



A New Economic Opportunity for the Rural Northwest

For more information, contact:

Peter Moulton (peter@climatesolutions.org)

Rhys Roth (rhys@climatesolutions.org)

Climate Solutions, 360-352-1763

610 Fourth Ave E, Olympia, WA 98501

A new vision is emerging in the Northwest and across America. Our nation's landscape can be our primary energy source, with farm belts developing into energy belts growing clean and renewable fuels and electricity. Billions of dollars now leaking away to foreign energy producers, threatening energy security and driving the trade balance deep into the red, can instead circulate to American farmers, ranchers and nearby towns, reviving the rural economy and offering new generations economically viable chances to stay in the communities they love.

Indeed, a shift to agriculturally-based energy will benefit the world's farm communities and most nations. Indiana Republican Senator Richard Lugar and former CIA Director James Woolsey make the point, "If the hundreds of billions of dollars that now flow into a few coffers in a few nations were to flow instead to the millions of people who till the world's fields, most countries would see substantial national security, economic and environmental benefits."

The vision of farm-based energy is already putting down roots in the nation and Northwest. The major opportunities include windpower, ethanol, biodiesel, biogas, geothermal and solar energy.

Windpower

From just one wind turbine farm in 1998, the Northwest has rapidly emerged as a national center of wind energy development. One of the world's largest wind plants is operating on the Oregon-Washington border, and more projects are on the way. A worldwide wind boom is generating 30% annual growth rates while power costs are increasingly competitive with natural gas turbines, the cheapest new fossil-fuel source.

Rural landowners are making \$2,000 and up annually per turbine by leasing their land to wind developers, providing a more predictable income than most crops. Since each turbine only takes up about a quarter acre of land, farming the land can continue. Wind farms provide community-wide benefits as well. The National Renewable

Energy Lab estimates that each 100 megawatt wind installation provides \$1 million in property taxes, 100-200 construction jobs and 2-5 permanent positions. Farmers and ranchers are also returning to windpower for stock watering and irrigation pumping by installing their own small-scale turbines.

Ethanol

Marketed in the U.S. since 1979 as a domestic substitute for imported oil and an air pollution reducer, ethanol is gaining new markets with the phase-out of MTBE. Also a fuel cleaner, MTBE raises groundwater pollution concerns. California, representing 25% of global MTBE market share, is moving toward ethanol. With growing demand, ethanol production is spreading out from its Midwest base, and could use Northwest wheat and barley crops.

While ethanol is now starch based, advanced ethanol production will employ a wide range of plant matter including grasses and field wastes. Northwest wheat stubble could support a substantial ethanol industry. Ethanol produces significant economic benefits. An ethanol plant producing 40 million gallons per year adds up to 694 permanent jobs, increases local grain prices 5-10 cents per bushel, and each year pumps \$110 million into the local economy, \$19.6 million into household income and \$1.2 million into state and local government coffers, an AUS Consultants study finds.

Biodiesel

Rudolf Diesel designed the engine that bears his name to run on vegetable oil. Clean-burning biodiesel, derived from oil crops such as canola, rapeseed and mustard, as well as animal fats, has been used in Europe for over 20 years, and is now taking off in the U.S. Sales are dramatically increasing – from 5 million gallons in 2000 to 20 million in 2001 to an estimated 50 million gallons in 2002. There were a handful of fleet users in 1999, over 100 by 2002, and new fleets sign on for biodiesel virtually weekly. From Yellowstone National Park to the City of Seattle, Northwest use is growing. Groups in the Greater Yellowstone and Boise areas are partnering to make bulk purchases. The Northwest, a major oilseed crop center, has huge opportunities to produce biodiesel and valuable coproducts such as biolubricants and organic pesticides.

Biogas

Northwest dairymen are looking to methane biodigesters to handle animal wastes while generating electricity and valuable products. Biodigesters now operate in Salem and Tillamook County, Oregon and are under consideration in Idaho and Washington dairy areas. Biodigesters reduce odors 90% while virtually eliminating pathogens and weed seeds, so solids can be marketed as compost. Biogas is 50-70% methane, the basic constituent of natural gas, so can run electrical engines that power farm operations and feed the grid. At least 23 U.S. farm biodigester operations generate electricity. Haubenschild dairy of Princeton, Minn., processes manure from a 760-cow herd and sells enough surplus to the local electric co-op to run 45 average homes.

Geothermal

While current technologies allow utilization of only a relatively few sites for geothermal electrical plants, many areas can benefit from direct use of geoheated water close to ground level. Idaho produces 2.2 million pounds of fish products including catfish and tilapia annually in geoheated aquaculture operations, and boasts 15 acres of geoheated greenhouses producing nursery crops. The Klamath Basin of Oregon is another region rich in geothermal potential. The area sustains a lively trade in geothermal greenhouse crops. In the U.S. the Geothermal Education Office counts 38 greenhouse complexes and 28 fish farms powered geothermally, as well as 18 district heating systems, 12 industrial plants, and 218 spas.

Solar

The Interior Northwest has solar power potential nearing that of many sunbelt states. In agriculture solar is increasingly viable for remote water pumping operations, where costs of power line extension are prohibitive. From Big Hole Valley in Southwest Montana to the Methow Valley in Central Washington, ranchers are finding solar works effectively for stock watering operations.



Harvesting Clean Energy Network

An Alliance for Rural Clean Energy Development

A new alliance for rural clean energy development is coming together. The Harvesting Clean Energy Network joins agricultural organizations, public utilities, rural economic development organizations and clean energy advocates. This partnership, spanning rural and urban, eastside and westside, Republican, Democrat and independent, shares a common vision for a healthy farm economy and a healthy environment based on rural clean energy development. The network aims to grow production and markets for windpower, ethanol, biodiesel, biogas, geothermal and solar energy.

This kind of broad alliance is a potent force for rural clean energy growth. Oregon Republican Senator Gordon Smith noted that March 2002 passage of the Wind Production Tax Credit by Congress was secured when farm interests took a strong stand in favor. “So they’re due the credit,” Smith said. “Politics is about addition not subtraction; so whenever you can get environmentalists and farmers together, you’ve got a very powerful coalition.” Passage of the first ever Energy Title in the new Federal Farm Bill was another example of bipartisan support for rural clean energy growth.

The Harvesting Clean Energy Network has crafted an Action Plan for rural clean energy development. It is a set of incentives-based actions that can be undertaken by state governments, and in some cases by local governments. The Action Plan calls on each state to undertake strategic planning for clean energy development, and lays out a set of actions to grow clean energy production, as well as specific actions targeted to growing production capacities and markets for clean fuels and electricity. The plan is detailed in following sheets.

Many of the actions are already working in parts of the Northwest. Building from that base, enhancing existing policies and replicating successes, the Northwest can make itself a center of rural clean energy production and rural economic revitalization. The more people and organizations that can come together behind this common vision, the more quickly it will become a reality.

The Harvesting Clean Energy Network also provides information and resources to directly help farmers, ranchers and rural communities develop their clean energy resources. Resources include:

Annual Harvesting Clean Energy Conferences

The first took place in Spokane in January 2001. Sponsored by over 25 organizations, it drew 300 people and helped stimulate a remarkable array of activity across the region. One spin-off was formation of the Last Mile Electric Cooperative that works with rural electric utilities in the Northwest to develop renewable energy projects. The second conference in Pasco, Washington in February 2002 also drew over 25 sponsors and 270 people, and featured very strong involvement by agricultural organizations and rural utility leaders. The third Harvesting Clean Energy conference in Boise, Idaho on February 10-11, 2003 combined with the Idaho Ag Summit, the most important agricultural event in Idaho.

Harvesting Clean Energy Website

In May 2002 the Harvesting Clean Energy Website went live at www.harvestcleanenergy.org. Serving rural landowners, tribes and economic development leaders, the site provides a central clearinghouse for information focused on making projects happen while highlighting the economic and environmental benefits of rural clean energy generation.

Harvesting Clean Energy Reports

The popular *Harvesting Clean Energy for Rural Development* report series now includes installments on wind, ethanol, biodiesel, and biogas. All are available at www.harvestcleanenergy.org.

Harvesting Clean Energy Bulletin

This web-based Bulletin provides concise, high-value information on a regular basis. It is aimed at providing farmers, ranchers and rural communities with the latest information in the rural clean energy area. Sign up for the bulletin at www.harvestcleanenergy.org.



Strategic Investment Plans for Clean Energy

The growth of clean energy production is already being helped along by the federal government, and Northwest state governments, cities, towns, counties and utilities. They are implementing policies and making purchase decisions that are seeding this new crop throughout the region. By building on this work, and putting in place a more comprehensive set of incentives and policies, Northwest states can make clean energy a leading regional agricultural product. In some cases, all that is required is for models of demonstrated success to be replicated in other jurisdictions.

A dilemma facing anyone seeking new state level programs is the atmosphere of budget constraint prevailing in Northwest state capitols. When a range of state programs are facing cuts, legislators face tough questions when they try to fund new efforts. Therefore, it is vital any new efforts be undertaken in an investment context. Growing rural clean energy production has many paybacks for states, including increased tax revenues and reduced expenditures on programs such as unemployment compensation. New clean energy support programs have the potential to pay for themselves.

To make sure Northwest states are taking full advantage of its clean energy opportunities, each state should develop a Strategic Investment Plan for Clean Energy. The governors of each of the states, working closely with legislators, should at the earliest possible date convene task forces or assign existing groups to develop such strategic plans. Strategic planning groups should work with public universities and energy offices to quantify the benefits of in-state clean energy production and identify specific net no-cost policy options and opportunities where an investment of state funds will pay itself back.

One of the greatest strategic opportunities states have is substitution of out-of-state fossil fuels with in-state production. Northwest states import gasoline, diesel and natural gas to run vehicles and generate electricity. This represents a significant export of dollars and jobs. By replacing those imports with renewable electricity and biofuels produced within each state, money that would have flowed outward instead circulates in the community several times. Jobs are created, businesses are grown, and local and state tax revenues are increased. Strategic plans should determine amounts of fossil fuel imported into each state, point out opportunities for import replacement with energy produced in state, and estimate the benefits of that replacement to the state economy, including increased tax revenues.

An example of such an investment was turned up in an Iowa study, which found that converting state government diesels to a biodiesel blend would cost \$500,000 annually, but if that spurred creation of a biodiesel plant capable of producing 5 million gallons per year, added tax revenues would more than make up the cost.

Another model is a legislative audit of the Minnesota ethanol support program. It determined the net economic benefit over state expenditures is \$109-\$260 million per year, as well as \$174-261 million overall from ethanol plant construction. A similar study from the California Energy Commission estimates that a \$500 million state investment in a cellulosic ethanol industry producing 200 million gallons per year would yield \$1 billion in statewide economic benefits over a 20-year period.

Task forces should also identify opportunities to leverage state funds to gain other sources of investment dollars, including businesses, nonprofit funders and the federal government. The new federal Farm Bill Energy Title contains an additional \$405 million for rural clean energy development over 5 years. That is on top of \$215 million for promotion of value-added products including biofuels and wind power. The new bill could potentially leverage \$1 billion in loans for clean energy investments, and specifically qualifies another \$1 billion loan program for renewable energy investments. Strategies must be developed to put federal farm energy funds to work in Northwest rural communities.

Strategic planning groups should be given clear guidelines and timelines, and there should be clear plans about what to do with results. Groups should tap existing resources and work with existing groups including wind and geothermal working groups in various states. Vigorous efforts should be made to gain widespread input and build grassroots ownership in the final product. In particular, local governments should be consulted on any measures that might impact their revenues.

Strategic plans will develop a basis to fund new rural clean energy efforts, and provide legislators with the confidence to move forward even in tight times. To add yet further assurance, automatic sunset provisions for new programs can be included where appropriate, so state commitments are not open-ended. In this way, the effectiveness of various programs can be tested. If they meet or exceed goals, they can be renewed.

Action Summary

- *Create state task forces to develop clean energy investment strategic plans that quantify benefits, and identify cost-effective opportunities and potential funding partners.*



Actions to Grow Clean Energy Production

The following actions promote the growth of both clean electricity and clean fuels production:

⚡ Make capital available for clean energy investments.

Perhaps the greatest single obstacle to the growth of clean energy is difficulty in raising capital. Clean energy generators are particularly capital intensive, since the equipment embodies the lifetime fuel supply. The parallel would be if a gas turbine operator had to finance all future fuel purchases as part of plant construction. In other cases, new technologies such as cellulosic ethanol plants are priced out of the market by high rates for risk capital. State governments can help overcome these hurdles by offering grants, low-cost loans and loan guarantees. By capitalizing new rural clean energy production, states will make low-risk investments that will pay themselves back directly in loan repayments and indirectly in the form of increased tax revenues and decreased state expenditures.

State funds could leverage federal farm grants, loans and loan guarantees. The new Farm Bill Energy Title authorizes \$23 million annually in loans, grants and loan guarantees for rural clean energy through fiscal year 2007. \$10 million of those funds could leverage \$1 billion in capital. The Farm Bill also explicitly included renewable energy in the Business and Industry Guaranteed Loan Program, which is normally funded at a \$1 billion supportable loan level each year.

Currently, Oregon offers energy loans up to \$20 million through general and project-specific bond sales. Smaller scale low-cost loan programs are underway in Idaho, up to \$10,000 for residences and \$100,000 to businesses, and Montana, up to \$10,000 for commercial and residential installations.

Idaho and Montana should consider upgrading their programs to larger amounts along the lines of Oregon. In Washington, where state law restricts loaning of public capital, public utility districts and electrical cooperatives can capitalize and develop clean energy projects, based on their own assessments of benefits, paybacks and risks.

A potential means of providing investment funds is offered by Mike Burnett, executive director of the Climate Trust. Burnett proposes that public agencies use their power to sell tax-exempt revenue bonds, using a specific financial instrument known as inflation bonds that increase their pay-out over time. Renewable energy projects typically produce power at higher costs in their first year or two and decline over time. Early initial costs disadvantage these projects vis-à-vis natural gas turbines. Inflation bonds in a public financing format help overcome this disadvantage. “In total, first year costs for public financing with inflation bonds are 56% below those for developer financing,” Burnett says.

Another option for Washington state is to allow public utilities and electric coops to keep up to half the 3.873% state excise tax on utility revenues to create revolving loan funds for clean energy projects. The general increase in wholesale power rates has added some tens of millions of dollars a year in these excise tax collections, providing some leeway for such an action.

Action Summary

- *Leverage new federal farm energy funding with state funds.*
- *Offer state level clean energy project loans or loan guarantees up to \$20 million.*
- *Investigate tax-exempt inflation bonds as an option.*
- *Allow Washington public utilities and electric coops to keep up to half of excise tax payments to provide clean energy revolving loan funds.*

✈ Provide tax credits for clean energy producers.

Oregon provides a business tax credit of 35 percent of costs for clean energy projects up to \$10 million. Montana allows an income tax credit of 35% of the cost of clean energy generators when at least \$5,000 is invested, and on facilities to manufacture wind equipment. The credit can only be used for income generated from the clean energy installation. Idaho, which currently offers tax deductions on clean energy investments, should adopt legislation similar to Oregon or Montana.

Action Summary

- *Offer business tax credits up to 35% on clean energy projects up to \$10 million.*

✦ **Exempt clean energy installations from property taxes.**

Montana exempts \$20,000 of the value of non-fossil forms of energy generation equipment (including low-emission wood and biomass systems) from property taxes for 10 years, for systems incorporated into a structure. Montana also exempts 100% of the value of clean energy installations under 1 mW from property taxes for 5 years. Oregon provides a \$20,000 exemption for single-family residences, and \$100,000 for multifamily and non-residential. Such small scale systems could be used in farm buildings, so Idaho and Washington should also consider such exemptions.

Action Summary

- *Provide property tax exemptions for small-scale clean energy installations.*

✦ **Exempt clean energy equipment purchases and manufacturing facilities from sales taxes.**

Washington currently exempts purchases of clean energy generators 200 watts and above from sales taxes. Construction of facilities to manufacture clean energy equipment and clean transportation fuels is also 100% exempt. Idaho, the other Northwest state with a sales tax, should emulate Washington. Another option is to exempt construction of clean energy plants and infrastructure from business & occupation taxes.

Action Summary

- *Exempt clean energy customer purchases and plant construction from sales taxes. Exempt infrastructure construction from B&O taxes.*



Actions Targeted to Grow Clean Fuels

The following actions promote the growth of clean fuel production and markets:

⚡ Build renewable fuels production capacity.

Production payments and loans – Minnesota has proven one of the most effective states in spurring ethanol production with incentives that are generating far more economic value than they cost. The state provides a 20-cent subsidy for every gallon of Minnesota-produced ethanol. The subsidy is limited to 15 million gallons per year per plant for 10 years. This helps buy down the cost of capital for plant construction. Minnesota also provides low-cost financing for ethanol plant construction and to help farmers buy ethanol coop shares. Such “New Generation” producer coops help overcome a large hurdle to ethanol development, crop price volatility. Each farmer-owner commits to supplying a certain amount of grain at a certain price. Family-owned and smaller farms should be given preference in making loans. Loans to ethanol plants are allowed under Oregon’s Energy Loan Program. Northwest states should consider broad supports for ethanol similar to Minnesota’s. Supports for biofuels should also be extended to biolubricant production, since it is a natural coproduct of biodiesel production.

Feedstock incentive – Another idea being considered in California deserves study in the Northwest, a feedstock incentive of \$10-\$30/ton to help spur use of field stubble in cellulosic ethanol plants. Such an incentive could be applied to Northwest wheat and grass stubble, and provide a public benefit of avoided fieldburning.

Tax abatements – Oregon offers a five-year 50% state property tax exemption on new plants. Other states should emulate Oregon, and all states should offer a 100% 10-year exemption on cellulosic ethanol plants to help overcome obstacles facing this new technology.

Action Summary

- ***Provide producer payments for ethanol of 20 cents per gallon, and low-cost loans to build ethanol plants.***
- ***Provide a feedstock incentive to encourage cellulosic ethanol development.***
- ***Provide property tax abatements for new biofuels plants.***

✦ Build renewable fuels markets.

Tax exemptions – Many states exempt all or part of state fuel taxes on biofuels. Idaho provides a tax break of 2.5 cents per gallon on the first 10% of biofuels blended into regular fuels, while Montana taxes diesel blended with 20% biodiesel at an 85% rate. Northwest states should provide a 100% exemption on the ethanol and biodiesel portion of fuels, and require that savings be passed on to retail customers. To ensure money remains in state, fuel tax exemptions should kick in only after local biofuels plants are operating.

Fuel availability – Many Flexible Fuel Vehicles already on the road could use E85, 85% ethanol, but cannot because fuel pumps are lacking. Most diesel engines could use B20, 20% biodiesel, but face the same problem. A comprehensive network of E85 and B20 pumps should be developed through public-private partnerships between state and local governments, fuel wholesalers and automobile companies. Automakers have a special incentive to fund and promote such fueling facilities, because FFVs are counted as highly efficient under Corporate Average Fuel Economy standards, but stand to lose this status because of lack of pumps. Ford has supported an effort that has added 50 E85 pumps in Minnesota.

Public awareness – States and other stakeholders should operate public awareness campaigns to urge buying “home-grown fuel” for its environmental and economic development benefits. In particular, managers of large fleets required under the Energy Policy Act to buy alternative vehicles should be informed that buying 450 gallons of B100 for use in B20 and higher blends will be credited as one alternative vehicle purchase. The Congressional Budget Office found this the least cost way to meet EPA requirements.

Public fleet purchases – State and local governments should make commitments to substantially increase use of Northwest-grown biofuels in public fleets. Since diesel exhaust is rated a probable carcinogen by the U.S. Environmental Protection Agency, the use of cleaner biodiesel in school buses is a special priority. The Northwest states should emulate a Missouri plan through which the state covers any additional costs to school districts.

Action Summary

- ***Exempt biodiesel and ethanol from fuel taxes and require that savings be passed to customers.***
- ***Create public-private partnerships to build a network of E85 and B20 pumps.***
- ***Make public fleet purchases of biofuels, and cover additional expenses for school districts.***



Actions Targeted to Grow Clean Electricity

The following actions promote the growth of clean electricity production and markets:

⚡ Provide a producer payment for on-farm clean electricity generators.

Clean electricity generation is moving closer and closer to market competitiveness with fossil fueled electricity. At the same time, fossil fuel-based generation is heavily subsidized through tax breaks, and has lower upfront costs. To level the playing field, and help move clean power to competitiveness, an effective approach is production payments to producers.

Production payments buy down the costs, particularly higher upfront capital costs, and provide incentives for continued production. Northwest states should offer wind turbines, solar installations and biomass generators a 1.5 cents per kilowatt hour production payment for installations up to 10 megawatts, similar to a measure offered by Minnesota.

Action Summary

- *For installations up to 10 mW, provide a 1.5 cents/kWh production payment to wind, solar and biodigester-connected generators.*

⚡ Build public markets for new renewable electricity.

Government agencies are significant users of electricity. They are also becoming important early adopters for new renewable energy. This includes a number of Oregon public entities including the cities of Portland and Corvallis, Multnomah County and the Port of Portland. Wind farms east of the mountains are direct beneficiaries. Northwest public agencies should commit to purchases of renewable electricity that spur addition of new generators to the grid.

Action Summary

- *Increase public agency use of new renewables in ways that promote in-state clean energy development.*

✦ **Provide information resources on clean energy installations.**

In a power network still based on large-scale central power plants, adding smaller-scale clean energy generators to the grid involves a learning curve. Utilities need to understand the technical requirements and implications of interconnection, as do rural landowners and local governments. State energy offices and extension services should be funded to provide information resources on interconnection, including education, training and consulting.

✦ **Prospect sites for clean energy development.**

Clean energy development will be accelerated by pointing developers to good sites and expediting approval. Public authorities should identify good areas for clean energy installations, for example, wind farms or biodigesters, undertake necessary environmental studies, and include them in comprehensive plans and zoning ordinances as allowed uses which do not require a conditional use permit. Counties are already creating models in this area. For example, Cascade County, Montana is creating a wind resources map. Klickitat County, Washington is undertaking a non-project environmental impact statement of potential energy development areas, and will update its land use plans accordingly.

States and regional institutions can build on these models to develop statewide and regional non-project environmental impact statements that clear the way for clean energy projects on suitable sites. However, such area-wide studies should be used to encourage new renewable energy developments, not to impede pending projects. Where specific projects are proposed in advance of larger studies, environmental assessments should be conducted individually, and approval should be granted for environmentally appropriate sites whether or not non-project environmental studies have been completed.

Action Summary

- *Undertake non-project environmental studies that identify appropriate clean energy development locations.*