

New Energy for States

Energy-Saving Policies for
Governors and Legislators

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The Apollo Alliance

apolloalliance.org



Included in this Document

Introduction (p. 1)

Sun, Wind, and Bio-Based Power

1. Interconnection and Net Metering (p. 5)
2. Decoupling (p. 6)
3. Renewable Portfolio Standard (p. 7)
4. Renewable Fuels Standard (p. 8)
5. Energy Efficiency Standards for Appliances (p. 9)
6. Incentives for Renewable Energy Systems (p. 10)
7. New Generation Cooperatives (p. 11)

New Technologies to Conserve Energy

1. Update Building Codes (p. 12)
2. Energy Audits and Retrofits (p. 13)
3. Green Building: Standards for Public Buildings (p. 14)
4. Green Building: Incentives for the Private Sector (p. 15)
5. Building Operations (p. 16)
6. Renewable Energy Sources for State Buildings (p. 17)
7. Purchasing (p. 18)

Transportation Options and Efficient Fuel Use

1. Improve Mass Transit (p. 19)
2. Upgrade State Fleets (p. 20)
3. Incentives for Efficient Car-Use (p. 21)
4. Pay as you Drive Insurance (p. 22)
5. Plug-in Hybrids (p. 23)

High Performance Towns and Cities

1. Smart Growth Planning (p. 24)
2. Remove Barriers to Infill Development (p. 25)
3. Transit Oriented Development (p. 26)
4. Fix it First (p. 27)
5. Smart Growth Tax Credit (p. 28)
6. Stop Subsidizing Sprawl (p. 29)

Smart Funding for a Cleaner Tomorrow

1. Public Benefits Funds (p. 30)
2. Bonding Initiatives (p. 31)
3. Clean Energy Funds (p. 33)
4. Pension Fund Investments (p. 33)
5. Reducing Risk (p. 34)
6. Energy Savings Performance Contracts (p. 35)
7. Leveraging Federal Dollars (p. 36)

Skilled Workers for our New Energy Future

1. Apprenticeship Utilization (p. 37)
2. Job Quality Standards (p. 38)
3. Best Value Contracting (p. 39)
4. Training and Certification (p. 40)

About the Apollo Alliance (p. 41)

Indices

1. Highlighted Policies in the Apollo Ten Point Framework (p. 42)
2. Highlighted Policies by State (p. 43)

Endnotes (p. 44)

For More Information

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This report was written for the Apollo Strategy Center by Satya Rhodes-Conway, Kate Gordon, Matt Mayrl, and Brian Siu, with special thanks to Patrick McLeod and Jason Turowetz. For more information on this report, or for additional copies, please contact satya@apolloalliance.org or 608.262.5387.

The United States faces an energy crisis, and an amazing energy opportunity. The crisis is our current dependence on an outmoded fossil-fuel energy system. This is simultaneously speeding environmental degradation, missing economic opportunity, and making our country less secure. The opportunity is that we have the natural resources, technical ingenuity, and manufacturing and other capacity needed to achieve, relatively quickly, far cleaner energy generation and far greater energy efficiency. Seizing that opportunity would have enormous benefits to our quality of life, our national security, and our prosperity. It will also help save the planet from the mounting threat of global warming.

The Apollo Alliance is a coalition of business, labor, environment, and community and social justice leaders and organizations. What unites the members of the Alliance is a commitment to achieving sustainable US energy independence within a decade. Apollo has a Ten-Point Plan to do this, which has been endorsed by hundreds of groups. As verified by credible independent sources, the plan — which calls for a national commitment of \$300 billion over the decade — is self-financing, and would produce at least 3 million good new jobs and an additional \$1.4 trillion in US GDP within that decade, with even greater benefits beyond. This plan is outlined in *New Energy for America*, available for PDF download at the Apollo Alliance website: www.apolloalliance.org.

Not willing to wait for federal action on energy independence, many states are enacting the Apollo program on their own. While they could use more help (and less obstruction) from the national government in doing so, they have the legal power and economic and other resources needed to move to clean energy and energy efficiency, and reap the public health and economic benefits of doing so. We at Apollo are confident that where the states lead, the federal government eventually will be forced to follow.

There is no single model for building a new energy economy at the state level. In this publication, we lay out a menu of options that states can use to reduce energy use, achieve energy savings, and move toward reliance on renewable energy and fuel technologies. These policies will, collectively, help to **secure the renewable/efficiency market** by requiring renewable energy and fuel use and by making it easier for renewable energy providers to connect to the energy grid; **upgrade buildings and building operations** through building codes, public building projects, and incentives to private builders; **improve the transportation infrastructure** by investing in cleaner state government fleets, better public transit systems, and innovative new technologies like plug-in hybrids; and **commit to environmentally sound, energy efficient, and equitable smart growth principles** like transit-oriented development and infill projects.

Though many of these programs save energy and therefore save money, some carry high start-up costs. For that reason, we propose a number of financing options that states can use to fund clean energy projects — everything from bonding initiatives to large-scale pension fund investments. Finally, we highlight ways in which states can ensure that the new energy economy includes high-quality, family-supporting jobs for state residents. The Apollo Alliance firmly believes that a stable, successful, and sustainable new energy infrastructure cannot rely on low-skill, low-wage workers. The energy infrastructure powers our nation’s homes, business and schools and must be built to the highest standards. For this reason, we strongly encourage states to include job quality and job training standards in all our recommended energy policies.

The Apollo Alliance **Ten-Point Plan for Good Jobs and Energy**

Independence serves as a framework for many of these policies. Below, we highlight some of the highest priority policies to advance good jobs and energy independence. This publication contains many more, and we encourage you to explore which policies are already in place in your state, which can be improved, and which have yet to be implemented. The top strategies for states are as follows:

1. **Promote Advanced Technology & Hybrid Cars:** Begin today to provide incentives for converting domestic assembly lines to manufacture highly efficient cars, transitioning the fleet to American-made advanced technology vehicles, increasing consumer choice and strengthening the US auto industry.

Top Strategies for States:

- Pass industrial development bonds to encourage audits and retrofits in manufacturing plants (p. 31)
- Upgrade state fleets with more efficient vehicles and renewable fuels (p. 20)
- Encourage the use of plug-in hybrids (p. 23)
- Provide incentives for efficient car use (p. 21)

2. **Invest in More Efficient Factories:** Make innovative use of the tax code and economic development systems to promote more efficient and profitable manufacturing while saving energy through environmental retrofits, improved boiler operations, and industrial cogeneration of electricity, retaining jobs by investing in plants and workers.

Top Strategies for States:

- Pass industrial development bonds to encourage audits and retrofits in manufacturing plants (p. 31)

3. **Encourage High Performance Building:** Increase investment in construction of “green buildings” and energy efficient homes and offices through innovative financing and incentives, improved building operations, and updated codes and standards, helping working families, businesses, and government realize substantial cost savings.

Top Strategies for States:

- Set green building standards for all public buildings (p. 14)
- Update state building codes to meet the most recent International Energy Conservation Code (IECC) standards (p. 12)

4. **Increase Use of Energy Efficient Appliances:** Drive a new generation of highly efficient manufactured goods into widespread use, without driving jobs overseas, by linking higher energy standards to consumer and manufacturing incentives that increase demand for new durable goods and increase investment in US factories.

Top Strategies for States:

- Pass far-reaching appliance efficiency standards that go beyond federal government requirements (p. 9)

5. **Modernize Electrical Infrastructure:** Deploy the best available technology like scrubbers to existing plants, protecting jobs and the environment; research new technology to capture and sequester carbon and improve transmission for distributed renewable generation.

Top Strategies for States:

- Adopt far-reaching interconnection and net metering standards to allow the highest possible level of renewable energy production in the state (p. 5)
- Encourage energy savings by decoupling utility profits from energy use (p. 6)

6. **Expand Renewable Energy Development:** Diversify energy sources by promoting existing technologies in solar, biomass and wind while setting ambitious but achievable goals for increasing renewable generation, and promoting state and local policy innovations that link clean energy and jobs.

Top Strategies for States:

- Create a market for renewable energy technologies by passing ambitious Renewable Portfolio Standards (RPS) and Renewable Fuel Standards (RFS) (pp. 7,8)
- Encourage community ownership of energy projects through New Generation Cooperatives (p. 11)

7. **Improve Transportation Options:** Increase mobility, job access, and transportation choice by investing in effective multimodal networks including bicycle, local bus and rail transit, regional high-speed rail and magnetic levitation rail projects.

Top Strategies for States:

- Commit significant federal transportation dollars to public transit systems and regional high-speed rail (p. 19)

8. **Reinvest In Smart Urban Growth:** Revitalize urban centers to promote strong cities and good jobs, by rebuilding and upgrading local infrastructure including road maintenance, bridge repair, and water and waste water systems, and by expanding redevelopment of idled urban “brownfield” lands, and by improving metropolitan planning and governance.

Top Strategies for States:

- Require local governments to pass detailed, long-range smart growth plans that encourage high-density, contiguous development and protect valuable agricultural, forest, recreational, and wildlife management areas (p. 24)
- Offer tax incentives to lenders in the state who offer Location Efficient Mortgages to state residents (p. 26)

9. **Plan for a Hydrogen Future:** Invest in long term research & development of hydrogen fuel cell technology, and deploy the infrastructure to support hydrogen powered cars and distributed electricity generation using stationary fuel cells, to create jobs in the industries of the future.

Top Strategies for States:

- Pass Renewable Fuel Standards (RFS) that create a market for renewable fuels and renewable fuel technologies, including hydrogen fuel cells and biomass-to-hydrogen projects (p. 8)
- Adopt far-reaching interconnection and net metering standards to allow the highest possible level of renewable energy production in the state (p. 5)

10. **Preserve Regulatory Protections:** Encourage balanced growth and investment through regulation that ensures energy diversity and system reliability, that protects workers and the environment, that rewards consumers, and that establishes a fair framework for emerging technologies.

Top Strategies for States:

- Include prevailing wage and worker training incentives in all energy projects and programs funded by the state (pp. 37–40)
- Regulate growth at the local and state level to protect open spaces and discourage sprawl (pp. 24–29)

These ideas are not radical — they are already being implemented in a number of states around the country, with impressive results. The more states that implement the Apollo Alliance vision of a new energy future, the closer we will come to true energy independence.

1 Interconnection and Net Metering

Increasing the number of renewable energy systems — such as wind turbines, biogas generators, and solar arrays — operating in the US has many benefits. These systems reduce greenhouse gas emissions, relieve grid congestion, and provide their owners with surplus energy to sell back to the market. Unlike traditional generation systems, these smaller, dispersed systems do not rely on large centralized facilities and thus do not expose the nation to sprawling power outages, which can disrupt emergency services, security systems, and communications.

Net metering rules and interconnection standards open the door for residents to invest in small, distributed renewable energy systems. Interconnection rules develop up-front, uniform safety, reliability and screening standards for connecting renewable systems to the grid. For instance, interconnection rules can specify that certain equipment needed to hook a renewable energy system to the grid is pre-certified as compliant and ready to connect without further testing. In addition, the best model interconnection rules (such as the Interstate Renewable Energy Council (IREC) model legislation for state interconnection) standardize application fees and approval times, lending transparency to the interconnection process. Net metering similarly provides stability and certainty to renewable energy generators by ensuring that these generators receive either electricity or equivalent payment on every kilowatt produced by their systems. Some net metering laws unnecessarily restrict the amount of electricity that can be generated; the Apollo Alliance generally does not support such limits, but where they exist they should be raised to 3 MW.

These policy measures provide incentives and greater predictability for property owners interested in harnessing the renewable power potential of their land. Property owners are less likely to invest in renewable systems without some assurance that their system can be connected to the grid easily and economically. Currently, 16 states have interconnection rules, and 39 have some form of net metering for renewable energy systems.¹

What States Are Doing Now

New Jersey currently has the most comprehensive net-metering and interconnection laws in the United States. In 2004, the New Jersey Board of Public Utilities expanded the state's existing net-metering rules and interconnection standards for residential and small commercial customers. The rules (N.J.A.C. 14: 4–9) now include all electricity generated by solar technologies, wind, fuel cells, geothermal technologies, wave or tidal action, and methane gas from landfills or biomass facilities (provided that the biomass is cultivated and harvested in a sustainable manner). The 2004 rules also increased the maximum capacity of these systems to 2 MW. In addition to expanding both system capacity and the scope of eligible technologies, the amendments standardize and simplify interconnection procedures for residential and small-commercial customers. If, at the end of any month, the customer has generated a net excess, credits are carried over to the following month. Customers are paid at the end of each year for every excess kWh they produce.²

For more information

- Benjamin Scott Hunter, Office of Clean Energy
- NJ Board of Public Utilities
- 609.777.3300
- benjamin.hunter@bpu.state.nj.us
- www.bpu.state.nj.us

Policy Links

IREC model legislation for state interconnection: www.irecusa.org/connect/model_interconnection_rule.pdf

For more information

- Steve Kalland
- Interstate Renewable Energy Council
- steve_kalland@ncsu.edu

N.J.A.C. 14:4–9: www.dsireusa.org/documents/Incentives/NJO3R.pdf

Sun, Wind, and Bio-Based Power

2 Decoupling

Of all the players in the energy arena, utility companies have the most influence over consumers' energy use. But under current pricing schemes, utility companies generate more profit when they sell more units of energy, and thus they have little incentive to promote efficiency or the use of renewable energy systems. Realizing this, several states have severed the link between utility profits and sales quantity. This regulatory approach — called “decoupling” — indexes retail rates to sales volume. If volume drops because of energy conservation, rates are adjusted upwards. If volume increases and the increase was preventable, rates are adjusted downward. By holding utility profits constant irrespective of sales, volume becomes irrelevant. While this approach neutralizes the disincentive towards energy efficiency, it does not by itself create an incentive; for this reason, states should consider adopting positive energy efficiency measures (such as Public Benefits Funds) as well.

What States are Doing Now

In 1998, the **Oregon** Public Utilities Commission adopted a performance-based ratemaking tariff for PacifiCorp's electricity distribution functions. The plan applies a “revenue cap” to each customer class (industrial, commercial, residential, etc.). If actual sales revenues exceed the predetermined cap in any of the classes, the extra is set aside in a balancing account. The following year, the balancing account funds are given back to the utility if sales were lower than projected, and given back to customers if utility sales were higher than projected. In this way, the utility's revenues are disconnected from the amount of electricity it distributes, eliminating any reason to discourage customer generation or energy conservation efforts. Recently, the Oregon PUC adopted a similar structure to decouple revenues from volumetric sales for Northwest Natural Gas Company.

For more information

- Administrative Hearings Division
- OR Public Utility Commission
- 503.378.6678
- www.oregon.gov/PUC/

Policy Links

OR PUC order 98–191 (PacifiCorp): apps.puc.state.or.us/orders/1998ords/98-191.pdf

OR PUC order 02–634 (Northwest Natural Gas): apps.puc.state.or.us/orders/2002ords/02-634.pdf

3 Renewable Portfolio Standard

Fossil fuel-burning power plants are the nation's single worst industrial air polluter, accounting for 76% of the sulfur dioxide, 59% of the nitrogen oxides, and 37% of the mercury released into the environment.³ These pollutants are the primary cause of smog, acid rain, and mercury contamination.⁴ Renewable energy can be cleanly converted into power for everyday use. Every state currently has the capacity to produce electricity and transportation fuels from renewable sources, yet few states have any significant level of production. This is because electricity and fuel providers are loath to invest in costly new energy infrastructure without a guaranteed market for new energy products.

Renewable Portfolio Standards (RPS) are a tool states can use to require utilities to increase their use of renewable energy sources over time, thus creating a stable market for renewable energy in the state. In addition to reducing pollution, RPS laws decrease states' dependence on potentially unreliable sources of fossil fuels and can create good jobs for the state in renewable energy system installation, operating and maintenance, and the laying of utility lines to these new systems. The Union of Concerned Scientists has estimated that a national RPS requiring 20% in renewable energy sources by 2020 could generate 355,000 jobs across the country.⁵

An RPS works by setting the minimum amount of renewable energy that must be developed by retail electricity vendors each year. The amount increases over time, steadily decreasing a state's dependence on traditional energy sources while simultaneously building a renewable energy infrastructure. Beyond this core principle, several attributes contribute to an RPS's effectiveness:

- An RPS is compulsory and far reaching. Applying to all retail electricity within a state, it produces meaningful demand for renewable energy.
- Growth is paced and orderly. Predictably ratcheted upwards, it avoids boom and bust cycles and gives energy companies the certainty they need to invest in new technologies.
- Duration is long term. The RPS supports the renewable energy market long enough to ensure developers that they will recover their investment costs.
- Compliance is market based. With a few exceptions, the RPS generally does not specify a technology roadmap, and therefore companies are free to pursue the most efficient routes to developing renewable energy given each state and region's differing capacities.

What States Are Doing Now

The most ambitious RPS currently in existence is the **California** Renewable Portfolio Standard, which requires 20% renewable energy by 2017. In 2002, Governor Gray Davis signed SB 1078, requiring retail sellers of electricity to increase their use of renewable energy by 1% per year. Renewable sources include biomass, solar thermal, photovoltaic, wind, geothermal, hydropower of 30 megawatts or less, waste tire, digester gas, landfill gas, and municipal solid waste generation technologies.

For more information

- Heather Raitt, Renewable Energy Program
- CA Energy Commission
- 916.654.4735
- hraitt@energy.state.ca.us
- www.energy.ca.gov/

The majority of state RPS laws have been codified through the traditional legislative process. **Colorado**, however, made history by becoming the first state to establish an RPS through a ballot measure. Colorado's RPS requires that 10% of the state's retail electricity come from renewable sources by 2015. The law strongly supports solar markets by requiring 4% of the RPS to be met with solar technology.

For more information

- Frank Shafer, State Policy Advisor
- CO Public Utilities Commission
- 303.894.2730

In 2001, **Nevada** enacted an aggressive renewable portfolio standard. The law required that 15% of all electricity generated be derived from renewable sources by 2013. In June 2005, Nevada raised the requirements of the RPS to 20% of sales by 2015.⁶ Nevada uses a Renewable Energy Credit (REC) system to accelerate the development of solar energy, an abundant resource in that state. Generators are awarded 2.4 RECs for each kilowatt hour (kWh) of solar electricity, whereas other renewable energy sources generate only 1 REC per kWh. Nevada's bill underscores the flexibility of the REC system, in that not all types of renewable energy must be weighted the same by the regulating body; rather, the law can give extra weight to energy produced from sources that are particularly important to develop in the state.

For more information

- Mark Harris
- NV Public Utilities Commission
- 775.687.6065
- mpharris@puc.state.nv.us
- www.puc.state.nv.us

Policy Links

CA SB1078: www.energy.ca.gov/portfolio/documents/SB1078.PDF
CO Measure 37: www.dsireusa.org/documents/Incentives/CO24R.htm
NV statute 704.7805: www.leg.state.nv.us/NRS/NRS-704.html#NRS704Sec7801

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4 Renewable Fuels Standard

I ncreasing your state's use of renewable fuels can insulate residents from the rising cost of oil and help move America towards energy independence. A Renewable Fuels Standard (RFS) establishes a minimum content of renewable fuel that refiners must blend with traditional gasoline. Similar to an RPS, the phase-in of renewable fuels is stretched out over some period of time so that refiners are able to retool their equipment in advance of when the standard takes effect. This kind of market stability benefits existing renewable fuel industries but also (and perhaps more importantly) guarantees a future market for nascent fuel technologies such as cellulosic ethanol and biodiesel from alternative feedstocks. An RFS is not only an environmentally sound policy; it is also an economic development vehicle for rural communities.

An RFS can include a credit system allowing traditional fuel distributors to buy credits from those whose renewable content exceeds the mandated percentages. These credit systems should be designed to best serve the economic and environmental interests of the state by providing extra credits for fuel blends using cellulosic ethanol, in-state feedstocks, or renewable content in excess of that required. In order to ensure that feedstock growers can reap the profits of producing renewable fuels from those feedstocks, the RFS can also include loan guarantees or tax credits for smaller producers, such as individual rural landowners or cooperatives.

What States are Doing Now

In 2002, **Minnesota** enacted the nation's first biodiesel mandate, requiring that nearly all diesel fuel sold in the state contain at least 2% biodiesel by 2005.⁷ Minnesota also recently adopted a 20% Renewable Fuels Standard (increased from their previous 10% RFS), stipulating that all gasoline must contain 20% ethanol by 2013.

For more information

- Ralph Groschen, Agricultural Marketing Services Division
- MN Department of Agriculture
- 651.297.2223
- Ralph.Groschen@state.mn.us
- www.mda.state.mn.us/ams/default.htm

In 2000, **Hawaii** passed legislation to provide tax credits for ethanol production in the state. The law offers incentives to use molasses and other agricultural wastes as the feedstock for ethanol. Manufacturers that produce between 500,000 and one million gallons of ethanol per year (i.e. smaller producers) receive a non-refundable annual 30% investment tax credit or \$150,000, whichever is less. The credit increases for producers that manufacture more ethanol, capping at 30% or \$4.5 million dollars for companies that produce over 15 million gallons per year. The credit period runs for eight years or until all facilities operating in the state reach a combined capacity of 40 million gallons per year.

For more information

- Energy Branch, Strategic Industries Division
- HI Department of Business, Economic Development and Tourism
- 808.587.3808
- sid@dbedt.hawaii.gov

Policy Links

MN Chapter 244 (biodiesel): www.revisor.leg.state.mn.us/slaws_html/2002/c244.html

MN SB 4 (2005) (ethanol): www.revisor.leg.state.mn.us/bin/bldbill.php?bill=SO004.3&session=ls84

HI Statute §235-110.3: www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0235/HRS_0235-0110_0003.htm

5 Energy Efficiency Standards for Appliances

One of the most successful efficiency strategies ever implemented are efficiency standards on household and commercial appliances. Between 1990 and 2000, efficiency standards for appliances saved consumers approximately \$50 billion on their energy bills,⁸ and caused only a modest increase in the price of regulated consumer goods.⁹ While federal regulations in this area exist, they do not cover all appliances and when states have implemented their own requirements in the past, it spurs the development of stricter federal standards. As of November 2005, at least sixteen states have passed some version of appliance energy efficiency standards.

State energy efficiency standards are targeted at widely used and energy-intensive products, which are not already covered by federal regulations. There are several appliances for which establishing and enforcing these regulations is truly feasible and doing so makes economic and environmental sense. The Center for Policy Alternatives notes that implementing new efficiency standards for just ten products can reduce statewide energy usage by up to 5%.¹⁰ And, if new standards for fourteen products were adopted nationwide, the US would save 147 billion kwh of electricity and consumers would save \$75 billion on electrical bills by 2020.¹¹ Adopting new appliance standards can also help create good jobs in manufacturing, installation and maintenance for American workers. For instance, the US Department of Energy predicts that just three new standards (for lamp ballasts, water heaters and clothes washers) set at levels that maximize consumer savings would lead to 120,000 new jobs by 2020.¹²

What States Are Doing Now

California's appliance standards are the oldest and most extensive in the country. They cover 43 different commercial and consumer appliances, 12 of which are not covered by federal law. These standards have saved Californians at least \$3 billion a year since they were implemented in 1978.¹³

For more information

- R. Michael Martin
- CA Energy Commission
- 916.654.4064
- MMartin@energy.state.ca.us

Governor Donald Carcieri adopted appliance energy efficiency standards for **Rhode Island** when he signed the Energy and Consumer Savings Act on July 1, 2005. The Act sets minimum efficiency standards for 14 appliances. Some of these appliance standards are based on the US EPA and DOE's Energy Star standards and California's existing appliance standards. The standards are expected to reduce annual greenhouse gas emissions by 20,000 tons and save the state \$225 million in reduced energy generation costs over the next 25 years.¹⁴

For more information

- State Energy Office
- RI Department of Administration
- 401.222.3370

Policy Links

Model bill from the Center for Policy Alternatives: www.cfpa.org/issues/legislation.cfm/issue/EnergyEfficiency.xml

A list of products and standards states should consider can be found at: www.standardsasap.org/a051.pdf

For more information

- Appliance Standards Awareness Project
- 617.363.9101
- adelaski@standardsASAP.org

CA standards: www.energy.ca.gov/appliances/2005regulations/index.html

RI SB540 (2005): www.rilin.state.ri.us/Billtext/BillText05/SenateText05/S0540A.pdf

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6 Incentives for Renewable Energy Systems

Along with setting new standards on product efficiency and renewable energy and fuel generation, states can provide financial incentives to encourage consumers to purchase these products. Many renewable energy systems carry high capital costs but will pay for themselves over time. Tax credits can help prospective purchasers overcome these high initial costs and spur greater investment in renewable energy. Examples include:

- Corporate tax incentives that allow corporations to receive credits or deductions against the cost of renewable energy equipment or installation.
- Personal income tax credits, offered in 14 states, which apply to the expense of purchasing and installing renewable energy equipment.
- Property tax incentives, offered in 26 states, which typically follow one of three basic structures: exemptions, exclusions, and credits. The majority of the property tax incentives for renewable energy provide that the added value of the renewable device is not included in the valuation of the property for taxation purposes.
- Rebate programs, available in 18 states, which allow consumers to apply for refunds on the purchase price of renewable energy equipment.
- Sales tax incentives, offered in 16 states, which typically provide an exemption from the state sales tax for the cost of renewable energy equipment; these can also apply to renewable fuel purchases.

These tax credit programs vary from state to state, as do the technologies covered by the programs.¹⁵

What States Are Doing Now

The state of **Oregon** offers both energy tax credits and property tax exemptions for businesses and individuals. Oregon's program is the widest-reaching energy independence and conservation tax incentive model in the United States. Under Oregon's program, everything from developing new markets for recycled products to employee commuting programs to green buildings may be eligible for a tax break. Oregon allows businesses to take a state tax credit equal to 35% of the cost of investments in energy conservation, recycling, renewable energy resources, or less-polluting transportation fuels.

For more information

- Suzanne Dillard
- OR Department of Energy
- 503.373.7565
- Suzanne.C.Dillard@state.or.us
- oregon.gov/ENERGY/

Idaho offers generous tax incentives for residents who want to install renewable energy systems in their homes. Individuals can deduct 40% of the cost of installing a solar, wind, or geothermal residential energy system from their state income tax in the year of installation, plus an additional 20% in each of the three succeeding years. The deductions are capped at \$5,000 per year, for a total possible deduction of \$20,000.

For more information

- John Crockett, Energy Division
- ID Department of Water Resources
- 208.327.7962
- jbcrocke@idwr.state.id.us
- www.idwr.state.id.us/energy/

Indiana's property tax code contains four separate statutes pertaining to solar, wind, hydropower, and geothermal systems, respectively. The entire renewable energy device, as well as all related equipment, is exempt from property taxes and Indiana code explicitly extends this exemption to all renewable energy systems attached to mobile homes. The exemption is allowed every year that a qualifying system functions on the relevant property.

For more information

- Ryan Brown, Office of Energy Policy
- IN Office of Lieutenant Governor
- 317.232.8961
- rbrown@commerce.in.gov

6 Incentives for Renewable Energy Systems

Policy Links

OR AR 330–90–0105 to 330–90–0150: www.dsireusa.org/documents/Incentives/OR03F.pdf

ID Statute 63–3022C: www.dsireusa.org/documents/Incentives/ID01F.htm

IN code 6–1.1–12: www.dsireusa.org/documents/Incentives/IN01F.htm

VT 32 V.S.A. § 9741: www.dsireusa.org/documents/Incentives/VT01F.htm

In 2004, the **Connecticut** Clean Energy Fund (CEEF) approved \$2 million for a residential solar photovoltaic (PV) rebate program to complement its existing commercial solar PV program. This three-year residential program also includes provisions that create good jobs, by specifying that all work be conducted by approved installers. The rebate level is set at \$5/watt, with a funding cap of \$25,000 per residence (up to 5 kW). Systems may be of any size but must be connected to the electric grid. A portion of the fund is set aside for systems installed on low-income housing.

For more information

- Charlie Moret
- Connecticut Clean Energy Fund
- 860.563.0015
- charlie.moret@ctinnovations.com
- www.ctcleanenergy.com

Vermont exempts all commercial and residential solar-electric (PV) systems, wind systems, anaerobic digesters and fuel cells fueled by renewable resources from the state sales tax. On-farm systems with a maximum capacity of 150 kW are eligible for the exemption; other eligible technologies are limited to a system capacity of 15 kW. Systems may be independent of the grid or net-metered.

For more information

- Andrew Perchlik
- Renewable Energy Vermont
- 802.229.0099
- perchlik@REVermont.org
- www.revermont.org/

7 New Generation Cooperatives

As the cost of agricultural inputs continues to rise and prices of commodities fall, farmers need ways generate more revenue. Instead of only growing and selling commodities, many farmers have formed agricultural cooperatives to process crops and return added value to producers, rather than leaving these profits to middlemen. These new agricultural cooperatives are commonly referred to as “value-added coops” or “new generation coops.” States can use tax credits, purchasing incentives, and grants or loans to encourage the formation of these coops in new energy industries such as biodiesel and ethanol production.¹⁶

Policy Links

MO Statute 348.432 (Tax Credit): www.moga.state.mo.us/statutes/C300-399/3480000432.HTM

MO Statute Chapter 142 (Biofuels): www.moga.missouri.gov/statutes/c142.htm

What States Are Doing Now

Missouri offers several incentives for new generation coops. The Missouri New Generation Cooperative Incentive Tax Credit Program is provided by the Missouri Agricultural and Small Business Development Authority. The credit is allocated specifically for incorporated cooperative facilities producing products (including energy and fuel) derived from agricultural commodities. The tax credits are only available to members of the coops, not to outside investors. The tax credit is equal to 50% of the investment or \$15,000, whichever is less.

The state also provides incentive grants to biofuel production facilities where the majority interest (at least 51%) is owned by agricultural producers actively engaged in agricultural production for commercial purposes in the state. Ethanol incentives include a payment of 20 cents per gallon for the first 12.5 million gallons and 5 cents per gallon for the next 12.5 million gallons. Biodiesel incentives are 30 cents per gallon for up to 15 million gallons of production.

For more information

- MO Agricultural and Small Business Development Authority
- 573.751.2129
- masbda@mda.mo.gov
- www.mda.mo.gov/Financial/taxcredits.htm

New Technologies to Conserve Energy

1 Updated Building Codes

Residential and commercial buildings account for over a third of US energy use.¹⁷ Millions of new buildings are constructed each year and building them efficiently from the start will save Americans countless dollars in energy costs. One way to accomplish this is by updating states building codes. According to the US Department of Energy (DOE), designing new buildings to be both more comfortable and more efficient can cut heating and cooling costs by close to 50%.¹⁸ Incorporating efficiency measures into building codes can also create new jobs in construction, upgrading and installation — jobs that are often unionized and pay a family-supporting wage.¹⁹

In order to ensure that all new buildings constructed in a state meet a minimum level of energy efficiency, state governments can adopt legislation updating existing residential and commercial building codes to the most recent International Energy Conservation Codes (IECC) standards.²⁰ Currently, ten states have no statewide building codes at all, and 23 states use codes that are over five years old.²¹ Updating state building codes to the most recent IECC standards, and requiring that future IECC updates be adopted within one year of their publication, ensures that new construction uses less energy, contributes fewer pollutants to our environment, and improves comfort and productivity.

What States Are Doing Now

Utah is a model state, having updated both its residential and commercial building codes in 2004. The 2003 IECC standards are currently mandatory statewide; new editions of the IECC standards will be adopted as they become available.

For more information

- David Wilson
- Utah Energy Conservation Coalition, Inc.
- 801.765.0034
- dwilson13@qwest.net

In **New York**, which ranked 4th in the United States in total energy consumption in 1999, consumers spend \$32 billion on energy.²² The New York Energy Conservation Construction Code (ECCC) is expected to save New Yorkers up to \$80 million per year in energy costs.²³ The ECCC is a New York-enhanced version of the IECC standards, with modifications that require high-efficiency transformers, more efficient thermostats and more stringent insulation in some homes.

For more information

- Steven Rocklin, R.A., Assistant Director for Energy Services
- NY Division of Code Enforcement and Administration
- 518.474.4073
- codes@dos.state.ny.us

Policy Links

IECC codes: www.iccsafe.org/

DOE Building Energy Codes Program (financial and technical assistance): www.energycodes.gov/implement/doe_assist.stm

Building Codes Assistance Project: www.bcap-energy.org/

2 Energy Audits and Retrofits

State governments control a remarkable number of buildings — from office space to universities — and should take the lead on demonstrating the benefits of investing in efficiency. Simple retrofits to windows and electrical, lighting, or heating systems can yield large energy cost savings. Such retrofits not only save government money, they also lead to increased productivity by government workers in public office buildings, and performance by students in public schools.

The Apollo Alliance recommends establishing a ten-year schedule for a comprehensive energy audit and retrofit of every state building. These audits and retrofits generally pay for themselves over a fairly short time horizon. According to figures from the Federal Energy Management Program, between 1985 and 2001 higher energy efficiency building standards for federal agencies had reduced energy consumption by 23%, saving taxpayers an estimated \$1.4 billion per year.²⁴

What States Are Doing Now

Rebuild **South Carolina**, a state-local government partnership dedicated to improving public buildings while lowering energy expenditures, has developed energy action plans, conducted energy and lighting audits, and completed 3.5 million square feet of retrofits statewide. Buildings that have received energy-efficiency upgrades include schools, libraries, municipal buildings, auditoriums, and community centers. It is estimated that Rebuild South Carolina's actions save over \$711,000 in energy costs annually. The partnership also provides training on energy management and supplies public information about saving energy to several organizations.²⁵

For more information

- Richard Baldauf, Program Coordinator
- Rebuild South Carolina
- 803.737.9854
- rbaldauf@org.state.sc.us
- www.state.sc.us/energy/Public/rebuildsc.htm

New Technologies to Conserve Energy

3 Green Building: Standards For Public Buildings

The US Green Building Council (USGBC) has set national standards for green buildings through its Leadership in Energy and Environmental Design (LEED) rating system. The most commonly accepted and widely used green building standard, LEED awards credits to structures in six categories: sustainable siting, water efficiency, energy and atmosphere, materials and resources, indoor environmental air quality, and innovation in design. Each structure achieves a LEED certification level ('certified,' 'silver,' 'gold,' or 'platinum') based on how many points it scores in each of these categories.

Using this comprehensive approach, green building creates environmentally sustainable, healthy and productive, and economical buildings. These techniques have been shown to reduce building energy costs by 20–50%²⁶ and water usage by at least 50% outdoors and 30% indoors, resulting in substantial savings for the state and taxpayers.²⁷ For maximum energy and cost savings, the Apollo Alliance suggests that all new construction projects or major renovations that are state-funded should be constructed to meet LEED standards.

Green building is not only good for the environment, but for the economy as well. Adopting green building policies in combination with public-private partnerships with labor can lead to the creation of high-quality jobs for trade unionists such as Sheet Metal Workers, Electrical Workers and Glaziers.²⁸ In addition, green buildings save states money by increasing worker productivity. These gains in worker productivity can be considerable — studies have shown that green buildings can increase worker productivity by 6 to 16%.²⁹

The increased energy efficiency of green buildings pays for itself in lower heating and electric bills, reduced water and waste, lower operations and maintenance costs, and enhanced occupant productivity and health.³⁰ Studies show that the additional cost of building green is only \$4 per square foot, or about 2% of building costs, yet net savings over a twenty year period is between \$48.87 and \$67.31 per square foot. Therefore, an initial investment of only 2% of the first costs results in savings worth more than ten times the added premium.³¹

What States Are Doing Now

In 2005, **Washington** Governor Christine Gregoire signed Senate Bill 5509, adopting high performance green building standards for state-funded buildings. The law requires state agency and higher education buildings (as well as other projects receiving funding in the state capital budget) larger than 5,000 square feet to be built and certified to the LEED Silver Standard. It applies to new construction and major remodels where the cost is greater than 50% of the assessed value.

For more information

- Stuart Simpson, Energy Engineer
- WA Engineering and Architectural Services
- 360.902.7199
- ssimpso@ga.wa.gov

In 2005, **Rhode Island** Governor Donald Carcieri issued Executive Order 05–14, directing new state buildings to meet the LEED silver standard. The order also directs public building contractors and managers to evaluate feasible energy-efficiency measures on the basis of their total life-cycle costs of installation, operation, and maintenance.

For more information

- Daniel R DeDentro, Acting Commissioner/Architect
- RI State Building Commission
- 401.222.3529

Policy Links

WA SB 5509: www.leg.wa.gov/pub/billinfo/2005-06/Pdf/Bills/Session%20Law%202005/5509-S.SL.pdf

RI E005–14: www.governor.ri.gov/executiveorders/2005/14_NewBuildings_Energy_Environmental_Standards.pdf

New Technologies to Conserve Energy

4 Green Building: Incentives for the Private Sector

With such great savings possible from high construction standards, green building makes sense for both public and private buildings. States can encourage private developers to meet high performance building standards by providing tax credits for building green. Under most systems, a green building tax credit is awarded to taxpayers who construct a building that receives LEED certification or meets certain requirements. There are several different criteria that states can use to determine the eligibility for, and value of, the credit. These include the floor space of the building, total square footage, LEED rating, and the percentage increase in energy efficiency.

What States Are Doing Now

In 2001, **Maryland** Governor Parris Glendening signed into law an income tax credit for Green Buildings. Under this law, any costs that are higher as a result of green building criteria are considered “allowable costs.” A state income tax credit of 8% of these costs can be taken when the whole structure qualifies as a green building or 6% when the tenant interior space qualifies. Supplemental credits for on-site power systems are available, including photovoltaic systems, wind turbines, and fuel cells.³²

For more information

- Mark Bundy, Ph.D.
- MD Department of Natural Resources
- 410.260.8720
- mbundy@dnr.state.md.us

In 2001, the **Oregon** Legislature enacted a law establishing a sustainable building tax credit. The Business Energy Tax Credit (Oregon Revised Statutes § 469) is offered to businesses that build sustainable commercial buildings in accordance with the LEED system. Oregon determines the amount of property value eligible for tax incentives based on the square footage of the building and its LEED certification level. Once the amount of value eligible has been determined, the state offers tax break equal to 35% of this amount.

For more information

- OR Department of Energy
- 503.378.4040
- energyweb.incoming@state.or.us
- oregon.gov/ENERGY/CONS/BUS/tax/sustain.shtm

New York law sets high performance building standards which are very similar to a high-level LEED rating. Buildings that meet this standard are eligible for a tax credit, the amount of which varies between 7–8% of allowable costs over five years, with of the total value of credits capped at \$150/ft² for the base building, and \$75/ft² for the tenant space. In 2005, this credit was extended through 2014.

For more information

- Pollution Prevention Unit
- NY Department of Environmental Conservation
- 518.402.9469

Policy Links

MD HB8 (2001): mlis.state.md.us/2001rs/billfile/hb0008.htm

OR Revised Statutes § 469: www.leg.state.or.us/ors/469.html

NY Chapter 63 (2000): www.dec.state.ny.us/website/ppu/grnbldg/a11006.pdf

NY SB3671 (2005): www.assembly.state.ny.us/leg/?bn=S03671&sh=t

New Technologies to Conserve Energy

5 Building Operations

Building operations — how a building is run day-to-day — have a large impact on energy use and the environment. Heating and cooling, for example, is critical to the comfort of occupants, but operating these systems inefficiently can cause massive energy waste and high energy costs. For example, The University of Buffalo estimates that each degree of overheating or overcooling costs them \$100,000 per year in unnecessary energy use.³³

States should pursue implementation of The USGBC's LEED-EB, or existing buildings, standard, for all state owned and leased buildings. These sustainable building-operations guidelines capture both a building's physical systems (equipment, design, land use, etc.) and also the way the building is occupied and operated by its managers (waste management, temperature monitoring, commuting programs, etc.). Maintaining high-performance building operations requires trained and certified professionals, so states should also implement certification programs for the technicians that manage building systems.

What States Are Doing Now

In 2005, **Colorado** Governor Bill Owens issued Executive Order D00505, which implements LEED-EB for state buildings, and recommends full LEED certification where cost efficient. The Executive Order also calls for state departments to implement energy management programs to monitor and manage utility usage and costs. The order further establishes a Colorado Greening Government Coordinating Council, which will develop and implement policies that “save money, prevent pollution and conserve natural resources throughout state government management and operations, including but not limited to source and waste reduction, energy efficiency, water conservation, recycling, fleet operations, environmental preferable purchasing, and establishing state-wide goals to save taxpayers' money and reduce environmental impacts.”

For more information

- Drew Bolin, Executive Director
- Governor's Office of Energy Management and Conservation
- 303.866.2100

Policy Links

CO EO D00505: www.colorado.gov/governor/eos/d00505.pdf

New Technologies to Conserve Energy

6 Renewable Energy Sources for Public Buildings

Installing renewable energy systems on state-owned buildings has many positive benefits. In addition to improving the state's environment, installing renewable systems can reduce energy costs, help develop a market for renewable technologies, and display a visible public commitment to a sustainable energy future. Depending on their geographic characteristics, states can take advantage of solar, wind, geothermal and/or biomass resources to either provide electricity or augment their heating, ventilation and air conditioning (HVAC) systems.

Heating options include solar water heaters, which can reduce the need for conventional water heating by about two-thirds,³⁴ and geothermal heat pumps. Geothermal heat pumps are designed to reduce the energy demands on buildings' HVAC systems in both hot and cold weather. The heat pump transfers heat from the soil to the building in winter and from the building to the soil in summer, using an environmentally friendly heat exchange fluid. This process is very efficient, reducing electricity consumption by 25% to 50%.³⁵ Moreover, operating and maintenance costs on these systems are quite low and natural resources for geothermal heat pumps exist across the entire United States.

Electric generating options include wind, photovoltaic arrays and parabolic troughs. States that operate electric or steam plants can also incorporate biomass co-firing or combined heat and power (CHP) into these systems. Co-firing reduces fossil fuel use and emissions by substituting biomass, often agricultural waste products, for some of the coal normally used. CHP systems use the same fuel combustion to produce both thermal energy for heating (usually in the form of steam) and electricity (often via a steam-driven turbine). These efficient systems recover heat that normally would be wasted in an electric plant, and save the fuel that would otherwise be used to produce heat or steam in a separate unit. CHP plants are 70–90% efficient, compared to efficiencies of 33–60% for standard power plants.³⁶ Such large increase in efficiency reduces the cost of power and yields significantly lower fuel use and emissions.

What States Are Doing Now

California law requires the Department of General Services, in consultation with the State Energy Resources Commission, to ensure that solar energy equipment is installed on all state buildings and state parking facilities where feasible by 2007. According to the law, it is feasible to install solar energy equipment if there is room for it, and if it is cost-effective. The law defines cost-effective to include the entire life cycle cost, and requires the department to take into account the impact on air emissions.

For more information

- E. V. (Al) Garcia
- California Energy Commission
- 916.654.4045
- agarcia@energy.state.ca.us

Idaho has the only State Capitol building in the United States that is heated by geothermal water. The Capitol Mall geothermal system has been in operation since 1982. The system extracts geothermal water to supply about 90% of the heat required for about 1.5 million square feet in nine public buildings in the downtown Boise area.³⁷ The cost savings over natural gas heating are estimated to be \$400,000 per year.³⁸ There are three other geothermal systems operating in Boise — the Warm Springs district heating system, the Boise City System, and the Veterans Administration Hospital System. Altogether, these systems cleanly and economically heat 4.4 million square feet in 366 buildings.³⁹

For more information

- Idaho Geothermal Resources
- 208.287.4800
- geothermallinfo@idwr.idaho.gov
- www.idwr.state.id.us/energy/alternative_fuels/geothermal/

Policy Links

CA SBX2 82: www.leginfo.ca.gov/pub/01-02/bill/sen/sb_0051-0100/sbx2_82_bill_20011007_chaptered.html

New Technologies to Conserve Energy

7 Purchasing

State governments purchase an immense number of products — everything from paper to paint, motor oil to furnaces. Through their daily purchases, states exert substantial power over the market. Therefore, by instituting green purchasing requirements, states can create a stable market for high-performance products.¹ One simple adjustment to a state's purchasing policy is to require Energy Star rated appliances and office equipment. These products use 25–50% less energy without compromising quality or performance and are identified by the US Department of Energy.⁴⁰ According to one study, replacing 100 inefficient computers with Energy Star computers and monitors can save \$10,000 in energy costs in five years.⁴¹

What States Are Doing Now

Illinois Governor George Ryan signed two Executive Orders, No. 11 (2001) and No. 6 (2002), requiring environmentally preferable purchasing. EO 11 contains clauses that mandate reducing energy consumption through purchasing Energy Star equipment, efficient lighting, and fuel efficient vehicles. EO 6 also requires state agencies to purchase 15% of their energy from renewable energy resources by 2020.

For more information

- Kevin Greene, Green Government
- IL Environmental Protection Agency
- 217.785.0833
- Kevin.Greene@epa.state.il.us

Wisconsin adopted its first energy-efficient purchasing requirements for motors, compact fluorescent lamps (CFLs), and light-emitting diode exit signs in the early 1990s. This list has been expanded to include many types of building equipment, appliances, lighting, and traffic signals. The Department of Administration's Division of Energy has also worked closely with other divisions to incorporate Energy Star and other energy-efficient criteria into design guidelines, equipment specifications, and building commissioning. After initially focusing on government purchasing through DOA, the Division of Energy began to reach out to the University of Wisconsin, the Housing and Economic Development Authority (WHEDA) and the Department of Transportation, to help these organizations incorporate energy efficiency in their programs.

For more information

- Gary Gorlen
- Department of Administration
- 608.266.8870
- gary.gorlen@doa.state.wi.us

Policy Links

IL Executive Order No. 11: www.epa.state.il.us/green-illinois/executive-orders/number-11.html

IL Executive Order No. 6: www.epa.state.il.us/green-illinois/executive-orders/number-6-2002.html

i While environmentally preferable purchasing policies can encompass a wide range of products — from recycled paper to less toxic cleaning materials to locally grown food — we focus here on purchasing decisions most closely related to energy.

Transportation Options and Efficient Fuel Use

1 Improve Mass Transit

Mass transit allows people to get around in the most efficient, least environmentally-harmful way possible. In many congested inner cities using mass transit is faster than driving a car. Mass transit is usually considered the domain of city or county government, but states can play an important role in coordinating and funding these systems. States receive millions of dollars of federal transportation money and setting aside a portion specifically for mass transit can greatly improve bus, light rail, and inter-city rail operations.

There are also a number of organizational reforms which states can pursue to enhance their mass transit systems. For instance, states should increase the role of regional transportation planning agencies (RTPAs) and metropolitan planning organizations (MPOs) by allocating transportation funds directly to these entities. RTPAs and MPOs are much more likely than State Departments of Transportation to spend their funds on public transportation.⁴² States can also increase the flexibility of transportation trust funds, which gives planning organizations more options in addressing issues such as creating and improving mass transit systems and establishing alternatives to traditional transportation, such as pedestrian and bicycle paths and park and ride lots.

What States Are Doing Now

In 1997, **California** passed legislation (SB45) that dramatically increased the role of RTPAs and MPOs by allocating the majority of California's transportation funds directly to these regional and local entities. Under SB 45, three-quarters of State Transportation Improvement Program funds (including all State Highway Account, Public Transportation Account, and federal transportation funds, minus state administrative and other costs) are committed to regional improvement programs, with 25% remaining for interregional improvement programs administered by the state. The result is that regional and local metropolitan areas have more authority in planning and directing their own transportation improvement projects. Because these smaller entities are likely to advocate transit and other transportation alternatives,⁴³ this distribution system promotes more efficient, innovative transportation solutions than does a centrally-managed state transportation plan.⁴⁴

For more information

- Kurt Scherzinger
- STIP Office Chief, CalTrans
- 916.654.4587
- Kurt_Scherzinger@dot.ca.gov

In 2003, **Florida** SB 686 created the South Florida Regional Transportation Authority (SFRTA) to provide a coordinated, multi-modal transportation system between Miami-Dade, Broward, and Palm Beach Counties in order to relieve traffic congestion and move residents and tourists more efficiently through the area. When crafting the legislation, supporters of the SFRTA realized that the three counties stood a greater chance of gaining significant federal transportation dollars for an integrated system if they worked together, rather than competing for the funds separately. In keeping with this concept, the language of the bill allows for the service area of the SFRTA to be expanded to include other counties, but only during a year that federal reauthorization of transportation funding occurs.

For more information

- South Florida Regional Transportation Authority
- 954.942.7245
- marketingresponse@sfrta.fl.gov
- www.sfrta.fl.gov

Policy Links

CA SB 45: info.sen.ca.gov/pub/97-98/bill/sen/sb_0001-0050/sb_45_bill_19971003_chaptered.html

FL SB 686: www.flsenate.gov/data/session/2003/Senate/bills/billtext/pdf/s0686er.pdf

Transportation Options and Efficient Fuel Use

2 Upgrade State Fleets

States own large numbers of vehicles for use by their employees. There are several options to make state fleets more efficient and environmentally friendly, the easiest of which is simply altering purchasing guidelines to favor the most fuel efficient vehicles available. Other options include:

- a. Purchasing alternative fuel vehicles like regular and plug-in hybrids, and vehicles that run on ethanol, biodiesel or compressed natural gas.
- b. Where possible, running vehicles on alternative fuels. Existing diesel vehicles — including many school buses and trucks — can easily be converted to run on biodiesel, and some fleets may already include flex-fuel vehicles that can run on up to 85% ethanol.
- c. Investing in, or encouraging private investment in, alternative fuel stations that can provide E85 and biodiesel across the state.

What States Are Doing Now

In 2001, **New York's** Governor George Pataki signed Executive Order 111, requiring State agencies to procure alternative-fuel vehicles, including hybrid-electric vehicles, as part of their annual vehicle acquisition plans. By 2010, 100% of the state's new light-duty vehicles must be alternative fuel vehicles, with the exception of specialty, police or emergency vehicles.

For more information

- Customer Services
- NY Procurement Services Group
- 518.474.6717
- customer.services@ogs.state.ny.us

In 2004, **Maine** Gov. Baldacci signed Executive Order 11, requiring state agencies to track and improve the overall fuel economy of the state fleet, track and reduce vehicle miles traveled by state employees, promote carpools and vanpools, use clean and renewable fuels in state vehicles, and measure the greenhouse gas emissions from the state transportation sector.

For more information

- ME Central Fleet Management
- 207.287.6992

Policy Links

NY EO 111: www.ogs.state.ny.us/purchase/spg/pdfdocs/EO111.pdf

ME EO 11 FY 04/05: www.maine.gov/governor/baldacci/news/executive-orders/EX_ORDER_3_17_04.doc

Transportation Options and Efficient Fuel Use

3 Incentives for Efficient Car-Use

Private automobiles are, and will continue to be, a vital part of the American economy. But in order to cut our dependence on foreign oil, we must reduce the amount of gas consumed by automobiles. Though state governments only have direct control over their own fleets, they can encourage efficient car purchases and responsible car use. The federal government and some state governments are now offering tax breaks or other incentives for consumers who choose efficient, hybrid or alternative fuel vehicles. Strategies include tax credits, rebates, exemption from sales taxes, discounts on toll roads, and access to HOV lanes.

States can also promote efficient car use by their employees by offering incentives for alternate means of getting to work, such as walking, biking, using mass transit, or car- or van-pooling. States can also offer their employees parking incentives for hybrid or alternative fuel cars.

What States Are Doing Now

Massachusetts Senate Bill 2211, passed in 2005, provides a placard to owners of hybrid or alternative fuel vehicles, which can be powered by ethanol, low-sulfur diesel, compressed natural gas, liquefied natural gas, and hydrogen. The placard entitles owners to a number of incentives, including an income tax deduction of \$2000, a waiver for the initial \$27.50 application fee for the Fast Lane Transponder, the right to travel in HOV lanes regardless of passengers, and discounts or free parking in municipalities which choose to participate. The law also requires that each year 5% of all new state agency fleet vehicles be hybrids or run on alternative fuel, and that 50% of the state fleet be reliant on alternative fuels by 2010. A \$10 million bond establishes a fund controlled by the Division of Energy Resources to assist municipalities and regional transit authorities in building alternative fuel stations on public lands and acquiring alternative fuel vehicles or hybrids. Finally, corporations with fleets of more than 50 vehicles, which contain at least 10% alternative fuel vehicles, receive a tax credit of half the difference in price between those vehicles and their conventional gasoline counterparts.

For more information

- MA Division of Energy Resources
- 617.727.4732
- DOER.Energy@State.MA.US

In **Oregon**, individuals are eligible for a Residential Tax Credit of up to \$1,500 for the purchase of qualifying hybrid or dual-fuel vehicles. Additionally, businesses may qualify for a Business Energy Tax Credit towards the purchase of qualifying hybrid and dual-fuel vehicles, the cost of converting vehicles to operate on an alternative fuel, and the cost of constructing alternative fuel refueling stations. The tax credit is 35% of the incremental cost of the system or equipment and is taken over five years.

In an attempt to promote efficient car use, Oregon also offers a Business Energy Tax Credit to workplaces that have incentives for their employees to leave their cars at home, including programs like offering a cash allowance in lieu of a parking space, carpooling, car sharing, free transit passes, and bike facilities.⁴⁵

For more information

- OR Department of Energy
- 503.378.4040
- egov.oregon.gov/ENERGY/TRANS/hybridcr.shtml

Policy Links

OR AR 330-070-0010 to 330-070-0097: www.dsireusa.org/documents/Incentives/OR17F.pdf

OR SB 31: www.dsireusa.org/documents/Incentives/OR17Fa.pdf

CO Statutes §39-22-516 and §39-33-102: www.state.co.us/gov_dir/leg_dir/olls/HTML/colorado_revised_statutes.htm

CO SB 03-091: www.leg.state.co.us/2003a/inetcbill.nsf/fsbillcont/AD9789B9458EF99387256C780069ECEB?Open&file=091_enr.pdf

MA SB 2211: www.mass.gov/legis/bills/senate/st02/st02211.htm

Transportation Options and Efficient Fuel Use

4 Pay as you Drive Insurance

The conventional auto insurance pricing system charges policyholders a fixed rate for a specified period of coverage. This system overcharges individuals who don't drive very much and thus are a lower risk to the insurance companies, in order to provide affordable insurance for high-mileage and high-risk drivers.

Pay as you drive (PAYD) insurance policies charge drivers for actual car use. They still incorporate traditional rate factors like driver history, location, and vehicle type, but charge on a per-mile or per-minute basis. These policies also reward drivers who minimize their driving, and encourage low-income individuals or families with second cars to own auto insurance, decreasing the overall number of uninsured drivers on the road. PAYD has undergone several pilot studies around the country. Consumers like PAYD options because they tend to save them money and give them control over their insurance costs.⁴⁶

What States Are Doing Now

In 2003, **Oregon** Governor Ted Kulongoski signed HB 2043, which provides tax credits for insurance companies that offer mileage-based policies. The law provides a corporate income tax credit of \$100 per vehicle and \$300 per policy for insurance companies offering mileage-based insurance rates. The credit program began in 2005 and will run through 2010.

For more information

- Oregon Environmental Council
- 503.222.1963
- info@oeonline.org

Policy Links

OR HB 2043: www.leg.state.or.us/03reg/measures/hb2000.dir/hb2043.en.html

Transportation Options and Efficient Fuel Use

5 Plug-in Hybrids

Plug-in Hybrid Vehicles (PHVs) have drivetrains similar to traditional hybrid vehicles, utilizing power from two sources: a battery pack and internal combustion engine. The primary difference between PHVs and hybrids currently available to consumers is that the battery pack in a PHV is expanded and modified to allow the input of electrical energy from standard 110/220V outlets. The larger battery capacity allows PHVs to be driven 20–80 miles on electrical charge alone, and then seamlessly transition to traditional hybrid operation when the charge in the battery is depleted. Thus, PHVs allow for clean, emission-free driving on short trips, but have a travel range equal to any traditional car (300–400 mi).

Since the vast majority of American car use is for short trips around town, PHVs are able to significantly reduce gas consumption per car. And, widely deployed, PHVs could move the US away from foreign oil and onto domestically-sourced electricity, which is more stable and generally cleaner than oil (since power plants are subject to greater regulation than tailpipe emissions).⁴⁷ States can promote PHV technology via incentives for retail consumers and commitments to purchase PHVs for state-owned transportation fleets. PHVs should also be eligible for the same incentives as electric, hybrid and alternative fuel vehicles.

What States Are Doing Now

At the local level, **Austin, Texas** Mayor Will Wynn recently introduced a resolution to the Austin City Council to adopt an incentive-based plug-in hybrid program. Mayor Wynn is pushing for the 50 largest cities in the US to join Austin in this initiative, which includes a commitment to purchase the vehicles when they become available.

For more information

- Lisa Braithwaite
- Austin Energy
- 512.322.6511
- pluginaustin@austinenergy.com

In **Pennsylvania**, State Rep. Mark Cohen recently introduced three bills to promote and increase the use of PHVs. Cohen's bills would eliminate sales taxes on the conversion of existing hybrids to plug-in hybrids, or on the battery portion of a mass-produced plug-in hybrid for three years; establish a state task force with representatives from the state Environmental Protection, Transportation and Revenue departments, along with the Public Utility Commission, to examine how this technology can be promoted within the Commonwealth; and call for carmakers with plants in the United States to make, market and sell plug-in hybrids here.

For more information

- Hon. Mark B. Cohen
- 215.924.0895

Policy Links

Austin, TX resolution: www.ci.austin.tx.us/agenda/2005/downloads/030305048.pdf
PA HR445: www.legis.state.pa.us/WU01/LI/BI/BT/2005/0/HR0445P2715.HTM
PAHB2068: www.legis.state.pa.us/WU01/LI/BI/BT/2005/0/HB2068P2947.HTM
PA HB1964: www.legis.state.pa.us/WU01/LI/BI/BT/2005/0/HB1964P2697.HTM

High Performance Towns and Cities

1 Smart Growth Planning

As populations increase, governments need to decide how to use existing infrastructure and land in an efficient, economically smart, and environmentally friendly manner. “Smart growth” policies rely on redevelopment, inner city investment, and open space preservation rather than urban sprawl. Smart growth policies can include anything from building retrofits and transportation investments, to passing zoning plans that encourage infill development, to passing urban growth boundaries that explicitly limit a city’s ability to sprawl beyond a certain point.

Smart growth addresses a broad range of goals, including neighborhood livability, environmental protection, mixing land uses, promoting sustainable development, and providing multiple transportation choices, while keeping open spaces undisturbed. It attempts to improve the quality of life by putting the needs of existing communities first, and focusing new development in areas that already have an infrastructure of roads, sewers, power lines, and schools. A Maryland study predicts that between now and 2020 sprawl would cost Maryland residents about \$10 billion more for new roads, schools, sewers, and water than if growth were more concentrated.⁴⁸

States should, at a minimum, require (and help fund) comprehensive planning at the local and regional level. They should also make sure that state laws promote smart land use, rather than impeding it. These policies are truly energy-saving, in that they ensure residents live closer to jobs and transit hubs, and that rural areas are protected from overdevelopment.

Policy Links

MLURA: www.mass.gov/legis/bills/house/ht03/ht03544.htm

TN Public Chapter 1101: www.state.tn.us/tacir/Portal/Nutshell.htm

What States Are Doing Now

The **Massachusetts** Priority Development Fund provides \$3 million over two years for land use planning and development projects related to housing production. The Smart Growth Technical Assistance Grant Program of the Executive Office of Environmental Affairs offers grants to the Commonwealth’s municipalities and Regional Planning Agencies in support of their efforts to implement land use regulations that are consistent with Massachusetts’ Sustainable Development Principles. These grants are specifically intended to help municipalities pursue smart-growth-consistent actions, with a preference for those from their Community Development or Master Plans.

Massachusetts was recently listed by the American Planning Association as one of the states with the most outdated land-use laws. While the responsibility for land use planning and regulation rests with each of Massachusetts’ 351 cities and towns, the authority to plan effectively is often undermined by confusing and unduly limiting state law. The proposed Massachusetts Land Use Reform Act (MLURA, S 168 and H 3544) would be the first major update of the Commonwealth’s zoning and planning/subdivision control statutes in over thirty years. The Act encourages communities to adopt or update their local master plans and enables them to develop effective land use regulations that are consistent with those plans.

For more information

- Kurt Gaertner
- MA Executive Office of Environmental Affairs
- 617.626.1000
- kurt.gaertner@state.ma.us

In 1998, **Tennessee** passed a strong growth management requirement for city and county plans. Not only does the law require local governments and the state to discourage unwise growth (by withholding financial assistance), but it also mandates a sophisticated local planning process to sidetrack sprawling development before it is proposed. Each Tennessee city and county must agree on an urban growth boundary to guide its development over the next twenty years. The plans must show a design for compact and contiguous, high-density development in planned growth areas while at the same time protecting valuable agricultural, forest, recreational, and wildlife management areas. Cities and counties must also agree on joint plans, and if agreement cannot be reached, the state will terminate subsidies for highways, community development, and even tourism. The new law retains the ability to annex inside the growth boundaries, but makes it virtually impossible outside of them.⁴⁹

For more information

- The Tennessee Advisory Commission on Intergovernmental Relations
- 615.741.3012
- tacir@state.tn.us

2 Remove Barriers to Infill Development

While smart growth policies are intended to plan for the orderly and efficient growth of communities, steps also must be taken to rebuild our nation's older communities. Many neighborhoods in urban areas are in a state of economic stagnation or decline. Those who have the means move away from downtowns, taking businesses with them. This pulls tax dollars and employment opportunities away from the centers of cities, causing infrastructure to deteriorate, public schools to be underfunded, and unemployment levels in existing communities to increase. In Chicago between 1980 and 1990, for example, 81% of new jobs went to suburban areas where only 18% of the region's people live.⁵⁰ Without state action, this cycle of urban decay and suburban sprawl will continue to perpetuate itself, leading to increased energy use, traffic congestion, higher levels of pollution, and loss of farmlands, forests, and wildlife. Making sure that more money is invested in central cities will create more jobs for people who live in poorer areas. Between 1985 and 1995, construction activity in metropolitan areas with smart growth policies was nearly a third higher than in areas that allowed sprawling growth.⁵¹

There are a number of ways to promote infill development in communities, including planning proactively, using public facilities and development to attract investment, assisting with project financing, zoning for mixed use and higher-density development and encouraging rehabilitation. Zoning, subdivision, and building codes often inadvertently preclude redevelopment or infill, or result in development designs that are incompatible with the existing character of older communities. Most zoning ordinances restrict mixed use. For example, they prohibit shops and businesses from being built within walking distance of houses, or they require "setbacks" that place buildings behind large parking lots and away from the street. States can counteract these problems by providing model codes, and incentives to adopt them, to regions and municipalities.

Similarly, today's building codes are designed for new construction, but when applied to yesterday's buildings they can pose inflexible barriers to redevelopment. Inflexible building codes tend to encourage sprawl projects on undeveloped land over revitalization projects in cities and towns. States can reverse this trend by adopting rehabilitation building codes that provide greater flexibility to safely renovate existing structures. An analysis of Maryland's "Heritage Structure Rehabilitation Tax Credit" found that in 2000 and 2001, \$39 million worth of tax credits granted by the state spurred \$155 million worth of private investment in existing urban areas, and resulted in \$20 million of new revenue for the state.⁵² All states have the ability to set statewide codes; however some states have delegated this authority to municipalities, or have adopted statewide codes as minimum requirements and allowed municipalities to amend them.

What States Are Doing Now

The **New Jersey** Rehabilitation Subcode demonstrates how adopting smart building codes can encourage the redevelopment and reuse of existing structures by lowering barriers to rehabilitation. The Rehabilitation Subcode has reduced building rehabilitation costs by as much as 50% — generating a dramatic rise in historic preservation and downtown revitalization projects. In 1998, the first year of the new Subcode, historic rehabilitation projects totaled \$510 million, a 40% increase over the previous year. In 1999, rehabilitation totaled almost \$600 million, a 60% increase from 1997.⁵³

For more information

- New Jersey Department of Community Affairs
- Division of Codes and Standards
- PO Box 802
- Trenton, NJ 08625-0802
- 609.292.7899
- www.state.nj.us/dca/codes/rehab/

Policy Links

National Fire Protection Association Building Construction and Safety Code:
www.nfpa.org/assets/files/PDF/C3/Rehab.pdf

International Code Council Guidelines for the Rehabilitation of Existing Buildings:
www.iccsafe.org/dyn/prod/7013S00.html

NJ A.C. 5:23-6: www.state.nj.us/dca/codes/rehab/viewbysection.shtml

High Performance Towns and Cities

3 Transit Oriented Development

Transit-Oriented Development (TOD) is a style of development that makes walking, bicycling, or taking transit a desirable mode of transportation. More than simply building near rail stations, TOD requires careful consideration of the mix of homes, shops, offices, parks and other land uses, the layout of these land uses, and the design of the physical environment. TOD creates vibrant places where people want to live, work and shop, and reduces their overall car use as a result. Families that live near frequent transit are five times more likely to use transit and own fewer vehicles, with many saving \$5,000 per year or more on transportation costs.⁵⁴ Even better, the increase in transit use, and the accompanying increase in transit revenue, make the system more reliable, efficient, and cost-effective, encouraging still more people to get off the road and to ride transit.

States can encourage TOD in several ways. One is to provide cities with model codes that promote mixed use development and allow flexibility in parking requirements. Another possibility is to establish a state “TOD Fund” to financially support TOD projects that have strong market support but cannot obtain conventional financing. A TOD fund can provide a critically needed source of money — in the form of grants, loans, equity investments, loan guarantees, and other types of financial support — for such projects. Besides offering direct financial assistance, state TOD funds can also provide in-kind help such as predevelopment assistance or linkages to other sources of capital such as tax credits or other equity funds.

When pursuing TOD, there are several important considerations. First, successful TOD initiatives are defined by good coordination between the state, local governments and local/regional transit agencies. State departments of transportation should take the lead in convening stakeholders early in the process of developing TOD plans. Second, housing near transit hubs is often priced too high for the middle- and lower-income households that most benefit from the proximity to mass transit. States should help low and middle income individuals access TOD by developing a location-efficient mortgage (LEM) program. LEMs allow homebuyers to capitalize on the savings that result from living near transit service (e.g., savings from not owning and operating a car — approximately \$6500 per car per year for the average American household), by calculating these savings into the purchasing power of the homeowner.⁵⁵

What States Are Doing Now

The Baltimore, **Maryland** “State Center TOD Strategy” is a plan for a 110-acre site that includes the State Center Metro Station, State Center government complex, McCulloh Homes, and the Cultural Center Light-Rail Station. The Strategy envisions a vibrant cultural, residential and employment center, called the “Eutaw District”, located in the heart of historic midtown Baltimore. TOD principles — such as improving access, mobility, long-term sustainability, and quality of life — are at the heart of this effort. The development will include 3,200 new mixed-income residential units in a variety of housing types, redevelopment of 1.2 million square feet of office space, 63,000 additional square feet of institutional space, and the creation of 571,000 square feet of retail, cultural and entertainment uses including a cinema, dining, and a boutique hotel. The plan also includes a linked and integrated open space system, including a new 4-acre park, and an improved transportation system that provides access to and within the site for all modes of transportation.⁵⁶

For more information

- Office of Real Estate
- MD Department of Transportation
- 888.713.1414
- www.mdot-realestate.org/

Massachusetts has several programs to support TOD. First, the Massachusetts Bay Area Transportation Authority (MBTA) and the Office for Commonwealth Development (OCD) are working with local communities to use surplus MBTA land near transit stations to catalyze high-quality, transit-oriented development. The program provides technical assistance for outreach, planning, marketing, and RFP development. Second, the TOD Infrastructure and Housing Support Program — or TOD Bond Program — provides financial assistance for pedestrian improvements, bicycle facilities, housing projects, and parking facilities within ¼ mile of transit stations. This program includes the Commercial Area Transit Node Housing Program, which will provide \$10 million over five years to finance affordable housing in commercial areas within ¼ mile of transit.⁵⁷ Finally, Massachusetts Chapter 40R will provide direct payments to municipalities that adopt smart growth overlay zoning districts in downtowns, commercial centers, and around transit stations and that issue building permits in these areas to create new opportunities for housing. Chapter 40R essentially provides an incentive for rezoning around transit stations for higher densities, mixed use, reduced parking, and other changes to facilitate TOD.

On the financing side, MassHousing, the state’s affordable housing bank, lends money at rates below the conventional market to support housing opportunities for low- and moderate-income residents of the Commonwealth. Recently, MassHousing has established two important funds to help spur transit-oriented development: \$22 million to fund the development of new affordable rental housing located near transit stations and grants of up to \$50,000 per project for financial assistance for planning, education, outreach, financial feasibility analyses and other planning activities related to increasing housing production through planning and zoning changes. MassHousing is also working with the MBTA to provide construction and permanent financing for housing development on MBTA-owned or controlled sites.⁵⁸

For more information

- Jane Healey
- TOD Program Coordinator
- 617.573.1388
- jane.healey@state.ma.us

4 Fix it First

Nationwide, one in four bridges, one in six interstate miles and almost 70% of all urban and suburban roads are in need of repair.⁵⁹ According to the Federal Highway Administration, outdated and substandard road and bridge design, pavement conditions, and safety features are factors in 30% of all fatal highway accidents. Driving on roads in need of repair costs US motorists \$54 billion per year in extra vehicle repairs and operating costs — \$275 per motorist.⁶⁰ The longer a road is neglected, the more expensive the repair becomes. Deferred repair can cost up to five times more than early repair. States can and should prioritize road rehabilitation over new road construction and make sure that federal transportation dollars are equitably distributed across the state so that the roads most in need of repair can be fixed first.

What States Are Doing Now

In 2000, **New Jersey** passed innovative transportation legislation with overwhelming bi-partisan support. Senate Bill 16 (The “Fix-it-First” Bill) re-approved the state Transportation Trust Fund that administers future transportation development, and was amended to include key provisions to revitalize communities and control sprawl. The bill included the adoption of a policy for transportation infrastructure improvements that requires cities to make sure existing roads and transit systems are adequately maintained before new road construction projects can begin.

For more information

- New Jersey Transportation Planning Authority
- 973.639.8400
- njtpa@njtpa.org
- www.njtpa.org/

In **Massachusetts**, the state Fix-It-First policy is in part an effort to stop state infrastructure investments (new roads, sewer lines, etc.) that lead to sprawling growth, and to concentrate growth in developed areas by improving existing infrastructure. The state recently released its first statewide, multimodal long-range transportation plan. The 20-year, \$31 billion dollar plan includes a commitment to mass transit, an action plan for addressing the upcoming “baby boom” of bridges in need of repair, and a balance of spending across all other modes of transportation. Consistent with the Fix-it-First policy, the majority of funds will be dedicated to bridge repair, highway reconstruction, traffic congestion management, intersection and interchange modernization and ensuring that the state transit system is in good repair.

For more information

- Robert P. Mitchell, AICP
- Sustainable Development Committee Chair
- Special Assistant for Sustainable Development
- MA Office for Commonwealth Development
- 617.573.1383
- Robert.Mitchell@state.ma.us

Starting in fiscal year 2002–2003, **Michigan** changed the focus of its transportation-related spending to emphasize fixing existing roads, rather than building new roads. Michigan’s long-range goal is to have 90% of state trunkline roads in good condition by 2007 and 90% of the trunkline bridges in good condition by 2008. Results have been positive so far: the most recent condition assessment rated 78.1% of roads in good condition and 79.7% of bridges in good condition. In 2005, the state improved, rehabilitated or reconstructed more than 2,000 miles of roadway and moved more than \$180 million in road preservation projects forward.

For more information

- Michigan Department of Transportation
- 517.373.2160
- mdotdirector@michigan.gov

Policy Links

NJ SB 16: www.njleg.state.nj.us/2000/Bills/PL00/73_.PDF

High Performance Towns and Cities

5 Smart Growth Tax Credit

The Smart Growth Tax Credit Act is a prime example of how states can save money while making their cities cleaner and greener. The tax credit is designed to give developers a tax break for building in more densely-populated areas, complying with cutting-edge green building standards, locating near public transit, and limiting land use for parking. While costing states something up-front in lost tax revenues, such a law can save states billions of dollars in the long run by encouraging the production of smarter, more sustainable development, conserving undeveloped land, reducing air and water pollution, improving public health, reducing traffic congestion, ensuring more efficient water usage that will help prevent future drought emergencies, and reducing energy bills and transportation costs for residents.

What States Are Doing Now

The **New Jersey** Smart Growth Tax Credit Act (2004 S 274) proposes giving builders a tax break for developing in areas earmarked for growth in the New Jersey Development and Redevelopment Plan, and for meeting green building standards. The tax breaks are scaled — for example, builders get bigger breaks for developing in areas that are the most densely populated or have the best access to public transit, or for exceeding green building standards.

For more information

- New Jersey Future
- 609.393.0008
- njfuture@njfuture.org
- www.njfuture.org

Policy Links

NJ S274: www.njleg.state.nj.us/2004/Bills/S0500/274_I2.PDF

6 Stop Subsidizing Sprawl

Sprawling development costs a lot of money, yet governments continue to subsidize it through tax policy, zoning and building codes, and infrastructure development. In 1999–2000, states and localities spent almost 20% of their budgets, or \$340 billion, on new infrastructure outlays and the recurring service and maintenance costs related to new developments. Even modest shifts towards smart growth will save taxpayers billions.⁶¹ A study commissioned by Grow Smart Rhode Island, which contrasted smart growth and sprawl scenarios from 2000–2020, found that smart growth initiatives could achieve a savings of \$1.43 billion, an amount nearly equal to the state’s current annual budget.⁶²

By containing sprawl, states will spend fewer resources building new infrastructure and roads. Researchers at Rutgers University found that New Jersey could save \$2.32 billion if the state did not build the new transportation and water infrastructure that its sprawling development trends require.⁶³ States should limit economic development and other investments to areas with existing infrastructure.

What States Are Doing Now

In 1999, **Maine** passed a law that limits state growth-related capital investments to designated growth areas contained in a local government’s comprehensive plan, or to areas served by a public sewer system that can provide service to a new project. Chapter 776 of the Public Laws of Maine also establishes the Municipal Investment Trust Fund to provide loans to municipalities that undertake comprehensive downtown revitalization efforts and requires the Department of Administrative and Financial Services to develop site selection criteria for state office buildings to encourage their location in service center downtowns.

For more information

- ME State Planning Office
- 207.287.3261

Maryland Senate Bill 389 (1997) established a Priority Funding Areas Program that designates the types of existing areas — primarily urban centers and areas proposed for revitalization — that are eligible for state economic development funds, and authorizes counties to designate priority funding areas that meet local guidelines for intended use and have sufficient infrastructure in place to make development viable. Beginning October 1, 1998, no growth related projects received state funding unless they were located in a priority funding area.

For more information

- MD Department of Planning
- 410.767.4500

Policy Links

ME Chapter 776: janus.state.me.us/legis/ros/lom/LOM119th/6Pub751-791/6Pub751-791-25.htm#P1300_251123

MD SB 389: www.mdp.state.md.us/smartgrowth/pdf/sb0389.pdf

Smart Funding for a Cleaner Tomorrow

1 Public Benefits Funds

Public Benefit Funds (PBFs) — also known as System Benefit Funds, Public Purpose Charges, or Public Good Charges — are state-controlled funds generated by levying a small surcharge on consumer electricity usage. The surcharge is typically based on energy consumption, though some states (e.g. Pennsylvania) charge a flat monthly fee. States that authorize and administer this surcharge typically set aside the money collected in a fund dedicated supporting a range of energy programs, including weatherization efforts, rebate programs, renewable energy research and development, retrofit incentive programs and energy bill assistance for low-income consumers. Studies indicate PBFs have positive effects on a state's economy — each \$1 spent from the fund leverages roughly \$3 in related business and consumer investment.⁶⁴

The Apollo Alliance recommends that states collect a minimum surcharge of \$.003 per kwh and that this collection be used to fund a mix of efficiency and renewable projects and research. Within this, a minimum amount of funding should be earmarked for efficiency or renewable upgrades that assist low income individuals with high gas and electric bills. Further, Apollo recommends that the legislative language creating the PBF include text preventing the use of these funds for any activities other than those specified in its charter.

What States Are Doing Now

The **New York** State Energy Research and Development Authority (NYSERDA) is perhaps the most well recognized public benefits fund. The program provides a range of programs including industrial efficiency research, residential efficiency, agricultural energy, economic development and renewable energy research. NYSERDA administers the New York Energy \$martSM program, which consists of 2,700 projects in 40 programs funded by a charge on the electricity transmitted and distributed by the State's investor-owned utilities. The New York Energy \$martSM program provides energy efficiency services, including programs focused on low-income housing, research and development in energy efficiency technology, and environmental protection activities. Since 1990, NYSERDA has developed and implemented more than 170 innovative, energy-efficient, and environmentally beneficial products, processes, and services. These contributions to the State's economic growth and environmental protection are made at a cost of about \$.70 per New York resident per year.

For more information

- Communications Unit
- NYSERDA
- 518.862.1090, ext. 3412
- www.nyserdera.org/default.asp

In 2000, **Vermont** created the first “energy efficiency utility” in the United States. The utility, called Efficiency Vermont, is operated by an independent, non-profit organization under contract to the Vermont Public Service Board and manages and implements energy efficiency services for all Vermont ratepayers. Funded by a public benefits charge, the utility provides technical advice, financial assistance and design guidance to help make Vermont homes, farms and businesses energy efficient. While other jurisdictions have created similar non-utility administrators, none have had as broad a scope of responsibility.

Efficiency Vermont has had remarkable success, reducing Vermont's rate of annual load growth by approximately 50%⁶⁵ and annual energy costs in businesses and homes by more than \$24 million.⁶⁶ It's estimated that because of the efficiency measures they have helped to install, 2 million tons of carbon dioxide will not be released into the atmosphere, and the state will save 1.4 billion gallons of water, 5 million gallons of propane, 800 million cubic feet of natural gas and 3 million gallons of oil.⁶⁷

For more information

- Efficiency Vermont
- 888.921.5990
- info@efficiencyvermont.com
- www.efficiencyvermont.com/

2 Bonding Initiatives

Public bonds take many forms, but for use on renewable and efficient projects, industrial development bonds and revenue bonds are the most common. These bonds are sold to individuals, investors, pension funds and corporations who provide up-front investment money in exchange for a guaranteed rate of return on that investment. Issuing bonds allows governments to fund large-scale renewable energy projects without raising taxes, or to loan money to businesses to install renewable energy systems or retrofit their facilities with energy efficient infrastructure. The most common energy bond strategy is to couple efficiency retrofits, which yield quick and sizable cost savings, with renewable projects that take longer to pay off, but work toward the long-term goal of weaning America off fossil fuel. Combining these projects under one bond allows states to meet two goals — decreased energy use and a stronger renewable energy infrastructure — and still enjoy a relatively short payback period.

Revenue bonds are public bonds that incorporate a specific payback mechanism into their design. Often they are paid off through fees or income generated through the project funded. Energy efficiency projects fit this bonding scheme particularly well because the revenue needed to repay the bonds can be recouped in long-term energy cost savings. So long as the money saved from lower energy bills is funneled back into the bond payback program, revenue bond financing of energy efficiency projects allows states or municipalities to reduce energy usage without any actual outlay of state or city funds. Federal loan guarantees can bring bond interest rates down to manageable levels.

Industrial development bonds are a form of conduit financing whereby private investors provide loans to companies through the state or local government. Under the arrangement, the government sells bonds to investors and uses the proceeds to make loans to private businesses. Interest income from the bonds is tax free, allowing the loans to be low interest. These loans require some showing of public benefit, usually expressed in economic terms; however, the benefits can also be measured through clean energy production. Many states have these financing tools in place already, but only a few have dedicated programs for energy efficiency and alternative energy projects.

What States Are Doing Now

California provides a good example of an industrial development bond program that expands the deployment of renewable energy systems. In 2002, the California Power Authority (CPA) marketed a \$30 million tax-exempt industrial revenues bond that provided low interest loans to companies that either bought or built efficient and renewable energy products.⁶⁶ The CPA specified a minimal amount to be spent on core manufacturing activities, requiring that at least 75% of the bond money allocated by the state be used for actual manufacturing/production/energy improvement. Unfortunately, this program was discontinued in 2004, but its structure provides good guidance for states seeking to develop a new industrial development bond program, or revise an existing one to encourage the use of renewable energy systems.

For more information

- CA Power Authority
- 916.651.9750

The **Montana** State Buildings Energy Conservation Bond program is designed to finance energy improvement projects on state owned buildings. The Department of Environmental Quality administers the program, which uses bond proceeds to fund the projects and energy savings to repay the bonds. Projects may include: lighting upgrades, building recommissioning, insulation and infiltration control, and HVAC system upgrades. The state Board of Investments also sells bonds through the INTERCAP Program and lends the proceeds to eligible governments for a variety of projects. Loan terms range from one to ten years, and short-term loans to finance cash flow deficits or bridge financing also are available.

For more information

- Georgia Brensdal, P.E.
- MT Department of Environmental Quality
- 406.841.5240
- gbrensdal@mt.gov

The **Pennsylvania** Energy Development Authority (PEDA) is an independent public financing authority that was created in 1982 by the Pennsylvania Energy Development Authority and Emergency Powers Act and revitalized by Governor Rendell through a 2004 Executive Order. The Authority's mission is to finance clean, advanced energy projects in Pennsylvania. Projects that could potentially qualify for funding from the Authority include solar energy, wind, low-impact hydropower, geothermal, biomass, landfill gas, fuel cells, IGCC, waste coal, coal-mine methane and demand management measures. The Authority presently can award grants, loans and loan guarantees and can develop a variety of other types of funding programs. Tax-exempt and taxable bond financing for energy projects also are available through PEDA's partnership with the Pennsylvania Economic Development Financing Authority (PEDFA).

For more information

- PA Energy Development Authority
- 717.783.8411
- eppaenergy@state.pa.us
- www.dep.state.pa.us/dep/deputate/pollprev/PA_Energy/PAENERGY/PEDA_home.htm

Smart Funding for a Cleaner Tomorrow

2 Bonding Initiatives

In 2005, **New Mexico**'s legislature passed HB 32, the Energy Efficiency and Renewable Energy Bonding Act. The bill will allow the state to sell \$20 million in bonds to fund solar and energy efficiency retrofits for public buildings — but only for projects that can pay for themselves through energy savings. According to an analysis of recently completed projects by the New Mexico Energy, Minerals, and Natural Resources Department, a \$20 million bond for solar and energy efficiency could result in energy cost savings of \$46 million over the 20-year life of the bond. After the bond is paid off with interest, the net revenue to the state would be \$18 million.⁶⁹ In New Mexico's program, 90% of the money that grantees would have used to buy electricity prior to the retrofits goes instead to pay down the bond. Grantees keep the remaining 10% of the savings until the bond is paid off, and 100% thereafter.

For more information

- NM Energy Conservation and Management Division
- 505.476.3310

Policy Links

PA statute 71 P.S. § 720.1: www.dsireusa.org/documents/Incentives/PA18F.htm
NM HB32: www.swenergy.org/legislative/2005/newmexico/HB%200032%20Bill.pdf

Smart Funding for a Cleaner Tomorrow

3 Clean Energy Funds

Another way to develop funding streams for renewable and efficient energy projects is to leverage public and private money to create a dedicated lending institution for clean energy developers. These funds benefit from economies of scale, in that the cost of equipment, installation, and ongoing maintenance of the energy projects is optimized by grouping the projects, reducing individual project costs. Lower project costs spur greater investment and the savings can then be passed through to customers in the form of reduced energy rates.

What States Are Doing Now

The **Montana** alternative energy revolving loan program, established by the Montana Legislature in Senate Bill 506 and amended in 2005, offers 5-year low-interest loans for up to \$10,000. The loans can go to homeowners, small businesses, non-profits and government entities to install alternative energy systems that generate energy for their own use or for net metering. The program is funded by air quality penalties collected by the Department of Environmental Quality.

For more information

- Kathi Montgomery, Alternative energy revolving loan program
- Department of Environmental Quality
- 406.841.5243
- kmontgomery@mt.gov
- www.deq.mt.gov/Energy/Renewable/altenergyloan.asp

Policy Links

MT SB506: data.opi.state.mt.us/bills/2001/billhtml/SB0506.htm

4 Pension Fund Investments

State governments control a remarkable amount of resources in the form of their employees' monthly contributions to pension funds. These funds are administered by state treasurers, who are charged with investing this money to achieve asset growth. One emerging approach is to invest this pension money into energy efficiency and renewable energy programs for government-owned infrastructure. Energy savings resulting from these infrastructure upgrades are then used to repay the capital costs of the programs, plus an investment fee to the pension funds. Once the program has been paid off, the state receives revenue in the form of decreased energy costs.

The Apollo Alliance recommends that state treasurers invest 5% of their state pension fund into a comprehensive retrofit of all public buildings. Any excess funds should be directed into private equity investments for environmental technologies. Technologies can include renewable energy, fuel cells, water purification, recycling technologies and waste reuse technologies.

What States Are Doing Now

California's Green Wave program directs California's two largest pension funds, the California Public Employees' Retirement System (CalPERS) and The California State Teachers' Retirement System (CalSTRS) to invest roughly \$1.5 billion into the clean energy industry. California is the only state that has implemented this innovative funding strategy so far.

For more information

- Green Wave
- CA Office of the State Treasurer
- 916.653.2995
- www.treasurer.ca.gov/greenwave

Smart Funding for a Cleaner Tomorrow

5 Reducing Private Lender Risk for Renewable Energy Investments

Outside investors and entrepreneurs are often wary of investing in energy efficiency and renewable energy projects because of concerns that the return on their investment may be low. At the same time, commercial lenders are inexperienced with clean energy technology. Lack of history makes it difficult for them to evaluate the risks of default and the probability of timely repayment. As a result, project financing is either unavailable or only available at high interest rates.

States can use several financial mechanisms to make renewable energy investments more attractive by taking on some of the risk of these investments, thus reducing risk to private investors. There are three primary mechanisms states use to accomplish this: loan guarantees, subordinated debt, and accelerated depreciation.

Loan guarantees remove this market barrier by shifting risk from the lender to the government. Under this arrangement, a commercial lender issues a loan to a project developer, but with a backup guarantee that if the developer defaults, the state will step in and perform on the loan. These loans are generally structured so as to limit the probability and degree of default, for instance by including a provision requiring the financed project to dedicate a revenue stream to loan repayment, and by setting strict parameters for loan eligibility.

Another way that states can lower risk to private investors is to make their own project loans subordinate to any private loans that come in for the same project. The state's debt thus becomes "subordinate" to the "senior" debt of the private lenders. That way, if the developer defaults on a loan, the senior lender has the first right to recover, e.g. by putting a lien on the developer's assets.

States can also help lower capital investment risk by allowing accelerated depreciation for the cost of renewable energy system installations. This allows developers or project owners to write off equipment costs related to renewable energy more quickly than under regular depreciation rules, thereby leaving the project with more available cash for operations.

What States Are Doing Now

Many states have loan guarantee programs for small business, but states have been slow to adapt these programs for renewable energy or energy efficiency projects. In 2001, the **California** legislature passed a bill (ABX1 53) requiring the Technology, Trade and Commerce Agency to administer a Renewable Loan Guarantee Program, which would have guaranteed loans made by private investors to eligible businesses in order to purchase renewable energy systems and thereby reduce pressure on the state's electrical grid. Unfortunately, because of a technical error, the program could not be implemented.

Though California's program was not implemented, it still serves as a good model for state loan guarantee programs dedicated to promoting renewable energy and energy efficiency systems.

In 2002, four **Pennsylvania** state funds came together to offer \$3.6 million in low-interest, subordinated debt to a 9 MW wind project. This loan structure has many benefits: first, unlike a grant program, the state's debt will be repaid, making funds available for other renewable energy loans in the future. Second, the funds are able to piggy-back on more senior lenders, which can do due diligence on the project far beyond the capabilities of the state funds.

For more information

- Roger Clark
- The Sustainable Development Fund
- www.trfund.com/sdf
- clarkr@trfund.com
- 215.925.1130

As of early 2006, **Minnesota** is the only state with an accelerated depreciation program for renewable energy systems. Minnesota's incentive mirrors the federal modified accelerated cost recovery schedule (MACRS) for renewables, using a five year, 200% declining balance accounting method.

For more information

- Minnesota Department of Commerce
- Energy Information Center
- 651.296.5175
- www.commerce.state.mn.us

Policy Links

CA ABX1 53 (2001) tinyurl.com/dvaj2.

6 Energy Savings Performance Contracts

To audit and retrofit state buildings, states can contract with Energy Service Companies (ESCOs), which specialize in conducting large energy efficiency retrofits. This work is organized by an “energy savings performance contract” (ESPC), where the ESCO typically guarantees a minimum energy savings and then shoulders all of the investment costs and labor expenses. The ESCO recovers its cost by sharing the energy cost savings. Efficiency retrofits can save a lot of money, so payback periods for ESCOs are generally quite short, from two to ten years.⁷⁰ After the ESCO has recouped its costs and fees, the state enjoys a net financial gain, without ever having to make an investment. As ESPCs minimize capital demands, they can be an attractive option for financially constrained administrators. Moreover, the presence of experienced efficiency experts lowers the time and resources required to identify, understand, and implement savings measures.

ESCO projects have a long history of generating significant energy cost savings, much of which is realized through lighting and HVAC work. Retrofits of lighting alone typically achieve a median 47% savings over the existing lighting costs. Projects that target energy savings both in lighting and non-lighting improvements reduce total electric bills significantly, with a median savings of 23%.⁷¹ ESCOs are not only a cost-effective method of achieving energy savings; they are also a job creation tool. A 2002 analysis by the National Association of Energy Service Companies and Lawrence Berkeley National Laboratory suggest that ESCOs provide between \$1.9 billion and \$2.1 billion in energy efficiency services annually.⁷² Approximately one third of this money goes directly to labor costs.⁷³

What States Are Doing Now

Colorado adopted legislation (House Bill 1381) in 2001 to govern energy performance contracts; two years later Governor Owens issued Executive Order D14–03 directing state agencies to initiate ESPCs wherever reductions in utility and operating budgets could be used to fund capital improvements in public facilities. To assist agencies in this effort, Rebuild Colorado offers substantial technical services including project development, engineering review, and project implementation guidance. Since 2003, the state has completed 30 large-scale, comprehensive building improvement projects totaling \$21 million in capital investment, most completed using ESPCs.⁷⁴ Another 20 projects have commitments to proceed, representing an additional \$47 million in capital investment. The focus on performance contracting has enabled the state to leverage over \$30 in capital investment in energy-saving projects for every \$1 spent on program staff, contractors and other costs.⁷⁵

For more information

- Linda Smith, Senior Program Manager
- Rebuild Colorado
- 303.866.2264
- rebuildco@state.co.us

Minnesota State Law Chapter 212 authorizes the use of energy savings performance contracts for state buildings. During the 2001 legislative session, Chapter 212 was extended to wholly state-leased buildings, with a goal of energy efficiency exceeding existing energy code by at least 30%.

For more information

- MN Office of Environmental Assistance
- 651.296.3417
- webcontent@moea.state.mn.us
- www.moea.state.mn.us/greenbuilding/financing.cfm#gap

In 2001, **Washington** Governor Gary Locke signed into law House Bill 2247, requiring energy audits at state facilities. The law further requires that, if the audits produce opportunities to save energy, the improvements will be accomplished by using performance contracting. Agencies that have completed energy audits and implemented cost-effective projects after December 31, 1997, are exempt from the bill’s requirements. The Washington Department of General Administration has designed a program to support State Agencies and other entities interested in entering into ESPCs. The Department has completed over \$100 million in performance contracting projects, the energy savings from which exceed \$8.3 million annually.⁷⁶

For more information

- Kathi Fyfe, Engineering & Architectural Services
- WA Department of General Administration
- 360.902.7224
- kfyfe@ga.wa.gov
- www.ga.wa.gov/EAS/epc/epsc.htm

Policy Links

CO EO D14–03: www.state.co.us/gov_dir/govnr_dir/exec_orders/d01403.pdf

CO HB01–1381: www.leg.state.co.us/2001/inetcbill.nsf/fsbillcont/3F3B64009CC0C48E872569EA0083CFFA?Open&file=1381_enr.pdf

MN chapter 212: www.revisor.leg.state.mn.us/slaws/2001/c212.html

WA HB2247: search.leg.wa.gov/pub/textsearch/default.asp

Smart Funding for a Cleaner Tomorrow

7 Leveraging Federal Dollars

The federal government makes billions of dollars available to states each year for energy efficiency and renewable energy projects. These funds flow through many different programs, and states may not be taking full advantage of them. These programs include the State Energy Program, Weatherization Assistance Programs, Low Income Home Energy Assistance Programs, Energy Star Program, Fannie Mae, Clean Cities Program, Office of Energy Efficiency and Renewable Energy, Homes and Communities-Dept. of Housing and Urban Development, Rural Development — US Department of Agriculture and DOE's Industrial Technologies Program. States should explore the opportunities presented by these programs, and be sure to leverage any available federal funding. One possible strategy to increase a state's success in garnering federal funds is to establish a clearinghouse that deals with applications for federal funds so as not to miss any opportunities. Another possibility is to create a state matching fund program for renewable energy and energy efficiency projects. This fund would match federal dollars received for such projects.

Skilled Workers for our New Energy Future

1 Apprenticeship Utilization

As states begin to emphasize clean energy development, it is more important than ever to have a supply of workers who are well-trained in modern energy technologies. For this reason, states should add requirements or incentives for employing workers trained through state-approved apprenticeship programs to any energy legislation. To date, these requirements have been most successfully integrated into Project Labor Agreements (PLAs), or the agreements between units of government and contractors carrying out publicly funded projects. For example, PLAs can require contractors to use apprentices for a specified percentage of all hours worked.

State-approved apprenticeship programs tie together economic development and workforce development, and offer benefits directly to the community, existing workers and employers. They are excellent avenues to help meet the needs of workers, employers, and expanding industries in the clean energy field. Existing workers utilize the programs to update and broaden their skills in technologies necessary for new positions in expanding fields. For new workers coming from a variety of backgrounds, apprenticeship programs offer training for and placements into good, family-supporting jobs. Employers and emerging industries rely on apprenticeship programs to provide a reliable supply of workers skilled in the latest industry technologies. These programs offer worker recruitment, classroom instruction, on-the-job training and job placement.

What States Are Doing Now

Washington State's 2002–2003 Energy Portfolio Standard Bill (HB 2333) included an apprenticeship provision that would multiply Renewable Energy Credits awarded to an electric utility by 1.2 if the utility utilized state-approved apprenticeship programs on its renewable energy projects. Qualification is contingent on meeting threshold requirements: for instance, contracts awarded from January 1, 2005 through December 31, 2023 required minimum apprenticeship participation at 15% of total labor hours for projects of \$200,000 or more. Unfortunately, the bill did not pass, but it can still serve as a model.

The **Wyoming** Department of Workforce Services Apprenticeship Utilization Program is designed to encourage the use of registered apprentices on public works projects throughout the state by offering contractors that bid on public works projects equaling or exceeding \$1,000,000 a 1% preference in selection if they agree to utilize registered apprentices.

For more information

- Shelli Stewart
- 307.777.6911
- [sstewa@state.wy.us](mailto:ssstewa@state.wy.us)
- www.wyomingworkforce.org/how/text_aup.htm

Policy Links

The Center for Policy Alternatives model apprenticeship utilization requirement legislation: www.stateaction.org/issues/legislation.cfm?issue=HighRoad.xml
WA HB2333: www.leg.wa.gov/pub/billinfo/2003-04/House/2325-2349/2333-s.pdf

Skilled Workers for our New Energy Future

2 Job Quality Standards

Many of the financing mechanisms that we recommend involve some sort of government subsidy or tax break to private companies that produce, buy, sell or distribute energy efficient or clean energy products. Over the past decade, many states have seen the benefits of attaching job quality standards to these types of subsidies. Essentially, these standards require that any business receiving a government subsidy or tax credit must provide employees decent, family-supporting wages and/or benefits. These standards ensure that new jobs created will be “high road” jobs: providing a decent income and health benefits, and helping residents avoid the “hidden taxpayer costs” that occur when working families rely on state government subsidies like food stamps, Medicare, and the Earned Income Tax Credit.⁷⁷

Job Quality Standards most commonly take two forms: wage standards and mandates for employer-provided healthcare. Other job quality issues which can be addressed include requirements that new jobs created by the business be permanent and full-time jobs, that new jobs offer opportunities for training and career advancement, that workers be allowed sick leave and/or paid vacation, and/or that a percentage of the new jobs be given to local residents.

Under wage standards, employers must pay the going market rate to employees. The rate can be tied to the state or regional median or average wage, or to the prevailing wage in a particular industry. The standards can be modified to require that only a certain percentage of employees are paid according to these standards; to exempt welfare-to-work participants, students, interns, and other categories of workers from the standards; or to make distinctions between large and small employers, or younger and more established employers.

Studies show public projects in states with such laws save taxpayer dollars.⁷⁸ Public dollars are invested in quality public construction projects up front and developers are prevented from hiring unqualified workers, a practice that often results in unsafe working conditions and unnecessarily expensive public works. Contractors bid for public works projects using a level playing field. Employer-provided benefit standards can require businesses to provide health benefits to employees, to pay for a specific percentage (50–80%) of employees’ health care costs, or require that businesses *either* meet the wage standards discussed above, *or* provide health benefits.

Classifying renewable energy projects as “public works” projects is a great option for the thirty-two states with prevailing wage laws, because it ensures the simultaneous growth in good jobs with family-supporting wages and good energy technologies. Enforcement options run the gamut from self-reporting by employers to audits and on-site inspections. Penalties can include cancellation of future benefits, fines, wage restitution, and even charges of tax fraud. When thinking about potential job quality enforcement mechanisms, states and localities should consider that those enforcement schemes that rely solely on self-reporting have resulted in the lowest level of compliance with wage and benefit standards.⁷⁹

What States Are Doing Now

California’s Renewable Portfolio Standard is attached to a prevailing wage law via a stipulation that public funds be used to equalize any rise in energy costs resulting from the development of renewables. Because the bill includes public funds, renewable energy projects that fall under the RPS can be classified as “public works” projects. This means that, under the California Labor Code, the projects must pay at a rate no less than the prevailing wage for work in the same trade or occupation in the locality where such work is performed.

Policy Links

CA labor code section 1770–1781: www.leginfo.ca.gov/cgi-bin/displaycode?section=lab&group=01001-02000&file=1770-1781

Skilled Workers for our New Energy Future

3 Best Value Contracting

Best Value Contracting (BVC), also known as “negotiated contracting” and “competitive sealed proposal contracting,” is a procurement method that provides an alternative to the traditional lowest-bid method of contracting. As a competitive contracting process increasingly used in the public sector, BVC requires contracts to be awarded to the contractor offering the best *combination* of price and qualifications, including the use of skilled, high-quality workers, past performance, and the ability to complete projects in a safe, timely, and cost-effective manner. Under BVC, bidding is open to all qualified contractors who submit detailed information on their past performance and qualifications through a “Request for Proposals” (RFP) process. After reviewing this information and researching past projects and prior construction customers, project owners use various types of procurement evaluation and selection procedures to identify the contractor or contracting team that offers the best combination of price and qualifications.

BVC laws, some promoted by building trades unions and/or signatory contractor groups, have been adopted in at least ten states for public works programs. In addition to the potential benefits of BVC for labor, including contractor participation in registered apprenticeship programs, on-job safety and health programs, and the sufficiency/reliability of craft labor supply sources and project staffing plans, BVC can also be used to promote environmentally sustainable development. To this end, environmental groups can push to have such criteria as past environmental performance of the bidder, plans for protection of flora/fauna and construction/demolition of waste disposal, contractor certification in LEED construction, contractor/subcontractor experience with green building design and construction, a work scheduling plan, including environmental impact on existing tenants, and the ability to host training programs on energy saving for facilities managers and janitors, included in the criteria for awarding contracts.

What States Are Doing Now

In 1996, **Utah** initiated a \$1.59 billion interstate design-build project providing for the reconstruction of 26 kilometers of the I-15 mainline and the addition of new general purpose and high-occupancy-vehicle (HOV) lanes through the Salt Lake City metropolitan area. The project also includes the construction or reconstruction of more than 130 bridges, the reconstruction of seven urban interchanges, and the reconstruction of three major junctions with other interstate routes, including I-80 and I-215. In addition, the project provided for the construction of an extensive regionwide advanced traffic management system.

The Federal Highway Administration (FHWA) approved the Utah Department of Transportation’s (UDOT) proposal to award the contract to the proposer who provides the best value offer, considering other factors as well as cost. This deviation from the normal practice of awarding the contract strictly to the bidder with the lowest initial cost was approved after FHWA reviewed the preliminary Proposal Evaluation and Selection Procedures. This best value procurement process encourages innovative design and construction proposals. For example, if one of the proposers submits a proposal that significantly reduces traffic disruption during the construction period or offers a shorter construction period, the value to the traveling public can be taken into consideration in the award process. In the end, the I-15 Project was completed ahead of schedule and under budget. This process saved the public an estimated 60 million vehicle hours of delay between 1996 and 2010.⁶⁰

For more information

- Utah State Division of Purchasing & General Services
- 3150 State Office Building, Capitol Hill
- Salt Lake City, UT 84114
- 801.538.3026

The Capitol East End Complex in Sacramento, **California** provides an illustration of the positive returns from a BVC process. A five-building project erected on underused inner-city land, with an overhead budget of \$390 million, the Complex took up 2 million square feet over the course of four years. One of the most innovative aspects of the project was its construction delivery method, which saw a shift from the traditional low-bid paradigm to a best-value design/build method, where bidders were selected on the basis of past performance qualifications and expertise in Green Building design. Known as “bridging,” the best-value method not only allowed the project to be completed within budget, but led to it being finished 10–12 months ahead of the typical schedule for design/bid/build construction initiatives. Through the use of fast-track document delivery and construction strategies (identified by the contractor and architect), overhead and general condition costs were reduced significantly. These savings were then re-invested into the project, enabling improved systems and additional sustainable design features to be incorporated into the complex.

Skilled Workers for our New Energy Future

3 Best Value Contracting

In addition to the building efficiencies realized by the Capitol East End Complex, the project also incorporates some of the environmental advantages associated with BVC. For example, one of the Capitol Area East End Complex facilities was designed and built with an integrated photovoltaic system that uses solar active curtain-wall to generate electricity. This system is the first of its kind to be designed into a Sacramento building under a new Sacramento Municipal Utility District (SMUD) program. Additionally, cool roofs were installed to deflect heat, and smart lighting controls are used to monitor occupancy and daylight, adjusting artificial lighting accordingly. An under-floor air distribution system was specified for its ability to eliminate overhead ductwork, improve airflow, and deliver air at a lower temperature and lower pressure. As an added benefit, occupants can control the amount of air they receive by adjusting an individual floor diffuser. It's estimated that the energy efficiency gained from these and other building features will save the tenant \$120,000 per year in electricity costs.⁸¹

For more information

- California Department of General Services
- Office of Sustainability
- 916.376.5010
- www.eastend.dgs.ca.gov/AboutTheProject/default.htm

Policy Links

CA S1270: www.documents.dgs.ca.gov/EastEnd/AboutTheProject/Legislation.pdf

4 Training and Certification

Trained professionals are critical to the installation and operation of renewable energy and energy efficiency systems. For example, HVAC testing, adjusting and balancing must be done to have an efficiently running HVAC system. The Testing Adjusting and Balancing (TAB) Bureau certifies individual TAB technicians in fluid dynamics so they possess the necessary skills to make HVAC system run as efficiently as possible. They are also required to sign a code of conduct and stamp license agreement to ensure the integrity of the balancing report they submit to the owner. Similarly, the North American Board of Certified Energy Practitioners (NABCEP) has a certification program to provide consumers, code enforcement officers, and electric utilities with a high standard for safe solar system installations that generate electricity and can feed excess capacity back into the local utility grid. States should ensure professional standards by passing legislation requiring the appropriate professional certification for renewable energy and energy efficiency systems.

What States Are Doing Now

The **Nevada** Renewable Energy Credits (REC) program promotes the use of certified solar installers. Nevada's RPS awards solar energy producers 2.4 RECs per kWh of energy production, while other forms of renewable energy receive 1 REC per kWh. By Nevada State Law, the installers of solar systems must be certified installers at the C-2 level, a standard met by IBEW workers.

For more information

- Mark Harris
- NV Public Utilities Commission
- 775.687.6065
- mpharris@puc.state.nv.us
- www.puc.state.nv.us

Policy Links

NV NAC 704.8901 through NAC 704.8937: www.dsireusa.org/documents/Incentives/NV09F.htm

About the Apollo Alliance

The Apollo Alliance for Good Jobs and Clean Energy

The Apollo Alliance aims to improve America's security, technological leadership, economic strength, and shared prosperity by achieving sustainable American energy independence through efforts at the national, state and local level. Named after President Kennedy's challenge in the 1960s to land a man on the moon within a decade, our new Apollo Alliance has a bold strategy to direct \$300 billion in targeted investments towards achieving sustainable energy independence within a decade. Our plan is supported by key national leaders in the labor, environmental, and business sectors, as well as by communities of color who are traditionally most harmed by existing energy policies.

The real work of the Alliance takes place at the state and local level, where Apollo brings together labor, environmentalists, business, civil rights activists, elected officials and their constituents to implement high-performance policies. These state and local Apollo groups work on specific job-generating policies and projects to increase energy efficiency and renewable energy use, and build the transportation, utility, and other infrastructure needed to support sustainable efficient energy practice. Over the past year, state and local Apollo Alliances have been built in cities from Los Angeles to New York and states from Hawaii to Massachusetts. These state and local alliances pursue specific legislative and administrative reforms to increase investment in energy efficiency, renewable power, and other clean energy strategies.

Investment at all levels of our economy creates high quality jobs and increased income, as well as improving the environment and public health. It also more than pays for itself, offering fiscally strapped states, cities, and for-profit investors a better than competitive real rate of return (often as high as 15-20% annually). To learn more about how your state can start an Apollo Alliance, and to find information on existing coalitions and projects, visit our State and Local Apollo Strategy Center at www.apolloalliance.org/state_and_local/ or contact one of the Apollo Alliance regional organizers.

Apollo Alliance Policy Contacts

Jeff Rickert
Interim Executive Director
rickert@apolloalliance.org

Dan Seligman
National Policy Director
Seligman@apolloalliance.org

Kate Gordon
Apollo Strategy Center
kgordon@apolloalliance.org

Apollo Alliance Organizers

Carla Din
Western Regional Field Director
din@apolloalliance.org

Jeremy Hays
Western Regional Organizer
hays@apolloalliance.org

Rich Feldman
Washington Regional Organizer
feldman@apolloalliance.org

Bill Holland
Midwest Regional Field Director
holland@apolloalliance.org

David Rothstein
Ohio Apollo Alliance
rothstein@apolloalliance.org

Joanne Derwin
NYC Apollo Project Director
derwin@apolloalliance.org

Richard Eidlin
Business Outreach Specialist
eidlin@apolloalliance.org

Highlighted Policies in the Apollo Ten Point Framework

1. Promote Advanced Technology & Hybrid Cars

- Upgrade State Fleets (p. 20)
- Incentives for Efficient Car-Use (p. 21)
- Plug-in Hybrids (p. 23)
- Leveraging Federal Dollars (p. 36)
- Bonding Initiatives (p. 31)
- Reducing Risk (p. 34)

2. Invest In More Efficient Factories

- Incentives for Renewable Energy Systems (p. 10)
- Energy Audits and Retrofits (p. 13)
- Green Building: Incentives for the Private Sector (p. 15)
- Purchasing (p. 18)
- Bonding Initiatives (p. 31)
- Clean Energy Funds (p. 33)
- Leveraging Federal Dollars (p. 36)
- Reducing Risk (p. 34)

3. Encourage High Performance Building

- Update Building Codes (p. 12)
- Energy Audits and Retrofits (p. 13)
- Green Building: Standards For Public Buildings (p. 14)
- Green Building: Incentives for the Private Sector (p. 15)
- Building Operations (p. 16)
- Renewable Energy Sources for State Buildings (p. 17)
- Energy Savings Performance Contracts (p. 35)
- Leveraging Federal Dollars (p. 36)

4. Increase Use of Energy Efficient Appliances

- Energy Efficiency Standards for Appliances (p. 9)

5. Modernize Electrical Infrastructure

- Interconnection and Net Metering (p. 5)
- Decoupling (p. 6)
- Renewable Portfolio Standard (p. 7)

6. Expand Renewable Energy Development

- Renewable Portfolio Standard (p. 7)
- Renewable Fuel Standard (p. 8)
- Incentives for Renewable Energy Systems (p. 10)
- New Generation Cooperatives (p. 11)
- Renewable Energy Sources for State Buildings (p. 17)
- Public Benefits Funds (p. 30)
- Clean Energy Funds (p. 33)
- Pension Fund Investments (p. 33)
- Leveraging Federal Dollars (p. 36)
- Reducing Risk (p. 34)

7. Improve Transportation Options

- Improve Mass Transit (p. 19)
- Incentives for Efficient Car-Use (p. 21)
- Pay as you Drive Insurance (p. 22)
- Fix it First (p. 27)
- Leveraging Federal Dollars (p. 36)

8. Reinvest In Smart Urban Growth

- Improve Mass Transit (p. 19)
- Fix it First (p. 27)
- Smart Growth Planning (p. 24)
- Infill Development (p. 25)
- Transit Oriented Development (p. 26)
- Smart Growth Tax Credit (p. 28)
- Stop Subsidizing Sprawl (p. 29)
- Leveraging Federal Dollars (p. 35)

9. Plan For A Hydrogen Future

- Renewable Fuel Standard (p. 8)
- Interconnection and Net Metering (p. 5)
- Leveraging Federal Dollars (p. 36)

10. Preserve Regulatory Protections

- Interconnection and Net Metering (p. 5)
- Apprenticeship Utilization (p. 37)
- Job Quality Standards (p. 38)
- Training and Certification (p. 40)
- Best Value Contracting (p. 39)

Highlighted Policies by State

California

- RPS (p. 7)
- Appliance Efficiency Standards (p. 9)
- Renewable Energy Sources for Public Buildings (p. 17)
- Improve Mass Transit (p. 19)
- Bonding Initiatives (p. 31)
- Pension Fund Investments (p. 33)
- Reducing Risk (p. 34)
- Job Quality Standards (p. 38)
- Best Value Contracting (p. 39)

Colorado

- RPS (p. 7)
- Building Operations (p. 16)
- Energy Savings Performance Contracts (p. 35)

Connecticut

- Incentives for Renewable Energy Systems (p. 10)

Florida

- Improve Mass Transit (p. 19)

Hawaii

- RFS (p. 8)

Idaho

- Incentives for Renewable Energy Systems (p. 10)
- Renewable Energy Sources for Public Buildings (p. 17)

Illinois

- Purchasing (p. 18)

Indiana

- Incentives for Renewable Energy Systems (p. 10)

Maine

- Upgrade State Fleets (p. 20)
- Stop Subsidizing Sprawl (p. 29)

Maryland

- Green Building: Incentives for the Private Sector (p. 15)
- Transit Oriented Development (p. 26)
- Stop Subsidizing Sprawl (p. 29)

Massachusetts

- Incentives for Efficient Car Use (p. 21)
- Smart Growth Planning (p. 24)
- Transit Oriented Development (p. 26)
- Fix it First (p. 27)

Michigan

- Fix it First (p. 27)

Minnesota

- RFS (p. 8)
- Reducing Risk (p. 34)
- Energy Savings Performance Contracts (p. 35)

Missouri

- New Generation Cooperatives (p. 11)

Montana

- Bonding Initiatives (p. 31)
- Clean Energy Funds (p. 33)

Nevada

- RPS (p. 7)
- Training and Certification (p. 40)

New Jersey

- Net Metering and Interconnection (p. 5)
- Infill Development (p. 25)
- Fix it First (p. 27)
- Smart Growth Tax Credit (p. 28)

New Mexico

- Bonding Initiatives (p. 31)

New York

- Updated Building Codes (p. 12)
- Green Building: Incentives for the Private Sector (p. 15)
- Upgrade State Fleets (p. 20)
- Public Benefits Funds (p. 30)

Oregon

- Decoupling (p. 6)
- Incentives for Renewable Energy Systems (p. 10)
- Green Building: Incentives for the Private Sector (p. 15)
- Incentives for Efficient Car Use (p. 21)
- Pay as you Drive Insurance (p. 22)

Pennsylvania

- Plug-In Hybrids (p. 23)
- Bonding Initiatives (p. 31)
- Reducing Risk (p. 34)

Rhode Island

- Energy Efficiency Standards for Appliances (p. 9)
- Green Building: Standards for Public Buildings (p. 14)

South Carolina

- Energy Audits and Retrofits (p. 13)

Tennessee

- Smart Growth Planning (p. 24)

Texas

- Plug-In Hybrids (p. 23)

Utah

- Updated Building Codes (p. 12)
- Best Value Contracting (p. 39)

Vermont

- Incentives for Renewable Energy Systems (p. 10)
- Public Benefits Funds (p. 30)

Washington

- Green Building: Standards for Public Buildings (p. 14)
- Energy Savings Performance Contracts (p. 35)
- Apprenticeship Utilization (p. 37)

Wisconsin

- Purchasing (p. 18)

Wyoming

- Apprenticeship Utilization (p. 37)

Endnotes

- 1 "Database of State Incentives for Renewable Energy," available at: www.dsireusa.org/index.cfm.
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- 19 For a list of potential jobs available in energy efficiency see: www.apolloalliance.org/regional_projects/model_legislation/eejobs.cfm.
- 20 Available at www.iccsafe.org/e/prodcat.html?catid=I-Codes.
- 21 See maps of Residential and Commercial Buildings codes compiled by the Building Codes Assistance Program here: www.bcap-energy.org/map_page.php.
- 22 US Department of Energy, State Energy Alternatives available at: www.eere.energy.gov/state_energy/efficiency.cfm?state=NY.
- 23 "New York Energy Conservation Code," available at: www.energycodes.gov/implement/case_studies/new_york.stm.
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