Regional Energy Efficiency Efforts: Energy for the Power of 32 Region and Beyond

Annie Gilleo and David Ribeiro

March 2016

An ACEEE White Paper

Contents

About the Authors

Annie Gilleo manages ACEEE's state-based technical assistance activities and conducts research on energy efficiency resource standards, the utility business model, and other state-level policies. Annie was also the lead author of the 2013–2015 editions of the *State Energy Efficiency Scorecard* and contributed to the first edition of ACEEE's biennial *City Energy Efficiency Scorecard.* She joined ACEEE in 2013.

David Ribeiro is a senior analyst on ACEEE's local policy team. David joined ACEEE in the spring of 2013. He conducts research on energy efficiency implementation at the local level, including lead-by-example strategies and the interconnection of efficiency and community resilience. He is also the lead author of the *City Energy Efficiency Scorecard* and contributes to the Local Policy Database.

Acknowledgments

Abstract

This paper reviews a sample of regional energy efficiency planning and implementation efforts across the country to inform the ongoing planning efforts of Energy for the Power of 32 (E4P32). Energy for the Power of 32 unites Pittsburgh and 32 surrounding counties across western Maryland, eastern Ohio, southwestern Pennsylvania, and northern West Virginia, in the development of an energy efficiency plan for the region. Regional planning, especially across state lines, has both benefits and unique challenges. This paper serves as the first step in the planning process by

- Summarizing existing regional energy efficiency planning processes and programs and offering lessons for the E4P32 region
- Examining major economic sectors where efficiency gains are available and for which regional efforts may effect change
- Describing the key decision makers and stakeholders in various economic sectors, noting why they are critical to energy efficiency planning efforts, and discussing how E4P32 might leverage these points to affect energy efficiency gains
- Discussing metrics and goals for evaluating program success. The paper also includes a basic framework for assessing goals and metrics so that planning efforts can include more specific, focused metrics based on implementation strategies.

Introduction

The Power of 32 is a regional visioning process that crosses state lines, engaging residents, business leaders, and government officials across 32 counties in western Maryland, eastern Ohio, southwestern Pennsylvania, and northern West Virginia.

Figure 1. Map of Power of 32 region. *Source:* Power of 32 2016.

Among a host of specific projects that have materialized out of the visioning, Energy for the Power of 32 (E4P32) is an effort to address the future energy needs and opportunities of the region, beginning with a focus on energy efficiency. Given the multicounty and cross-state nature of the project, planning and implementation might seem complex. However existing regional energy planning efforts in other parts of the country can inform E4P32, giving insight into key stakeholders and decision-making points, strategies for implementation, and methods for tracking progress.

Planning for Energy Efficiency across the Economy

Energy efficiency is using less energy to provide the same service. ACEEE estimates that energy efficiency saved consumers about $800 billion in 2014 alone. Large opportunities remain that, by 2050, could collectively reduce energy use by 40–60% relative to current forecasts (Nadel, Elliott, and Langer 2015). Nations across the globe are recognizing the value of energy savings and clean energy promotion and making associated commitments. For example, at the 21st meeting of the Conference of Parties (COP21), 187 countries committed to emissions reductions starting in 2020. The process also included commitments from regions and cities to reduce greenhouse gases. Now more than ever, community energy planning is critical to harnessing the benefits of energy efficiency and clean energy.

Within this document, we discuss ways that E4P32 and similar regional efforts can generate energy savings while maintaining or improving the quality of life for local communities. With many options for delivering energy savings, from privately financed building retrofits to ratepayer-funded efficiency programs, regional planning efforts should look across all sectors of the economy to target potential savings opportunities. Developing a clear vision of milestones in the planning and implementation process is important. Ultimately, a

strategically crafted and well-implemented regional energy plan can result in cost savings for residents and businesses, a cleaner environment, and increased energy reliability. Figure 2 lays out the steps to community energy planning.

Figure 2. Steps in the community planning cycle. *Source:* DOE 2009.

The E4P32 region has already completed several of the initial steps in the community energy planning cycle, including an initial convening of stakeholders to develop a regional vision focused on energy efficiency and the development of an energy baseline for the region (Sustainable Pittsburgh 2014). Now, the group must make its vision a reality by developing specific goals and an action plan. This planning process is timely and important. Below, we outline several existing regional energy planning efforts that include energy efficiency programs and goals and offer recommendations for how they might inform E4P32's planning process.

Case Studies of Regional Planning Efforts

The following section summarizes regional planning efforts across the country. Each was chosen on the basis of its applicability to the Energy for the Power of 32 region. All involve multiple counties; some cross state borders or coordinate planning efforts with regional organizations in neighboring states. These efforts are not specific to energy efficiency, but we highlight the energy efficiency strategies used by each group. Furthermore, most of the efforts of the groups profiled in the case studies are focused on the residential, commercial, and transportation sectors. Additional opportunities may be available in the industrial sector. Full case studies and links to key planning documents are presented in more detail in Appendix A.

PIONEER VALLEY PLANNING COMMISSION

Organization type: Designated regional planning body and member communities

Participating members: Full-time planning staff and representatives of local communities

Organization reach: 43 cities and towns across two counties, with four towns directly involved in the Clean Energy Roadmap effort

Funding sources: Annual assessments from member communities, state and federal grant programs, fees for administering community development block grants, and matching funds

Strategies: Technical assistance to targeted markets, like rental properties
- Community-based marketing of energy-efficient technologies
- Shared energy efficiency services for small municipalities
- Municipal climate policy statements

Metrics tracked: Air quality, green community designation, GHG emissions, recycling rates, miles of dedicated bike lanes, transportation modes, vehicle miles traveled, and others

Notable strengths: Systematic data collection, regional and subregional strategies, securing buy-in from local governments through lead-by-example initiatives

The Pioneer Valley Planning Commission (PVPC) is the designated regional planning body for 43 cities and towns in Massachusetts. Pioneer Valley has several core plans, including a Climate Action and Clean Energy Plan most recently updated and reissued in 2014. PVPC surveyed other local sustainability plans to inform the planning process and undertook a regional greenhouse gas (GHG) inventory. Ultimately, the Climate Action and Clean Energy Plan lays out two major goals: reducing energy use in the region and replacing nonrenewable energy sources with clean, renewable energy generated locally. It then puts forward a series of strategies that fall under three umbrellas: mitigation, adaptation, and energy conservation and clean energy. Implementation strategies include setting green zoning standards, adopting local stretch codes that go beyond statewide building energy codes, and local governments' leading by example by undertaking energy efficiency projects in public buildings.

PVPC also worked with four local communities to develop a specific roadmap for clean energy implementation for local governments within a smaller region. The Clean Energy Roadmap is built around the goals established in the Climate Action and Clean Energy Plan but tailored to address hyperlocal priorities like job creation and clean energy project development. Strategies included in the roadmap include coordinated marketing campaigns, shared energy management services, and an energy coaches program for residents of the area.

PVPC maintains a clearinghouse of data that includes both demographic information for each community in the region and energy-related data including air quality, green community designation, GHG emissions, recycling rates, miles of dedicated bike lanes, transportation modes, and vehicle miles traveled (VMT). PVPC also measures its accomplishments in terms of actions undertaken throughout the year, such as participation in advocacy campaigns and provision of technical assistance to key stakeholders.

MID-OHIO REGIONAL PLANNING COMMISSION

Organization type: Metropolitan planning organization

Participating members: Local governments (counties, cities, and towns)

Organization reach: Central Ohio

Funding sources: Federal and state highway and transportation funds, public utilities commission, budgets from local governments, and membership dues

Strategies: Lead by example in government facilities

Residential program implementation in partnership with utility

Transportation demand management program

Metrics tracked: Unknown

Notable strengths: Clear recognition of nonenergy benefits, robust engagement with diverse stakeholders

---

The Mid-Ohio Regional Planning Commission (MORPC) is a voluntary planning organization made up of local governments and regional organizations in over 15 counties located in central Ohio, with membership densest in the Columbus metropolitan area. MORPC plays an important convening role to promote the efficient use of energy in the region.

With the National Association of Regional Councils (NARC), MORPC developed a regional energy action plan that assesses the region's energy future and lays out recommendations, including the identification of building energy efficiency as a potential subject for future study. Transportation plans related to efficient land use are also being developed.[1]

MORPC administers two energy efficiency–related programs, one for homes and the other for transportation. For residences, it offers a home weatherization program for renters and homeowners in Franklin County. The service includes a home assessment that identifies potential efficiency improvements including attic and sidewall insulation, air sealing, and repair of electric and gas appliances. MORPC also runs a transportation demand management (TDM) program, RideSolutions, offering carpooling, van pooling, bus riding, and a bike buddy program. The program aims to reduce congestion, lower commuters' fuel costs, and improve the environment.

---

[1] Transportation plans are developed by most regional planning commissions and should include strategies for incorporating efficiency into the transportation sector.

SAN DIEGO ASSOCIATION OF GOVERNMENTS

> **Organization type:** Metropolitan planning organization
>
> **Participating members:** Local governments (counties, cities, and towns), transit organizations, federal government, and others
>
> **Organization reach:** Southern California
>
> **Funding source:** Federal and state highway and transportation funds, and transportation sales tax and budgets from local governments
>
> **Strategies:** Technical assistance for local governments
>
>   Coordination with neighboring regional entities
>
>   Energy roadmap and climate action planning services
>
> **Metrics measured:** Energy and cost savings, annual transit ridership, modal share, and location efficiency
>
> **Notable strengths:** Clear vision with continuous updates to strategies, individual community roadmaps aligned under a single vision.

The San Diego Association of Governments (SANDAG) is a public agency that serves as a forum for regional decision making among the 18 cities within San Diego County. SANDAG has a long history with regional energy planning. San Diego County started energy planning in 1979 and periodically updated plans through the 1980s and 1990s. The commission most recently updated its Regional Energy Strategy (RES) in 2009. The regional energy working group (EWG) was formed in 2003 to coordinate and implement the RES. It serves as a forum to discuss regional energy issues and build consensus within the region.

SANDAG impacts the region's energy use through the Energy Roadmap Initiative, an energy efficiency partnership between local governments and the energy utility serving the county, San Diego Gas & Electric (SDG&E). The California Public Utilities Commission (CPUC) approved the program, which now serves as part of SDG&E's energy efficiency portfolio. The program provides free energy assessments and customized energy roadmaps to member municipalities. Each roadmap highlights actions the city can take to increase its energy efficiency. The focus is on identifying energy-saving measures for government operations and policy measures that localities can take to ensure energy savings throughout the community. SANDAG also provides audits, retrofits, and benchmarking services through the initiative.

SANDAG has released case studies documenting program successes from some of the first jurisdictions to participate in the program; one city realized savings of about $20,000 per year from energy upgrades. SANDAG has developed regional VMT targets pursuant to California's Sustainable Communities Act and biennially reports on metrics related to transportation energy use, including annual transit ridership, commute mode shares, and share of new housing units and jobs located within smart growth opportunity areas. SANDAG's annual *State of the Commute* publication reports on additional indicators and evaluates savings from its TDM program, iCommute. In 2014, iCommute reduced VMT by 140.8 million miles across the region and saved $7.4 million in fuel costs (SANDAG 2015).

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Organization type: Metropolitan planning organization

Participating members: City, county, and state representatives

Organization reach: Nine counties across Pennsylvania, and New Jersey

Funding source: Federal and state highway and transportation funds, county government budgets

Strategies: Technical assistance for local government lead by example initiatives

       Coordination with neighboring regional entities

Metrics tracked: 31 metrics total including vehicle miles traveled, transit ridership, GHG emissions, total energy use, and air quality

Notable strengths: Focus on technical assistance resources that can be shared across municipalities, clear metrics for measuring success

The Delaware Valley Regional Planning Commission (DVRPC) serves the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC maintains a continuous forum for public participation in the planning process. The Public Participation Task Force consists of representatives of each community and at-large representatives of a variety of interest groups and has ongoing access to the planning and decision-making process. In 2013 DVRPC adopted a long-range plan extending through 2040. The plan focuses on four core principles, one of which is building an energy-efficient economy. DVRPC also facilitates planning across state boundaries.

The commission has identified several strategies to achieve gains in energy efficiency throughout the region, including promoting efficiency in government operations and advancing education on emerging technologies. To facilitate the incorporation of energy efficiency into local government operations, DCRPV launched a Circuit Rider program that serves as a shared energy management resource for smaller municipalities. DVRPC also hosts workshops for local governments and partnered with the Pennsylvania Municipal League to develop the Sustainable Pennsylvania Community Certification. DVRPC has issued one tracking report since adopting its long-range plan. The commission measures progress against a 2000 baseline and used criteria laid out in the US Department of Energy's *Guide to Community Energy Strategic Planning* (2013) to establish its own tracking criteria.

DVRPC also implements energy efficiency projects in the transportation sector. The commission provides project management assistance to the Pennsylvania Department of Transportation and New Jersey counties for efforts including construction of multiuse trails, improvements to pedestrian facilities, and program marketing. These efforts are funded through federal dollars or—in the case of New Jersey—funds from the Urban Allocated Surface Transportation Program.

DVRPC has also conducted a GHG inventory. It tracks progress toward reducing emissions in three ways: (1) commercial and industrial energy use per employee in the region, (2) gross metropolitan product per commercial and industrial energy use emissions, and (3) GHG emissions per unit of energy used.

LESSONS FOR THE E4P32 REGION

While each regional planning effort summarized above has developed different implementation strategies, taken together they can inform E4P32 activities in several ways. We lay out key lessons below.

Develop a baseline for policy, program, and energy-related metrics.

To assess progress, it is important to establish baseline conditions for all areas the regional implementation plan is meant to impact. E4P32 has begun this process by assessing baseline energy consumption metrics for the communities in the region (Sustainable Pittsburgh 2014). E4P32 should build on these metrics, which include electricity usage, fuel usage, and motor vehicle travel, to develop an understanding of the policies that are currently in place in the region that might affect energy usage going forward.[2]

Engage local energy utilities to better understand data availability and existing program offerings.

Tracking progress in individual buildings or within a small implementation area will likely require release of data from utilities. Understanding what data may be available and whether there are conditions associated with use of these data will guide the development of measurable and verifiable goals. Many utilities are committed to updating and improving data automation processes. In the E4P32 region, for example, PPL, PECO, and AEP have committed to implement Green Button, a federal initiative to provide utility data to customers in a computer-friendly format. Beyond providing data to customers, localities, and regional entities, utilities are also major providers of efficiency programs. Developing an understanding of existing utility portfolios will help regional groups target activities that complement, rather that compete with, existing programs.[3]

Develop targeted, reasonable tracking metrics prior to implementation.

Tracking metrics will be informed by the baseline assessment and the data that local utilities indicate are available going forward. However metrics should also be thoughtfully designed to reflect program strategies and, to the extent possible, should exclude influence from unrelated factors like economic conditions.

Engage government and community leaders to get buy-in up front.

Many of the policies and programs implemented by regional groups require significant participation from local governments, whether it be in implementing policies, allocating funding, or forming some other partnership. Furthermore, local governments and community leaders will likely be able to distill the needs and wants of local communities.

---

[2] See Ribeiro et al. (2015) and Gilleo et al. (2015) for detailed information on policies in places for cities and states in the region.

[3] Existing policies and incentive programs are usually listed by state and sector on the Database of State Incentives for Renewables and Efficiency (DSIRE): www.dsireusa.org/. Regional groups may also wish to look through utility reports to better understand programs. In Pennsylvania, such reports can be found here: www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_129_information/electric_distribution_company_act_129_reporting_requirements.aspx.

These energy efficiency priorities can then be aggregated up to the regional level to find common ground.

Consider resource gaps shared by multiple municipalities, and target programs to fill them.

Regional groups can have maximum impact by identifying individual program offerings that serve the needs of many local communities. For example, towns and small communities may lack capacity to take advantage of energy service contracting. Regional groups can generate resources to help small governments understand and easily enter into these contracts, thereby spurring energy upgrades in towns and cities across the region. Local groups will likely express many different needs when it comes to energy efficiency, and regional planning efforts can be useful in identifying a few places where a single program or policy can affect many communities.

Customize marketing and promotional activities for different markets.

While identifying efforts that can serve multiple markets and communities is important, it is also necessary to consider how these efforts will be marketed within communities. Building efficiency programs should consider landlords and renters separately. Programs focused on appliance upgrades should be marketed differently to contractors and individual customers. Efforts to improve policies should consider the priorities of both policymakers and their constituents.

Leverage multiple sources of financing.

Many of the regional groups profiled in this report use multiple sources of funding to implement activities in different sectors. These include:

- Annual assessments from member communities
- State and federal grant programs
- Fees associated with administering grants on behalf of a community or state
- Federal transportation funds allocated to municipal planning organizations
- Grants from philanthropic organizations
- Matching funds from donors

Many funding sources require that funds be spent on program implementation or planning for a specific sector. Regional groups that operate across multiple sectors may be well served to identify multiple sources of funding.

Focus Areas for Regional Efforts

Opportunities exist throughout state and local economies to increase efficiency. ACEEE breaks down major opportunities for energy efficiency in its *City Energy Efficiency Scorecard* and *State Energy Efficiency Scorecard.*[4] Below, we detail the major decision makers and key stakeholders within several of these sectors. By engaging with these stakeholders and

---

[4] The *City Scorecard* ranks 51 large US cities across five policy areas on efforts to save energy. It offers an efficiency roadmap for any city that wants to save more energy. See Ribeiro et al. (2015) for more information. The *State Scorecard* includes similar criteria for all 50 states and the District of Columbia. See Gilleo et al. (2015) for more information.

decision makers, those who are guiding E4P32 will better understand the opportunities and constraints within the region and develop relationships that can lead to real efficiency gains.

EFFICIENCY IN THE UTILITIES SECTOR

The utility sector delivers a significant portion of energy efficiency services in the United States. In 2014, utilities and administrators delivered efficiency programs in all 50 states, spending a combined $7.3 billion on electricity and natural gas programs (Gilleo et al. 2015). Median spending on efficiency programs at the state level was equivalent to about 1.09% of total utility revenues. In the E4P32 footprint, utilities in Pennsylvania and Maryland both spent more than the national average, buoyed by effective long-term state energy savings goals. Utilities in Ohio and West Virginia spent less than the national average. In large part, these savings are driven by guiding policies like energy efficiency resource standards (Molina and Kushler 2015). Ramping up programs across all these states will require targeting key stakeholders and leverage points, outlined below. Regional groups can help coordinate these efforts and act as a representative voice at utility meetings and regulatory proceedings to influence both framework policies and specific program offerings.[5]

EFFICIENCY IN BUILDINGS

There are opportunities to influence energy efficiency in both existing buildings and new construction at a regional level. Regional groups can create competitions that encourage efficiency and innovation in private buildings through publicity, marketing, and technical assistance.[6] They can develop online platforms to guide building owners to use utility incentives for efficiency upgrades. Regional groups can also identify gaps in existing utility-run energy efficiency programs, create marketing or other partnerships with utilities, and directly implement efficiency programs for buildings themselves. Another way to engage in the buildings sector is through the policy arena, for example by working with local governments to advance building labeling and certification efforts. Owners and tenants of residential and commercial buildings have different motivations for investments in energy efficiency. Engaging the proper stakeholders is necessary to develop programs that meet these disparate needs. We outline several of these groups in the section on stakeholders below.

EFFICIENCY IN INDUSTRY

Manufacturers and large companies are critical to efficiency efforts in several ways. They are typically large users of energy, they are often closely linked to the economic success of the region due to their status as major employers, and they typically have unique needs that utility-delivered programs must be tailored to address. Regional efforts can target efficiency in industry by asking large commercial operations to make efficiency pledges and publicizing successful industrial efficiency programs. The US Department of Energy (DOE)

---

[5] ACEEE offers a detailed toolkit that outlines strategies for local governments to partner with utilities. See aceee.org/sector/local-policy/toolkit/partnership-strategies for fact sheets and case studies.

[6] For example, see Envision Charlotte's efforts to drive efficiency in downtown buildings: www.envisioncharlotte.com/.

also offers technical assistance to manufacturers across a variety of platforms, such as its Better Plants program and its combined heat and power (CHP) Technical Assistance Partnership.[7]

TRANSPORTATION EFFICIENCY

Transportation-related energy efficiency initiatives should address the efficiency of individual vehicles and the transportation system as a whole, including its relationship to land use policies. Efficiency opportunities for both freight and passenger transport exist at the regional level, ranging from strategic placement of freight intermodal facilities to funding mechanisms for alternatives to driving to adequate provision of electric vehicle charging infrastructure. It is important to engage several types of stakeholders when considering efficiency in this space. We list several of the major stakeholder groups in the section that follows. Regional groups can assist in coordinated planning efforts and can also implement programs targeted at transportation efficiency.[8] Regional groups should consider opportunities to influence modal shifts as well as the fuel mix of passenger vehicles in the area.

EFFICIENCY THROUGHOUT COMMUNITIES AND LOCAL GOVERNMENT OPERATIONS

Local governments are important participants in regional energy efficiency efforts. Local governments can lead by example in their communities by focusing on their own operations and can spur wider-scale action in communities through sustainability planning processes and other public-facing initiatives. Regional groups can provide technical assistance and publicity for these efforts.

Key Stakeholders and Strategies for Involvement

No matter which sector of the economy is targeted for efficiency efforts, convening stakeholders to determine feasible and impactful strategies is critical. Below, we outline key stakeholders, the expertise they can bring to the table, and the policies and programs they may be able to influence.

STAKEHOLDERS AND DECISION MAKERS IN THE UTILITIES SECTOR

Governors and state legislatures. In many cases, major policies governing utility involvement in energy efficiency are set at the state level. This is the case in Pennsylvania, where Act 129 sets the expectation for investor-owned utilities in the state to deliver electric efficiency programs. State legislatures can also place limitations on efficiency programs, including spending caps. The cross-boundary nature of the E4P32 region makes state-level policy work complex but certainly not impossible. Coordinating with state-specific advocates may help influence top state decision makers and result in major policy gains and energy savings.

---

[7] For more detail on these programs, see energy.gov/eere/amo/ta.

[8] For example, see the MORPC demand management program and SANDAG transportation programs profiled in Appendix A.

Public utility commissions. For utilities to deliver efficiency services in an effective and impactful manner, the appropriate regulatory frameworks must be in place. Often, public utility commissions (PUCs) can work within their existing legal authority to implement or improve regulatory mechanisms. Molina and Kushler (2015) lay out the ideal policy framework, which includes decoupling, long-term energy savings goals, and performance incentives for utilities. Utilities with these policy mechanisms in place tend to achieve more energy savings than those without.

Investor-owned utilities. Investor-owned utilities (IOUs) are required to implement energy efficiency programs in three of the four states with counties in the E4P32 region.[9] IOU portfolio approval is typically a public process at the PUC but also involves significant stakeholder engagement during the planning process. Regional entities like E4P32 can engage with IOUs and encourage investment in cutting-edge technologies and program offerings. York et al. (2015) touch on many of these opportunities, including conservation voltage reduction, smart buildings, and specific efficient appliances.

Rural cooperatives. While most of the E4P32 region is served by IOUs, rural cooperatives also fall within the bounds of the region. These utilities are typically not regulated by public utility commissions but instead serve the goals and priorities of their customers and member bases. Several cooperatives in the E4P32 region do offer efficiency programs, including Harrison REA in West Virginia, Carroll Electric Co-op Inc. in Ohio, and Somerset REA, REA Energy Cooperative, and others in Pennsylvania. Engaging with these cooperatives can encourage additional efficiency in rural areas and small communities that are often hard to reach. The National Rural Electric Cooperatives Association (NRECA) follows many existing efficiency efforts, and ACEEE has also documented best-practice efficiency programs spearheaded by public power entities (see NRECA 2016 and Kushler et al. 2015). The Southwest Energy Efficiency Project has also documented best practices among rural electric cooperatives (Bickford and Geller 2016).

Efficiency advocates. Many efficiency advocates, including environmental groups and clean energy groups, are experienced in tracking and intervening in utility dockets. E4P32 can leverage this experience to influence change during rate cases and demand-side management cases and as utilities bring other issues to the PUC. Mergers and settlement agreements are other points where dollars are often directly allocated to efficiency efforts, and efficiency advocates should be well placed to monitor and participate in these proceedings.

STAKEHOLDERS AND DECISION MAKERS IN THE BUILDINGS SECTOR

Governors, legislatures, and state code authority. Energy codes are often set through a political process, either as dictated by state leadership or on a codified time schedule. Energy offices, departments of labor, or other state authorities are typically tasked with updating building energy codes. Up-to-date building codes ensure efficiency in new construction, so the decisions of these agencies can have major impacts. Regional groups can push for more

---

[9] Utilities in West Virginia are not required to implement programs. Note also that requirements in Ohio are "frozen" and that significant uncertainty surrounds future utility goals and programs there.

stringent or up-to-date codes. For example, Ohio is launching a proceeding in 2016 to consider adoption of the next round of codes, and regional groups will have opportunities to weigh in.

Local code enforcement agencies. Even when the code is set at the state level, authority to enforce it is typically delegated to local agencies that review plans and inspect construction. Compliance requirements vary by city agency. Most of the enforcement in local jurisdictions is centered on the permitting process. In jurisdictions without strict enforcement, engineers or architects for a building construction project must certify that their plans are code compliant. In jurisdictions with stricter enforcement, plans are submitted to code officials for review. Some jurisdictions also require onsite inspections of construction work. Permit fees and municipal taxes fund local government enforcement. Some additional support for building energy code enforcement comes from DOE for development of software tools and training for code officials (Ribeiro et al. 2015). Regional groups can work with these agencies to coordinate code trainings and other efforts to ensure code compliance.

Councils of government. Councils of government (COGs) help disseminate information and coordinate regional support for building codes and other initiatives. By supporting the code adoption process, regional groups can ensure that maximum energy savings are realized.

Mayor's office. Cities lead the way in benchmarking and disclosure activities.[10] These efforts are typically initiatives of mayors' offices. Benchmarking increases focus on energy consumption and is often the first step toward improving efficiency in buildings and operations, since it allows cities to see where and how energy is used in the existing building stock. Coordinated efforts to benchmark and disclose energy use are appropriate for both large cities and small towns. Local governments may also have the ability to set stretch codes but may need guidance to do so.[11]

Multifamily building owners and managers. In many regions, efficiency programs targeting multifamily buildings are limited. Regional groups can work with individual owners or companies that own a portfolio of buildings throughout the region to identify efficiency opportunities and take advantage of programs offered by utilities and other providers.

Other implementers. Regional groups can transform markets by working with real estate agents to encourage or require energy efficiency categories on property listings (often termed a "green MLS"). Highlighting the financial value of energy-efficient appliances and property upgrades helps consumers make informed purchasing decisions. Efforts to address efficiency issues in low- and moderate-income markets can benefit from coordination with community action agencies. These groups—often weatherization implementers—will have specific knowledge of federal funding and resources that can be leveraged to achieve deeper savings in these markets.

---

[10] For more information on benchmarking and disclosure, see ACEEE's Local Policy Toolkit.

[11] This will vary, based on state law. For example, local governments in Ohio and Pennsylvania do not have authority to set mandatory stretch codes, but in Maryland local jurisdictions may consider such codes.

STAKEHOLDERS AND DECISION MAKERS IN THE INDUSTRIAL SECTOR

Manufacturers. Large industrial and manufacturing facilities are home to some of the most cost-effective energy efficiency improvements. Engaging these energy users in the development of programs that are responsive to their needs can help ensure they participate in these programs, whether offered by utilities or nonutility program administrators.

Economic development agencies. Partnering with regional and local organizations, such as economic development agencies, industry trade groups, or business associations, to encourage energy efficiency can provide access to a large number of companies from a particular industry. Because industrial operations vary widely, educating members of trade associations can be an effective way to promote technologies and management practices to reduce energy consumption in their manufacturing sector.

Technical assistance providers. Large commercial and industrial entities often have specific energy needs. Understanding and addressing these needs requires expertise. Technical assistance providers, including utilities, CHP Technical Assistance Partnerships (an effort of DOE), Industrial Assessment Centers (another DOE program), and Manufacturing Extension Partnership centers (a US Department of Commerce program) can help guide regional efforts and fill knowledge gaps.

Oil and gas producers. Extraction and treatment processes for oil and gas offer significant opportunities for gains in energy efficiency. Regional groups can promote CHP (combined heat and power) systems at refineries. They can also encourage sustainability reporting and voluntary commitments to improve energy efficiency in operations in this sector. Parekh and Singh (2015) describe additional opportunities in this sector, including requiring companies to report the quantity of gas flared and promoting efficient ways of transporting oil and gas.

Agriculture. The agricultural sector is typically a large user of energy. Several federal programs target efficiency in this sector, most notably the Rural Energy for America Program (REAP). Regional efforts can also target this sector, by partnering with rural cooperatives to market incentives, training agricultural energy auditors, or working to secure additional funding beyond USDA grants for efficiency upgrades in this sector.

STAKEHOLDERS AND DECISION MAKERS IN THE TRANSPORTATION SECTOR

Transportation planning organizations. The federal government requires metropolitan planning organizations (MPOs) to operate in any urbanized areas with more than 50,000 people.[12] MPOs convene public stakeholders and transportation organizations (including public transit operators) to facilitate the transportation planning process. Outside metropolitan areas, State departments of transportation fill a similar role. Efforts to increase

---

[12] A list of MPOs by state or metro area can be found here: www.planning.dot.gov/mpo.asp.

transportation system efficiency should be coordinated with the work of these organizations.[13]

Transportation coalitions. Transportation coalitions and partnerships convene public and private stakeholders to find solutions to transportation challenges. For example, DOE's Clean Cities program supports local actions to cut petroleum use in transportation. Regional groups can connect cities and towns to these efforts.

Local transportation departments. These departments manage communities' transportation networks and may administer efficiency programs, including transportation demand management programs. The opportunity exists for regional groups to coordinate with them and potentially expand on their efforts. Transportation departments may also be willing to promote regional efficiency efforts to the public.

Local planning boards. Zoning decisions and changes are under the jurisdiction of local planning boards. Regional groups can work with these bodies to develop plans for establishing walkable, mixed-use communities and implementing smart growth regulations.

Major shippers and carriers. Opportunities for large energy savings also exist in the freight sector. Regional groups should engage class 1 railroads, intermodal facilities, and large shippers to better understand prospects for energy savings.

LOCAL STAKEHOLDERS AND DECISION MAKERS

Mayors and city councils. Local officials have significant authority to adopt policies for reducing energy waste, especially in buildings and transportation. These officials can also develop or codify comprehensive plans and sustainability initiatives that recognize the value of energy efficiency, setting a course to ramp up efficiency in the future. Also, local government staff (such as sustainability and energy managers) may serve as energy efficiency champions in communities and be willing to share data on energy use trends to inform regional policy development. Finally, mayors and city councils can set efficiency targets for municipal utilities.

Community members and chambers of commerce. If community members and the private sector are included in energy efficiency efforts, they may have large-scale impact and spur cities to expand beyond their lead-by-example initiatives. In addition, regional groups can be instrumental in engaging underserved populations in the energy planning process. Developing a unifying vision for community energy use allows governments to leverage outside resources—funding, staff, volunteers, knowledge—to improve energy efficiency.

Schools, hospitals, and universities. Hospitals and educational facilities are large energy users and frequently have significant interest in resiliency efforts. These entities can be prime targets for CHP installations, which can help keep power on even when the electricity grid is disrupted (e.g., during severe weather events). Regional groups can help target these energy users and link them to technical assistance providers and utility incentives for CHP

---

[13] For more examples, see case studies presented in Appendix A.

installations. Within the E4P32 region, universities can also be engaged as *providers* of technical assistance, offering advice on implementation as well as expertise on cutting-edge technologies and policies.

Low-income advocates and community members. Members of low-income communities typically face more barriers to efficiency than middle- and upper-income customers. For example, they may have trouble with up-front capital, financing, or access to resources and information. Low-income efficiency programs may be implemented by utilities using ratepayer funds, but there are several additional avenues for program delivery, including weatherization and Low Income Home Energy Assistance programs funded by the federal government and implemented by nonprofits or other community groups. Regional groups should coordinate with community members and advocates to better understand barriers to efficiency implementation in this sector.

Regional groups with similar missions. Identifying local groups with similar missions can be a useful way to leverage and maximize resources. In the E4P32 region, there are several groups that may be able to partner for program delivery or provide technical assistance. For example, the ReEnergize Pittsburgh Coalition brings together stakeholders with a mission to increase access to and demand for energy efficiency throughout western Pennsylvania. Several of its strategies align with potential E4P32 actions, including educating customers about energy efficiency and supporting policy efforts.[14] The Northeast Energy Efficiency Partnerships (NEEP) may be another useful resource in the region. NEEP is the regional energy efficiency organization (REEO) serving the northeast and mid-Atlantic. Its staff have a firm grasp on policy and program implementation, and can help guide regional groups while also connecting them to potential partners.[15]

Metrics and Indicators

The sample regional planning efforts profiled in this report use a variety of metrics to measure progress. These vary greatly based on the overall goals of the program. Table 1 lists indicators applicable to a wide variety of programs and regional efforts. Note that this list is not inclusive of all possible metrics but rather is a sample of high-level indicators. Additional examples of metrics are given in the case studies in Appendix A.

---

[14] See reenergizepgh.org/mission/ for more information.

[15] See www.neep.org/.

Table 1. Possible metrics for measuring results of regional efficiency efforts

Indicator	Considerations
Change in GHG emissions*	Not directly tied to energy savings, although often used as a proxy. This metric can be used to tie in other environmental goals, including those related to clean and renewable energy generation. Local governments often track GHG emissions as part of existing sustainability efforts. Regional groups can also measure GHG emissions in the context of other useful indicators (i.e., GHG emissions per unit of energy used in an economic sector or per employee in the region).
Change in vehicle miles traveled*	A good indicator of changes across the transportation sector, including mode shift and reduction in single-occupancy vehicles. The metric may be applied at the regional level or to local government operations. VMT may also be affected by factors outside of regional efficiency efforts.
Energy consumption*	May be used across all activities but requires subdivision by fuel type. Data often may be drawn from publicly available sources that are straightforward to access. Energy consumption is affected by many factors, so teasing out the effects of regional efficiency efforts may be complicated.
Energy savings*	A bottom-up calculation that measures savings from activities through evaluation, measurement, and verification (EM&V). There is a trade-off between complexity and accuracy in calculations.
Number of planned actions accomplished by regional planning group	A straightforward metric for tracking progress of an implementation plan. It is not linked to energy consumption or energy savings, but it can be useful when plans call for best practice approaches whose effects are difficult to quantify.
Number of stakeholders or stakeholder groups involved in planning and implementation	A metric for assessing a regional organization's success in reaching a variety of groups. Involving a broad coalition of stakeholders in planning and implementation helps increase buy-in among communities. This metric should be used as an indicator of a well-formed process rather than as an indicator of success in achieving energy efficiency outcomes.

* Normalization factors are necessary for these metrics since they may be influenced by changes in population, economic conditions, and so on. Examples include normalization on a per capita or per gross state product basis.

The metrics in table 1 are high level and can help determine the progress of an implementation plan as a whole. Once a plan is in place, additional metrics directly linked to individual programs or policies should be determined. In its 2013 *Guide to Community Energy Strategic Planning*, DOE lays out the essential components of a monitoring plan.[16] It recommends

- System-level metrics that measure the overall impact of many different activities (e.g., total government vehicle fleet fuel usage; total residential energy use)
- Program-level metrics that measure the impact of an individual activity or program (e.g., number of bike parking stations; city hall energy retrofit savings by building)

---

16 See energy.gov/sites/prod/files/2014/05/f15/cesp_guide.pdf.

- Status updates that illustrate whether specific actions have been taken or milestones have been achieved

DOE's guide also notes that the most useful indicators

- Are accessible, reliable, and well documented
- Rely on existing data that are already available, when possible, such as energy use in buildings or number of customers enrolled in energy efficiency programs
- For new data, are relatively low cost and easy to measure, if possible—for example, the results of simple surveys
- Provide results that are easily understood by, and relevant to, the key audience
- Drive changes in behavior and energy use patterns
- Capture a range of factors, such as awareness, actions, and actual energy use
- Are scale independent, using percentages or normalized information, when possible, to allow relevance across time or shed light on relationships between two variables

Conclusion

Energy for the Power of 32 has only just begun the planning process for regional energy efficiency efforts, and there are many existing best practices to draw from in plan development and implementation. Shaping a vision for the entire process, from planning through reporting results, will help smooth the implementation process. A shared vision calls for significant engagement with stakeholders, including those in positions of authority, those with the ability to fund or implement programs, and those who can voice community needs. To better understand local options for energy efficiency, engaging with these stakeholders early and often will be critical.

References

Bickford, A., and H. Geller. 2016. *Review of Leading Rural Electric Cooperative Energy Efficiency Programs.* Boulder, CO: SWEEP. www.swenergy.org/data/sites/1/media/documents/publications/documents/Leading_REC_Energy_Efficiency_Programs_Jan_2016.pdf.

DOE (US Department of Energy). 2009. *Community Greening: How to Develop a Strategic Energy Plan.* Washington, DC: DOE. www.nrel.gov/tech_deployment/pdfs/community_greening.pdf.

———. 2013. *Guide to Community Energy Strategic Planning.* Washington, DC: DOE. energy.gov/sites/prod/files/2014/05/f15/cesp_guide.pdf.

Power of 32. 2016. "Power of 32." Updated 2016. powerof32.org/.

FHA (Federal Highway Administration). 2015. "Metropolitan Area Transportation Planning for Healthy Communities." Updated November 25. www.fhwa.dot.gov/planning/health_in_transportation/resources/healthy_communities/page03.cfm.

Gilleo, A., S. Nowak, M. Kelly, S. Vaidyanathan, M. Shoemaker, A. Chittum, and T. Bailey. 2015. *The 2015 State Energy Efficiency Scorecard.* Washington, DC: ACEEE. aceee.org/research-report/u1509.

Kushler, M., B. Baatz, S. Nowak, and P. Witte. 2015. *Municipal Utility Energy Efficiency: Successful Examples around the Nation.* Washington, DC: ACEEE. aceee.org/research-report/u1510.

Molina, M., and M. Kushler. 2015. *Policies Matter: Creating a Foundation for an Energy-Efficient Utility of the Future.* Washington, DC: ACEEE. aceee.org/sites/default/files/policies-matter.pdf.

Nadel, S., R. N. Elliott, and T. Langer. 2015. *Energy Efficiency in the United States: 35 Years and Counting.* Washington, DC: ACEEE. aceee.org/sites/default/files/publications/researchreports/e1502.pdf.

NRECA (National Rural Electric Cooperative Association). 2016. "Energy Efficiency." Accessed January. www.nreca.coop/nreca-on-the-issues/energy-operations/energy-efficiency/.

Parekh, S., and S. Singh. 2015. *Towards an Energy Efficient Oil & Gas Sector.* New Delhi: TERI (The Energy and Resources Institute). sustainabledevelopment.un.org/content/documents/625468-Parekh_Towards%20an%20Energy%20Efficient%20Oil%20&%20Gas%20Sectorpdf.

Ribeiro, D., V. Hewitt, E. Mackres, R. Cluett, L. M. Ross, S. Vaidyanathan, and S. Zerbonne. 2015. *The 2015 City Energy Efficiency Scorecard.* Washington, DC: ACEEE. aceee.org/research-report/u1502.

SANDAG (San Diego Association of Governments). 2015. *State of the Commute 2014.* San Diego: SANDAG. www.sandag.org/uploads/publicationid/publicationid_1937_19102.pdf.

Sustainable Pittsburgh. 2014. *Energy Baseline for the Power of 32 Region.* Prepared by Fourth Economy Consulting and Kirk Consulting. Pittsburgh: Sustainable Pittsburgh. www.energy4p32.org/RegionalEnergyBaselineforP32v.2.pdf.

York, D., S. Nadel, E. Rogers, R. Cluett, S. Kwatra, H. Sachs, J. Amann, and M. Kelly. 2015. *New Horizons for Energy Efficiency: Opportunities to Reach Higher Electricity Savings by 2030.* Washington, DC: ACEEE. aceee.org/research-report/u1507.

Appendix A. Case Studies of Regional Planning Efforts

PIONEER VALLEY PLANNING COMMISSION

Organization Details

The Pioneer Valley Planning Commission (PVPC) was organized in 1962 and is the designated regional planning body for 43 cities and towns in Hampden and Hampshire Counties in Massachusetts. Massachusetts has enabling legislation that permits local governments to band together to address problems and opportunities that are regional in scope, designating these areas as special districts. PVPC is the primary agency responsible for coordinating local governments and private businesses in the area.

The commission is composed of two representatives from each member community. The full commission meets four to six times per year. There is also a nine-member elected executive committee that meets on a monthly basis to authorize expenditures.

Planning Process

CLIMATE ACTION PLAN

Pioneer Valley has several core plans, including a Climate Action and Clean Energy Plan developed in 2008 and most recently updated and reissued in 2014. The plan sets out baseline values and sources of GHG emissions, offers regional targets for GHG reductions, and recommends strategies for mitigating the impacts of climate change. The plan was funded through a Sustainable Communities Initiative grant from the US Department of Housing and Urban Development, received in partnership with the local Council of Governments. PVPC staff spearheaded work on the plan, with significant input from an advisory committee that included representatives of clean energy businesses, local communities, universities, research centers, and environmental groups.

PVPC surveyed other local sustainability plans to inform the planning process and undertook a regional GHG inventory. Ultimately, the Climate Action and Clean Energy Plan lays out two major goals: reducing energy use in the region and replacing nonrenewable energy sources with clean, renewable energy generated locally. It then puts forward a series of strategies that fall under three umbrellas: mitigation, adaptation, and energy conservation and clean energy.

CLEAN ENERGY ROADMAP

PVPC also worked with four local communities to develop a specific roadmap for clean energy implementation within a smaller region. The planning process was funded through the state's Community Energy Strategies Program, a pilot developed to help communities identify strategies for implementing clean energy projects and incentives. PVPC led a working group of 13 local leaders from the four communities. The working group collaborated with businesses, residents, and nonprofits throughout the area and also worked with technical experts to assess and refine the strategies identified in the roadmap.

The Clean Energy Roadmap is built around the goals established in the Climate Action and Clean Energy Plan but tailored to address hyperlocal priorities like job creation and clean energy project development. Through stakeholder meetings, more than 50 potential projects were identified that could be implemented by the community. The working group considered each proposed strategy and narrowed the list down to those that could best be

implemented in the near and medium term. The roadmap lays out 10 implementation strategies and provides key information for each including costs, benefits, next steps, and potential contacts.

Implementation Strategies

PVPC has identified strategies for the advancement of clean energy and energy efficiency both for the region as a whole, as part of its Climate Action Plan, and for the four communities involved in the development of the Clean Energy Roadmap. The strategies related to energy efficiency are summarized below.

REGION-WIDE STRATEGIES

The Climate Action Plan lays out a wide variety of strategies to mitigate climate change by reducing GHG emissions as well as strategies aimed at adaptation. Some strategies focusing on energy efficiency are listed below; many more are listed in the plan itself.

Set green zoning standards for new development. This requires action by local planning boards. Such standards would promote pedestrian and bicycle access while reducing auto trips.

Set local stretch codes to ensure energy-efficient construction. This strategy calls on municipalities to adopt commercial and residential building energy codes more stringent than those required by the state. It also recommends using energy performance scoring to gauge compliance with existing or stretch codes.

Assist smaller communities through a regional performance contract. Under this approach, an energy services company (ESCO) aggregates projects for several small communities and guarantees that savings will meet or exceed annual payments to cover project costs.

Develop a voluntary green builder certification program. Through such programs, municipalities offer incentives, like priority plan review and streamlined permitting, to homebuilders who follow green building practices.

Seek municipal adoption of lead-by-example policies. Under this strategy, municipalities establish targets for reducing energy usage in public buildings, require specific energy ratings for new buildings, and undertake actions to promote energy efficiency.

Install LED traffic signals and street lights. Municipalities spearhead this strategy, which can save both energy and maintenance costs.

Improve regional ride sharing. Regional planning authorities can use social media and marketing to create user trust in ride sharing systems.

SUBREGIONAL STRATEGIES

The Clean Energy Roadmap lays out strategies with small communities in mind. A selection of these are listed below.

Implement a community-based renewable thermal energy community marketing campaign. Planners identified a lack of awareness of renewable heating and cooling technologies among residents of the Pioneer Valley. This strategy addresses the issue with customer outreach,

marketing, and education through coordination with state agencies and the statewide efficiency program administrator.

Provide energy planning services for municipalities. Many Pioneer Valley municipalities reported that they lacked adequate staff capacity to leverage state resources around energy efficiency. This strategy proposes shared energy management services, managed by the planning commission, to provide energy services on a fee-for-service basis.

Develop an energy coaches program for landlords and tenants. Renters make up a high proportion of residents in the area covered by the Clean Energy Roadmap. This strategy addresses the specific barriers the rental market must overcome to implement energy efficiency projects by calling for development of a technical assistance platform for landlords, tenants, and other stakeholders.

Develop a regional bike sharing system. This strategy alters the model of bike sharing used in large cities by equipping the region with GPS-enabled bikes. The bike system would help interconnect the region's bike and pedestrian paths with passenger rail service. Under this strategy, PVPC would develop a request for proposals to secure a vendor to implement the concept.

Increase access to electric vehicle charging stations. This strategy requires PVPC to provide technical assistance to towns and municipalities in identifying viable sites for charging stations, purchasing plug-in vehicles when replacing municipally owned vehicles, and managing the procurement process. Placement of charging stations at highly visible sites is also an opportunity for community engagement and education.

Develop a zero net energy building demonstration project. The demonstration project would showcase the potential for deep energy efficiency retrofits and renewable energy technologies to revitalize aging buildings. PVPC would provide technical support.

Measures of Success

While energy efficiency is one core component of PVPC's climate action strategy, many of the commission's measures of progress are focused on clean energy. For example, the 2008 plan set a goal of siting new capacity to generate 654 million kilowatt-hours of clean energy per year in the Pioneer Valley by 2020. PVCP tracks progress toward this goal using data provided by the Massachusetts Executive Office of Energy and Environmental Affairs and the Massachusetts Clean Energy Center.

PVPC maintains a clearinghouse of data that includes both demographic information for each community in the region and limited energy data. PVPC updates these metrics to inform its planning process but does not issue separate tracking reports. Data points related to energy include air quality, green community designation, GHG emissions, recycling rates, miles of dedicated bike lanes, transportation modes, and vehicle miles traveled. PVPC also measures accomplishments in terms of actions undertaken throughout the year, such as participation in advocacy campaigns and provision of technical assistance to key stakeholders.

Resources

Clean Energy Roadmap:
images.masscec.com/uploads/programdocs/CESP:%20Pioneer%20Valley%20Planning%20Commission/MassCEC%20-%20PVPC%20roadmap%20final.pdf

Climate Action and Clean Energy Plan:
www.pvpc.org/sites/default/files/PVPC%20Climate%20Action%20Clean%20Energy%20Plan%20FINAL%2002-18-14.pdf

Pioneer Valley Data Portal:
pioneervalleydata.org/

MID-OHIO REGIONAL PLANNING COMMISSION

Organization Details

The Mid-Ohio Regional Planning Commission (MORPC) is a voluntary organization made up of local governments and regional organizations located in central Ohio. Membership is diverse, with localities representing urban, suburban, and rural developed environments. Membership is densest in the Columbus region, but several surrounding counties have also joined, as we show in figure A1.
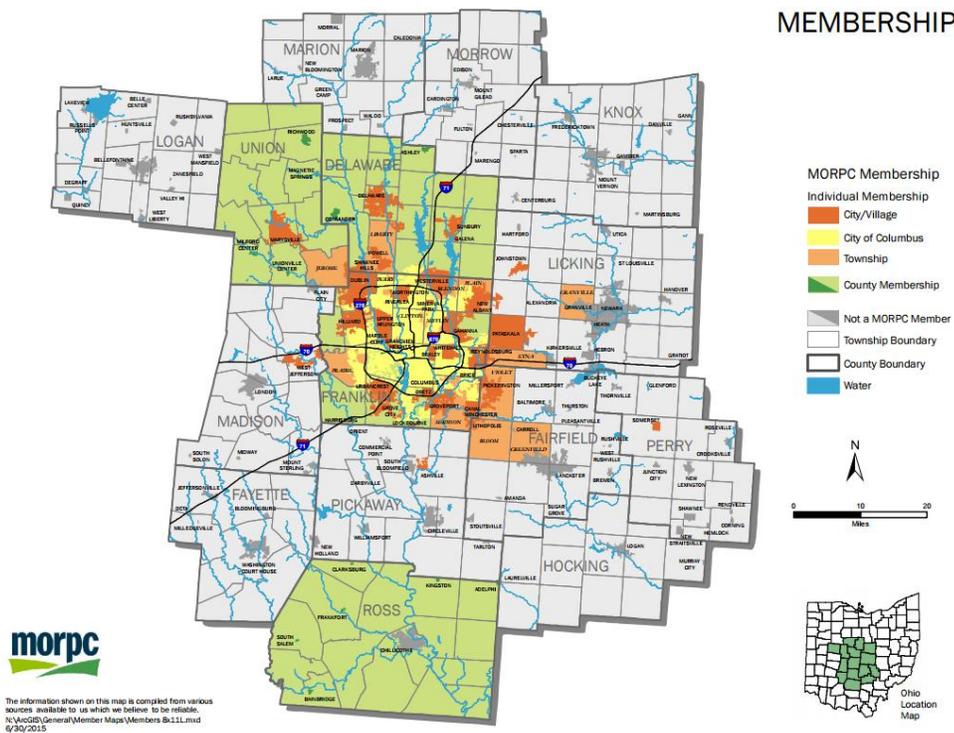

Figure A1. MORPC membership.

Planning Process

MORPC has played an important convening role to promote the efficient use of energy in the region. With the National Association of Regional Councils (NARC), MORPC developed a regional energy action plan that assesses the region's energy future and lays out

23

recommendations, including the identification of building energy efficiency as a potential subject for future study. It also emphasizes the importance of a varied stakeholder engagement process during energy planning. For example, the commission engaged economic, community, policy, and energy stakeholders but also noted the importance of engaging local workforce investment boards, schools, and universities. MORPC has also developed transportation plans related to efficient land use, with the most recent plan slated for release in February 2016.

Implementation Strategies

MORPC adopted an environmental policy statement recognizing the importance of a healthy environment, economic prosperity, public health, and economic growth (MORPC undated). This policy is the lens through which the commission develops its energy activities, including those related to energy efficiency, efficient land use, and transportation alternatives. Specific goals include implementing effective environmental programs when feasible and leading by example (LBE) in the commission's own facilities. Its LBE initiatives include purchasing only ENERGY STAR® appliances, setting a percentage goal for energy reduction, adopting an anti-idling policy, and purchasing the most efficient vehicles available.

MORPC administers two energy efficiency–related programs, one for private buildings and the other for transportation. For residences, it offers a home weatherization program for renters and homeowners in Franklin County. The service include a home assessment that identifies potential efficiency improvements such as attic and sidewall insulation, air sealing, and repair of electric and gas appliances. It is free to income-eligible customers.

MORPC also runs a transportation demand management (TDM) program, RideSolutions, offering carpooling, van pooling, bus riding, and a bike buddy program. The program aims to reduce congestion, lower commuters' fuel costs, and improve the environment. MORPC also offers informational resources to promote sustainable transportation, including a Complete Streets Toolkit with model policies that can be adapted to meet the needs of local governments.[17]

Measures of Success

We could not determine the specific metrics, if any, that MORPC uses to evaluate its energy efficiency programs. The commission reported in its *2015 State of the Region* report that residents in Franklin County saved an average of 28% on utility bills due to the weatherization program . MORPC has also tracked the number of homes it has weatherized, as shown in figure A2. Overall, it has weatherized homes for more than 15,000 families since 1988.

---

[17] See www.morpc.org/transportation/complete-streets/toolkit/index for model ordinances and more information on the toolkit.
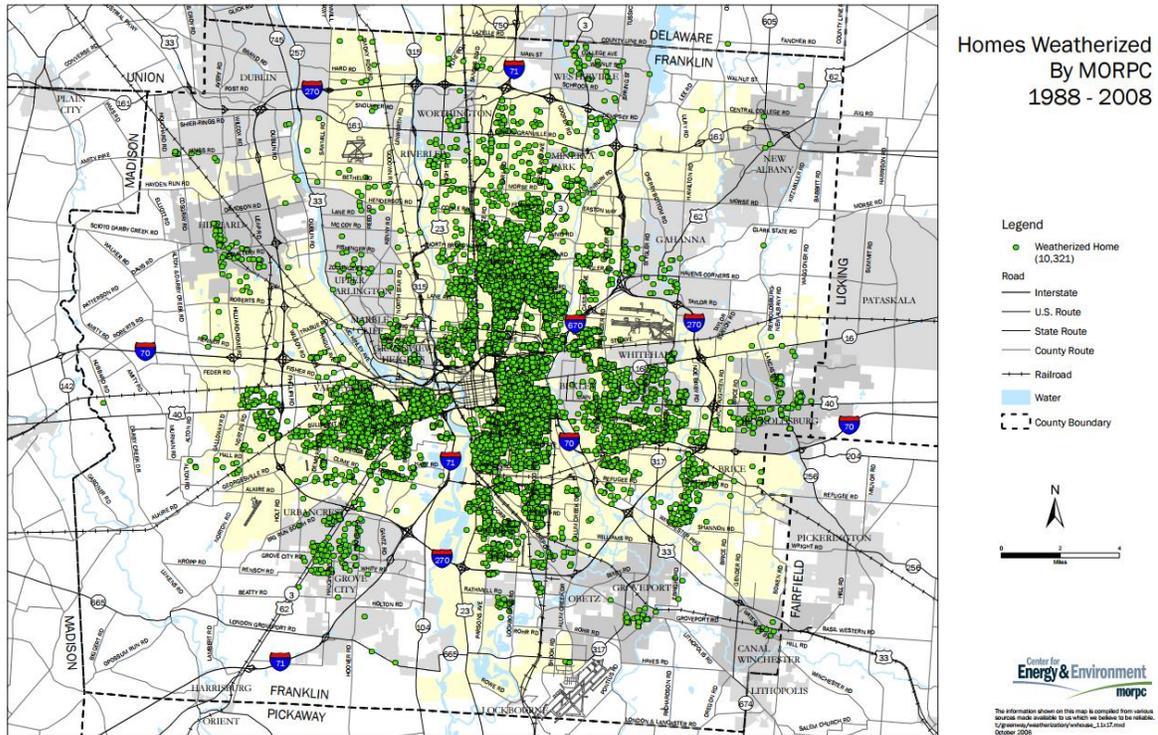
Figure A2. Homes weatherized by MORPC, 1988–2008.

Resources

Environmental Policy Statement—Statement, Goals & Objectives:
www.morpc.org/pdf/2014MORPCEnvironmentalPolicy.pdf

MORPC Membership Map:
http://www.morpc.org/Assets/MORPC/files/020316Members%208x11.pdf

Regional Energy Action Plan for the Columbus Region:
www.morpc.org/Sustainability/energy/regional-energy-action-plan/index

RideSolutions Program:
www.morpc.org/transportation/ridesolutions/index

Residential Energy Efficiency Program: www.morpc.org/Sustainability/energy/energy-efficiency/

State of the Region 2015:
www.morpc.org/Assets/MORPC/files/040315BusinessFirst.pdf

SAN DIEGO ASSOCIATION OF GOVERNMENTS

Organization Details

The San Diego Association of Governments (SANDAG) is a public agency that serves as a forum for regional decision making in the San Diego area. It is made up of 18 cities and one county, as shown in figure A3. Representatives from each jurisdiction sit on SANDAG's

board of directors, which governs the organization. The local governments formed the organization in 1966 as a long-range planning department; it was renamed SANDAG in 1980.

Representatives from other organizations and localities advise the board. The advisers include Imperial County, the U.S. Department of Defense, California Department of Transportation, San Diego Unified Port District, Metropolitan Transit System, North County Transit District, San Diego County Water Authority, Southern California Tribal Chairmen's Association, and the Consulate General of Mexico.

Figure A3. Member jurisdictions of SANDAG. *Source:* FHA 2015.

Planning Process

Policy advisory committees on varying topic areas assist the board of directors. SANDAG has a regional energy working group (EWG) to advise on matters related to energy. The EWG's role is to provide input on the regional energy strategy, including measures to reduce energy waste and greenhouse gas emissions from electricity, natural gas, and transportation fuel. The group serves as a forum to discuss regional energy issues and build consensus within the region. The EWG reports to a regional planning committee, which in turn reports to the board.

SANDAG has a long history in regional energy planning. San Diego County started energy planning in 1979 and periodically updated plans through the 1980s and 1990s. The commission most recently updated the Regional Energy Strategy (RES) in 2009. The EWG was formed in 2003 to coordinate and implement the RES. A diverse set of stakeholders helped develop the plan's guiding principles. Those involved included the regional energy working group, regional planning technical working group, SANDAG board and policy advisory committees, and the public.

The 2009 RES has two primary drivers. One is related to the policy implications of a focus on climate change, and the other is California's preferred loading order for meeting new energy needs. Increasing energy efficiency is California's first priority in meeting new

generation needs, so energy efficiency is a focus of the RES. Because the state has more authority over regulating the electricity and natural gas sectors, the plan focuses on areas over which localities have the most control, including land use planning, transportation planning and funding, and building efficiency.

SANDAG's other plans, including its regional transportation plan and biking and land use plans, would lead to increased transportation-related energy savings.

Implementation Strategies

SANDAG most directly impacts the region's energy use through the Energy Roadmap Initiative, an energy efficiency partnership of local governments and the energy utility serving the county, San Diego Gas & Electric (SDG&E). The California Public Utilities Commission (CPUC) approved the program, which now serves as part of SDG&E's energy efficiency portfolio. The program started in 2010 and runs through 2020, with three-year program cycles.

For the 16 of 18 jurisdictions that do not have local government partnerships with SDG&E, SANDAG fills this role. Levels of involvement vary, as do services offered to participants. These services may include the following:

- Assistance developing an energy roadmap that identifies ways to save energy in local government operations and the community at large
- Help with climate action planning, such as conducting greenhouse gas inventories and identifying reduction measures
- Energy audits for municipal government, energy benchmarking, and identification and project management services for building retrofits
- Emerging cities programs to support community engagement and climate action plan implementation
- Access to San Diego Regional Energy Partnership (SDREP) tools and information, including the San Diego Regional Climate Collaborative (SRDCC) meeting and Zero Net Energy guide for local governments[18]

Some jurisdictions collaborate on region-wide energy efficiency projects and programs, including Chula Vista, the City and County of San Diego, and the San Diego Port.

SANDAG also runs programs for transportation-related energy efficiency. The Transnet Smart Growth Incentive Program and Active Transportation Grant Program fund capital and planning projects to increase biking, walking, and mass transit use in the region. SANDAG also coordinates a TDM program, iCommute, to increase the amount of commuters who carpool, van pool, bike, walk, telework, and use public transit. The TDM program's services are extensive and include free online ride matching, a van pool subsidy program, promotion of bicycling, and support for telecommuting.

---

[18] S. Freedman, senior regional energy planner, SANDAG, pers. comm., January 14, 2016.

Measures of Success

Each city SANDAG serves has participated in the Energy Roadmap Initiative.[19] SANDAG has released case studies documenting program successes from some of the first jurisdictions to participate in the program. The case studies focus on high-level savings amounts and actions taken, rather than focusing exclusively on energy efficiency.

SANDAG worked with San Marcos in 2011 to develop a roadmap, and the city has implemented some of the recommended measures. For example, the roadmap for San Marcos identified opportunities to save energy through energy efficiency retrofits in municipal buildings. Suggestions included lighting upgrades, air-conditioning tune-ups, and an advanced energy management systems. By implementing these measures, the city now saves almost $20,000 annually.

SANDAG also issues updates to its regional comprehensive plan. The comprehensive plan was released in 2006 to serve as a baseline for monitoring performance data related to urban form and transportation, housing, and a healthy environment. Many of the metrics SANDAG reports relate to energy use, including annual transit ridership, commute mode shares, and share of new housing units and jobs located within smart growth opportunity areas. SANDAG's annual *State of the Commute* publication reports on additional indicators and evaluates savings from the TDM program. It estimates that in 2014, iCommute reduced VMT by 140.8 million across the region and saved $7.4 million in fuel costs.

Resources

Working Group Charter—Regional Energy Working Group:
www.sandag.org/uploads/committeeid/committeeid_67_16909.pdf

Regional Energy Strategy for the San Diego Region:
www.sandag.org/uploads/projectid/projectid_374_18168.pdf

The Regional Comprehensive Plan: 2012–2013 Biennial Performance Monitoring Report:
sandag.org/uploads/publicationid/publicationid_1887_18212.pdf

Success Stories:
www.sandag.org/uploads/projectid/projectid_373_20070.pdf
www.sandag.org/uploads/publicationid/publicationid_1914_18694.pdf

State of the Commute 2014:
www.sandag.org/uploads/publicationid/publicationid_1937_19102.pdf

---

[19] Completed energy roadmaps for each jurisdiction are available on SANDAG's website:
www.sandag.org/index.asp?projectid=373&fuseaction=projects.detail.

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Organization Details

The Delaware Valley Regional Planning Commission (DVRPC) was formed by an interstate compact through legislation passed by the Pennsylvania legislature in 1965 and by the New Jersey legislature the following year. The commission serves the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania and Burlington, Camden, Gloucester, and Mercer in New Jersey. Initially, DVRPC focused on transportation planning efforts. However its mission and goals have expanded to focus on energy-efficient development strategies for the region. With a full-time staff of more than 50, DVRPC provides services to member governments through planning, analysis, and data collection.

DVRPC is designated as the Metropolitan Planning Organization (MPO) for the region, and federal legislation has given it a strong role in transportation, land use, and environmental planning. Federal legislation also mandates that MPOs prepare and maintain a long-range plan.

Planning Process

DVRPC maintains a continuous forum for public participation in the planning process. Currently the commission convenes the Public Participation Task Force. The task force has ongoing access to the planning and decision-making process and assists the commission in implementing public outreach strategies. Member localities appoint representatives to the task force, and at-large members representing the interests of minority groups, environmental groups, public health organizations, low-income individuals, private sector business groups, and more are selected for two-year terms through an application process.

In 2013 DVRPC adopted a long-range plan extending through 2040. The plan focuses on four core principles:

1. Modernizing the transportation system
2. Building an energy-efficient economy
3. Creating livable communities
4. Managing growth and protecting resources

PLANNING BEYOND THE REGION

Eight of the DVRPC's nine member counties share boundaries with one or more of fifteen other counties across four states surrounding the region. The DVRPC formed a Study Advisory Committee (SAC) to involve adjacent planning agencies in the planning process and review implementation strategies. After review, the DVRPC issued a planning report examining baseline demographics in the surrounding regions and identifying coordinating techniques and approaches. Ultimately, the report notes the importance of regular communication, participation in working groups across regions, data sharing, and development of mutual policy and legislative positions.

Implementation Strategies

One of DVRPC's four planning pillars focuses on building an energy-efficient economy. The commission identified several strategies to achieve gains in energy efficiency throughout the region.

- Provide services with less energy by encouraging the use of more efficient vehicles, buildings, and equipment.
- Reduce daily energy use in local government operations in order to lead by example.
- Educate the region on emerging energy-efficient technologies.

To facilitate the incorporation of energy efficiency into local government operations, DCRPV launched a Circuit Rider program. The Circuit Rider serves as a shared energy management resource for smaller municipalities, helping to identify and implement cost-effective energy efficiency strategies in buildings, outdoor facilities, and water treatment plants and acting as a platform for sharing information, resources, and funding.

DVRPC hosts workshops for local governments on clean energy options and energy-efficient technologies. Additionally, the commission partnered with the Pennsylvania Municipal League to develop the Sustainable Pennsylvania Community Certification.

DVRPC also implements energy efficiency projects in the transportation sector. The commission provides project management assistance to the Pennsylvania Department of Transportation and New Jersey counties for efforts including construction of multiuse trails, improvements to pedestrian facilities, and program marketing. These efforts are funded through federal dollars or—in the case of New Jersey—funds from the Urban Allocated Surface Transportation Program.

Measures of Success

DVRPC adopted its long-term plan in 2013 and has issued one tracking report since that time. The commission measures progress against a 2000 baseline and established criteria for each tracking metric. Each metric must

- Cover the entire nine-county DVRPC region
- Be readily obtainable
- Have a plausible prospect of being updated regularly and frequently in the future
- Measure results rather than inputs and processes, and focus on real numbers rather than simulations
- Focus, where reasonable, on subjects where DVRPC and its partners have some ability to affect the outcome

Since DVRPC's focus is broader than the energy system, many of its 31 tracking metrics are focused on economic development, transportation infrastructure, and housing. However there are several metrics directly related to energy use:

Are people driving less? Although this metric is tied closely to economic conditions in the region, it has direct implications for fuel use and pollution. DVRPC uses vehicle miles traveled data from state departments of transportation to assess this metric.

Is transit ridership increasing? This data set is available from the National Transit Database and local transit systems.

Are greenhouse gas emissions lower? DVRPC calculates this metric in three ways: 1) the commercial and industrial energy use per employee in the region; 2) the gross metropolitan

product per commercial and industrial energy use emissions; and 3) GHG emissions per unit of energy used. The region conducted a GHG inventory to track this metric.

Is the region using less energy? DVRPC uses total regional energy use as its indicator, although it also tracks energy consumption at the sector level.

Is air quality improving? Air quality is influenced by weather conditions but also energy use and production within the region. DVRPC tracks the number of annual days of National Ambient Air Quality Standards violations for ozone and particulate matter ($PM_{2.5}$).

DVRPC publicly reports on these and other indicators to track progress. Metrics help identify areas of concern and target priority interventions. DVRPC staff plan to update the tracking report in a four-year cycle coinciding with the update of its long-range plan.

Resources

2040 Long-Range Plan:
www.dvrpc.org/reports/13042.pdf

Tracking Progress Report:
www.dvrpc.org/reports/13044.pdf

2014 Annual Report:
www.dvrpc.org/reports/AR2014.pdf

Main DVRPC website:
www.dvrpc.org/

Planning at the Edge:
www.dvrpc.org/reports/12062.pdf