Climate Change and Energy

An international scientific consensus now strongly indicates that increasing concentrations of so-called "greenhouse gases" in the atmosphere—chiefly carbon dioxide (CO_2) but also methane and other heat-trapping gases —are causing a rising trend in average global temperatures. Further, a large body of research points to human activity as the dominant source of increased greenhouse gas (GHG) emissions—most importantly the burning of carbon-based fossil fuels—petroleum, coal, and natural gas. Global warming has become a paramount issue—globally, nationally, and locally. Planning commissioners, planners, and communities have an important role to play in responding to climate change.

IMPACTS OF GLOBAL WARMING

The Intergovernmental Panel on Climate Change's *Working Group Report 2: Impacts, Adaptation, and Vulnerability* predicts a number of climate change impacts for North America:

- Decreased snowpack, more winter flooding, and reduced summer flows in Western states, which will increase competition for water resources
- Extended periods of high wildfire risk
- Major challenges to agricultural products at the "warm end" of their suitable temperature range or that depend on scarce water resources
- Increased number, intensity, and duration of heat waves in cities with the potential for adverse health impacts, especially for the elderly
- Increased vulnerability to climate variability and future climate change effects, such as sea level rise, among the growing population in coastal areas

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THE FOSSIL FUEL CHALLENGE

We depend on fossil fuels to power our vehicles, heat and cool our homes and businesses, and produce electricity. Carbon dioxide, which accounts for approximately 80 percent of global GHG emissions, is emitted when fossil fuels are burned—as in gasoline-powered engines and coal-fired power plants.

To reduce GHG emissions, we need to reduce overall energy use, but we also need to develop other low-carbon and zero-carbon energy sources that do not add to GHG levels. Thus, we have a dual challenge: to increase energy efficiency, both by reducing energy consumption and creating more efficient systems, and to transition from using fossil fuels to using clean energy sources.

Communities across the country are taking action to achieve these goals. By early 2008, more than 800 mayors had signed onto the Mayors Climate Protection Agreement to reduce emissions, and many communities have developed local climate action plans. Additionally, more than 30 individual states have developed or are developing climate action plans, while regional multistate coalitions have formed to address energy issues on a larger scale.

SMART GROWTH AND CLIMATE CHANGE

Planners have long employed principles of smart growth to achieve more walkable neighborhoods, vibrant mixed use areas, appropriately scaled buildings, affordable housing, efficient and accessible transportation options, and land conservation. Many of these principles are pertinent in addressing the climate change issue as well.

Climate change and energy considerations need to be part of any community or regional smart growth discussions and efforts to reduce inefficient, low-density, high-impact development patterns commonly known as urban sprawl. Sprawl patterns of development are associated with numerous adverse energy and climate impacts:

- More vehicle use and increased vehicle miles traveled, leading to higher total CO_2 emissions
- Longer transport distances, resulting in more fuel use and lower energy efficiency
- Increased energy demand, further increasing CO_2 emissions through more fossil fuel burning and the construction and operation of additional power plants

(Continued)

- Loss of vegetation that metabolizes or sequesters CO_2 emissions
- Large, less energy-efficient buildings that are built out rather than up, often due to lower land costs in outlying areas

TAKING STEPS TOWARD CHANGE

Energy and climate change issues are highly interconnected with many of the issues that planners already deal with on a regular basis—transportation, utilities and infrastructure, housing, economic development, open space, project review, and more. Many of the tools and techniques that planners use to effect and manage change in their communities can be adapted and applied to better incorporate climate change and energy concerns. Below are some of the steps you can take to integrate energy and climate issues into your community planning efforts.

Green Mountain Power Corporation

Wind generation plant in New England. Below: The world's third largest solar installation.

Solargenix

Get Up to Speed. Learn more about the relationship between energy, climate change, and planning:

- Contact your APA chapter legislative liaison to find out if your state has a climate action plan. This may also help you learn what other communities in your state are doing.
- Explore informational resources and financial assistance programs available through your state energy office.
- Find out if your community is part of a local emissions reduction agreement, such as the Mayors Climate Protection Agreement, or if your state is part of a regional compact to address GHG emissions. Determine what goals have been established for your community, state, or region.

Integrate into Planning. Climate change and energy can be addressed in many ways through local planning. The following list provides examples of how traditional planning actions can address energy and climate change issues.

- *Long-range Visioning:* Include exercises in your community visioning process to gauge the level of awareness and importance of energy and climate change to your community members. Consider how energy and climate change can be addressed in your community and how it is connected to other community goals and values.
- *Plan Making:* Examine comprehensive plans and other planning documents to see if energy and climate change issues are addressed and integrated. Consider including an energy and climate change element in your comprehensive plan or creating a climate action plan for your community.
- *Regulations:* When updating your regulations, think about how zoning codes, building codes, and other ordinances address energy issues. Consider how these ordinances could work to encourage mixed use development, transit-oriented development, and green building. Also, make sure your codes do not prohibit clean energy generation, such as through solar panels or wind turbines. These structures have sometimes been restricted or prohibited in existing codes due to height or aesthetic reasons.
- *Development Review:* Create a checklist of energy and climate change goals for new projects. For projects that exceed these goals, consider an expedited site plan review and permit processing track.
- *Incentives:* In addition to an expedited plan review, consider other incentives to encourage new development to demonstrate energy efficiency and reduced carbon emissions. Some communities have offered rebates and other financial incentives to developers whose projects meet predetermined standards.
- *Public Investments:* Take an active role in your city's capital improvement program. Make sure that the public investments that will be made in your community—including infrastructure, public buildings, and facilities—promote energy efficiency and reduce GHG emissions. It is often important for cities to lead by example, showing that these goals can be met in public projects, in order for private development to incorporate these goals in their own projects.
- *Public Outreach and Education:* Engage the public in discussing energy and climate change and provide educational forums for citizens to learn how to make changes in their own lives to improve energy efficiency and reduce carbon emissions.

Rethink Planning Practice. Global challenges require new ideas and new approaches. Planners, planning commissioners, and others involved in the planning process should explore new ways to create changes in their community to reduce energy use and GHG emissions. Scientists have depicted a daunting picture of what the future might bring if global temperatures continue to rise, but planners have an important opportunity to confront this challenge and effect change to reduce the negative impacts of global warming. It's a call to action that planners should embrace and an opportunity to create a legacy that future generations will admire.

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