, Vermont and the U.S. Department of Energy.

## Experience

2010-present: Principal, Energy Futures Group, Hinesburg, VT

2000-2010: Energy Efficiency Division Manager and Managing Consultant, Vermont Energy Investment Corporation (VEIC), Burlington, VT

1986-2000: Director, Energy Rated Homes of Vermont (ERH-VT), Burlington, VT

1989-2000: Development Director, Single Family Services, VEIC, Burlington, VT

## Education

M.S. Coursework in Energy Management & Policy, University of Pennsylvania, 1986

B.S., Resource Economics and Environmental Studies, University of Vermont, 1983

## Selected Projects

- **Connecticut Energy Efficiency Board.** Residential sector lead consultant, assisting the Board with goal setting, utility oversight and planning and technical assistance. (2007 to present)
- **Efficiency Vermont.** Senior Advisor for residential program design, implementation support and policy guidance for Vermont's statewide, award-winning energy efficiency utility. Focus on residential retrofit programs, fuel dealer partnerships, cold climate heat pump program, home energy labeling, energy savings guarantees. (2000-2014)

- **Green Mountain Power.** Led the development and project management for the Vermont Zero Energy Now Program/Solar Bonus Program (combining energy efficiency, heat pumps, biomass and renewables for deep savings in existing homes). (2016-2017)
- **Industrial Economics, Inc.** Delphi Panel expert participant in California Energy Commission's (CEC) Electric Program Investment Charge (EPIC) program. (2020)
- **Iowa Office of Consumer Advocate.** Team lead and senior advisor for utility program portfolio review, testimony development, and on-going program modifications and enhancements. (2008-2014)
- **Joint Management Committee (Massachusetts, Connecticut, Rhode Island and New Hampshire utilities).** Oversight of the regional ENERGY STAR Homes Programs as a representative for the non-utility parties. (2003-2007)
- **Long Island Power Authority.** Team lead on program design, planning, policy guidance and technical assistance on residential and multifamily sectors and development of Long Island Residential New Construction Technical Baseline Study. (2003-2010)
- **Maine Public Utilities Commission (PUC).** Lead consultant on team to assist in oversight and evaluation of the energy efficiency programs of the Efficiency Maine Trust. 2015-2017.
- **Massachusetts Clean Energy Center.** Team lead for innovative program offering 50 low/moderate income homeowners guaranteed positive cash-flow financing and services to support cold-climate heat pumps and solar PV systems. (2017 to present)
- **Massachusetts Energy Efficiency Advisory Council.** Consultant overseeing the residential new construction and existing homes programs in Massachusetts. (2007-2013)
- **New Jersey Office of Clean Energy, Board of Public Utilities.** Senior Advisor for program design and oversight of New Jersey ENERGY STAR Homes Program assisting the Honeywell Team and the Office of Clean Energy design and develop program modifications and enhancements, set goals, and provide budgeting and implementation assistance. (2004-2010)
- **Northeast Energy Efficiency Partnerships (NEEP).** Total Energy Pathways/Zero Energy Now program development of innovative deep energy savings approach for existing homes. (2019-present)
- **New York State Energy Research and Development Authority (NYSERDA).** Program lead for the Hudson Valley Heat Pump Program, offering comprehensive residential energy retrofits incorporating heat pumps, weatherization, and solar with real time data monitoring. Includes customer usage training, contractor application training for heat pumps and statewide marketing initiative. (2016-2019)
- **Rhode Island Energy Efficiency and Resource Management Council.** Consultant with the residential team overseeing the new construction and existing homes programs in Rhode Island. (2008 to present)
- **U.S. Department of Energy.** Led the Small Business Innovation Research project to develop and implement the Vermont Energy Mortgage financing solution for existing homes. (2020-present)
- **Vermont Public Service Department.** Senior Advisor to NMR Group on baseline study of residential new construction, remodeling and existing homes in Vermont. (2011 to present)

### Professional Summary

David recently joined EFG, after 22 years of employment with VEIC, most recently as Director of Distributed Resources and a VEIC Policy Fellow. He is known nationally for his advancement of sustainable energy program design and evaluation, and renewable energy policy. David has been the principal investigator and led analysis teams for multi-year stakeholder informed studies on solar market and decarbonization pathways and scenarios.

David provides expert testimony and regulatory support; participates in international, national, and state boards; leads policy committees and conferences; provides comprehensive studies of the economic, technical, and achievable potentials for sustainable energy programming; and supports program budget planning and implementation. He has led or significantly contributed to the design and development of efficiency and renewable energy programs with annual budgets of \$100+ million for initiatives in New Jersey, Washington DC, New York, Vermont, Arizona, and Maryland. He has clients in more than a dozen states and six countries; several of them are international organizations.

### Experience

#### Vermont Energy Investment Corporation (VEIC)

- Director, Distributed Energy Resources, Policy Fellow 2014 – 2020
- Managing Consultant 2010 – 2014
- Deputy Director, Planning and Evaluation 2008 – 2010
- Senior Consultant 2000 – 2008
- Consultant 1998 – 2000

#### Tellus Institute and the Boston Center of the Stockholm Environment Institute

- Research Associate 1993 - 1998

### Education

**Ph.D., University of Pennsylvania, Energy Management and Policy Planning, 1993.**

- Fulbright Scholar: Dissertation research on energy decision-making in rural Nepal, 1991 – 1993.


**Master's, University of Pennsylvania, Appropriate Technology and International Development, 1989.**

**B.A., Middlebury College, Geography and Political Science, 1986.**

### Selected Projects (from more than 100)

**U.S. Department of Energy.** Principal Investigator for a three-year SunShot Initiative Solar Market Pathways study, investigating the technical, regulatory, and business model implications of getting 20 percent of Vermont's total electric supply from solar by 2025.

#### Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA |  802-482-4874 |  dhill@energyfuturesgroup.com

**Sun Shares.** Created and launched, and responsible for management and business development of, a community solar business subsidiary to provide “Easy and Affordable Solar for Employers and their Employees,” 2015 – present.

**Maryland Office of Peoples Counsel.** Expert witness and senior advisor for review and design of EmPOWER Maryland portfolio. Includes strategies for coordination with grid modernization and cost recovery, amortization and utility incentives. 2011- present.

**Massachusetts Executive Office of Energy and Environmental Affairs.** Leading modeling team responsible for integrating sub-sector building, transportation, electric, land use and non-energy models into a single economy wide framework for pathways to meet Global Warming Solutions Act targets. 2019-present.

**Washington, D.C., Department of Energy and Environment.** Led design and launch of the DC Sustainable Energy Utility’s Solar for All Initiative. Led comprehensive program design, budgeting, solicitation development and stakeholder engagement for rapid program launch and operations. Supports both single family and community solar installations directly benefitting income qualified households. 2017-2019.

**Efficiency One.** Expert testimony and presentation on lighting transition and implications for efficiency planning and portfolio development for Efficiency One in Nova Scotia. 2018-2019.

**Pennsylvania Department of Environmental Protection.** Led scenario analysis and modeling for Pennsylvania’s Solar Future. Stakeholder presentations at six workshops including extensive review and vetting of total energy sector modeling and implications of meeting 10% of Pennsylvania’s electric needs from in state solar by 2030. 2016-2019.

**New Jersey Clean Energy Program.** Program design and policy advisor for the renewable energy program for more than a decade. Oversaw administrative team that supported the installation of more than 10,000 net metered solar installations, starting from six installations in the first year. 2000-2010.

**Rhode Island Office of Energy Resources.** Strategic Advisor on State Energy Plan and System Reliability Procurement and Distributed Generation programs.

**Alaska Energy Authority.** Principal consultant for two studies on renewable and energy efficiency financing and funding strategies. 2012 and 2015.

**New York State Energy Research and Development Authority (NYSERDA).** Twice led the renewable energy analysis for 20-year forecast of energy efficiency and renewable energy potential, 2003 and 2012.

**World Bank.** Expert consultant on a short-term study of efficiency and micro- / mini-grid opportunities in Tanzania, 2014.

**Arizona Public Service.** Managed a rapid assessment and redesign of PV and solar hot water incentives, 2009.

## Professional Summary

Dan specializes in the design, planning, and administration of commercial and industrial energy efficiency programs and is a national lighting technologies expert. He provides technical consultative services on energy efficiency technology capabilities, market analysis, technology adoption, savings potential forecasting, program planning and design, industry standards, training, and financing. He has designed, launched, and managed several industry-leading commercial energy efficiency programs. He has also consulted on hundreds of commercial efficiency projects across many jurisdictions nationwide and is a frequent speaker at national meetings on program design, policy development, industry standards, and lighting technology.

## Experience

2020-present: Principal, Energy Futures Group, Hinesburg, VT

2017-2019: Senior Consultant, Energy Futures Group, Hinesburg, VT

2016-2017: Senior Strategic Planner, VEIC, Burlington, VT

2009-2016: Efficiency Vermont Commercial Lighting Lead, VEIC, Burlington, VT

2005-2009: Efficiency Vermont Business Energy Consultant, VEIC, Burlington, VT

1999-2005: Semiconductor Manufacturing Engineer, IBM, Essex Junction, VT

## Education

B.S., Electrical Engineering, Michigan State University, 1999

## Certifications

Professional Engineer (PE) – State of Vermont

Lighting Certified (LC) – National Council on Qualifications for the Lighting Professions

Certified Energy Manager (CEM) – Association of Energy Engineers

Leadership and Management Professional Certificate – University of Vermont

## Select Projects

- **Rhode Island Energy Efficiency and Resource Management Council.** Provide technical consultative insights on commercial and industrial energy-saving measures. Advise on new technologies, programs, and models for accelerating innovation in achieving aggressive energy savings. (2018 to present)
- **Connecticut Energy Efficiency Board.** Provide technical consultative insights on commercial and industrial energy-saving programs and measures. Lead technical consultant to the Research, Development and Demonstration (RD&D) team. (2018 to present)

## Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 802-482-4873 | @ dmellinger@energyfuturesgroup.com

- **Massachusetts Energy Efficiency Advisory Council.** Provide technical consultative insights on commercial and industrial energy-saving programs and measures. (2018 to present)
- **DesignLights Consortium (DLC).** Conduct research for and provide technical assistance on the evolution of *Solid-State Lighting (SSL) Technical Requirements, Version 5.0*. Incorporate LED product requirements that enable the integration of networked lighting controls. (2018 to present)
- **Northwest Energy Efficiency Alliance (NEEA).** Senior advisor on a market assessment of Luminaire Level Lighting Controls. Perform secondary data analysis, energy code review, and in-depth interviews of relevant market actors. (2019-2020)
- **Alliance to Save Energy.** Conducted research and authored a report on lifetime savings, peak demand savings, and cost effectiveness of commercial LED and lighting controls. (2019)
- **Citizens Action Coalition (Indiana).** Critically review and deliver testimony on market potential study findings, action plans, and multi-year DSM plans for several utilities. (2018-present)
- **California Alternative Energy and Advanced Transportation Financing Authority.** Provide technical assistance on the design and implementation of commercial energy efficiency financing pilots. (2017 to present)
- **Efficiency Vermont Technology Roadmap.** Created a 3-year emerging-technology planning roadmap for Efficiency Vermont. Roadmap addressed technologies and residential, commercial, and industrial customer classes. Designed an interactive and dynamic Excel roadmap platform. (2017)
- **Vermont Demand Resources Plan.** Developed a 20-year forecast of efficiency potential from commercial and residential lighting for the Vermont Demand Resources Plan (DRP). The Vermont Public Utility Commission uses the DRP to set Efficiency Vermont's 3-year budgets and goals. (2017)
- **Efficiency Vermont Midstream Lighting Program.** Contributed to the design of, and eventually administered, the nation's first commercial lighting midstream program. Continuously expanded and evolved the program to keep pace with emerging technology and market changes. Managed distributor relationships and increased participation to 100% of electrical distributors. (2009-2016)

## Select Publications

- Mellinger, Dan. 2019. *Commercial & Industrial Lighting Lifetime and Peak Demand Savings Analysis*. Alliance to Save Energy. <https://www.ase.org/lighting-savings-report>.
- Mellinger, Dan. 2018. *Energy Savings Potential of DLC Commercial Lighting and Networked Lighting Controls*. DesignLights Consortium. <https://www.designlights.org/resources/energy-savings-potential-of-dlc-commercial-lighting-and-networked-lighting-controls/>.
- Mellinger, Dan, and Lauren Morlino. 2018. *Getting to 50: How Vermont Plans to Reach 50% Market Adoption of Linear LED by 2025*. ACEEE Summer Study. <http://www.aceee.org/files/proceedings/2018/#/paper/event-data/p120>.
- Goetzler, Bill, George Lawrence, Dan Mellinger, and Mary Yamada. 2018. *Lighting Isn't Finished: Pivoting beyond the LED Bulb*. ACEEE Summer Study. <http://www.aceee.org/files/proceedings/2018/#/paper/event-data/p134>.

## Professional Summary

Glenn Reed has more than 30 years of experience in demand-side management (DSM) program planning and evaluation; energy-efficiency policy development and implementation; building codes and appliance standards development; and group facilitation and consensus building. Since mid-2019 he has led the Connecticut Energy Efficiency Board's Technical Consultant Team and for ten years prior, he had been the Board's Residential Technical Consultant. Mr. Reed is also a lead residential advisor to the Massachusetts Energy Efficiency Advisory Council and to the Rhode Island Energy Efficiency and Resource Management Council. For both Councils, he assists and oversees program design and implementation of residential lighting, appliance, HVAC, and consumer electronics programs. Prior to co-founding EFG, Mr. Reed was a Managing Consultant at the Vermont Energy Investment Corporation, Director of Regional Initiatives at the Northeast Energy Efficiency Partnerships (NEEP), Deputy Director of East Coast Consulting at XENERGY (now DNV GL) and principal analyst and the Massachusetts Executive Office of Energy Resources. At NEEP, Mr. Reed oversaw the development and implementation of the residential upstream lighting initiative that became the model for most of the country's current upstream lighting efforts.

## Experience

2010-present: Principal, Energy Futures Group, Hinesburg, VT

2005-2010: Managing Consultant, Vermont Energy Investment Corporation, Burlington, VT

2001-2005: Dir. of Regional Initiatives, Northeast Energy Efficiency Partnerships, Lexington, MA

1987-2000: Deputy Dir. of East Coast Consulting, XENERGY, Inc. (now DNV GL), Burlington, MA

1983-1987: Principal Planner, Massachusetts Executive Office of Energy Resources, Boston, MA

## Education



M.S., Energy Management and Policy, University of Pennsylvania, 1982

B.A., Biology, Wesleyan University, 1979

## Selected Projects

- **Connecticut Energy Efficiency Board (EEB).** Leads the EEB's Technical Consultant Team to provide oversight of the state's electric and gas efficiency programs. Works closely with the state's utilities to develop, implement, and evaluate cost-effective program designs and goals for the Three-Year Conservation and Load Management Plan. Also plays a key role in the scoping and review of residential program evaluation activities.
- **Rhode Island Energy Efficiency and Resource Management Council.** Senior Advisor providing on-going technical and programmatic advice to, and oversight of, Rhode Island's residential efficient

## Energy Futures Group, Inc

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products (lighting, appliances, and consumer electronics) and HVAC programs. Works closely with National Grid staff to develop cost-effective program designs and goals for their energy efficiency plans and plays a lead role in scoping and reviewing residential evaluation projects.

- **Massachusetts Energy Efficiency Advisory Council.** Provides on-going technical and programmatic advice to, and oversight of, the Massachusetts gas and electric program administrators' residential efficient products (lighting, appliances, and consumer electronics) and HVAC programs. This includes review of key screening tool inputs and development of three-year program savings goals. Also, assists Council evaluation consultants in review of key residential evaluation and market research studies and plays a key role in program and measure cost effectiveness review.
- **Natural Resources Defense Council.** Managed a nine-state affordable multifamily technical, economic, and achievable potential study for the Energy Efficiency for All advocacy group. This study was subsequently expanded to include California. Results from this study have been used in several regulatory proceedings.
- **Oklahoma Sustainability Network (OSN).** Provided ongoing support to this key stakeholder group. Have assisted with re-writing the state's DSM rules and provided critical review of the utilities' 2013 and 2014 annual reports. Provided review and comment on a statewide technical, economic, and achievable potential study and on recently filed three-year plans.
- **Prince Edward Island Office of Energy Efficiency.** Managed a potential analysis, measure screening, and program design and cost-effectiveness assessment for the provincial government. This analysis included the residential, C&I, and transportation sectors. Both energy and carbon savings were analyzed and estimated.
- **Regulatory Assistance Project (RAP).** Co-authored report on the ten most common pitfalls encountered when performing potential studies: Ten Pitfalls of Potential Studies. Co-presented webinar on report findings.
- **Association of Energy Services Professionals (AESP).** Lead trainer for AESP's DSM 101 workshops in NY, KS, IL, WA, and NC. Developed or co-developed Residential and C&I Technology, Cost-effectiveness, and Program Planning and Design training modules. These workshops, lasting as long as five days, provided efficiency program staff with details on all aspects of energy efficiency program planning, design, implementation, and evaluation.
- **Management of Regional Market Transformation Initiatives.** Responsible for NEEP's six residential and C&I regional market transformation Initiatives - ENERGY STAR® Products, Residential HVAC, ENERGY STAR Windows, Premium Efficiency Motors, Unitary HVAC and C&I Information Exchange - and for Initiative-related research and evaluation activities.

## JENNIFER L. CHIDO, P.E., LEED AP BD+C

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Jennifer Chido has over 30 years of experience creating and managing new approaches to garnering energy efficiency in the business sector while overseeing the implementation of thousands of energy efficiency, commissioning, and measurement and verification projects. Jennifer currently provides consulting services to nation-leading energy efficiency programs via her work with the Massachusetts Energy Efficiency Advisory Council and the Rhode Island Energy Efficiency and Resource Management Council. Jennifer is actively engaged in addressing global warming through building energy efficiency and as Vice-chair on the Board of the Vermont Green Building Network. She is an officer and member of the Board of Directors of Vermont Businesses for Social Responsibility and Policy Committee Chair.

While managing Cx Associates, she fostered the firm's development into a widely recognized leader in the areas of energy efficiency, commissioning, and evaluation, measurement and verification of energy efficiency projects and programs as well as a socially responsible business that is dedicated to using engineering to make buildings better for the people who they affect and for the planet.

Instrumental in the development of Efficiency Vermont, Jennifer managed the Business Energy Services Division from start-up through the successful fulfillment of the first contract term. Prior to her work with Efficiency Vermont, she led the development of an award-winning multifamily program that integrated weatherization and utility resources to comprehensively address low-income multifamily housing energy use. She developed and managed successful performance contracting projects. During Jennifer's 10-year stint as a project manager and electrical engineer in San Francisco, she led or was involved in the engineering design of such noteworthy projects as the Moscone Center; the 1 million square foot GSA Federal Building in Oakland, CA; the Monterey Bay Aquarium; and Five Fremont Center.

## EXAMPLE PROJECTS

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- Massachusetts Energy Efficiency Advisory Council Consultant on program implementation and evaluation
- Rhode Island Energy Efficiency and Resource Management Council Consultant on program implementation
- Evaluation design for a Consolidated Edison Demand Response Program
- Connecticut Energy Efficiency Board Evaluation Administrator
- Project Manager for NYSERDA Commercial and Industrial New Construction Program Impact Evaluations
- Program design for Efficiency Vermont's retrocommissioning program
- Developed Vermont's M&V protocols for compliance with ISO NE FCM requirements for custom C&I projects
- Design review of over 5,000,000 square feet of new construction in health care, universities, offices, and multifamily buildings with a focus on energy efficiency and system longevity
- Custom Measure Protocol development for the Public Utilities Commission of Ohio Technical Resource Manual

## PROFESSIONAL EXPERIENCE

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**Present**

**JLC Consulting, LLC**

*Consultant*

Providing expert consulting services to States, Program Administrators, and Implementers to improve energy efficiency program effectiveness.

**2004 – 2020**

**Cx Associates**, Burlington, VT

*Co-founder and Managing Principal*

Business management and consulting in energy efficiency, evaluation, green building & commissioning; business management, marketing, technical training, and facilitation

**Prior Experience**

Director of the Business Energy Services Division at the Vermont Energy Investment Corporation (VEIC) - responsible for implementation of Efficiency Vermont's Business energy services statewide. Developed and implemented performance contracts, led the development of the Energy Star Award winning REEP program and led greenhouse gas reduction initiatives while at VEIC.

Project Manager and Project Electrical Engineer positions at Syska and Hennessy Engineers and Glumac Engineers in San Francisco, California.

## CERTIFICATIONS AND LICENSING

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Professional Engineer (P.E.), Electrical Engineering, Vermont and California

LEED Accredited Professional, Building Design and Construction (AP BD+C)

## EDUCATION

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Sc.B. E.E., Brown University

Commissioning, Testing and Start-up of Electrical Systems; Regina, Saskatchewan

## AFFILIATIONS

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Vermont Businesses for Social Responsibility, Board of Directors Vice President; Policy Committee Chair

Vermont Green Building Network, Past Board Chair

USGBC Member, LEED Accredited Professional

IESNA Member

## PAPERS AND PRESENTATIONS

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Jennifer is active in presentations and publications. Noteworthy recent publications and presentations include:

"EUI Analytics: Roadmap for Climate Action," Jennifer Chiodo, Poster Presented at the International Energy Program Evaluation Conference, 2019, Denver, Colorado.

"Driverless Buildings: Harnessing Software for Uber Deep Savings," Jennifer Chiodo, Eveline Killian, Katherine Mason, and Rick Stehmeyer; Kevin Fuller and Bill Gnerre, Interval Data Systems, Inc., ACEEE, 2018

"Establishing a Solid Project Foundation through an Inclusive OPR Process – Lessons from the Field," Jennifer Chiodo and L. David Keelty, Better Buildings by Design 2018, and NECARRAPA 2019, Burlington, Vermont.

"Energy Models vs. Reality," Jennifer Chiodo and Eveline Killian, Presented at the Better Buildings by Design Conference, 2016, Burlington, Vermont.

Retrocommissioning Best Practice Study; Jennifer L. Chiodo, Massachusetts Energy Efficiency Advisory Council, July 2014



802-989-8200 George@CaerbannogConsulting.com

## **PROFESSIONAL EXPERIENCE**

**Caerbannog Consulting, Addison VT.** *Owner, 2020-Present*

Working as an independent contractor with Optimal Energy to serve as commercial and industrial technical consultant to the Rhode Island Energy Efficiency and Resource Management Council, the Connecticut Energy Efficiency Board, and the Massachusetts Energy Efficiency Advisory Council.

**Optimal Energy, Hinesburg VT.** *Senior Consultant, 2014-2019*

As a Senior Consultant, Mr. Lawrence focused on commercial, institutional, and industrial projects. His work primarily was to provide technical advice on technologies and program implementation to multiple state energy efficiency advisory boards. Mr. Lawrence also provides expertise for the review of technical resource manuals and has managed the savings audit of a gas energy efficiency program.

**Vermont Energy Investment Corporation, Burlington, VT.** *Consultant, 2011-2014.*

Mr. Lawrence was the Lead Consultant for all commercial and industrial projects. In addition, Mr. Lawrence designed and helped implement the first Strategic Energy Management program for a cohort of industrial, institutional, and commercial customers in the northeast for Efficiency Vermont.

**Efficiency Vermont, Burlington, VT.** *Planning and Development Manager, 2007-2011, Energy Consultant, 2006-2007.*

As a Planning Manager, was responsible for designing, implementing, and managing efficiency programs and customized Efficiency Vermont initiatives for the Ski Industry, K-12 Schools, Water and Wastewater, and Agricultural markets as well as for industrial users of compressed air.

As an Energy Consultant, identified and quantified energy efficiency opportunities in commercial and industrial facilities, and then worked with corporate officers to negotiate incentives and to present the process improvement and financial arguments for doing efficiency projects.

**The McKernon Group, Brandon, VT.** *Construction Sales, Green Building Products, 2004-2006.*

Managed sales of multiple lines of advanced construction materials such as insulating concrete forms and structural insulated panels.

**Northern Power Systems, Waitsfield, VT.** *Sales Manager, 2000-2004.*

Mr. Lawrence managed domestic and international sales of renewable and fossil fuel powered energy systems that were used in extreme environments to provide reliable electricity.

**Windstream Power Systems, Burlington, VT.** *Sales Manager, 1999-2000.*

As a Sales Manager, Mr. Lawrence managed the sales of renewable energy power systems.

**Self-Employed, Yearsley Construction, Addison, VT and Jackson, WY.** *General Contractor, Cabinetmaker and Shop Foreman, 1989-1999.*

Mr. Lawrence spent a decade working in the construction industry, building homes, furniture, and cabinets in Vermont and Wyoming.

## **EDUCATION AND LICENSING**

**Middlebury College, Middlebury, VT**

Bachelor of Arts, Physics, 1989

**Institute for Energy Management Professionals**

Certified Practitioner of Energy Management Systems - Industrial

**Association of Energy Engineers** - Certified Energy Manager

**Association of Energy Engineers** - Certified Energy Auditor

**US Department of Energy** - AIRMaster+ Compressed Air Specialist

## **REPRESENTATIVE PROJECT EXPERIENCE**

### **Rhode Island Energy Efficiency and Resource Management Council (EERMC), Technical Consulting Services (2011-present)**

Optimal Energy manages a team of consultants providing support to the EERMC on topics ranging from high-level policy and legislative issues down to the oversight of program implementation and infrastructure development. Optimal's role includes representing the EERMC on all aspects of negotiating efficiency programs, plans, goals and budgets with National Grid, the program administrator. We also provide oversight of all program implementation and evaluation, monitoring and verification activities. Mr. Lawrence was the C&I lead consultant for eight years, providing technical support to the Council. These services include consultation on program planning, program savings analysis and reporting, review of annual and three year plans, and developing incentive and delivery strategies. Mr. Lawrence led the work to set appropriate C&I goals for the 2015-2017 and 2018-2020 three-year plans.

### **Massachusetts Energy Efficiency Advisory Council (EEAC), Technical Consulting Services (2014-present)**

Optimal Energy has served as the lead technical consultant to the Massachusetts EEAC since its inception in 2006. Optimal's role includes representing the EEAC on all aspects of negotiating efficiency programs, plans, goals and budgets with the program administrators, and oversight of all program implementation and evaluation, monitoring and verification activities. Mr. Lawrence was the lead Commercial and Industrial (C&I) consultant for five years. In this role, he led the effort to set appropriately aggressive C&I goals for the Massachusetts 2016-2018 and 2019-2021 three-year energy efficiency plans. Additional tasks include review and analysis of evaluation reports and potential studies to help incorporate lessons learned into the programs. Mr. Lawrence also consults on program planning and design, program savings analysis and reporting; and developing incentive and delivery strategies.

### **Connecticut Energy Efficiency Board, Technical Consulting Services (2016-present)**

Mr. Lawrence currently serves as the lead C&I technical consultant to the EEB. As with Rhode Island and Massachusetts, the C&I technical consultant represents the EEB to ensure ratepayer money is used to maximum effect in the C&I energy efficiency programs.

# MARGARET A. LYNCH

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## ENERGY EFFICIENCY EXPERIENCE

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President, **Core Energy Insights, Inc.**

*May 2013-present*

- Lead residential consultant to the Massachusetts Energy Efficiency Advisory Council (EEAC) since 2013, managing a team of four experts.
  - Developed strategic program framework and analysis to support negotiation of nation-leading residential energy efficiency goals for the 2016-2018 and 2019-2021 Massachusetts Energy Efficiency Plan terms.
  - Provide recommendations to improve performance and cost efficiency of the residential programs on an ongoing basis, including programs to increase participation by underserved populations and in residential retrofit offers.
  - Identify innovative approaches and best practices to reducing greenhouse gas emissions, integrating active demand management strategies, and effectively collecting and using information for customer engagement and other purposes in the residential programs.
  - Present findings in various forms and forums, including verbal and written presentations to the EEAC and Residential Management Committee as well as quantitative analysis and research papers.
  - Manage relationships with EEAC councilors, program administrators, and other stakeholders to ensure appropriate information exchange and to advance EEAC priorities.
- Residential consultant to the Rhode Island Energy Efficiency & Resource Management Council.
  - Joined Consultant Team in May 2020 to support 2021-2023 planning process.
- Certified Women Business Enterprise in the Commonwealth of Massachusetts.

Senior Program Manager

*July 2010-June 2012*

Program Manager

*July 2007-July 2010*

**Consortium for Energy Efficiency, Boston, MA**

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- Managed 3-year process with CEE members and other stakeholders to develop CEE Consumer Electronics Program Center, which provides a platform for program administrators to collaborate on assessment and development of program opportunities using centralized sales data and other resources.
- Developed CEE Consumer Electronics Program Guide and Program Summary as tools to support new electronics program activity.
- Facilitated industry, program administrator, and government stakeholders to create framework for identifying program opportunities in residential windows.

- Established and facilitated working group of residential new construction program managers to exchange information to support their assessment of new construction program models, including adoption of ENERGY STAR® for Homes Version 3.
- Led residential team on an interim basis for nine months in 2011.

### **Publications**

- Lynch, M., S. Wylie & K. Kaplan. "Maintaining the Value of Voluntary Performance Specifications for Consumer Electronics: Successful Elements for Addressing a Nimble and Prolific Market." *ACEEE 2010 Summer Study*.
- Lynch, M., R. Lee, T. Mauro & M. Michalski. "Achieving Real Energy Savings through Consumer Electronics Programs." *ACEEE 2008 Summer Study*.
- Granda, C., M. Lynch & S. Rashkin. "Tackling Efficiency Paradoxes: Possible Responses to Today's Landscape of 'Energy-Efficient' 10,000 sq. ft. Houses and 50-inch Televisions." *ACEEE 2008 Summer Study*.

### **Professional and Personal Development**

- *The Zero Energy Home: What, How and If*, Boston Architectural College course, 2009.
- *Stow Energy Working Group*: Organized energy efficiency forum for town residents.
- Conceived and directed all aspects of construction of my new custom home, which received Silver certification in the LEED for Homes pilot program in 2007.

## **OTHER RELEVANT PROFESSIONAL EXPERIENCE**

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Director of Partnerships, Massachusetts Department of Conservation and Recreation, Boston, Massachusetts, 2005-2007.

Program Director; Community Planning Director, Jackson Hole Conservation Alliance, Jackson, Wyoming, 2001-2004

Executive Director, Friends of Pathways, Jackson, Wyoming, 1996-2001

Attorney, Beveridge & Diamond, P.C., Washington, DC, 1993-1995.

Law Clerk, Hon. Albert W. Coffrin, U.S. District Court, Burlington, Vermont, 1992-1993.

## **EDUCATION**

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**Columbia University School of Law**, New York, New York  
Juris Doctor, 1992

**Middlebury College**, Middlebury, Vermont  
Bachelor of Arts in Political Science, 1989

## **Ralph Prah, Independent Consultant**

7613 Whitebridge Glen  
University Park, FL 34201  
Phone: (608) 334-9942  
E-mail: Ralph.Prah@gmail.com

### **EXPERIENCE**

#### **1990-Present: Independent Consultant**

Advised governmental and non-profit organizations on the planning, review and oversight of energy efficiency program evaluation and market assessment activities. Clients included the California, Connecticut, Massachusetts, New York, Wisconsin, New Hampshire and Vermont PUCs; the National Association of Regulatory Utility Commissions; the Wisconsin Department of Administration; the Massachusetts Department of Energy Resources; the Long Island Power Authority; the Massachusetts Non-Utility Parties; and the Northwest Energy Efficiency Alliance. Selected recent assignments include:

- Evaluation advisor to the New Hampshire PUC, 2018-present
- Member of Evaluation Administrator Team, Connecticut Energy Efficiency Board, 2016-present
- Evaluation planning, review and oversight consultant to the Massachusetts Energy Efficiency Advisory Council, 2009-present
- Evaluation advisor to the Rhode Island Energy Efficiency and Resource Management Council, 2008-present.
- Development of protocols for the evaluation of market transformation initiatives on behalf of the Illinois Stakeholder Advisory Group, 2019
- Evaluation advisor to the California PUC, 2010-2018
- Evaluation advisor to the New York Department of Public Service, 2008-2017
- Development of long-term evaluation plan for New Hampshire PUC, 2014
- Lead evaluation planner and reviewer for the Wisconsin statewide public benefits evaluation team, 1999-2011.
- Evaluation advisor to the New York Power Authority, 2009-2011
- Assisting the California PUC in overseeing a series of market effects studies, 2007-2010 (subcontractor to the California Institute for Energy Efficiency)
- Evaluation planning and review consultant to Efficiency Vermont, 2000-2010.
- Evaluation planning and review consulting to Massachusetts Non-Utility Parties, 1998-2009.
- Evaluation planning and review advisor for the Long Island Power Authority, 1999-2009.
- Evaluation advisor to the Illinois Stakeholder Advisory Group, 2008-2009
- Assisting the New England states and ISO in developing regional Measurement and Verification protocols for use in the Forward Capacity Market, 2006-2007
- Primary overseer of energy efficiency evaluation efforts in California on behalf of the California Board for Energy Efficiency and the California PUC, 1997-2000.
- Independent reviewer of the evaluation activities of the California utilities on behalf of the California PUC, 1995-2000.



**1985-1997: Coordinator of Energy Efficiency Evaluation and Research, Public Service Commission of Wisconsin**

Provided regulatory oversight for the program evaluation, market assessment and R&D efforts of the Wisconsin utilities in support of their energy efficiency programs. Played a leading role in conceiving, developing, and overseeing the Energy Center of Wisconsin, a unique state-level research consortium. Served as an in-house consultant on a wide range of regulatory issues involving statistical analysis and applied social research.

**EDUCATION**

- 1985. M.A., Sociology, University of Wisconsin-Madison.
- 1982. B.S., History, University of Wisconsin-Madison.
- 1982. B.A., Journalism, University of Wisconsin - Madison.

**HONORS**

Winner of the 2015 International Energy Program Evaluation Lifetime Achievement Award

**REFERREED PUBLICATIONS**

Author of approximately 75 refereed journal articles, book chapters, conference papers, and journal issues. Full publications list available upon request.

**MISCELLANEOUS ACTIVITIES**

Member of the planning committee for the International Energy Program Evaluation Conference, 1999-present.

Peer Review Panel for US DOE EM&V Certification Scoping Study, 2015-2016

Independent Peer Review Panel for evaluation of US DOE Better Buildings Neighborhood Program, 2012-2013. Invited member of five-person panel.

Independent Peer Review Panel for review of savings estimation methods for the US EPA Energy Star Program, 2009-2010. Invited member of five-person panel.

**REFERENCES**

Available upon request.

# Rachel Sholly

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## EXPERIENCE

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### ***Independent Consultant***

**Jan 2018 - Present**

#### **Rachel Sholly Energy Consulting, Providence, RI**

- Education, communications, and stakeholder engagement projects for Optimal Energy
  - Plan and implement RI Energy Efficiency and Resource Management Council's activities to promote public awareness of energy efficiency programs and their benefits
  - Develop resources and training to increase Council member understanding of efficiency policy and programs and to support member-constituent communication
  - Facilitate stakeholder engagement and provides project management support as needed

### ***Chief, Program Development***

**Jan 2013 - Dec 2016**

#### **Rhode Island Office of Energy Resources, Providence, RI**

- Coordinated an interagency development team to establish the RI Efficient Buildings Fund, which provided long-term, low-interest financing for public sector energy projects. Administered the application and ranking process in close cooperation with the RI Infrastructure Bank and National Grid
- Led the RI Public Energy Partnership to build a sustained infrastructure for achieving deep energy savings in state and municipal facilities
- Provided staff support to the RI Energy Efficiency and Resource Management Council
- Represented OER on energy efficiency working groups including the Green Buildings Advisory Committee, the Demand Collaborative, Zero Net Energy, RI Alliance for Healthy Homes, Energy Expo Planning, Codes and Standards and utility-consultant team strategy groups

### ***Interim Director***

**Aug 2012 - Dec 2012**

#### **URI Outreach Center, Kingston, RI**

- Oversaw eight cooperative extension staff working in energy, urban agriculture and horticulture
- Managed an \$800,000 annual operating budget, including state appropriations, grants and program revenue
- Led URI's work on the RI State Energy Plan and RI Public Energy Partnership in coordination with RI OER
- Identified and secured creative funding and partnership opportunities that supported our mission

### ***Assistant Director***

**May 2010 - Jul 2012**

#### **URI Outreach Center, Kingston, RI**

- Managed diverse energy projects funded through federal, state and private entities (~\$1.7 million), including the US EPA Climate Showcase Communities program
- Oversaw an interdisciplinary energy team of staff and graduate and undergraduate students
- Led program evaluation, strategic planning, organizational development and staff meetings
- Coordinated the URI Energy Fellows internship program including hiring, professional development and field trips

### ***Climate Action Plan Coordinator***

**Dec 2009 - Apr 2010**

#### **URI Division of Administration and Finance, Kingston, RI**

- Co-authored a comprehensive plan to institutionalize energy conservation and sustainability on behalf of the URI Sustainability Council, chaired by Vice President Robert A. Weygand

### ***Energy Fellows Program Coordinator***

**Jan 2008 - Feb 2010**

#### **URI Outreach Center, Kingston, RI**

- Secured over \$750,000 in federal, state and private funds for energy projects
  - Managed concurrent and diverse energy programs, projects and events
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## EDUCATION

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### ***Master of Environmental Science & Management***

**Sep 2007 - May 2009**

**University of Rhode Island**

### ***B.S. Wildlife and Conservation Biology***

**Sep 2002 - May 2006**

**University of Rhode Island**