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POLICIES

- 1 Help cities and counties understand the link between smart growth and energy efficiency
- 2 Price utility infrastructure to support infill development
- 3 Leverage energy-efficiency funds for better development patterns
- 4 Promote district energy and Combined Cooling, Heating and Power systems
- 5 Promote energy efficiency in multifamily housing
- 6 Expand commuter tax credit programs to support walking and bicycling
- 7 Develop a tax incentive for alternatives to the automobile

Land use can have a profound impact on a State's energy consumption, just as energy consumption can have a profound impact on a State's land use.

A regulatory structure that fails to encourage energy efficiency inevitably encourages sprawling development and wasteful construction practices. But promoting compact development that offers a variety of transportation choices can reduce energy use, air pollution and greenhouse gas emissions. In a time of wildly fluctuating energy prices and rising costs associated with climate change, energy-efficient development also can save money for governments, businesses and private citizens.

In this section, we discuss ways to discourage sprawl, reduce greenhouse emissions and provide citizens with more efficient transportation alternatives.

1

Help cities and counties understand the link between smart growth and energy efficiency**ACTION**

Compact, mixed-use development generally reduces per-unit energy consumption. For example, high density provides more transportation choices, which allow for a reduction in vehicle miles traveled. It also facilitates use of highly efficient district energy systems to help heat and cool buildings. But policies and codes in many communities do not allow for smart growth approaches to development. States therefore should help local governments understand the link between smart growth and energy efficiency.

The state agency responsible for energy planning should work with local governments to ensure that land-use planning goals and state energy planning goals are coordinated (see *Policy #2, Articulate a vision for how the state should grow, in the Comprehensive Approaches section*). Such coordination can create opportunities to identify and capture major energy savings in development projects.

PROCESS

The state energy agency can work with the state planning department to produce a set of technical bulletins or other materials that discuss the connection between development patterns and energy efficiency, as well as regulatory barriers to compact, mixed-use development. The materials can be used by cities and counties to update their land-use plans, policies and codes, and to otherwise advance the case for the adoption of smart growth policies.

Where funds are available, the state energy agency can work with the planning agency to create a small grant program to provide technical assistance to localities to aid them in updating their regulations and codes to promote smart growth.

States also can examine the regulatory framework that relates to energy planning. The regulatory framework will determine the method by which energy agencies can link their planning activities to state and local level land-use planning. In some states, legislation may be required to direct agencies responsible for energy planning to work with local planners; in others states, an executive order will suffice.

EXAMPLES**California's PLACE3S program**

The California Energy Commission teamed with energy commissions from Oregon and Washington to develop the PLACE3S software in 1994. PLACE3S is a GIS-based land-use and energy planning tool that allows both energy and land-use policymakers to see the relative and combined impacts of their activities. The program incorporates community, economic, energy and environmental policy concerns through a scenario-development model. Land-use planning and energy facility siting can be linked through the software, thus bringing transparency to a process that influences decision making related to energy and land use.

The Sacramento Council of Governments used PLACE3S in its scenario planning exercise, *Blueprint: Transportation Land Use Study*. The analysis provided by PLACE3S became part of the information used by public participants as they compared four different growth scenarios throughout a multi-year, community-wide exercise.

Sacramento Region Blueprint Transportation Land Use Study: <http://www.sacregionblueprint.org/>

California's Public Interest Energy Research Program

California's Public Interest Energy Research (PIER) program, supports energy research, development and demonstration projects in an effort to bring environmentally safe, affordable and reliable energy services and products to the marketplace. While the program is not a perfect template for the institution of a technical assistance program for local governments, its structure may be replicated to serve the technical assistance need.

California PIER Program: <http://www.energy.ca.gov/research/index.html>

2

Price utility infrastructure to support infill development**ACTION**

The state agency that regulates energy-utility pricing should revise its pricing and cost recovery structure to reflect the true cost of energy delivery and to

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support development in existing communities. It costs significantly more to provide energy service to greenfield sites than it does to provide service to existing ratepayers or to add new service to communities with existing service. This is because energy is lost as it is transmitted through power lines. The further the power line from its source, the more energy is lost. This often makes greenfield development more energy consumptive than infill development. Additionally, compact development consumes less energy on a per unit basis than low-density development.

Most utilities typically charge all consumers the same rate, irrespective of their location. They also charge developers the same average price to extend utility service, irrespective of where a ratepayer lives or development occurs (greenfield vs. infill). Utilities can modify their pricing and cost-recovery approaches to reflect the true cost of providing utility infrastructure.

In some instances, the distribution system in urban core areas are in need of major upgrades, so costs even for infill development need to be carefully assessed. To address this issue would involve using a marginal cost-pricing structure for rates and using a tiered system of cost recovery when charging developers for utility extensions. Such a pricing structure would result in a fairer outcome. Developers and consumers would pay for the true costs of development. Infill development no longer would subsidize the energy consumption of greenfield development.

PROCESS

The regulatory structure for the provision of energy varies from state to state. The State should examine energy utility regulations for their impact on land use and determine whether it is possible for utilities to price based on marginal costs. To modify the energy-utility reimbursement structure, the state utility regulating agency could require up to 100 percent reimbursement of projects in designated growth areas or infill sites. Additionally, the regulatory structure could be modified to require that the cost of infrastructure projects on greenfield sites be borne entirely or at least partially by the developer, rather than passing on the costs to the rest of the rate-paying population.

EXAMPLE

New Jersey's Smart Growth Main Extension Rule

New Jersey's "Smart Growth Main Extension Rule" allows for different pricing and cost recovery for new

infrastructure extensions based on the location of the extension. The state is divided into areas that are either designated for growth or not designated for growth. In areas that are designated for growth, developers bear less of the cost for public utility infrastructure than they do in areas not designated for growth, where they are required to pay the full cost of the infrastructure.

New Jersey's Smart Growth Main Extension Rule:

<http://sogl.state.nj.us/hmfal/bpu.htm>

3

Leverage energy efficiency funds for better development patterns

ACTION

Most states provide grants, loans, tax deductions and credits that support energy efficiency measures in homes, businesses and institutions. Investments in energy-saving technologies can yield additional environmental and fiscal savings if the State ensures that those dollars are spent on projects that support the re-use of existing buildings, infill redevelopment and compact, mixed-use new construction.

Energy efficiency benefits usually cover a wide range of improvements, including Energy Star appliances, solar and wind systems, insulation and weather stripping, and energy efficient lighting. If a State revises the criteria used to determine eligibility for state-funded energy efficiency programs to include geographic location and density, it can reap even more energy savings from the investments.

As states increasingly address the issue of global climate change, it will become necessary to reduce the "carbon footprint," or the measurement of carbon-related energy use. Therefore, in addition to changing eligibility criteria for various energy efficiency measures, the State could ask that a project's carbon footprint be calculated and made part of the funding decision-making process. States should provide larger incentives for development projects with lower expected carbon footprints.

PROCESS

State energy efficiency programs typically have basic criteria for participation. Changing the criteria to include geographic location usually can be done administratively as part of the award-making process. In some states,

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nearly all building types and uses are eligible, while others limit the types of use to commercial, industrial, and public buildings.

EXAMPLE

North Carolina's Energy Improvement Loan Program

North Carolina's Energy Improvement Loan Program provides low cost loans for energy efficiency improvements to industrial and commercial businesses, local governments, schools, and non-profit organizations. One percent and three percent interest-rate loans are available for renewable/recycling energy projects and energy-efficiency projects, respectively. New construction projects may be eligible for the incremental cost of above-code improvements.

North Carolina's Energy Improvement Loan Program:
<http://www.energync.net/fundingleilp.html>

4

Promote district energy and Combined Cooling, Heating and Power Systems

ACTION

The State should promote district energy and combined cooling, heating and power systems. District energy systems supply thermal energy (hot water, steam and/or chilled water) to buildings from efficient central plants through a network of underground pipes. Many downtown areas, colleges and hospitals are served by district energy systems, and there is significant potential to serve new high-density development with district systems.

District energy provides many opportunities to increase energy efficiency, use renewable resources, enhance power grid reliability, and increase our national security. Key energy-efficiency opportunities include recovery ("recycling") of waste heat from power generation through combined heat and power (CHP), industrial processes or municipal operations, and superior efficiency through state-of-the-art technology and controls. Major renewable-energy opportunities include bio-energy, geothermal and natural sources of air conditioning such as the use of lake or ocean water.

By using recycled energy or renewable sources, district systems can make significant contributions toward

reducing reliance on fossil fuels and toward cutting emissions of air pollution and greenhouse gases. District energy systems boost reliability and energy security by cutting peak power demand by meeting air conditioning demand through delivery of chilled water, shifting power demand through thermal storage and generating power near load centers. District energy systems also enhance national security and boost local economies by tapping local energy resources.

PROCESS

The best way for the State to encourage district energy systems is to lead by example. State governments operate numerous buildings and facilities. The State should assess its current inventory of buildings for their potential to be incorporated into district energy systems, as well as evaluate the feasibility of developing district energy systems in those locations.

To encourage local governments and private institutions to consider district energy systems, States should provide information and education about them to government officials, developers, planners, architects and engineers. City and county governments can become important allies if the State:

- provides information on the benefits of district energy and CHP and how to evaluate and implement community energy system opportunities, including training workshops and computer simulation tools;
- provides technical assistance and cost-shared funding for community energy resource assessments and district energy feasibility studies; and
- develops and operates an information clearinghouse on district energy system implementation.

Developers, planners, architects and engineers can become stronger advocates of district energy systems if provided with training materials, technical guidebooks, computer simulation tools and other programs that provide information on how district systems work and how to integrate them into development plans and designs.

States also can:

- ensure that CHP facilities are given fair and reasonable access to the electricity grid for purchase of stand-by power and sales of power to the grid without unreasonable fees;
- encourage waste heat utilization by including CHP in its power generation portfolio standard;
- provide information and incentives for new or existing

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waste heat generators to (re)locate adjacent or close by to heat sinks. A key first step is an inventory of waste heat resources, identifying how much and where waste heat exists, how much of the heat is useable (of high enough quality) and how much is feasible to recover (near enough users of heat);

- include these types of energy-efficient infrastructure in grant and loan programs, tax credit programs, and other incentive measures; and
- mandate integrated planning and policy development by state agencies charged with power utility planning and regulation, waste management, energy efficiency, air quality, and other relevant concerns. Such planning should include evaluation of the State's full renewable thermal energy potential, including a comprehensive assessment of bio-energy resources, geothermal heating, and the potential to use natural sources of air conditioning from cold deep surface water.

EXAMPLES

Pennsylvania's Alternative Energy Portfolio Standard (AEPS)

Pennsylvania's Alternative Energy Portfolio Standard requires that an annually increasing percentage of electricity sold to retail customers in the State come from alternative energy sources. In 2004, Pennsylvania Governor Edward Rendell signed Act 213, which created two tiers of alternative sources. The standard calls for utilities to generate 3.5 percent of their electricity by using Tier I energy sources and 6.2 percent by using Tier II sources by 2012. Tier II could include certain forms of combined heat and power systems.

Pennsylvania's Alternative Energy Portfolio Standard (AEPS): <http://paaeps.com/>

Connecticut's Energy Independence Act

In 2005 Connecticut enacted Connecticut House Bill 7501, "An Act Concerning Energy Independence," that includes numerous provisions that encourage CHP, including a New Efficiency and CHP Portfolio Standard. The law provides incentives for local electric utilities to purchase the excess electricity from CHP facilities rated less than 65 MW and sets up a funding mechanism to support the program.

Connecticut General Assembly: <http://www.cga.ct.gov/>

5

Promote energy efficiency in multifamily housing

ACTION

Multifamily housing — particularly multifamily housing for low- and moderate-income families — is a particularly challenging area for energy conservation. Tenants have little financial incentive to invest in retrofitting their homes for energy efficiency because they do not own the building and often live there for only a short time. Landlords are often able to pass energy costs on to tenants, so they don't bear the cost of inefficiencies.

PROCESS

The State can encourage energy efficiency in multifamily housing by providing incentives to developers and owners. A large portion the low- and moderate-income multifamily housing is developed with the help of such public financing as low-income tax credits, housing trust funds, or bonds.

The State should attach "green strings" to this funding by requiring that developers meet energy efficiency standards in order to receive funding. Developers could qualify for more funding if they took more steps for higher levels of efficiency. Criteria should include such things as: insulation with an R-value suitable for the local climate; energy-efficient windows; Energy Star appliances; low-flow, water-sense faucets and showerheads; low-flow toilets; and highly efficient boilers and air conditioning systems. In most states, the Low Income Housing Tax Credit program provides the greatest financial incentive for affordable housing development, so the program has become a prime green strings opportunity.

The State also can offer incentives by providing low-interest financing for measures that also reduce a property's operating costs. Loans could be made available to install, repair or replace heating systems, insulation, weather stripping, windows, appliances or other such energy-saving updates.

EXAMPLES

Washington's Evergreen Sustainable Development Standard

The Washington State Department of Community, Trade and Economic Development created the Evergreen Sustainable Development Standard, a set of green building criteria that is required for any affordable housing project applying for state funds through the

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Washington State Housing Trust Fund. The standard is based on a system that awards points for a variety of sustainable building practices, including site locations and neighborhood planning; water conservation; energy efficiency; the incorporation of renewable technologies; improved indoor-air quality; and environmentally conscious construction practices and building materials.

Washington's Evergreen Sustainable Development Standard (ESDS): <http://www.cted.wa.gov/>

Maine's Multifamily Home Energy Loan Program

The Maine State Housing Authority's Multifamily Home Energy Loan Program (HELP) provides low-interest loans for multifamily housing improvements that increase energy efficiency and conservation of resources. The program requires borrowers to have an energy audit conducted and to prepare a plan to address deficiencies. According to the Housing Authority, property owners who make improvements identified in an energy audit may reduce energy consumption by 15 to 20 percent.

Maine's State Housing Authority: <http://www.mainehousing.org/>

California's Statewide Multi-family Energy Efficiency Rebate Program

The California Statewide Multifamily Energy Efficiency Rebate Program (MEERP) is a collaboration between the state's four major investor-owner utilities: Pacific Gas and Electric Company, San Diego Gas and Electric Company, Southern California Gas Company, and Southern California Edison. Under the program, both owners and tenants of multifamily properties can receive rebates on energy-efficient equipment, such as dishwashers, windows, and water heaters.

Alliance to Save Energy: <http://www.ase.org/>

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Expand commuter tax credit programs to support walking and bicycling

ACTION

The State should implement or expand a commuter tax credit program to include additional energy saving modes of travel, such as walking and biking. This would

provide an incentive for employers to locate and citizens to live in compact, walkable, and transit-accessible communities. To lead by example, the State should offer its own employees these benefits.

PROCESS

Commuter tax credit programs exist in most states. For example, in Minnesota, the state allows corporations to claim a 30 percent credit on state corporate franchise taxes when the corporation provides a transit benefit to its employees. In addition, corporations are allowed to claim net expenditure on transit as a business expense, which can be itemized and deducted in both state and federal tax filings.

Most commuter tax credit programs focus on encouraging transit use. It is possible, however, to expand the range of the program to provide incentives for other non-automobile modes, including walking and bicycling. Credits can be provided to the employer to cover the cost of providing features such as bike racks, showers and sidewalk improvements that make biking and walking safer and more comfortable. Alternatively, the commuter can be given the credits directly. Credits provided to the commuter could help to defray such costs, the price of the bicycle, cycling gear, or even walking shoes. If the credit was large enough, it could help defer housing costs to allow the commuter to live within walking or bicycling distance of their place of work.

Under most programs, the credit amount is modest. The city of Palo Alto, for instance provides bike commuters \$20 per month in taxable cash benefits if they commute by bicycle to 60 percent or more of their scheduled shifts. Similarly, under the U.S. Bicycle Commuter Tax Credit, bike commuters can receive a monthly federal tax credit of \$20 for bike commuting.

EXAMPLE

Washington's Commute Trip Reduction Program

In 1991 the Washington State Legislature passed the Commute Reduction Law. The act allowed employers to receive a tax credit for subsidies they provided to their employees for using public transit, carpooling, bicycling or walking to work. In 1999, the credit was discontinued. In 2006, the legislature passed the Commute Trip Reduction Efficiency Act, requiring the nine counties with the greatest traffic congestion to develop strategies to reduce single-occupant vehicle trips. In addition, the largest employers in those counties are also required to

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develop plans. The participating counties and employers are provided with technical assistance by the State Department of Transportation.

Washington Commute Trip Reduction Tax Credit: <http://www.wsdot.wa.gov/TDM/CTR>

7**Develop a tax incentive for alternatives to the automobile****ACTION**

To reduce greenhouse gas emissions and provide citizens with more transportation alternatives at a time of rising fuel costs, the State should establish a tax credit program for households that do not own an automobile and that demonstrate their use of more energy-efficient transportation choices such as biking, walking or public transportation.

The policy of providing a tax credit or deduction to heads of households who choose not to own an automobile is intended to provide an incentive to reduce energy consumption. People who choose transportation other than the automobile generally consume less energy per capita than do people who drive — even if they're driving hybrid vehicles. The tax benefit not only can reduce energy use and traffic congestion, but also may increase the demand for housing located in mixed-use neighborhoods that are walkable or served by public transportation.

PROCESS

The process for implementing this policy will vary from state to state, depending on the existence of energy tax credit programs. Some states already offer tax credits or deductions for the purchase of a variety of energy-saving goods. These often include hybrid vehicles, as well as efficient washing machines, dryers, and other appliances. In states with existing programs, adding the alternative transportation category may be a matter of rewriting the rule or regulation that outlines the energy-saving activities and products eligible for the tax credit. In states without existing programs, new legislation may be necessary.

Help Desk

The following resources are available on our Web site at <http://www.govinstitute.org/policyguide/Energy/helpdesk.html>

Reports

Energy and Smart Growth: Translation Paper #15, Funders Network; Greener Policies, Smarter Plans: How States are Using the Low-Income Housing Tax Credit to Advance Healthy, Efficient and Environmentally Sound Homes, Enterprise

Organizations

Environmental and Energy Study Institute

Websites

Carbon Footprint