Memo

Date: February 22, 2019

To: East Bradford Township Board of Supervisors
East Goshen Township Board of Supervisors
West Goshen Township Board of Supervisors
West Whiteland Township Board of Supervisors
Westtown Township Board of Supervisors
West Chester Borough Council

From: Rick Smith, East Goshen Township Manager

Re: Energy Transition Plan

By way of background, in November 2018, the WCACOG approved the issuance of a RFP for Renewable Energy Planning services. The RFP was a request for a consultant to develop an Energy Transition Plan to achieve 100% renewable electricity by 2035 and 100% renewable energy for all uses by 2050.

The RFP was issued in December and proposals were due on February 4, 2019. The WCACOG received proposals from the following firms:

Amerex Energy - Sugar Land, TX (Office in West Chester)
Cadmus Group - Boston, MA
Enel X – Boston, MA
NEWR Energy - Bethesda, MD (office in Philadelphia)
Optimal Energy - Hinesburg, VT
Pennoni-Krug – West Chester, PA
ProtoGen Energy Aligned - Quakertown, PA
Synapse Energy Economics – Cambridge, MA
Practical Energy Solutions - West Chester, PA - expressed interest in the project but did not submit a proposal since their Vice President, Dianne Herrin, is also the Mayor of West Chester

Prior to the receipt of proposals, Thornbury Township indicated that they did not want to participate in this project.

A review team consisting of the municipal managers and three representatives from the Chester County Clean Energy Leaders reviewed the proposals and interviewed (via a video conference) three of the firms that submitted proposals.

The review team recommended that the WCACOG accept the proposal from Cadmus Group LCC in the amount of $75,000. Cadmus has developed an energy transition plan for King County in Washington and is in the process of developing a plan for Buncombe County in North

Carolina, which includes the city of Asheville. They provide technical assistance to the DVRPC for their Solar Ready II project and worked on projects for the U.S. Department of Energy.

At their meeting on February 21, 2019, the WCACOG approved a motion to accept the proposal from Cadmus in the amount of $75,000, with the cost to be apportioned based on population:

	Population	Percentage		
East Bradford	10,038	9.97%		$7,475
East Goshen	18,339	18.21%		$13,656
West Chester B.	19,842	19.70%		$14,775
West Goshen	23,137	22.97%		$17,229
West Whiteland	18,450	18.32%		$13,739
Westtown	10,913	10.84%		$8,126
Total	100,719	100.00%		$75,000

The WCACOG is comprised of an elected official from each of seven municipalities in the West Chester region. Under the terms of the inter-municipal agreement that created the WCACOG, the governing body of each of member municipality must specifically approve participation in any WCACOG project. Accordingly, in order for each of your respective municipalities to participate in this project, an affirmative vote of your respective governing body is required.

The next WCACOG meeting is scheduled for April 25, 2019, so we would appreciate receiving your decision by that date.

Attached is a synopsis of the project, along with an excerpt from the proposal from Cadmus.

BOS Presentation

(1) Good evening. My name is Henry Alexander and I live at 1101 Fern Hill Road. To my (left) is Paula Kline from Westtown Township. We are members of the Sierra Club Ready for 100% Renewable Campaign. Thank you for the opportunity to discuss the need for energy planning in the greater West Chester area and the benefits of having Cadmus, an energy planning company, conduct this work.

(2) It is important to remind ourselves of the urgency of conducting energy planning. The increase in the concentration of carbon dioxide, methane, and other greenhouse gases in our atmosphere is causing significant changes to our atmosphere and our oceans, causing temperatures to rise and ocean chemistry to change. If man-made emissions causing these increases are not reduced and finally eliminated in the next thirty years, we will experience catastrophic climatic change. We are already experiencing changes in the form of droughts and constant forest fires in the western United States and severe storms in the eastern part of the country. In 2017, **(3)** fires in the west and the hurricanes in **(4)** Houston, **(5)** Miami and **(6)** Puerto Rico cost an estimated $250 billion. **(7)** The cost of destruction in 2018 was somewhat lower but the Camp Fire killed 85 people and incinerated an entire town. **(8)** Our region has more intense rains and this has resulted in historic flooding. We not only need to institute better land use planning to minimize the impact on lives and property, we need to get to the source of the underlying problem – the release of heat trapping gases to the atmosphere. Carbon dioxide is the major heat trapping gas. Once released, it remains in the atmosphere and the oceans for centuries. Consequently, we must steadily reduce our emissions of carbon dioxide and other GHGs and eliminate them by 2050, or unacceptably high concentration of heat-trapping gases will be baked into the atmosphere for centuries to come.

(9) The West Chester Area Council of Governments (WCA COG) considered the development of an energy transition plan after two of the municipal members (West Chester Borough and East Bradford Township) passed resolutions to convert to 100% renewable energy by 2050 and to prepare plans to do so. It was felt that it would be more efficient and less expensive to fund a plan for the entire West Chester area than to do so individually. Starting in September of last year, the WCA COG sent out a request for qualifications to energy planning firms, then a request for proposals, and finally chose a consulting firm from ten highly qualify applicants to conduct this planning. **(10)** The consulting firm that won the bid was Cadmus, an energy analysis firm based in Boston.

Between 1978 and 1983, I was in charge of the photochemical oxidant control planning process for the Commonwealth of Pennsylvania. I developed the inventory of pollutant emissions, the control strategies, and the regulations to reduce the ozone and oxides of nitrogen concentrations to the air quality standards mandated by the Clean Air Act Amendments of 1977. I feel like this is deja vu all over again only the stakes are much higher.

(11) We believe that Cadmus is the preeminent company in community-wide energy planning. It has the technical expertise to develop a plan to achieve a transition to renewable energy, and their proposal demonstrated a capacity to work with various interest groups and stakeholders.

Cadmus has a good knowledge of the regulatory structure of energy management in Pennsylvania. It has undertaken similar planning for the Seattle area, Tompkins County, New York in which Ithaca is located, and Ashville, North Carolina, to name just a few of their projects. And it is the consultant to the Delaware Valley Regional Planning Commission (DVRPC) on renewable energy.

(12) The greater West Chester area is primarily a suburban, residential community with commercial centers, office complexes, and some light manufacturing. Our emissions of GHGs reflect this. **(13)** Figure 1 shows a summary of the emissions of greenhouse gases in the greater West Chester area for the year 2015, which was prepared by the DVRPC. The emissions are primarily from residential buildings, commercial & industrial buildings, and highway vehicles. Small quantities come from wastewater, solid waste, and agriculture, and other sources.

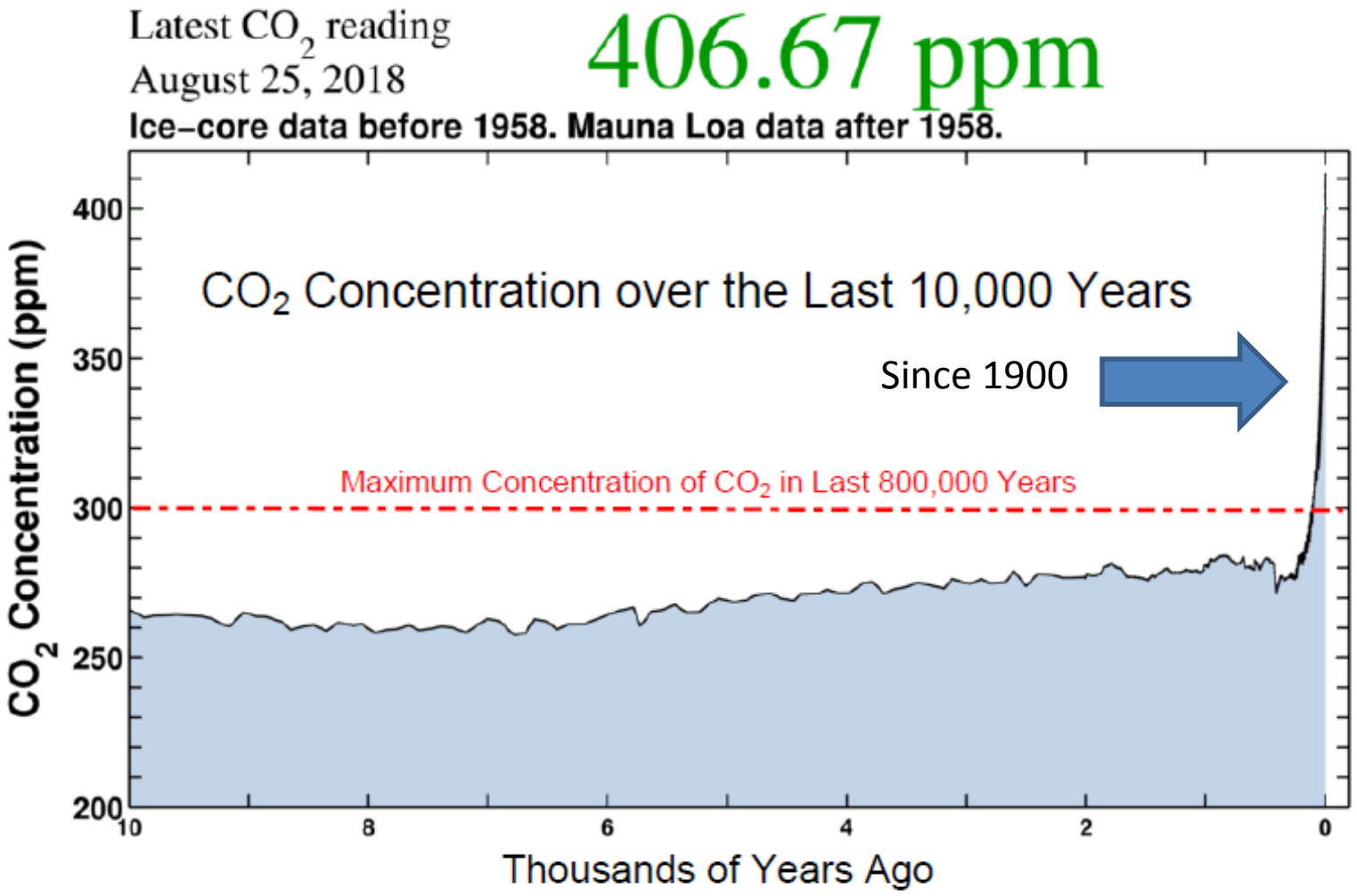
Cadmus will address the possible scenarios for reducing our emissions of GHGs. There are three basic strategies for doing this: increased efficiency in energy usage, the gradual conversion of our motor vehicle to electric vehicles, and conversion of space heating and electrical generation to renewable sources of energy. Increases in energy efficiency can achieve a 25% reduction in GHG emissions; these conservation measures pay for themselves over time though energy savings. Another 25% reduction can be achieved through the gradual conversion of our vehicle to electric vehicles even if we did not convert any electricity to renewable sources; electric vehicles are simply much more efficient than internal combustion vehicles and the life cycle cost of electric vehicles is lower than the vehicles we drive today. (The Township has taken an important step in this process by installing six electric vehicle charging stations in township facilities.) Finally, the cost of renewable energy is competitive with most existing energy sources now and is becoming cheaper each year. **(14)** And these changes also eliminate the major sources of air pollution: motor vehicle and power plant emissions.

(15) The Cadmus project will consist of five tasks. After a project kickoff meeting (Task 1), Cadmus will undertake an extensive effort to help the community establish an advisory group and a technical project team to provide guidance and technical input, and to carry on the work when the Cadmus contract is concluded. There is also a robust outreach effort to the community. The third task will consider the strategies for implementing the energy plan and examining the state and local rules, codes, and policies that either aid or impede this transition. In Task 4, Cadmus will develop a predictive model of the energy transition and test assumptions of the model based on our input and local regulatory constraints. Finally in Task 5, Cadmus will prepare and present a renewable energy plan for our area with short, medium, and long-term recommendation. **(16)** And they will do this for what amounts to 77 cents per resident of the greater West Chester area. The residents and businesses of the greater West Chester area spend $285,000,000 per year on all various forms of energy. An energy study will help us understand how to improve our purchases in a changing energy environment.

We strongly encourage you to vote to approve and fund this effort. And we would be happy to answer any question that you may have. Thanks you. **(17)**

Energy Planning in the West Chester Area

Energy Planning in West Chester Area



Energy Planning in West Chester Area

Before California Fires (2017) $20 billion After

Energy Planning in West Chester Area

Houston, Texas

Hurricane Harvey (2017) -$125 billion

Energy Planning in West Chester Area

Florida Hurricane Irma (2017) - $50 billion

Energy Planning in West Chester Area

Puerto Rico

Hurricane Maria (2017) - $70 billion

Energy Planning in West Chester Area

The Second 1000-year Flood within Two Years

Ellicott City, Maryland

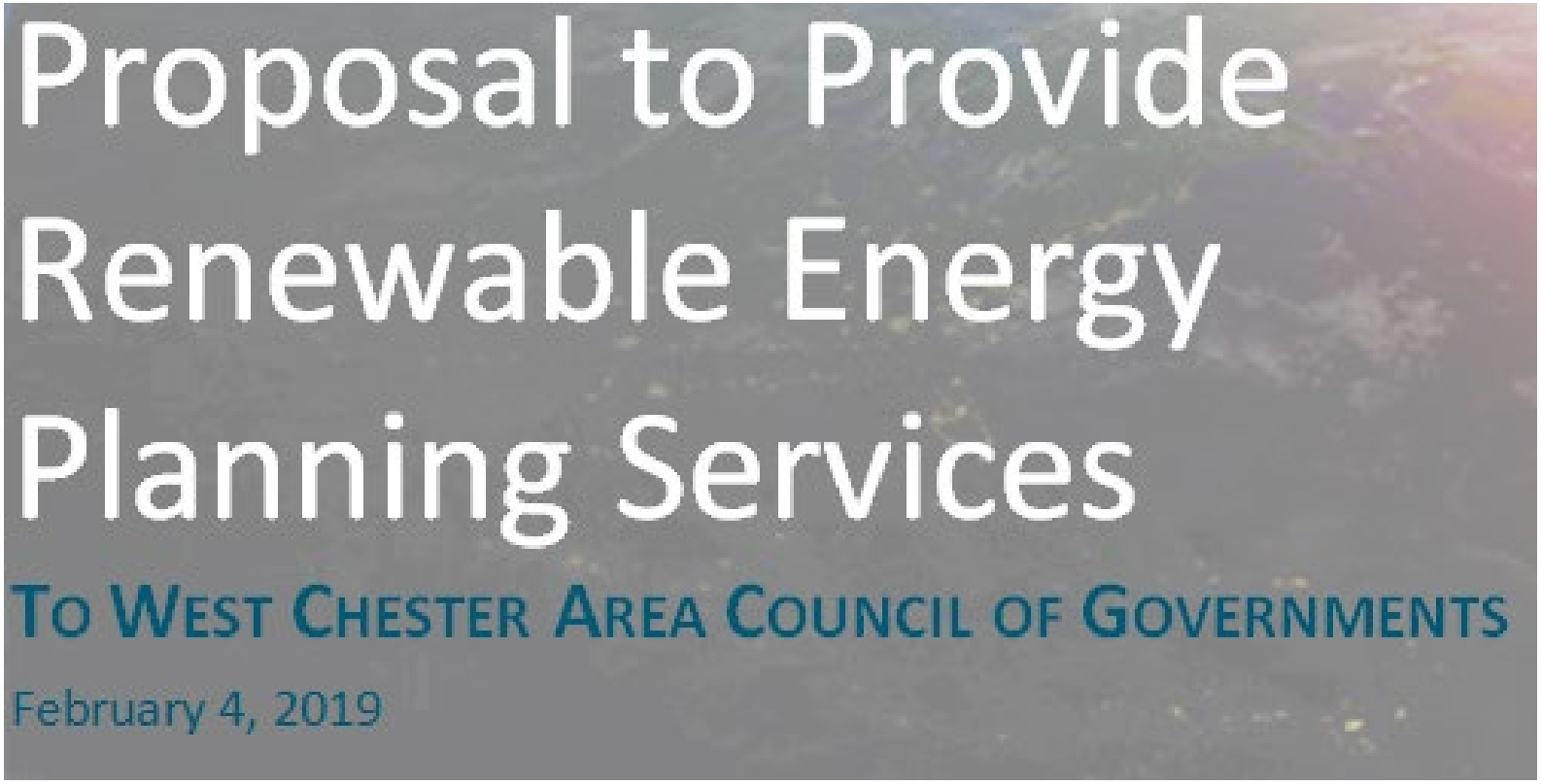
Energy Planning in West Chester Area

Camp Fire, California 2018

Energy Planning in West Chester Area

Energy Planning in West Chester Area

CADMUS



Energy Planning in West Chester Area

Energy Plans Developed for:

- Seattle area,
- Tompkins County, New York (Ithaca)
- Ashville, North Carolina
- City of Bloomfield, Iowa

Energy Efficiency and Conservation Plan Evaluation Services for *PPL Electric Utilities*

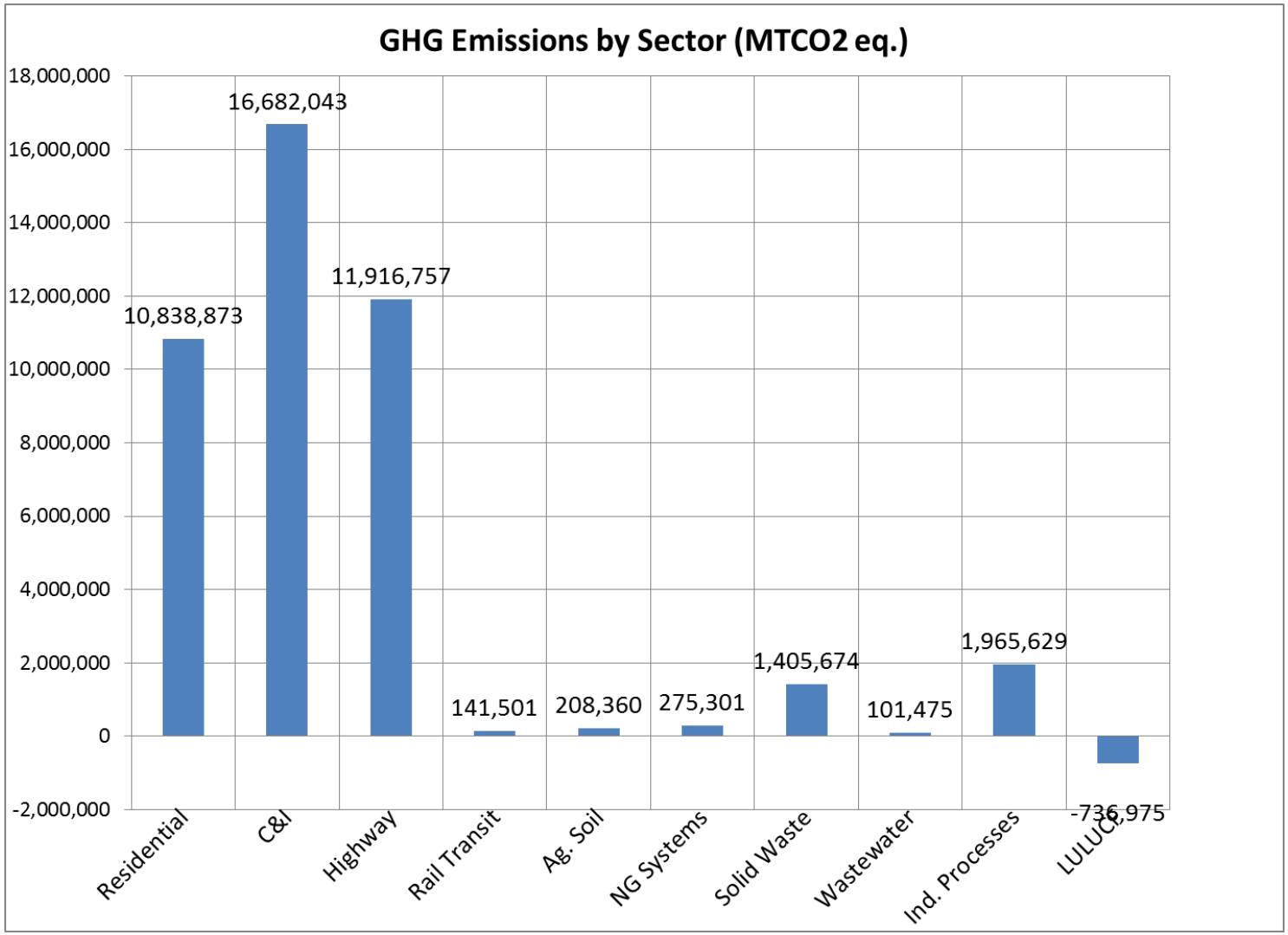
Pennsylvania Electric Vehicle Roadmap for *Pa Dept. of Environmental Protection*

Consultant to DVRPC on Renewable Energy

Energy Planning in West Chester Area

Energy Planning in West Chester Area

Figure 1 – GHG Emissions by Sector (MTCO2 eq.)



Significant Air Quality Improvements

Energy Planning in West Chester Area

Project Tasks:

1. Initial Meeting
2. Stakeholder & Community Engagement
3. Policy Options and Barrier Analysis
4. Policy Impact Modeling
5. Renewable Energy Plan Development

Energy Planning in West Chester Area

Cost of Cadmus Contract:

77 cents/Resident

(once)

Energy Planning in West Chester Area

Questions?

ENERGY TRANSITION PLAN

This project will result in the creation of an Energy Transition Plan ("the Plan") with a goal of 100% renewable energy electricity by 2035 and 100% renewable energy for all uses by 2050 in a fair and inclusive transition process. It should be noted that this project is intended to not only affect municipal operations, but rather all uses, including residential, commercial, business, industrial, educational, retail, and transportation.

Cadmus has broken the project into five tasks which are summarized below:

Task 1 – A kickoff meeting (via video conference) with members of the WCACOG to provide Cadmus with a better understanding of our objectives, stakeholder engagement, and the schedule for the Plan.

Task 2 - The creation of an advisory group that will include a representative from each municipality, a representative from the DVRPC, other representatives as determined by WCACOG, and eight stakeholders from the West Chester area. Cadmus will interview the stakeholders to obtain their input on how to address their specific needs and challenges. A community visioning session will be held to solicit input from the general public. A website will be created to provide information to the public on the project. A summary of the results will be compiled for use by the advisory group.

Task 3 – Cadmus will compile a list of policies based on the stakeholder interviews and community visioning session, and for each policy, identify and assess the various barriers and opportunities that exist for its implementation. They will then prepare a policy summary matrix that will summarize the above information. Cadmus will also identify up to eight sites that may be suitable for renewable energy or energy storage.

Task 4 – Cadmus will identify the current mix of electric power sources for the West Chester area. A business-as-usual forecast of the electric power mix will be developed for use as a baseline. The impacts of the various policies identified in Task 3 will be modeled to determine the expected energy, financial, and economic impacts on this baseline. The various policies will be analyzed and grouped as appropriate, and Cadmus will prepare a memo summarizing the above information and how it helps to achieve the 100% renewal energy goal.

Task 5 – The final Plan, including short-, medium-, and long-term objectives will be developed. Specific action items will be identified for the short- and medium-term objectives. Generalized steps will be identified for the long-term objectives. Cadmus will present the plan at a public meeting.

Attached are the applicable pages from their proposal.

3. Approach to Project

The following section describes the Cadmus team's approach to accomplishing the tasks laid out by West Chester Area Council of Governments (WCACOG) in its RFP. The West Chester Area Council of Governments, representing West Chester Borough and the townships of East Bradford, West Whiteland, West Goshen, East Goshen, Westtown, and Thornbury, will hereby by referred to as *WCACOG*, and the multi-jurisdictional area it represents will be referred to as *the West Chester Area*.

Task 1. Kickoff Meeting

At the outset of the project, the team will first conduct a scoping call with WCACOG to further hone the scope of the project together and to better understand the regional vision, objectives, and constraints. The scoping call will include WCACOG's preferences on key aspects of the project including the breadth and depth of the stakeholder engagement process, project schedule, deadlines for key deliverables and the timing of regular check-ins.

Key Deliverables:
- Kickoff call with WCACOG
- Finalized scope of work
- Gantt chart

Task 2 - Stakeholder and Community Engagement

Task 2a. Project Advisory Group Formation and Intake Interviews

To obtain feedback from key stakeholders in the West Chester Area, Cadmus will work with WCACOG to assemble an advisory group. This core working group will be comprised of a representative from each city, along with at large representatives from the DVRPC and potential additional members as suggested by WCACOG. The Project Team will call on this advisory group to provide critical input and feedback throughout the Renewable Energy Planning process.

As part of its initial outreach, the Project Team will conduct up to eight individual "intake interviews" with these advisory group members. The intake interviews will focus on understanding directly from key stakeholders their priorities, concerns, and preferences for renewable energy implementation. Furthermore, it will allow the Project Team to understand perspectives from members of each of the seven communities. The individualized nature of the interviews will allow for insights to be shared that might not otherwise be discussed at a meeting with additional stakeholders. These conversations can serve to build initial stakeholder support as well as demonstrate inclusion by inviting stakeholders to interview who may not be strong supporters of the renewable energy plan. It can allow stakeholders to air their concerns in a format that will not detract from a larger group discussion. Overall, the intake interviews will inform the development of the materials for the Advisory Group Meeting (Task 2b).

Task 2b. Advisory Group Meeting

The Project Team will meet in-person with WCACOG, and selected stakeholders (potentially Advisory Group). This meeting would involve reviewing the agenda for the broader Community Visioning Workshop and to solicit detailed feedback from members on discussion topics in advance of the

Community Visioning Workshop. A key conversation will be confirming WCACOG's energy goals, which will involve defining what methods of generation will count as renewable. The small group meeting will also serve as an initial opportunity for the Project Team to identify preferences and common barriers shared by the seven communities. The small group would discuss topics likely to be raised by attendees at the broader meeting and strategize as to how to frame the conversation most productively. Holding this meeting in advance of the public workshop will allow the Project Team to review material with the advisory group before making a full public presentation and will allow for a more detailed discussion as a small group.

Task 2c. Community Visioning Workshop

Later in the day (likely in the evening to allow for greater community attendance), WCACOG and Project Team would hold a launch meeting in a central location with community, and advisory group members. This professionally-facilitated workshop will seek to identify different community perspectives on municipal energy goals and priority, and to discuss the community's specific needs, challenges, and goals for the project. Holding this stakeholder meeting at the outset of the project will ensure the team can best align tasks with goals. Discussion questions and presentation topics will be developed with WCACOG in advance of the meeting.

At the stakeholder workshop, a group visioning exercise will guide the process for establishing a community-wide vision for achieving the WCACOG's Renewable Energy Targets. Preliminarily, discussion topics will include:

- ***Priorities:*** *What are the group's key drivers and priorities for renewable energy implementation?* Communities are motivated to transition to 100 percent renewable energy utilization for a variety of reasons. Identifying which one or more of these are key drivers is a critical step in determining the most effective path for implementation of renewable energy for the community. For instance, a few potential priorities may include reducing energy costs, reducing GHG emissions, and strengthening local economic development.
- ***Collective Vision of Success:*** *What tangible changes would be evident in our community if WCACOG were achieved its 100 percent renewable energy goals?* This might include increased financial strength (e.g. average reduction in energy bills for households and businesses), greater resilience (fewer power outages during storms), and economic or other co-benefits (local energy jobs).
- ***Obstacles:*** *What have been obstacles to renewable energy implementation thus far?* What would mitigate these obstacles? This may include policy constraints, stakeholder opposition, or other challenges. Clarifying these upfront allows the community and Project Team to learn from past pitfalls and focus efforts on moving forward.

Following this round of stakeholder engagement, the Project Team will prepare a memo that summarizes the findings from the intake interviews, Advisory Group Meeting, and Community Visioning Workshop and identify how these outputs will inform later tasks.

Task 2d. Ongoing Public Education and Outreach Support

The Project Team will develop a simple project website to house outreach materials and deliverables, which will serve to keep the community updated after the community meeting. Cadmus will make regular updates to this website, describing project progress and posting interim task deliverables.

Members of the Project Team will also be available to call in to public or stakeholder meetings as appropriate to support WCACOG members in updating community members and elected officials on progress.

Key Deliverables:

- Eight individual intake interviews
- In-person Advisory Group Meeting
- Community Visioning Meeting
- Memo summarizing findings from interviews, Advisory Group Meeting, and Community Visioning Workshop
- Project website and outreach materials

Task 3. Policy Options and Barriers Analysis

Task 3a. Compilation of Policy Options

Based on the initial community visioning workshop with WCACOG, as well as Cadmus' prior work with municipal governments nationwide, the Project Team will compile a list of strategy options that were either directly identified by WCACOG and other relevant stakeholders or are based on best practices that could align with WCACOG's goals.

Based on its *Pathways to 100* report and prior local energy planning projects, Cadmus has developed a preliminary list of more than two dozen actions that may be included in such a roster of potential policy actions across multiple technologies. Actions included may include, for example, direct use of municipal legal authority, use of the city's convening abilities or the creation of community-based programs, partnerships with utility or state organizations to implement innovating tariff, financing, or incentive programs, transportation electrification or demand management strategies, and other emerging local government policy strategies. The Project Team will revise the resulting list based on stakeholder feedback and WCACOG's interests to develop a custom set of policy options for evaluation in this effort.

The Project Team will look at options that deploy the hard powers of WCACOG member governments — options to use city resources to act locally and to use city authority to require local action. This will include exploring opportunities for collaboration with other parties to act regionally or statewide, including engagement of county or state government to take steps to allow for greater action, and cooperation with legislators, regulators, or agency staff.

Task 3b. Barriers and Opportunities Assessment

For each policy or program option of interest, the Project Team will assess the feasibility and expected impacts of such an effort within Pennsylvania's policy and regulatory structure. The research will be specific to Pennsylvania's energy context, drawing on our extensive experience with state municipalities and utilities, and the regional expertise of the Advisory Staff. The project team will conduct desk research to evaluate relevant barriers and opportunities, consulting regional installation databases, integrated resource plans, and other independent studies where available. Considerations for the barriers and opportunities research may include the type and scale of each action and strategy, and county cost-effectiveness and general effectiveness (low to high) and feasibility of the policy options.

This work will be done in consultation with the project advisory group to provide additional insights related to key barriers, potential existing gaps, and opportunities for continued renewable energy penetration. The Project Team will coordinate with WCACOG to conduct outreach to key stakeholders and will utilize the deep local knowledge of its project partners to ensure that local policy issues are reflected in the assessment of barriers and opportunities.

Based on this assessment, the Project Team will develop a policy summary matrix which provides qualitative descriptions of the feasibility, scalability, and impact of various policy options. The Project Team will share the list of potential strategies and policy matrix with the Advisory Group.

Task 3c. Potential Renewable Energy and Energy Storage Site Identification

Informed by stakeholder conversations, the Project Team will identify and compile a short list of potential sites for renewable energy or energy storage site development. The Project Team will conduct high-level pre-feasibility assessments for up to eight sites, taking into account factors such as available land area, proximity to power lines, and other factors informing site feasibility. Given budget constraints, our team anticipates that this study will be high-level. However, our team does provide no-cost technical assistance through the U.S. Department of Energy's SolSmart program. If WCACOG communities are interested in pursuing a more in-depth feasibility analyses solar specifically, our team can provide this type of technical assistance through the SolSmart program.

Key Deliverables:

- Memo detailing potential policy options including barriers
- Strategy analysis matrix comparing the options
- Pre-feasibility assessment of eight sites

Task 4. Policy Impact Modeling

In Task 4, the Project Team will identify the likely energy and financial impacts of a set of programs of interest to the West Chester Area, as well as a range of scenarios that reflect high concentrations of renewable energy and their associated costs.

The Project Team will first conduct research on the current mix of electric power sources for the West Chester Area, and develop a business-as-usual forecast of likely changes in electric power mix during the planning period.

From this baseline, the Project Team will assess the likely energy impacts (as well as the associated greenhouse gas emissions reductions) of each strategy selected in Task 3 above towards WCACOG's renewable energy goal, as well as the potential direct costs and benefits to the communities associated with each opportunity. The Project Team can draw on its existing database of local government policy impacts, as well as its existing city energy model, to conduct this work efficiently.

Following this analysis, the Project Team will present and discuss these results with the Advisory Group and would develop one or several packages of policy actions items which could be combined to comprise a renewable energy transition plan.

For each policy package, Cadmus will then create a wedge analysis which displays the results of this energy impact assessment and which discussed the contribution that each specific action within a policy

scenario would have in bringing WCACOG toward its renewable energy goals. Cadmus will provide an analysis memo to synthesize the results of this analysis, and characterize the expected energy, and economic impacts of each policy and package.

Key Deliverables:

- Analysis memo summarizing (1) each community's current energy mix and expected baseline power mix forecast, (2) policy actions and scenarios selected for quantitative impact assessment, (3) expected energy, financial, and economic impacts of various policy actions and scenarios, and (4) wedge analysis demonstrating progress towards 100% renewable energy goal of each policy scenario

Task 5. Renewable Energy Plan Development

Based on the outcomes of the above research tasks and stakeholder feedback, the Project Team (with the advice and review of the Advisory Group) will develop a roadmap for WCACOG's renewable energy goals. This plan will use the conclusions of the policy research and community planning process to identify actions of broad interest in the West Chester Area and utilize the results of the impact assessment and feasibility study to identify the projected energy impacts, costs, and savings of these actions. The process for input on the plan will have the following major steps:

- High-level plan: The Project Team will identify the strategies from the matrix that best align with local goals. For each strategy selected, the team will identify key steps in execution and produce a summary document that outlines the major strategies and associated action steps.
- Input from City and Community Advisory Group: The Project Team will share the high-level summary document with the Community Advisory Group to ensure that the overall direction aligns with local needs and challenges.
- Full action plan: The Team will make final adjustments to the high-level plan based on input from the Advisory Group and compile a full action-plan for WCACOG's transition to utilizing 100 percent renewable energy will include short-, medium-, and long-term opportunities. Long-term opportunities will summarize high-level steps needed to create the environment to move forward with increasing renewable energy sources (e.g. establishing an on-going commitment from a broadened Advisory Group, passing additional local legislation). The short- and medium-term levels will provide action-steps for the selected strategies such as directed guidance on engaging residents, securing funding, and adjusting program policies.
- Community presentation: Following the completion of the full action plan, the team will deliver an in-person presentation of final results in a public meeting in the West Chester area. The project team will work with WCACOG members and the community advisory group to promote the meeting and invite community participation.

Upon review of the action plan by the WCACOG and key stakeholders, the Project Team will address any feedback and develop a final deliverable. The project will conclude with an in-person~~a remote~~ presentation to present the final results and recommendations.

Key Deliverables:

- A final Renewable Energy Transition Plan for WCACOG area, including short-, medium-, and long-term goals
- A final public presentation ~~WCACOG and advisory group members~~of the full action plan

Proposal to Provide Renewable Energy Planning Services to West Chester Area Council of Governments
February 19, 2019

Revised Cost Proposal

The Project Team proposes to deliver the scope of work above for a budget (including labor and expenses) of $75,000. Cadmus proposes offering each task at a fixed price amount. A budget by task is provided in Table 1 below. The Team proposes for two Cadmus staffers to attend the in-person meetings with WCACOG.

Table 1 Proposed Budget

Task	Budget
Task 1: Kickoff Meeting	$600
Task 2: Stakeholder and Community Engagement	$22,500
Task 3: Policy Options and Barriers Analysis	$16,200
Task 4: Policy Impact Modeling	$12,000
Task 5 Renewable Energy Plan Development (including in-person final presentation)	$21,600
Travel Expenses (two trips)	$1,800
Workshop Refreshments and Materials (two trips)	$300
Total	**$75,000**

The set of activities and tasks proposed by the project team do not easily scale with the number of communities that would participate in a community energy planning effort. Therefore, the Project Team proposes the same basic cost structure regardless of the number of participating communities.

CADMUS

February 4, 2019

Rick Smith, Township Manager
East Goshen Township
1580 Paoli Pike
West Chester, PA 19380-6199

RE: Proposal to Provide Renewable Energy Planning Services to West Chester Area COG

Dear Mr. Smith,

On behalf of the Cadmus Group LLC (Cadmus), I am pleased to submit this proposal to the West Chester Area Council of Governments to develop a Regional Community Energy Transition Plan. Cadmus' extensive experience with municipal governments and state agencies nationwide makes us uniquely suited to work within the regulatory policy and planning context of the West Chester Area communities. Our team has consistently been able to create transition plans that are informed by data, stakeholder engagement, and current and future regulatory feasibility.

Our team is deeply familiar with the regulatory and policy landscape of southeastern Pennsylvania. Cadmus has been involved in several U.S. Department of Energy Programs which have worked closely with the Delaware Valley Regional Planning Commission—focusing primarily on solar soft cost reduction through zoning, solarize programs, and utility engagement. We also have deep statewide knowledge of programs through our decade of work with Pennsylvania utilities, and leadership in the development of the Pennsylvania Electric Vehicle Roadmap. We have a history of providing equity-focused energy transitions across the United States—providing services to Bloomfield (IA), Buncombe County (NC), King County (WA), Mountain View (CA), and Kingston (NY). Our policy experts ensure that recommendations are consistent with national best practices and reflective of West Chester's local context.

Our Project Team will be able to leverage Cadmus' broader staff of more than 600 scientific, engineering, and policy professionals located in a dozen offices across the U.S. and Germany, with expertise in the West Chester Areas of energy, transportation, and environment. Cadmus is a leader in the development of stakeholder and data driven municipal energy planning efforts and supports governments across the country and around the world in developing and analyzing next-generation energy policies and strategies. Cadmus' expertise includes the capabilities of Meister Consultants Group, which was acquired in 2017, and had developed the *Pathways to 100: An Energy Supply Transformation Primer for U.S. Cities* which serves as the basis for our renewable energy transition methodology. We are excited about working with WCACOG and its partners to assess opportunities for transformational clean energy planning. Please feel free to contact me if you have any questions and thank you for your consideration.

Sincerely,

Chad Laurent, Esq.
Principal | Email: chad.laurent@cadmusgroup.com
Cadmus | Three Center Plaza, Suite 320 | Boston, MA 02108
Office: +1 617-209-1986 | Mobile: +1 617-733-3251

CADMUS

Proposal to Provide Renewable Energy Planning Services

To West Chester Area Council of Governments

February 4, 2019

Prepared for:

West Chester Area Council of Governments
Care of Rick Smith, Township Manager
East Goshen Township
1580 Paoli Pike
West Chester, PA 19380-6199

Table of Contents

1. Basic Qualifications

The West Chester Area is seeking a consultant to support with the development of an equitable and inclusive transition plan to achieve the area's ambitious renewable electricity and energy goals. Cadmus has deep experience with each of the critical components of this project: technical and policy expertise on renewable energy policy and program development; experience working in southeastern Pennsylvania; the design and delivery of stakeholder engagement and coordination processes with an emphasis on equity; and funding and financing experience. The Cadmus team has worked with communities across the United States on renewable energy planning and regulatory policy. We bring knowledge of best practices nationally and work with local officials and stakeholders to develop solutions tailored to their economic, political, and social context.

Details on our experience with each of these areas follows below and specific project descriptions are provided in Section 4 of this proposal.

Renewable Energy Policy and Program Development

Cadmus has developed nationally recognized expertise and thought leadership in the evaluation of renewable energy policy, strategy, and procurement, and combines this strong technical expertise with proven engagement techniques to develop comprehensive energy transition policies, programs, and strategies. Our work demonstrates an interdisciplinary approach to energy planning at the local level that combines program and policy design, stakeholder and community engagement cost-benefit and economic impact assessments, energy procurement, and implementation support.

Cadmus' approach to local renewable planning is documented in our ***Pathways to 100***[1] report that orients cities to assessing their energy policy landscape and provides a set of policy options and recommendations that are tailored to each city's individual context.

Recent Community-Level Renewable Energy Planning Efforts

The Project Team has a long history of working with local governments and community groups on clean energy and sustainability planning projects. A brief list of relevant prior projects follows, with full descriptions and links included in Section 4 below.

- **King County, Washington.** Development of Renewable Energy Transition Plan targeting 90% renewable energy by 2030.
- **Bloomfield, Iowa.** Development of 2030 Energy Independence Plan.
- **Buncombe County/Asheville, North Carolina.** Development of an Energy Plan targeting 100% renewable energy for municipal operations by 2030, and 100% renewable energy for the entire county by 2042.
- **Tompkins County, New York.** Development of a county-level energy strategy targeting renewable energy and clean transportation policies.

[1] https://cadmusgroup.com/papers-reports/pathways-to-100-an-energy-supply-transformation-primer-for-u-s-cities/

- **Contra Costa County, California.** Mapping total renewable energy potential in the unincorporated areas of Contra Costa County and five of its cities.
- **Kingston, New York.** Development of 100% Renewable Energy and Resilience Strategy.
- **Cambridge, Massachusetts**. Carbon offset fund design to reduce City building's carbon footprint.

In addition, Cadmus worked with a group of eight cities and counties in Virginia to develop collective renewable energy action plans based on the *Pathways to 100* framework. From a regulatory perspective, Cadmus has supported clients such as the California Energy Commission, New York State Energy Research and Development Authority (NYSERDA), the Hawaiian Electric Company, the Massachusetts Department of Energy Resources, and the World Bank with design and implementation of renewable energy development programs. Moreover, Cadmus is frequently called on by networks of cities such as the Urban Sustainability Directors Network, Carbon Neutral Cities Alliance, and Innovation Network for Communities, and foundations to provide best practices guidance on several municipal energy policy and strategy topics related to renewable energy.

Cadmus has longstanding experience leading projects that encompass all aspects of energy planning at the local level, including program and policy design, cost-benefit and economic impact assessments, greenhouse gas inventories, energy procurement, collaborative goal setting, and community engagement. To implement these strategies, Cadmus has worked closely with local governments (as well as federal, state and international governments). In San Francisco, the team worked closely with the Department of the Environment to develop their five-year strategic plan, benchmarking best practices globally and facilitating workshops with staff and stakeholders to define priorities and goals for renewable energy, energy efficiency, and other priority areas. Cadmus has also worked with over a dozen rural electric cooperatives to provide one-on-one technical assistance to plan and develop energy efficiency and renewable energy projects and programs. Finally, over the past six years, Cadmus has disseminated best practices in local solar policy by providing trainings, resources, and technical assistance to over 5,000 solar stakeholders in more than 40 states through the U.S. Department of Energy's Solar Energy Technology Office (formerly known as the SunShot Initiative). Through its work, Cadmus has become a leader in best practices for municipal energy policy.

Pennsylvania Energy Planning Expertise

The Project Team is deeply familiar with the Pennsylvania regulatory context. The team has worked closely with the Delaware Valley Regional Planning Commission since 2013 through U.S. Department of Energy technical assistance programs. Under the Solar Ready II program, Cadmus provided trainings and workshops to municipalities within the DVRPC region on permitting and planning and zoning best practices for solar PV. Under the SolSmart program, Cadmus works as a technical assistance provider to DVRPC's SolSmart advisor and respective communities. This engagement has helped communities in the region engage the utility in conversations regarding interconnection best practices. Our team would seek to engage DVRPC as a regional expert advisor in this project.

Cadmus has worked at the state-level as well with the Pennsylvania Department of Environmental Protection to develop Pennsylvania's Electric Vehicle Roadmap. Cadmus designed a stakeholder engagement process that included representatives from state agencies (energy, environment, and

transportation), auto manufacturers, utilities, municipalities and planning commissions, research and advocacy groups, and regional transportation organizations to develop strategies to develop Pennsylvania's electric vehicle market.

Lastly, Cadmus has worked with PPL Electric Utilities since 2009 on energy efficiency program planning and evaluation. Through this work, Cadmus administers rigorous EM&V plans to meet regulatory requirements and ensures that the team is regularly updated on Pennsylvania's energy regulatory environment.

Coordination with Utilities and Stakeholder Engagement

Across Cadmus' work, the team provides comprehensive stakeholder engagement services to develop and refine recommendations. We have expertise in impact-oriented dialogues—a process which moves a group from vision to action while ensuring all key voices are represented in the process. This is especially true of the local energy planning processes in which collaboration with local energy utilities, energy/environmental stakeholders, and citizens is the team's standard operating procedure. Cadmus is currently conducting structured stakeholder outreach across each community in the state of Hawaii, engaging citizens and key stakeholders in a two-year effort to evaluate policy and regulatory options for the state's utility business model. Cadmus also recently facilitated workshops between the City of Cambridge, Massachusetts' Community Development, Public Works, and Purchasing departments to explore financial, environmental, and equity impacts of different renewable procurement approaches, and to develop draft procurement criteria based on priorities defined during the workshops. Cadmus facilitated consistent stakeholder engagement when crafting individualized renewable energy strategies for King County, Washington, Bloomfield, Iowa, and Asheville/Buncombe County, North Carolina. Cadmus has experience engaging stakeholders from all sectors, including solar installers, financiers, nonprofits, faith-based organizations on solar deployment through the Solar in Your Community Challenge.

Funding and Financing Experience

The Cadmus team includes experts in resilient design, finance, measurement and verification with a broad range of project experience across U.S. and international jurisdictions. This expertise will enable us to design innovative local programs and select optimal financing mechanisms for its renewable energy strategies. Cadmus supported implementation of the Renew Boston Trust, analyzed the potential state green banks as a path towards Clean Power Plan compliance for the Union of Concerned Scientists, developed thought leadership research on green infrastructure finance for EDF (and featured the DC Environmental Impact Bond), and is currently mapping resilience finance options available to U.S. cities through a research project commissioned by the Kresge and Summit Foundations. Cadmus conducted an economic potential study to establish offset pricing and demand and developed a program and administrative structure for a carbon offsets fund in Cambridge, Massachusetts. Our Team has also been a leader on climate and energy financing internationally, working with major international development agencies, foundations, and national governments to identify and design successful business models for climate mitigation and adaptation.

Experience with Renewable Energy and Sustainability Project Siting and Planning

Cadmus has deep experience in identifying renewable energy and energy storage opportunities at the municipal level. We have conducted quantitative geographic analyses of solar PV site feasibility for regions throughout the US, with developed models for states including Washington, Oregon, Idaho, Montana, Colorado and Washington DC. These GIS based analyses draw from physical land cover datasets, tax and property parcel maps, and utility incentive regions to locate optimal siting zones for development of small-scale community shared solar projects in terms of practicality and cost-effectiveness. Additionally, we have assessed and mapped the total renewable energy potential for the Merrimack Valley Planning Commission, and for Contra Costa County. These analyses included a parcel-level technical and economic resource assessment of solar, wind, biomass, and biogas opportunities, and calculation of subtotals for each major zoning category and other specific locations. We also included an opportunities and constraints analysis to assess the desirability of developing each type of renewable in specific locations and conducted a zoning review to identify and reduce project development barriers. In addition, Cadmus has organized numerous region-wide collaborative procurements for solar PV, solar hot water, air source heat pumps, and electric vehicles, to offer a substantial reduction in costs for the participating communities.

2. Staff Qualifications

Cadmus' team brings deep expertise in stakeholder facilitation; renewable energy market deployment; municipal and utility planning; scenario-based economic modelling; and public policy. Our team members have been at the forefront of municipal renewable energy planning and implementation through national, state and local procurement, and technical assistance programs.

For this project, Cadmus proposes utilizing experts and specialists across the disciplines of policy, technical expertise, and strategic marketing. The team will be made up of core staff, with experts leading various tasks noted in the approach. Table 1 outlines Cadmus' proposed staffing approach by task.

Table 1. Proposed Cadmus Staffing

Team Member	Title	Project Role/Expertise	Core Areas of Support
Liz Hanson*	Senior Analyst	Project Manager	• Project Management • Regulatory and Economic Analysis • Stakeholder Engagement
Ryan Cook*	Senior Associate	Energy Modelling & Analysis Lead, Local Government Energy Planning Expert	• Regulatory and Economic Analysis • Stakeholder Engagement • Quantitative Analysis
Kate Mueller*	Senior Analyst	Energy Storage Expert and Energy Modelling Analyst	• Quantitative Analysis
Chad Laurent**	Principal	Project Principal, Oversight & Quality Assurance, Expert Advisor	• Regulatory and Economic Analysis • Stakeholder Engagement • Quantitative Analysis
Julie Curti**	Associate	Stakeholder Engagement Expert, Equity Specialist	• Stakeholder and Community Engagement
Anne West**	Principal	Utility Engagement and Regional Specialist	• Regulatory and Economic Analysis
Karen Sklenar**	Senior Associate	Regional Specialist	• Local Context

**Key Personnel **Advisory Staff*

Key Personnel

Liz Hanson- Project Manager

Liz Hanson, a Senior Analyst, works with state and local officials, as well as non-profit and private sector organizations, to develop and implement climate solutions. Her areas of expertise include environmental sustainability, climate resiliency, stakeholder engagement, policy analysis, and program development and implementation. While at Cadmus, Ms. Hanson has facilitated stakeholder engagement to improve program design for the New York State Energy Research and Development Authority, prioritized climate actions for the cities of Washington D.C. and Mountain View, CA, and is developing prospectuses for new funding opportunities that support city renewable energy transitions. Prior to joining Cadmus, Ms. Hanson served in the New York City Mayor's Office of Sustainability on the Building Energy Efficiency team. In this role, she led over fifty stakeholders and technical experts in determining how to decarbonize New York

City's building stock by 2050. This work culminated in NYC's *Technical Working Group Report: Transforming New York City Buildings for a Low-Carbon Future* and its resulting programs. Previously, Ms. Hanson served in the Massachusetts Executive Office of Energy and Environmental Affairs, where she worked across Massachusetts' state government to develop and implement a Coordinated Climate Preparedness Initiative to increase resiliency efforts in priority areas, including transportation, energy, built environments, and public health. This work involved managing an internal stakeholder process to develop new programs and identify necessary staff and financial resources, including successfully advocating for funding in the Massachusetts operating budget. Ms. Hanson received a graduate degree from Harvard University's John F. Kennedy School of Government, where she concentrated on Business and Government Policy and received a Certificate in Management, Leadership, and Decision-Making.

Ryan Cook – Policy and Modeling Expert

A senior associate at Cadmus, Mr. Cook has extensive experience in energy policy and planning, with a focus on supporting decision-makers with a combination of clean energy policy expertise and critical quantitative tools and methodologies. He specializes in public policy planning processes that blend intensive stakeholder engagement and input, qualitative policy research of opportunities and barriers, and robust quantitative analysis of potential outcomes. Mr. Cook works with a diverse range of domestic and international clients to develop and implement programs that target a transformation in energy markets. He has led community renewable energy planning efforts in King County (WA), Bloomfield (IA), and Tompkins County (NY), and has supported dozens of communities nationwide in implementing best practice solar energy policy, including collaborating with DVRPC to implement solar permitting and zoning best practices throughout the greater Philadelphia area through the US DOE Solar Ready II program. He has also served as lead analyst in the assessment of clean energy program impacts and cost-effectiveness for a range of governmental and utility clients, including the Pennsylvania Department of Environmental Protection (for its Electric Vehicle Roadmap) and PPL Electric (for its energy efficiency program cost-effectiveness). In addition to his work with Cadmus, he has held positions with the San Francisco Public Utilities Commission and White House Council on Environmental Quality.

Kate Mueller – Renewable Energy and Energy Storage Expert

Kate Mueller, an energy analyst at Cadmus, currently supports efforts for both municipal and commercial clients related to energy storage procurement, solar development technical assistance, and energy efficiency. As part of the Strategy and Policy practice, she is involved with projects at the interface of climate, energy, and environmental planning. Ms. Mueller has experience in energy systems analysis at the national and state level, with knowledge of least-cost optimization modeling for energy resource planning and an emphasis on distributed solar resources. She is also knowledgeable in the field of environmental life cycle assessment and has performed LCAs on emerging renewable energy technologies and commercial buildings to evaluate impacts of manufacture, assembly, and operation.

Advisory Staff

Chad Laurent – Renewable Energy Policy Expert

Chad Laurent, a Cadmus principal, specializes in renewable energy law and policy, sustainable business strategies, and renewable energy project development. He has 15 years of experience supporting dozens of municipalities with solar procurement including multi-MW scale projects. He is a nationally recognized expert in renewable energy market development strategies and is currently working with the US Dept. of Energy (DOE) supporting the SolSmart national designation program, is part of the team administering the Solar in Your Community Challenge and supports the EPA's Green Power Partnership program. He also worked closely with DVRPC in US DOE's Rooftop Solar Challenge II program, promoting solar soft cost

reduction best practices in the region. His renewable energy expertise includes procurement, financing, zoning, solar access and rights laws, permitting, planning, and renewable energy as an economic development tool. In addition, Mr. Laurent has worked with over 30 public sector clients providing regulatory, technical, and program assistance for energy efficiency and renewable energy development. Mr. Laurent was the lead author of the Cadmus Group's *Pathways to 100* report on local government strategies to achieve high levels of renewable energy penetration.

Julie Curti – Equity and Stakeholder Expert

Ms. Curti works from Cadmus' Boston office on stakeholder engagement and clean energy strategy, policy and planning in the public and non-profit sectors, and will lead the stakeholder engagement process for this project. Ms. Curti has facilitated stakeholder working groups, including an effort in Massachusetts to develop policy solutions that increase access to clean and efficient energy for low- and moderate-income residents. She also co-facilitated a dialogue for public sector leaders in the City of Cambridge, MA, to develop a long-term renewable electricity supply strategy. Ms. Curti supported strategic planning for the City of San Francisco's Environment Department, helping the department's staff and stakeholders define their goals, strategies, and actions in clean energy, energy efficiency, zero waste, and other priority areas. Prior to joining Cadmus, Ms. Curti worked on MIT's New England Climate Adaptation Project, researching how to build readiness for climate change at the local level and organizing interactive public workshops in coastal communities to help initiate climate adaptation planning. Ms. Curti also served as the Associate Director of the UDSA's Partnership Center in Washington, DC. She provided technical assistance to community organizations to increase participation in food security programs for low-income individuals and families. She is a certified mediator and holds a Master in City Planning Degree from the Massachusetts Institute of Technology, and B.A. from the University of Wisconsin

Anne West – Utility Engagement and Regional Specialist

Anne West, a principal in Cadmus' Energy Services Sector, leads the Market Research and Customer Insights team within Program and Market Analysis Group. With more than 30 years of experience working in the energy services industry, Ms. West has developed a broad range of energy efficiency research and project management skills to handle complex projects. Ms. West's expertise encompasses market characterization and market effects analysis, and process and impact evaluations of energy-efficiency, demand response, and behavioral programs, assessing emerging and new technologies across all sectors. She develops and executes rigorous research plans designed to provide thoughtful insight and develop actionable strategies. As principal, Ms. West is responsible for the quality and accuracy of research and deliverables. She has significant experience working in an interdisciplinary environment with diverse teams of social scientists, planners, economists, engineers, and life science professionals.

Karen Sklenar – Regional Specialist

Karen Sklenar, a Cadmus senior associate, has lived in West Bradford Township, PA since 2002. She has been a member of (and Secretary for) West Bradford's Land Preservation and Sustainability Committee (LPSC) since its inception in 2017. She helped organize a public information session by the Ready for 100 Chester County team that was hosted by West Bradford Township in November 2018. West Bradford's LPSC members are currently considering how to proceed with drafting a 100% renewable energy resolution; an important part of the committee's decision is reviewing how neighboring townships, including East Goshen, are proceeding. Dr. Sklenar's expertise as a Cadmus employee relates primarily to water and watershed issues; in that context she has worked closely with many communities, local committees, and watershed associations.

3. Approach to Project

The following section describes the Cadmus team's approach to accomplishing the tasks laid out by West Chester Area Council of Governments (WCACOG) in its RFP. The West Chester Area Council of Governments, representing West Chester Borough and the townships of East Bradford, West Whiteland, West Goshen, East Goshen, Westtown, and Thornbury, will hereby by referred to as *WCACOG*, and the multi-jurisdictional area it represents will be referred to as *the West Chester Area*.

Task 1. Kickoff Meeting

At the outset of the project, the team will first conduct a scoping call with WCACOG to further hone the scope of the project together and to better understand the regional vision, objectives, and constraints. The scoping call will include WCACOG's preferences on key aspects of the project including the breadth and depth of the stakeholder engagement process, project schedule, deadlines for key deliverables and the timing of regular check-ins.

Key Deliverables:

- Kickoff call with WCACOG
- Finalized scope of work
- Gantt chart

Task 2 - Stakeholder and Community Engagement

Task 2a. Project Advisory Group Formation and Intake Interviews

To obtain feedback from key stakeholders in the West Chester Area, Cadmus will work with WCACOG to assemble an advisory group. This core working group will be comprised of a representative from each city, along with at large representatives from the DVRPC and potential additional members as suggested by WCACOG. The Project Team will call on this advisory group to provide critical input and feedback throughout the Renewable Energy Planning process.

As part of its initial outreach, the Project Team will conduct up to eight individual "intake interviews" with these advisory group members. The intake interviews will focus on understanding directly from key stakeholders their priorities, concerns, and preferences for renewable energy implementation. Furthermore, it will allow the Project Team to understand perspectives from members of each of the seven communities. The individualized nature of the interviews will allow for insights to be shared that might not otherwise be discussed at a meeting with additional stakeholders. These conversations can serve to build initial stakeholder support as well as demonstrate inclusion by inviting stakeholders to interview who may not be strong supporters of the renewable energy plan. It can allow stakeholders to air their concerns in a format that will not detract from a larger group discussion. Overall, the intake interviews will inform the development of the materials for the Advisory Group Meeting (Task 2b).

Task 2b. Advisory Group Meeting

The Project Team will meet in-person with WCACOG, and selected stakeholders (potentially Advisory Group). This meeting would involve reviewing the agenda for the broader Community Visioning Workshop and to solicit detailed feedback from members on discussion topics in advance of the Community

Visioning Workshop. A key conversation will be confirming WCACOG's energy goals, which will involve defining what methods of generation will count as renewable. The small group meeting will also serve as an initial opportunity for the Project Team to identify preferences and common barriers shared by the seven communities. The small group would discuss topics likely to be raised by attendees at the broader meeting and strategize as to how to frame the conversation most productively. Holding this meeting in advance of the public workshop will allow the Project Team to review material with the advisory group before making a full public presentation and will allow for a more detailed discussion as a small group.

Task 2c. Community Visioning Workshop

Later in the day (likely in the evening to allow for greater community attendance), WCACOG and Project Team would hold a launch meeting in a central location with community, and advisory group members. This professionally-facilitated workshop will seek to identify different community perspectives on municipal energy goals and priority, and to discuss the community's specific needs, challenges, and goals for the project. Holding this stakeholder meeting at the outset of the project will ensure the team can best align tasks with goals. Discussion questions and presentation topics will be developed with WCACOG in advance of the meeting.

At the stakeholder workshop, a group visioning exercise will guide the process for establishing a community-wide vision for achieving the WCACOG's Renewable Energy Targets. Preliminarily, discussion topics will include:

- ***Priorities:*** *What are the group's key drivers and priorities for renewable energy implementation?* Communities are motivated to transition to 100 percent renewable energy utilization for a variety of reasons. Identifying which one or more of these are key drivers is a critical step in determining the most effective path for implementation of renewable energy for the community. For instance, a few potential priorities may include reducing energy costs, reducing GHG emissions, and strengthening local economic development.
- ***Collective Vision of Success:*** *What tangible changes would be evident in our community if WCACOG were achieved its 100 percent renewable energy goals?* This might include increased financial strength (e.g. average reduction in energy bills for households and businesses), greater resilience (fewer power outages during storms), and economic or other co-benefits (local energy jobs).
- ***Obstacles:*** *What have been obstacles to renewable energy implementation thus far?* What would mitigate these obstacles? This may include policy constraints, stakeholder opposition, or other challenges. Clarifying these upfront allows the community and Project Team to learn from past pitfalls and focus efforts on moving forward.

Following this round of stakeholder engagement, the Project Team will prepare a memo that summarizes the findings from the intake interviews, Advisory Group Meeting, and Community Visioning Workshop and identify how these outputs will inform later tasks.

Task 2d. Ongoing Public Education and Outreach Support

The Project Team will develop a simple project website to house outreach materials and deliverables, which will serve to keep the community updated after the community meeting. Cadmus will make regular updates to this website, describing project progress and posting interim task deliverables. Members of

the Project Team will also be available to call in to public or stakeholder meetings as appropriate to support WCACOG members in updating community members and elected officials on progress.

Key Deliverables:

- Eight individual intake interviews
- In-person Advisory Group Meeting
- Community Visioning Meeting
- Memo summarizing findings from interviews, Advisory Group Meeting, and Community Visioning Workshop
- Project website and outreach materials

Task 3. Policy Options and Barriers Analysis

Task 3a. Compilation of Policy Options

Based on the initial community visioning workshop with WCACOG, as well as Cadmus' prior work with municipal governments nationwide, the Project Team will compile a list of strategy options that were either directly identified by WCACOG and other relevant stakeholders or are based on best practices that could align with WCACOG's goals.

Based on its *Pathways to 100* report and prior local energy planning projects, Cadmus has developed a preliminary list of more than two dozen actions that may be included in such a roster of potential policy actions across multiple technologies. Actions included may include, for example, direct use of municipal legal authority, use of the city's convening abilities or the creation of community-based programs, partnerships with utility or state organizations to implement innovating tariff, financing, or incentive programs, transportation electrification or demand management strategies, and other emerging local government policy strategies. The Project Team will revise the resulting list based on stakeholder feedback and WCACOG's interests to develop a custom set of policy options for evaluation in this effort.

The Project Team will look at options that deploy the hard powers of WCACOG member governments — options to use city resources to act locally and to use city authority to require local action. This will include exploring opportunities for collaboration with other parties to act regionally or statewide, including engagement of county or state government to take steps to allow for greater action, and cooperation with legislators, regulators, or agency staff.

Task 3b. Barriers and Opportunities Assessment

For each policy or program option of interest, the Project Team will assess the feasibility and expected impacts of such an effort within Pennsylvania's policy and regulatory structure. The research will be specific to Pennsylvania's energy context, drawing on our extensive experience with state municipalities and utilities, and the regional expertise of the Advisory Staff. The project team will conduct desk research to evaluate relevant barriers and opportunities, consulting regional installation databases, integrated resource plans, and other independent studies where available. Considerations for the barriers and opportunities research may include the type and scale of each action and strategy, and county cost-effectiveness and general effectiveness (low to high) and feasibility of the policy options.

This work will be done in consultation with the project advisory group to provide additional insights related to key barriers, potential existing gaps, and opportunities for continued renewable energy penetration. The Project Team will coordinate with WCACOG to conduct outreach to key stakeholders and will utilize the deep local knowledge of its project partners to ensure that local policy issues are reflected in the assessment of barriers and opportunities.

Based on this assessment, the Project Team will develop a policy summary matrix which provides qualitative descriptions of the feasibility, scalability, and impact of various policy options. The Project Team will share the list of potential strategies and policy matrix with the Advisory Group.

Task 3c. Potential Renewable Energy and Energy Storage Site Identification

Informed by stakeholder conversations, the Project Team will identify and compile a short list of potential sites for renewable energy or energy storage site development. The Project Team will conduct high-level pre-feasibility assessments for up to eight sites, taking into account factors such as available land area, proximity to power lines, and other factors informing site feasibility. Given budget constraints, our team anticipates that this study will be high-level. However, our team does provide no-cost technical assistance through the U.S. Department of Energy's SolSmart program. If WCACOG communities are interested in pursuing a more in-depth feasibility analyses solar specifically, our team can provide this type of technical assistance through the SolSmart program.

Key Deliverables:

- Memo detailing potential policy options including barriers
- Strategy analysis matrix comparing the options
- Pre-feasibility assessment of eight sites

Task 4. Policy Impact Modeling

In Task 4, the Project Team will identify the likely energy and financial impacts of a set of programs of interest to the West Chester Area, as well as a range of scenarios that reflect high concentrations of renewable energy and their associated costs.

The Project Team will first conduct research on the current mix of electric power sources for the West Chester Area, and develop a business-as-usual forecast of likely changes in electric power mix during the planning period.

From this baseline, the Project Team will assess the likely energy impacts (as well as the associated greenhouse gas emissions reductions) of each strategy selected in Task 3 above towards WCACOG's renewable energy goal, as well as the potential direct costs and benefits to the communities associated with each opportunity. The Project Team can draw on its existing database of local government policy impacts, as well as its existing city energy model, to conduct this work efficiently.

Following this analysis, the Project Team will present and discuss these results with the Advisory Group and would develop one or several packages of policy actions items which could be combined to comprise a renewable energy transition plan.

For each policy package, Cadmus will then create a wedge analysis which displays the results of this energy impact assessment and which discussed the contribution that each specific action within a policy scenario

would have in bringing WCACOG toward its renewable energy goals. Cadmus will provide an analysis memo to synthesize the results of this analysis, and characterize the expected energy, and economic impacts of each policy and package.

***Key Deliverables*:**

- Analysis memo summarizing (1) each community's current energy mix and expected baseline power mix forecast, (2) policy actions and scenarios selected for quantitative impact assessment, (3) expected energy, financial, and economic impacts of various policy actions and scenarios, and (4) wedge analysis demonstrating progress towards 100% renewable energy goal of each policy scenario

Task 5. Renewable Energy Plan Development

Based on the outcomes of the above research tasks and stakeholder feedback, the Project Team (with the advice and review of the Advisory Group) will develop a roadmap for WCACOG's renewable energy goals. This plan will use the conclusions of the policy research and community planning process to identify actions of broad interest in the West Chester Area and utilize the results of the impact assessment and feasibility study to identify the projected energy impacts, costs, and savings of these actions. The process for input on the plan will have the following major steps:

- High-level plan: The Project Team will identify the strategies from the matrix that best align with local goals. For each strategy selected, the team will identify key steps in execution and produce a summary document that outlines the major strategies and associated action steps.
- Input from City and Community Advisory Group: The Project Team will share the high-level summary document with the Community Advisory Group to ensure that the overall direction aligns with local needs and challenges.
- Full action plan: The Team will make final adjustments to the high-level plan based on input from the Advisory Group and compile a full action-plan for WCACOG's transition to utilizing 100 percent renewable energy will include short-, medium-, and long-term opportunities. Long-term opportunities will summarize high-level steps needed to create the environment to move forward with increasing renewable energy sources (e.g. establishing an on-going commitment from a broadened Advisory Group, passing additional local legislation). The short- and medium-term levels will provide action-steps for the selected strategies such as directed guidance on engaging residents, securing funding, and adjusting program policies.
- Community presentation: Following the completion of the full action plan, the team will deliver an in-person presentation of final results in a public meeting in the West Chester area. The project team will work with WCACOG members and the community advisory group to promote the meeting and invite community participation.

Upon review of the action plan by the WCACOG and key stakeholders, the Project Team will address any feedback and develop a final deliverable. The project will conclude with an in-person~~a remote~~ presentation to present the final results and recommendations.

Key Deliverables:

- A final Renewable Energy Transition Plan for WCACOG area, including short-, medium-, and long-term goals
- A final public presentation ~~WCACOG and advisory group members~~of the full action plan

Anticipated Project Timeline

Table 2 Project Timeline

Task	Subtask	May	June	July	August
1	Task 1. Kick-Off Call				
2	Task 2.a. Project Advisory Group Formation and Intake Interviews				
	Task 2.b. In-Person Small Group Meeting				
	Task 2.c. Launch Meeting with Invited Stakeholders				
	Task 2.d. Ongoing Public Education and Outreach Support				
3	Task 3.a. Compilation of Policy Options				
	Task 3.b. Barriers and Opportunities Assessment				
	Task 3.c. Preliminary Strategy Selection				
	Task 3.d. Potential Renewable Energy and Energy Storage Site Identification				
4	Task 4a. Scenario Modeling Energy, Environmental, and Financial Modelling				
5	Task 5a. Renewable Energy Plan Development				

4. Examples of Work

Energy Transition Planning

Energy Transition Planning, *King County, WA* Cadmus developed an energy transition plan for King County, which included an analysis and recommendation for achieving the county's 2030 energy targets. Cadmus combined in-depth policy research, scenario modelling on the regional power mix, and engagement of key stakeholders to identify distinct sets of strategies that the county could pursue to meet its long-term energy goals. King County's final Renewable Electricity Transitions Pathways plan can be accessed here: https://your.kingcounty.gov/dnrp/climate/documents/2018-KC-Renewable-Electricity-Transition-Pathways.pdf

Community Energy Independence Process, Guidebook, and Toolkit, *City of Bloomfield, IA* Cadmus is supporting the City of Bloomfield, Iowa, in creating an energy independence planning process and the concurrent development of a community-wide energy independence process guidebook and toolkit that other communities can use as a template for their own energy independence processes. The guidebook and toolkit are being designed to emphasize green infrastructure, integrated solutions best practices, and expanded energy efficiency programming. Cadmus is combining in-depth policy research, scenario modelling on the regional power mix, and active and inclusive engagement of all community stakeholders to create a shared understanding of goals, develop local capabilities, and identify appropriate strategies and procedures that Bloomfield and the greater community can purse to achieve their energy independence goals. Documents related to this ongoing project may be viewed at the project website, at: https://sites.google.com/view/bloomfieldenergy/home

Renewable Energy Planning, *Buncombe County, NC* Cadmus is developing a renewable energy plan for Buncombe County and the City of Asheville, North Carolina, which will include an analysis and recommendation for achieving the County and City's renewable energy targets of utilizing 100% renewable energy in County and City municipal operations by 2030, and the County's target of utilizing 100% renewable energy county-wide by 2042. Cadmus is combining in-depth policy research, scenario modelling on the regional power mix, a feasibility study on high interest sites within the county and city for renewable energy development and storage facilities, and engagement to key stakeholders within the county, city, and the broader community to identify distinct strategies that the county could pursue to reach its renewable energy goals.

County Energy Strategy Development, *Tompkins County, NY.* Cadmus is currently supporting Tompkins County, New York in the development of the county's updated energy strategy. Cadmus is working with a series of community focus groups to identify a wide range of potential policies and actions that the county could pursue. Cadmus will then support county staff in narrowing this list based on the feasibility and impact of different actions and will conduct a quantitative assessment of the expected energy and environmental impacts of various policies. This work will form the basis of Tompkins County's updated energy strategy.

100% Renewable Energy Strategy for Kingston, *Kingston, NY* Cadmus is working with the City of Kingston and the National Renewable Energy Laboratory (NREL) to develop a 100% Renewable Energy Strategy. The strategy will outline a set of renewable energy policies, programs, and strategies, the City can implement in the short, medium, and long-term to reach their 100% Renewable Energy Target.

Pathways to 100 Report Assistance to Leading US Cities, *The Kresge Foundation and Urban Sustainability Directors Network* Cadmus developed an energy primer on transforming city energy systems, published by the Kresge Foundation and Urban Sustainability Directors Network in May 2017. This primer presents

a menu of approaches cities can pursue alone or in collaboration with key stakeholder partners to transform local energy systems. It also describes how the options available to cities vary based on state-level regulatory and policy actions and utility ownership models. The Primer is available at: http://www.mc-group.com/wp-content/uploads/2017/08/MCG-Pathways-to-100_Energy-Supply-Transformation-Primer-for-Cities.pdf

Ensuring Equity in Energy Transformation and Innovation, *Urban Sustainability Directors Network (USDN)* Cadmus lead a project with USDN, eight core cities, and 12 additional cities in the U.S. and Canada to build knowledge, tools, and partnerships to increase equitable access to clean energy for low-and moderate-income households through innovations in local-level program design. Project outputs included a program design guidebook and checklist for local governments, and an inventory and in-depth case studies of best practices. To reflect and apply project findings, Cadmus organized and facilitated a two-day workshop for core cities and partners to collaboratively develop equity-oriented program solutions. The full guide can be accessed here: https://cadmusgroup.com/wp-content/uploads/2018/09/Cadmus-USDN-Equitable-Clean-Energy-Guidebook.pdf?utm_referrer=https%3A%2F%2Fcadmusgroup.com%2Fpapers-reports%2Fa-guidebook-on-equitable-clean-energy-program-design-for-local-governments-and-partners%2F

Pathways to EV: Preparing for the Proliferation of Electric Vehicles in the Midwest, *Urban Sustainability Directors Network, City of Columbia, MO, Various Midwest Communities* Cadmus developed a primer that outlines pathways for U.S. cities seeking to deploy greater numbers of electric vehicles (EVs) and EV infrastructure. Cadmus convened focus groups in participating Midwestern cities with policy, utility, industry, advocacy, and equity-focused stakeholders, and developed a policy toolkit and matrix that city sustainability managers can utilize to determine how to best focus their EV efforts considering their unique utility and regulatory circumstances. Cadmus published a guidebook which is intended to help city decision-makers (and particularly those in the Midwest) understand the policy and regulatory environments in which they operate and take appropriate action towards deploying greater numbers of EVs. The full guide can be accessed here: https://cadmusgroup.com/papers-reports/pathways-to-ev-preparing-cities-for-the-transition-to-electric-vehicles/

Environmental Sustainability Program (ESP) Assessment and Strategic Plan Support, *City of Mountain View* Cadmus is reviewing and providing strategic feedback on Mountain View's sustainability program and its efforts to reduce GHG emissions in the face of strong economic growth. The program review encompasses benchmarking of Mountain View action plans, roadmaps, and execution against other leading US and international cities; a review of sustainability goals and how these intersect with other city priorities; and synergies and tradeoffs among sustainability and other city goals. Process improvements and program effectiveness measurement tools will be suggested, and Cadmus will provide feedback on appropriate program resource allocations vs. varying city effort levels, to strengthen the sustainability program's effectiveness.

Renewable Energy Resources Consulting, *Contra Costa County CA* Cadmus is leading a team to assess and map the total renewable energy potential in the unincorporated areas of Contra Costa County and five of its cities. This includes a parcel-level technical and economic resource assessment of solar, wind, biomass, and biogas opportunities. Renewable potential will be broken down into subtotals for County controlled or County owned parcels, subtotals for each major zoning category, and subtotals for specific locations (e.g. economic development focus areas, disadvantaged communities). Separately, Cadmus is conducting an opportunities and constraints analysis to assess the desirability of developing each type of renewables in specific locations, as well as a zoning review to identify and reduce project development barriers.

Regional Experience

Delaware Valley Regional Planning Commission Technical Assistance – Solar Ready II, *U.S. Department of Energy* Cadmus, in partnership with the National Association of Regional Councils and the Mid-America Regional Council, was awarded a SunShot Rooftop Solar Challenge grant to use established and trusted relationships among regional planning councils and local governments to spread solar-friendly best practices to nine diverse regions across the country representing over 1,000 local governments. Cadmus provided technical support to the participating regions and local governments in developing a regulatory framework to support solar development, increasing the efficiency of permitting processes, and expanding access to financing for solar projects. In October 2013, DVRPC became a partner, among a national team of regional planning organizations, on Solar Ready II, a project of the U.S. Department of Energy SunShot Initiative's Rooftop Solar Challenge. Through Solar Ready II, the Cadmus team supported the Delaware Valley Regional Planning Commission to work with municipalities, business, residents and utilities in Greater Philadelphia to understand and implement best management practices that help reduce the "soft costs" of solar PV installations. This work included provided trainings and workshops to municipalities within the DVRPC region on permitting and planning and zoning best practices for solar PV. In addition, Cadmus provided expert reviews of DVRPC's zoning framework for solar PV.

DVRPC Technical Assistance – SolSmart Designation Program, *U.S. Department of Energy, International City County Managers Association, The Solar Foundation* Through the Solar Powering America by Recognizing Communities (SPARC) grant, Cadmus has collaboratively developed an innovative and prominent national recognition program called SolSmart that energizes local solar markets and advances soft cost reductions by recognizing community efforts to make communities solar PV friendly. Cadmus leads the development of designation criteria by convening and facilitating a Criteria Advisory Committee made up of key stakeholders. Cadmus is assisting in the development of an interactive web portal for the designation, and the design and implementation of special awards for non-local stakeholders. To reach our goal of enabling more than 300 communities across the U.S. to become SolSmart designated, the team provides technical assistance to participant communities via a four-pronged approach: 1) offering one-on-one technical assistance from a team of experienced national experts, 2) deploying full time temporary grant-funded positions embedded in selected local communities (SolSmart Advisors) to provide more tailored assistance, 3) facilitating peer mentorship and peer learning among participant communities, and 4) creating and curating an online set of technical resources on reducing solar soft costs, including case studies, model solar permitting processes, technical trainings, and videos, and more. Delaware Valley Regional Planning Commission has been awarded two SolSmart Advisor grants to continue to bring SolSmart technical assistance to communities in the region. In the most recent deployment, Cadmus supported DVRPC on researching utility interconnection issues and creating a white paper on utility interconnection best practices and case studies on transparency and processes.

Energy Efficiency and Conservation Plan Evaluation Services, *PPL Electric Utilities* Cadmus has supported PPL Electric Utilities since 2009 providing program evaluation services. Through this work, Cadmus develops and administers rigorous EM&V plans that meet regulatory requirements. Cadmus delivers quarterly reports of verified savings, reporting factors affecting realization rates for as-needed improvements, and reporting results from customer satisfaction surveys and process evaluation research. Cadmus also provides semi-annual and annual regulatory reports with verified savings, descriptions of evaluation methods, and findings, conclusions and recommendations to PPL Utilities. The team participates in technical forums and regulatory proceedings and offering expert testimony before the commission when requested and maintains regular communications with PPL through weekly status meetings.

Pennsylvania Electric Vehicle Roadmap, *Pennsylvania Department of Environmental Protection (DEP)* Cadmus worked with the Pennsylvania Department of Environmental Protection to develop Pennsylvania's Electric Vehicle Roadmap. Together with project partners Yborra and Associates and the U.S. DOT Volpe Center, Cadmus designed and implementing a stakeholder engagement and facilitation process, which engages representatives from state agencies (energy, environment, and transportation), auto manufacturers, utilities, municipalities and planning commissions, research and advocacy groups, and regional transportation organizations, among others. Through the process, Cadmus worked with stakeholders to identify market development goals, analyze market barriers, assess best practices, and develop strategies, policies and programs to drive EV market development. Cadmus also conducted a comprehensive review of the literature, interviewing national thought leaders, and developed a database of U.S. and international best practices for EV deployment. In addition, Cadmus conducted scenario analyses, which assessed economic, environmental and energy indicators and informed the development of policy, energy, environmental and energy impacts associated with business as usual, moderate, and aggressive EV deployment goals. The final deliverable was an EV strategy roadmap, informed by stakeholders across the entire state, and guides Pennsylvania's policy and market development strategy going forward.

Renewable Energy Market Development and Innovation

Renewable Energy Procurement Prize, *Boston Green Ribbon Commission* Cadmus worked with the Boston Green Ribbon Commission to coordinate and develop a renewable energy leadership prize, the first aggregated renewable procurement in New England. The Green Ribbon Commission Renewable Energy Leadership Prize awarded $100,000 to the team that developed the most compelling strategy for large-scale renewable energy generation procurement from either on-site or off-site sources. The Prize was designed to inspire local large commercial, institutional, and public sector (CI&P) energy consumers to implement renewable energy procurement strategies at the 10MW scale or larger. Cadmus developed the framework of the prize, the request for proposals, formed and coordinated the expert judging panel, and provided technical assistance and feedback throughout the prize process. The prize resulted in three large-scale renewable energy procurements, and additional aggregations among prize participants.

Solar in Your Community Challenge Project Administration and Training, *U.S. Department of Energy* Cadmus is currently working with ICMA to administer the Solar in Your Community Challenge. The Solar in Your Community Challenge is a $5 million competition amongst over 100 community teams across the country aimed at bringing solar access to underserved communities via innovative community solar models and programs. Cadmus is providing technical review of team applications, review of continuation funding proposals, reviewing and verifying technical assistance, coordinating a series of 10 webinars, and developing a delivering a series of general curriculum materials for participating teams.

In addition, Cadmus planned and executed an in-person training for over 120 participants to accompany the existing technical assistance and education provided as part of the Solar in Your Community Challenge. The purpose of the Solar in Your Community Challenge Training (SYC Training) was to bring together team participants, team coaches, and other solar experts for a 2-day training to educate, empower and connect Solar in Your Community (SYC) Challenge teams. The objectives of the SYC Training included educating, training, and empowering teams with the knowledge, skills and attitude they need to be successful in the challenge; providing opportunities for teams to workshop their projects in group settings with peers, solar experts, and trainers; and building collaborative networks and partnerships between challenge teams that are within similar regions or topical affinity groups to share best practices, trouble-shoot challenges, and further develop strategies to grow the solar market. Cadmus managed and delivered the entire scope of the training including: registration and outreach of the event, participant travel reimbursement, coordination with the event venue to determine functional spaces and audio & visual needs, coordination

with solar experts and trainers involved with the Challenge to develop relevant and useful content for the teams, delivery of technical trainings, and the development of a practical agenda for the 2-day event including structured and unstructured networking time as well as engaging and interactive training sessions. Overall, the SYC Training met and exceeded these objectives for participants and trainers within a 6-week timeframe.

Our Cities, Our Climate, *Bloomberg Philanthropies* In October of 2016, 17 sustainability officials from city governments globally participated in the second Our Cities, Our Climate Exchange, sponsored by Bloomberg Philanthropies and the U.S. Department of State. The exchange is an 11-day learning opportunity that aims to bring sustainability directors from 20 global cities to the U.S. Cadmus managed and facilitated the tour, which spanned three cities, and emphasized best practices in climate change mitigation and adaptation strategies on the city-level. Cadmus worked with host city staff and partners to create workshops that encouraged knowledge-sharing among sustainability directors and global champions in local government. Cadmus managed the development of the exchange content agenda and provided research, analysis, policy summaries, and other content for pre-exchange briefing materials, participant profiles and presentations. Cadmus staff members and members of the Innovation Network for Communities, participated in the Exchange and presented during exchange sessions, facilitated break-out and interactive workshops, and were on hand for participants as subject matter experts in U.S. policy and local climate action.

Fleets for the Future (U.S. DOE National Aggregated Alternative Technology Alliance project), *U.S. Department of Energy* Cadmus led the technical team for the U.S. Department of Energy Fleets for the Future project. In collaboration with the National Association of Regional Councils, five regional councils, Clean Cities Coalitions, and industry representatives for electric vehicles, propane vehicles, and natural gas vehicles, Cadmus planned and implemented regional and national cooperative procurement campaigns that resulted in significant discounts for participating fleets. These procurements included electric vehicles and EV charging infrastructure, as well as upfits for medium and heavy-duty vehicles using many alternative fuel technologies. Cadmus' role was to lead the research and development of alternative fuel vehicle cooperative procurement best practices, provide technical assistance to the regions and to the national campaign, develop strategy and implement the national campaign, and provide trainings for Project Team members and public fleets around the country. Cadmus produced five best practice guidebooks (covering electric vehicles, gaseous fuel vehicles, school bus procurement, financing, and deployment planning) and numerous training presentations and webinars. New cooperative contracts were developed with over 20 vendors and 16 dealerships, resulting in the availability of hundreds of vehicle platforms and products at discounted rates for public purchasers. Teamwide outreach to potential users of the contracts included approximately 100,000 impressions. Cadmus cultivated relationships with purchasing cooperatives to ensure that the contracts developed through the grant would be maintained after program completion.

Community Solar NY – Solarize Support, *NYSERDA* Cadmus worked with NYSERDA's Community Solar New York team to implement the 2016 round of Community Solar NY. Cadmus, in collaboration with its partner Sustainable CUNY, conducted five mandatory pre-application workshops for community organizers across the state to spread best practices and to clarify expectations around campaign operations and management. After communities had applied and been selected for the 2016 round of Solarize, Cadmus prepared and delivered separate webinars for campaign organizers and interested installers to explain the installer selection process. As many communities wished to take advantage of New York State's new community net metering rules in the 2016 CSNY Solarize round, Cadmus crafted a separate model Request for Proposals for these communities to adapt and use to select an installer. Cadmus and Sustainable CUNY currently provide one-on-one technical assistance to communities during

the installer selection period, providing feedback on individual proposals and helping each community select a qualified installer that matched their individual needs and preferences.

Green Power Partnership Program Development Support and Renewable Energy Policy Support, *U.S. EPA* Since 2014, Cadmus, with subcontractor ICF, has provided policy, technical, and program support to the U.S. Environmental Protection Agency's (EPA) Energy Supply and Industry Branch (ESIB) for the effective implementation of the Green Power Partnership (GPP) program and other renewable energy-related activities. Program support activities include performing a comprehensive update of the 2010 *Guide to Purchasing Green Power*, which was published on EPA's website (https://www.epa.gov/greenpower/guide-purchasing-green-power). This required evaluation and implementation of stakeholder feedback on the guide, research to identify and include new information, and developing practical information to help organizations identify their goals and green power procurement options. Cadmus also contributed to the development of a white paper titled *National Assessment of Consumer Access to Green Power Supply: Leadership and Impact Considerations*. As part of this effort, Cadmus conducted research and collected data to evaluate energy consumer's access to green power across the country. This involved state-by-state assessments of consumer access to numerous supply options, including financial and physical PPAs. The client presented the results of this study at the 2018 Renewable Energy Markets conference.

Technical Assistance for Clean Heating and Cooling Communities, *NYSERDA* Through the Clean Heating and Cooling Communities program, NYSERDA is supporting up to thirty community outreach, education, and group purchasing campaigns over the course of five years focusing on clean heating and cooling and energy efficiency technologies, including air-source heat pumps, ground source heat pumps, heat pump water heaters, advanced wood heating, and building weatherization. Cadmus is leading a team to support these campaigns, providing a range of on-call technical assistance services to community campaigns. In the first round of this program, the Cadmus team is supporting eight, two-to three-year campaigns in Central New York: Southern Tier, City of Rochester, Otsego County, Sullivan/Ulster Counties, Tompkins County, Westchester County, and Orange County.

Support provided to date includes developing a range of technical, educational, and marketing resources for the communities, including: template RFP and installer evaluation materials, educational presentations, website content, and training materials. Cadmus also provides on-call technical assistance to the campaign and NYSERDA teams, which has included: developing a heat pump water heater financial and greenhouse gas emissions model, evaluating installer proposals, reviewing and developing new marketing materials, providing strategic support on marketing activities, supporting outreach to the clean heating and cooling supply chain, and providing technical and marketing trainings to volunteer teams.

5. Staff Resumes

Staff resumes are included in the following pages.