

**COMMENTS
ON
OREGON RENEWABLE ENERGY ACTION PLAN
(FIRST DRAFT)**

**Comments are shown with only minor formatting changes.
Comments through 031104 included**

**If you have additional comments, please send those to
[renew.comments@ state.or.us](mailto:renew.comments@state.or.us)**

Section	Page
1. GENERAL	2
2. WIND	25
3. BIOMASS	26
4. BIOGAS	27
5. ETHANOL	27
6. BIODIESEL	30
7. SOLAR	31
8. GEOTHERMAL.....	32
9. HYDRO	38
10. FUEL CELLS AND HYDROGEN	39
11. HEAT RECOVERY SYSTEMS	40

1. GENERAL

I feel that our county and the neighboring county could cover all of these projects such as projects that use biomass for electric generation, make biodiesel from mustard, produce ethanol, install solar systems, generate electricity from wind and geothermal sources, directly use geothermal energy, and demonstrate sustainability in a renewable-resource powered industrial park.

We have here a lot of support for sustainable projects and a group with several local interests. I come from the value-added ag side and would like to see this as a bridge to bring farmers and communities together, especially with some of these biomass and ethanol projects.

Some counties are mentioned in the projects list, others are not. Any input on information needed to get a project on the action plan would be helpful. I have contacted the Economic Development office in our county and will have it reviewed by that office before a final project proposal is sent.

1. The Action Plan Should Create Excitement Over Renewable Energy Opportunities.

The Action Plan should begin by recognizing the unique multifaceted benefits that renewable energy can offer the state. The start of the Action Plan fails to generate any excitement about the role of renewable energy, when renewable energy is poised to become an Oregon success story by bringing together good energy policy, economic development and environmental benefits. Renewable energy is good energy policy because it adds diversity to a utility’s and a region’s generation portfolio where increasingly the next resource of choice is natural gas. By increasing diversity and slowing the rush toward natural gas, renewable energy provides a level of price stability and commodity availability insurance for utility customers. Renewable energy is an economic development tool, because renewable energy is largely a local or in-state enterprise, therefore, investment dollars stay in Oregon, creating local jobs and increasing the tax base. Finally, renewable energy is an investment in the environment by avoiding or displacing the use of fossil fuel generation and, with it, numerous pollutants and global warming gases.

It is a fairly rare initiative that is good policy, good economic development, and good for the environment, but renewable energy is that rare gem. This connection between renewable energy, good policy, good economics and good environmental stewardship should be the first sentence of the Action Plan, and should be the justification for the initiative, as well as the argument for making Oregon a leader in renewable energy.

2. The Action Plan Should Recognize Past Accomplishments.

Oregon ought to be proud of its leadership role in renewable energy and ought to use that past leadership role as a springboard to newer and better things. Hidden on page six of the Action Plan is the sentence, “Oregon is one of the nation’s leaders in encouraging

energy efficiency and renewable resources.” We agree whole heartedly. However, the next few sentences do grave injustice to that leadership role. It is worth spending more than a sentence on the Oregon Department of Energy’s programs for renewable resource projects. Additionally, the single sentence on the Energy Trust is terribly inadequate in describing the Trust’s role in developing renewable energy. The Energy Trust is far more than simply the distributor of public purpose funds. The Energy Trust facilitates contracts between utilities and developers, acts on new ideas presented by unsolicited bidders, works with utilities on resource acquisition, and is spurring business around the state. Recent successes in wind and solar generation show that the Energy Trust is a major driver of renewable energy investment in this state.

The small paragraph on the elective green power options offered by IOUs is likewise inadequate in describing both the value of these programs and the commitment of Oregonians who participate. SB 1149 mandated that PGE and PacifiCorp offer customers a few power product choices through a portfolio program. Oregon’s portfolio program has been extremely successful, increasing the number of customers on green options five fold, and vaulting both utilities into the top five nationally both in terms of customer participation and energy sold. In combination with the Energy Trust’s new green tag policy, customers’ willingness to pay for green power is both a major market driver in the state and can result directly in new renewable resources in the ground.

The Action Plan should also recognize that the IOU portfolio program provided information on fuel content, environmental impacts, and cost comparisons of renewable and fossil-fuel generation to over 1 million Oregon households. While it is impressive that more than 40,000 people chose one of the green options, we should not forget that nearly 75% of the households in the state were provided with information on the true value of renewable energy.

These major advances since 2002 deserve greater discussion. It is from this point that the renewable action plan takes off. A discussion of Oregon’s past leadership, inventiveness and dedication to renewable energy lends credence to the claim that Oregon is an attractive site for renewable energy businesses. Simply stating that Oregon will attract manufacturers is meaningless (page 8, 11), but showing a past and continuing leadership role, and an understanding of the value of renewables will speak for itself.

3. The Action Plan Should Have Long-Term Goals.

We feel it is critical that the Action Plan’s horizon be well beyond 2006. If Oregon is making a commitment to renewable resources, it must start as a decade-long commitment and go from there. The Action Plan clearly states some short-term goals on page 1, but long-term goals are conspicuous in their absence. Many of the action items are long-term commitments which stand to shape the future of energy in Oregon for decades to come, such as tackling transmission and interconnection issues. These items clearly demonstrate a vision for the future, but that vision is never spelled out. Also, the magnitude of these relatively Herculean tasks is lost when they are mixed with short-term, concrete action items, such as completing the process of public input on noise rules affecting the siting of

wind turbines. Some of the Action Plan's items are bold indeed, and the vision that necessitates such action should be boldly stated.

4. The Action Plan Should Have A Cohesive Structure.

The Action Plan is strong in that it contains many diverse ideas and action items. Yet, without an organizing principle, the numerous action items trip over each other. On page 8, building 300 MW of wind is jumbled with the small loan anemometer program which is jumbled with a couple of initiatives to reduce transmission congestion. Indeed, having read an action item once, it wasn't always easy to go back and find it. This stems from a failure to identify, distinguish, and prioritize both goals and action items.

We recommend that the Action Plan adopt a more formal outline which allows for breaking the information into more concrete categories. Accepting that there will always be areas of cross-over, the Action Plan could start with short-term and long-term issues, then break those into policy or direct development actions, and further break those out by technology. It could also start with policy vs. direct development or the different technologies, as long as the structure is clear and consistent throughout the plan. The presentation of goals and their associated action items should also be formalized.

5. The Action Plan Should Focus On Key Points And Priorities.

It is in the very nature of a succinct Action Plan that it cannot encompass everything. The Action Plan is weakened by the inclusion of detailed economic discussions, and esoteric research issues in the main body of the plan. While these issues are both pertinent and important, they can be mentioned briefly at the appropriate time, while detailed supporting data and ideas can be included in appendices. This will allow the Action Plan to focus on its key points and actions, while maintaining the credibility associated with supporting data and fleshed-out action items.

The impact of a strong Renewable Energy Action Plan is diluted with the inclusion of a large section on jobs and economic development from pages 2 through 5. We agree that employment and economic development are extremely important, and are among the strongest arguments in support of renewable resources. We also agree that it should be discussed briefly right up front, selecting a few, strong points. An in-depth discussion of the numbers of jobs associated with different projects and estimates from Poised for Profit II, however, is better saved for an appendix. The Action Plan first reads as a renewable energy plan, then it reads as an economic development plan, and then it comes back to renewable energy. That data and information is critical to the Action Plan, but it should be seamlessly woven into the discussion of the benefits of renewable energy.

Additionally, a discussion detailing some of the environmental benefits of renewable energy, as well as the associated health and health cost benefits would be appropriate. There is a great deal of discussion of the employment and economic benefits of renewables, but not a corresponding in-depth discussion of the environmental benefits of reducing the levels of SO_x, N₂O, NO_x, CO, CO₂, and ozone. The environmental

benefits, like the economic development benefits, should become part of the seamless celebration of renewable energy.

Finally, a discussion of Oregon's education and research resources, demonstration projects, such as wave energy, and other cutting edge opportunities might be more cohesively presented in an appendix or as a separate section. As they are presented currently, intermingled with immediate hurdles to the adoption of proven technologies, it detracts from both the next-decade vision and the next-century vision. We fully support looking well into the future with the development of experimental energy sources, but these issues should have a section of their own.

6. Minor Points

In the middle of page 7, one bullet reads, "Continue to improve green power options for Oregonians ..." A more precise wording, which better indicates the process, would be, "Work with the Portfolio Advisory Committee to ..."

Some action items, most notable those on page 7 which pertain to the PUC, are controversial at best. Items such as addressing performance-based rate making and the size of Qualifying Facilities cut several different ways and involve multiple stakeholders with different opinions. The complex and controverted nature of these items should be firmly stated.

Include Biolubricants under the general section item 4. Renewable Resource Opportunities and Actions or Include in Biodiesel section

Although biolubricants do not result in burned energy in themselves, they are derived from the same oilseed sources as biodiesel. They save from the dependence on fossil fuels. They have a tremendous potential for producing environmental benefits. They could be used in marine applications, the construction industry, timber industry and others to provide environmental benefits. Their development will result in job creation and a more vibrant and diverse agricultural economy. The use of locally grown products for biolubricants adds value and keeps the revenue in Oregon. The qualities looked for by industrial users in biolubricants often are much better than fossil fuels. The economic potential may exceed biodiesel for growers because it will be less competitive and can be used in niche markets. There is the potential by 2006 for one million Gallons of biolubricants to be marketed in Oregon that are produced from Oregon crops.

Actions section

First bullet

Add "agricultural representatives" to the list of Renewable Energy Working Group members.

Add two bullets (wording shown is for general Renewable Resource Opportunities Section)

- Support biolubricants as necessary part of renewable resource opportunities.
- Identify opportunities and explore incentives for using Oregon grown products to capture added value in the bioresource industry.

In addition, Biolubricants can also have the brand Oregon label

We read the draft Plan with excitement, and are happy to see the State devote the effort and insight that obviously went into this document. Without qualification, we believe the draft Plan is a very positive step. Oregon is uniquely situated to compete with other states in attracting renewable energy project development and component manufacturing businesses. The first step on this quest will be to develop the draft Plan into an inspiring, aggressive business plan that drives a variety of intensive State and private actions in the next two years.

I. Comments on People and Processes

To accomplish the ambitious goals in the draft Plan--and the more ambitious ones you will hear from the industry--will take strong and sustained leadership directly from the Governor. Oregon suffers from pockets of agency culture that are less than welcoming to developers of new energy or energy component manufacturing facilities. There must be a clear, sustained message from the top that the renewable energy initiative is a high priority and must be implemented at every level within all appropriate state agencies.

The Governor's leadership should be channeled through an Interagency Working Group ("IWG") consisting of senior officials from the Oregon Department of Energy, Oregon Public Utilities Commission, Oregon Department of Fish and Wildlife, Oregon Department of Land Conservation and Development and Northwest Power and Conservation Council. The IWG should be charged with coordinating a consistent strategy for promoting renewable energy development, and just as importantly, with removing unnecessary barriers to such development.

We strongly support the continued development of the draft Plan in concert with the Renewable Energy Working Group ("REWG"). The REWG should consist of key agency officials from the IWG as well as stakeholders representing private enterprise, nonprofit organizations and citizen interests. Based on the recent experience with the noise rule amendments, the goal of the REWG should be clearly communicated: not to debate the value of renewable energy development, but rather to determine the best policies for promoting it.

The IWG and REWG should be constituted and charged with the goal of working closely together to set policy direction and to work out programs for policy implementation. These groups should be created and set to work as soon as possible.

II. Comments on Policies

We are a service business with a goal of attaining a substantial market share in the competitive, rapidly growing renewable energy industry. As such we feel a great sense of urgency in developing our capabilities and marketing them to potential renewable energy clients. The competition for renewable energy projects is no less intense among states. Major developers control enough land rights that they can decide to focus their efforts in states with favorable policies supporting demand growth and removing barriers to production of supply. In this competition there will be states that are winners and states that are losers. So that Oregon will emerge a winner, we suggest that the process of developing the draft Plan into a final plan, the language of the final plan, and most importantly the implementation of the final plan, all be infused by a sense of urgency.

In particular, the three strongest factors affecting renewable energy development in the State are demand stimulation, transmission (both infrastructure and interconnection problems) and siting delays and difficulties. Oregon currently has problems in each category, problems that may drive developers to put money and effort toward projects in other states.

A. Market Demand

In addition to the worthy short-term production targets expressed in the draft Plan, the State should include long-term targets that will drive renewable energy development over time. The State policy ought to be conceived as one that will foster market demand even when there is a lack of federal leadership on renewable energy issues. Significant long-term goals will stimulate the kind of land acquisition, site-specific research and local presence needed to create a robust “pipeline” of potential renewable energy development projects. The State should quickly and openly assess available mechanisms for sustaining a long-term renewable energy market.

Major local businesses like Nike, Eddie Bauer, Mt. Hood Meadows, CH2M Hill and Stoel Rives meet a significant portion of their own energy needs from wind projects and other renewable energy sources. These companies have found that corporate green tag purchases also stimulate proud employees to follow suit when making their own residential power purchases. The State should make a similar commitment and should use it as an opportunity to educate the State’s large work force on the green power purchase options open to them. The draft Plan’s commitment to increase ethanol use in the State automotive fleet is a similar step in the right direction.

B. Transmission

The draft Plan adequately identifies the key transmission issues facing the region: infrastructure/capacity bottlenecks and difficulties securing from incumbent transmission owners the necessary transmission service for wind energy projects. The challenge in this category will be implementing solutions that meet the needs of all parties and do not rely overly on limited State financial resources.

C. Facility Siting Delays and Difficulties

Simply put, Oregon has a national reputation for being a difficult and expensive place to build a wind project. The City of Portland recently received the distinction of being one of the ten worst U.S. cities in which to do business. (Inc. Magazine, March 2004.) Such reputations are fundamentally incompatible with the strategy and goals articulated in the draft Plan.

The State ought to recognize, at the highest level and through each agency staff position, that renewable energy projects as a class are environmentally desirable and that their relatively minor environmental impacts are more than offset by the public benefits they offer. Further, the State should be aware that these projects, while now being developed by sophisticated businesses with significant technical and legal support, carry much slimmer margins than conventional energy projects and often can be killed more easily by permitting delays and cost overruns. In light of these understandings, the State should direct the Interagency Working Group to solicit input from interested parties and to develop a plan for streamlining the permitting process for renewable energy projects.

Two existing administrative rules have accounted for a significant loss in potential wind energy development: the DEQ noise standards and the ODFW habitat mitigation goals and standards. These two bodies of law already have resulted in individual turbines being deleted from projects, and in entire projects being abandoned—without the State having secured any commensurate environmental, health or safety benefit.

Furthermore, we are concerned that additional turbines or projects may be lost if Oregon agencies adopt or support the draft U.S. Fish & Wildlife Service wind project siting guidelines, which were developed without input from key industry representatives and avian consultants.¹ The American Wind Energy Association is currently working with Department of Interior policy leaders to structure a more balanced process in which the participants could set about revising the draft guidelines so that they are based on adopted policies and available data.

While we recognize that local (non-EFSC) land use processes for siting projects up to 105 MW often are not tailored at all to the issues raised by large-scale wind development, we believe it would be a mistake to import the EFSC model and inflexible standards like the DEQ noise rules and ODFW or USFW draft guidelines into local ordinances.

Oregon's land use system, while praiseworthy for its commitment to public participation, sometimes allows a small group of dedicated opponents, without facing any exposure other than their own attorneys' fees, to delay a project for many months or even years after local approval. The currently pending appeal of the Treasure Valley Renewable Resources biofuels project in Ontario is one example. The Interagency

¹ ODFW already has cited and relied on the USFWS draft guidelines in making public comments on at least one project, the Alpine Wind, LLC proposal in Union County.

Working Group ought to consider solutions to this problem, ranging from modifying the bonding and stay requirements at LUBA to establishing a state-level, preemptive siting process for major industrial facilities.

The goals that are set are not specific -- they are expressed as "hopes", not actual targets. The tactics for achieving the goals are stated in very soft terms -- deadlines and accountabilities are conspicuously absent.

I think there are organizational weaknesses in the draft, which in the end tend to confuse or marginalize the goals and actions statements. Discussions of reasons for pursuing renewables, discussions of opportunities, etc, are mixed in with action statements. I would suggest that all of this narrative material, which does provide useful context information, in an appendix. The Policy, Goals, and Action Items should be crisp, and not cluttered up with relevant but not helpful narrative.

I'd suggest a structure something like this, if you want to consider a major rewrite, rather than a tweaking of what is now on paper:

A. State the Policy -- It seems that all the policy guidance you need is set forth in ORS 469.010. You could also layer in the Governor's sustainability order, because it is consistent with that statute. Just recite what Oregon's basic policy is, because that should be the driver for setting goals and stating actions.

B. State Explicit Goals for Implementing the Policy

I don't think a goal to "encourage production" is compelling. And I wondered whether "production", "demonstration" and "removing barriers" were intended to be separate goals. The last is clearly a means or a tactic, rather than a quantifiable goal. I think the goal should be quantitative, and focused on production targets for the various types of renewable resources.

For each renewable energy category, state the 12/31/03 baseline quantity in Oregon, and then state the quantity the state should have in place by the end of 2005 or 2005.

Don't say we "hope" to achieve that goal -- just set the goal!

If "demonstration projects" are intended to be a separate goal, at least set quantifiable targets for specific types of projects, rather than just a laundry list as appears on p. 1 of the draft.

C. Articulate Tactics for Achieving the Goals

The tactics should be specific -- with deadlines and accountabilities. You

should consider breaking them into two areas. The first would be things the state itself could actually do -- e.g., ODOE could have a model siting template for counties available by a date certain. The EFSC could streamline siting rules by a date certain. The OPUC could make decisions on interconnection, standby rates, etc. by a date certain. Other agencies, such as ODEQ could be instructed to address and resolve relevant topics by dates certain. Etc. If specific legislation should be adopted by the 2005 Legislative Assembly, identify them as actions you believe the legislature should take to achieve the targets.

(NOTE: A very challenging issue is how to influence the customer owned utilities to do anything. The draft studiously avoids the idea of a state RPS, or state-wide system benefits charge. I believe I understand the history behind taking the non-RPS approach. But how can the COUs be encouraged, other than through the bully pulpit, if the state won't consider adoption of an RPS? A state RPS could allow IOUs to meet their obligations through the systems benefit charge.)

There are other areas that the state can't control, but can attempt to influence. These should be "second order" (or at least separate) tactics from things the state can do directly. This would include supporting a national RPS, supporting Federal Tax Credits, etc. Again, specificity is in order. For example, an action item would be to brief the entire Oregon delegation on the merits of a national RPS by a date certain. Another could be to produce a letter from Governor Kulongoski supporting extension of the PTC by a date certain. Deadlines and accountabilities should always be included in the action items.

I'd be more than happy to help work on this with you. I think there is a real opportunity here for the state to challenge itself and the populace to a very worthy end...but a much more compelling and tighter plan will be required to do so.

Supply side measures like the production of renewable energy can improve the availability and stability of Oregon's and the northwest's energy supply. In addition, development of biomass, biogas, and biofuels facilities can provide opportunities for food processors and their agricultural producers to reduce problems with wastes and create additional revenues.

In general, we agree with the Plan's outline and has the following specific comments:

- We applaud the goal to build on existing Oregon business and industry by using in-state resources.
- We support the objective to primarily locate renewable energy demonstration projects and facilities in rural areas as a means to promote economic development and increase job opportunities in these areas.

- We suggest, however, that the Willamette Valley should not be overlooked, especially with respect to opportunities for biomass, biogas, and biofuels resources. The Willamette Valley is a major producer of agricultural products, accounting for about two-thirds of Oregon's total agricultural sales. A large portion of Oregon's food processors are also located in the Willamette Valley. Use of agricultural and food process waste for energy generation or production of biofuels could assist in solving waste and wastewater issues in the Valley.

I am a second generation hydro operator. We have received a rate of \$.05883 under contract to PGE since 1988. Oct. 31, 2003 that contract expired and our rate was cut to \$.0447/kwh, the Schedule 201 "avoided cost" rate. Our plant would never have been built in the first place at the new rate, it is all but impossible to operate now, and this rate will hinder if not prevent the development of new plants. I believe that the rate structure is the key element in the power equation.

Rate documents of PUC from the late 80's show that a rate above the avoided cost paid to small producers added only a few thousandth of a cent to the rates paid by consumers. This is where the "...in the public interest" part of PURPA should come into play. The utilities can afford to handle the power produced by operators without adversely effecting their profit margin.

Oregon since the 1930's has had access to low rates from BPA. The utilities can also use 500MW plants as their yardstick for avoided costs. But harnessing the Columbia has come at a great environmental price and generation of power by fossil fuel is neither sustainable nor benign. These costs are not factored into the rate structure---society has to struggle with fish and pollution issues. Think outside the grid for a moment and imagine that BPA/500MW energy was not available. Oregonians would be busy developing renewables. In a few years, renewables could contribute a significant amount of green power.

I think it would be helpful if the Energy Action Plan looked into the following:

- bifurcate the avoided cost schedules into renewable/fossil fuel components. Renewable industries of all types will spring up if the economics are favorable.
- form an industry/renewable coalition to market "green tags". The utilities have the expertise, and the TRC market is practically non-existent in Oregon. Apparently, this is being done in New England, Texas and California. Adding a few cents/kWh will encourage development.
- have the state assist in promoting green tags as a "Brand Oregon" commodity. Certification by outside agencies for "low-impact" hydro is a duplication of work already done by ODFW, DEQ, and ORWRD.
- require the utilities to purchase the green tags in their area. Small producers of all types do not have the expertise to market them.

- level the playing field in contract negotiation between producers/utilities. Tie the reformed avoided cost rate to the residential rate to avoid length of contract issues and rate negotiation.

A final comment concerning the job creation discussion on page 5..."10MW of hydroelectric facilities..would lead to 6 full time jobs for five years.." It is my experience that a 100 kW hydro (operating year round) is a full time job. 10 MW is the same as 100 micro hydros (of 100 kW capacity) or 100 full time jobs with tremendous ripple effect in small manufacturing.

page 1 *New renewable energy production targets:*

The U.S. Geological Survey has identified over one thousand megawatts of geothermal electrical generation potential at sites within Oregon. As 100 MW of installed geothermal generation capacity would produce approximately the same amount of renewable electricity annually as 300 MW of installed wind generating capacity, might the following language be included in this list of goals?

“100 megawatts of geothermal energy (enough electricity to power a city one and a half times the size of McMinnville).”

2. Page 1 *Demonstration projects will include:*

The authors of the Action Plan draft propose a geothermal assessment as an included project. They will be gratified to know that ample geothermal assessments of the State of Oregon are currently available for both electrical and direct-use development.

page 2, paragraph 2: Now reads:

“Projects will be distributed primarily throughout the *rural* parts of the state. ...Geothermal projects are possible in Harney, Klamath and Lake Counties.”

The above comment presents a somewhat incomplete view of the geothermal potential within Oregon. In particular, Deschutes County and many other counties have been deleted from a list of counties known to have geothermal resource potential. Please refer to Geothermal Resources of Oregon, a map produced by the National Oceanic and Atmospheric Administration for the United States Department of Energy, with the data provided by the Oregon Department of Geology and Mineral Industries.

The data provided show approximately 75% of the State of Oregon to have higher than average heat flow. Within this high heat flow area specific locations are identified as known to have potential for geothermal resources capable of generating electrical power. These sites range from Clackamas and Marion Counties to Malheur County.

Deschutes County is noted as hosting significant potential for high-temperature geothermal electrical generation. Oregon Department of Geology and Mineral Industries incorporated data for the Geothermal Resources of Oregon map from their own extensive geothermal investigations, from the U.S. Geological Survey, from the Heat Flow Lab. of Southern Methodist University, from other universities, from the Department of Interior's Bureau of Land Management, and from private industry.

More recently the U.S. Department of Energy and the Bureau of Land Management have issued updated maps of the geothermal potential of the State of Oregon, using the Oregon Department of Geology and Mineral Industries map as the base. The geothermal data within the State government is extensive and the current State Geologist is respected within the scientific community as having significant knowledge of high-temperature geothermal resources.

Page 2, line 8: suggested new replacement language to more accurately describe geothermal potential within Oregon: "Geothermal projects are possible in the eastern three quarters of the State of Oregon."

Economic Development and Job Opportunities Now and in the Future

page 5 Comments to "Following are a few examples of estimated job creation for a specific project or a given level of installed capacity per year.":

Statistics for the economic benefits of a geothermal power plant are missing. While the U.S. Geological Survey has identified potential for well over a thousand megawatts of base-load electrical generation within Oregon, economic statistics for a more modest 50 MW pilot project (375,000 to 400,000 MWh per year) should be included in the list.

Development and construction would employ approximately 80 people, all on site in Oregon. 30 full-time O & M jobs will be created in addition to the development and construction jobs. All privately owned power plant facilities will pay state and local taxes.

Geothermal power production from Federal lands provides additional income to state and county in the form of royalty payments.

One final economic benefit to rate payers provided by geothermal power plants is base-load electrical generation, which greatly improves the efficiency of transmission systems over intermittent-load generation.

Perhaps something along the following best describes both job and payments generated from a single 50 MW geothermal project within Oregon: Please add:
"A 50 MW geothermal power project (375,000-400,000 MWh per year) creates 30 full-time O&M jobs and approximately 80 development and construction jobs.

Production-based royalty payments will be paid to state and county governments throughout the life of each geothermal project developed on Federal lands.

A 50 MW geothermal power plant is more economic to rate payers in providing base-load electricity, which increases the efficiency of the transmission system over intermittent-load electrical generation facilities.”

Renewable Resource Opportunities and Actions

Page 6, line 9: Add “geothermal” to wind and certain biomass facilities.

Page 6: *Actions:* Add:
“Enact a Renewables Portfolio Standard for the State of Oregon.”

Page 7, *Actions:* line 3. Replace with:
“Work with the state’s congressional delegation to reinstate, for solar and wind, and expand to include geothermal and biomass, the federal Production Tax Credit and the Renewable Energy Production Incentive.”

Page 8 : The authors of the Action Plan draft have laid out a formidable list of action items to promote the wind industry, including an item to relax quality-of-life standards (noise limits standards). The reader is left with the impression that the Oregon Department of Energy works hand-in-hand with the wind industry in promoting and facilitating the interests of that particular industry. Action items cited by the authors of the Action Plan draft for geothermal electrical generation, however, suggests a general lack of knowledge of the geothermal industry by the authors.

Many of the action items proposed by the authors for wind should also receive equal support from ODOE for geothermal. The “Wind on the Wires NW” proposed by the authors for wind-generated electricity should have a “Base-Load Renewables on the Wires NW” counterpart for geothermal-generated electricity.

1. Conservation is cheaper than production: A renewable energy initiative that does not address or incent energy conservation practices, and does not consider conservation renewable energy, misses the largest reservoir of readily available renewable energy. Conservation provides the lowest risk, lowest cost, least capital investment, and greatest community and resource benefit compared to any other renewable energy source mentioned in the document. To exclude it leaves the plan open to criticism. (Want to give someone a big tax cut? Deliver a program that cuts \$500-\$1000 from their annual home/business electricity or fuel bill.)

2. Integration of benefits from renewables: The economic feasibility of one renewable energy practice may not be sustainable, but two or more practices

(wind/solar for instance) may make the bottom line agreeable. There are a number of integrated systems that can improve both the consistency and capacity of renewable energy projects. By-products also fit into integrated systems (livestock feed from ethanol plants, compost and clean water from anaerobic digesters, CHP applications, carbon credits) and play a role in the long-term sustainability of renewables.

3. Access: Most of the estimates of renewable energy potential are based on larger traditional grid-friendly projects greater than 10 MW. The greatest potential for renewable energy generation lies in small but numerous production facilities. For instance, the capacity for new Hydro development statewide is estimated at 38 MW. The potential generating capacity of the irrigation canals in just the Deschutes Basin (Not the rivers, but the ditches and canals) has been estimated at 50 MW. Plus, the majority of our electric load in the basin is allocated to pump water for irrigaiton. Many renewable systems are feasible in a small scale now, if access (net metering, intertie standards, low interest financing, tax credits, avoided cost price supports) easily applies to small business, on-farm, residential, construction, and small manufacturing renewable projects. Just as 80% of business in America is small business, the greatest potential value from renewable energy projects will come from small scale integrated applications.

4. Leadership: Bette Midler is fond of saying, "I have standards. They're low, but I have them." Individuals and investors will continue to discount and distrust perceived benefits of renewable energy without a commitment from Oregon to a realistic Renewable Portfolio Standard. A policy of procurement preferences and fuel tax exemptions for bio-based fuels could not only sustain and stabilize the renewables industry, but result in a net gain in revenue to the state through increased income taxes from job creation and industry profitability. Additional leadership in R&D is needed to stimulate languishing technologies in ethanol production from cellulose, hydrogen production from solar/wind/hydro applications and other renewable applications with more "specifically Northwest" characteristics.

Oregon is blessed with an abundance of renewable energy potential (in the absence of any fossil fuel reserves). We have a great opportunity to improve our economy, environment, security, and quality of life with a strong commitment to renewable energy. I hope these brief comments can be included in some small way to improve the document.

I ask that you consider expanding your scope to encompass Oregon-produced clean *energy technologies* in the Plan. The U.S. Department of Energy has invested hundreds of millions of dollars in fuel cell technologies. This investment can be leveraged to

create demand for Oregon-made renewable fuels and also advanced energy technologies, such as fuel cells, into commercial and civil markets to create Oregon jobs, grow the Oregon economy, reduce atmospheric emissions, and meet Oregon owner/operator performance needs.

Expansion and job creation at existing Oregon energy technology businesses also provide the opportunity to leverage development funding from sources outside of Oregon. For example, our company is currently under contract or agreement to bring in over \$10 million in technology development funding to the state of Oregon from federal sources. As our company grows we will be able to attract additional outside public and private investment to the state. The DOE alone plans to spend \$79.5 million next year on programs that are encompassed by our company's expertise.

Our company has grown from 3 to 65 employees since 1996 and may add up to 17 new employees this year alone, especially if the proposed Plan provides strong support for energy technology companies like our company. Our company provides high-paying professional jobs in the fields of engineering, manufacturing, construction, operations and maintenance. Furthermore our company uses a broad range of suppliers from around the state, further strengthening our impact on the state economy.

I would like to specifically offer the following recommendations:

- Page 1: Add the following to the targets list: Manufacture and installation of up to 10 megawatts of renewably-fueled fuel cell systems.
- Page 1: Demonstration projects will include:...heating, fuel cell projects that generate electricity or hydrogen using renewable fuels and fuel cell systems used in hybrid configurations with solar electric systems.
- Page 5: add after "solar jobs...." : Up to 75 new engineering, manufacturing, sales and service jobs could be created in Oregon by 2006 to support the growing regional and world-wide demand for fuel cell products. Additionally, up to 25 more engineering, operations and service related jobs could be created through hydrogen gas production from renewable feed stocks.
- Projects that use Oregon's strengths and build on existing business and industry. Encourage the installation of Oregon-Produced renewable-fueled fuel cell systems at a level of up to 10 megawatts by the end of 2006 by the introduction of a state-level production-based tax credits or other incentives, as well as an expansion of the residential fuel cell tax credit.
- Provide funding for fuel cell and hydrogen generation technology demonstrations at Oregon public venues using Oregon-produced fuel cell systems operating with Oregon-made renewable fuels, and Oregon-produced hybrid solar/fuel cell and wind/fuel cell systems.

- Retire barriers to fuel cell introduction in Oregon including increasing state government support for streamlining standards for interconnection of small generators to the grid, and encouraging policies that reduces a utilities’ disincentives to accepting renewable resources and combined heat-and-power technologies.
- Support the use of renewable fuels such as bio-methanol and ethanol for hydrogen production through tax incentives.

1. The draft Plan woefully lacks a substantive knowledge base and discussion of the potential for, benefits from, and current status of geothermal electricity development in Oregon.
 - A. Changes to the draft Plan based on comments alone are unlikely to raise the depth and breadth needed to adequately represent geothermal electricity development in Oregon.
 - B. The draft Plan would greatly benefit from a writer/editor/reviewer who is highly knowledgeable and collaborative in all aspects of geothermal energy – technical, economic, regulatory, history, etc.
 - C. DOGAMI (Oregon Dept. of Geology and Mineral Industries) has played a leading role in Oregon supporting the exploration and development of geothermal energy since the mid-1970s. They have published well over 100 articles and technical documents on geothermal energy. They should be acknowledged and should play a significant role in the development of this Plan.

Specific Comments

Page 1, 10 lines from bottom. Consider changing “one geothermal electric generation project underway” to “one 30 megawatt or larger geothermal electric generation project underway”.

Page 2, 2nd bullet item. Leave possibilities open. Change “Geothermal projects are possible in Harney, Klamath and Lake Counties” to “Geothermal projects are possible in several counties including Harney, Klamath, Lake and **Deschutes** Counties”. A 50 megawatt geothermal power plant at Newberry Volcano could certainly be a demonstration project – a first of its kind in Oregon. Other projects could include geothermal direct use or a small electric power plant in Linn or Marion Counties or on the Warm Springs Reservation.

Page 2, section on primary actions. Commendable.

Page 5, bulleted items under “examples of estimated job creation”. Add a 7th bullet giving an example of jobs directly and indirectly related to the construction and operation of a 30 (or higher) megawatt geothermal power plant.

Our first recommendation is that the state clearly articulates the process and timeline for the development and finalizing of this Plan.

Page 1: The Renewable Energy Action Plan states that the plan’s goal is to “encourage production of energy from renewable sources...” While we appreciate that statement, we believe that the state would benefit from articulating a specific and longer-term goal that would encourage utilities and end users to plan for including renewables in their supply and help foster the establishment of a thriving renewable energy infrastructure. The production targets listed on page one are a good place to start. We recommend that the state Plan adopt a goal that a minimum of 10% of total load be met with new renewables in all utility supply portfolios over the next ten years. Based on 2002 EIA figures for Oregon utilities, that would result in approximately 500 aMW over ten years or 50aMW/year. Since utility acquisition is lumpy by nature, the long-term goal will help customers find those renewable resources that best meet their needs.

Meeting this goal requires policies and programs that stimulate the *demand* for renewables and reduce the barriers to creating *supply*. We applaud the plan’s support for a national Renewable Portfolio Standard (RPS) and expansion and continuation of the Production Tax Credit and the Renewable Energy Production Incentive. Our Congressional delegation has demonstrated its support for these policies in the past, and we should all urge them to bring these to fruition. But because the federal RPS proposal forwarded by Senator Daschle (2002) excludes existing hydro and other renewable resources from the calculation of the RPS, even PacifiCorp and PGE wouldn’t be required to include more than 2% new renewables in their supply by 2020! A state RPS reflecting the state goal of 10% by 2014 would ensure the demand and, in turn, stimulate the supply of new renewable resources. The Energy Trust of Oregon’s programs, along with tax credits and programs offered by the Oregon Department of Energy will help achieve the RPS. We recommend the Governor convene a high-level group of government leaders, industry, and advocates to explore this recommendation.

The state itself can also play an important role in generating demand for renewables with its own, considerable use of energy. State facilities, including jails, universities, and agency buildings demonstrated their ability to implement conservation strategies during the energy crisis of 2000-2001. State procurement of renewable energy could help stimulate demand for renewables and lead other institutions and end-users by example. We recommend that government buildings use at least 10% new renewables to meet their energy needs. This would qualify them for the region’s Clean Energy Challenge (a threshold established by regional environmental groups to designate meaningful clean energy purchases), and potentially inspire local government to follow the state’s example.

Utility and state purchases will help create economies of scale and help reduce the costs of renewable resources for customers.

The Oregon Public Utilities Commission (OPUC), and the elected Boards of the consumer owned utilities play an important role in helping determine which resources a utility will need to serve its customers. The list of indented bullets on page seven of the Plan is an excellent list of issues to be examined in a portfolio planning process. Examining the risks and benefits of each kind of resource will help level the playing field for renewables, both small and large, and hopefully increase the amount of clean energy in the supply.

Agency Actions to Reduce Barriers to Supply

Many state agencies play vital roles in analyzing renewable resource project proposals and determining their suitability for the state. The Governor has identified the development of renewable energy as a priority, and we recommend that he directly express that priority to the many agencies involved in energy planning, siting and procurement. The Governor and his staff should work with those agencies to determine an appropriate set of actions for each agency to take to follow-through on that priority. We recommend that the Governor's staff create a Joint Agency Renewable Energy Working Group to coordinate a consistent strategy for promoting renewables. Senior officials representing the OPUC, Oregon Department of Energy (including the Energy Facility Siting Council), Northwest Power and Conservation Council, Oregon Department of Fish and Wildlife, and the Energy Trust of Oregon should be included in the Group.

ODOE and ODF&W

The Energy Facility Siting Council (EFSC) and the Oregon Department of Fish and Wildlife (ODF&W) play a direct role in the evaluation of new renewable resources in the state. While both entities have made considerable strides in developing greater understanding of renewable resources and their impacts, there is more work to be done. The goal for the agencies ought to be to develop a siting protocol that is appropriate for the *impacts* and the *scale* of renewable resources. It is also important to design a process that has a reasonable timeline. Solar, wind and geothermal do not create the same air, water, or land impacts of fossil fuel resources and nuclear plants, and should not be required to analyze impacts that they don't produce. We recommend that the agency staff convene conversations with representatives from industry, the environmental community, counties with renewable resources and experts to discuss a set of workable guidelines for the agencies.

The Noise Rule was mentioned several times in the draft Plan. This is unfortunately an example of a small and unresolved issue that has required an enormous amount of time and resources to address. We should learn from this example and resolve to create more efficient processes for pressing issues in the future.

The many initiatives in this Plan create the possibility of attracting renewable energy manufacturing facilities to the state. The Department of Economic and Community

Development should engage interested businesses in an active dialog on this issue. Ascertaining a manufacturer’s requirements for locating in the state and being ready to clearly detail the actions the state can take to encourage their location here will make that piece of economic development more likely.

Transmission and Regional Issues

Although transmission is critical to the development of large-scale renewable resources, the states are often not the decision-maker on the issue. However, the Governor, his representatives on the Power Planning and Conservation Council, and certain state agencies can play an important role in transmission policy and planning. We recommend that the Governor work with the Congressional delegation and NWPPC to ensure that the Bonneville Power Administration meets its statutory public purposes requirement by offering reasonably priced transmission, firming and shaping products and acquiring and/or supporting the acquisition of renewables. We also urge the agencies to work with regional stakeholders to design a rational, reasonable, regional transmission entity that lowers barriers to renewable energy as it evolves.

Page 1. New renewable energy production targets:
Of the seven targets identified, six are quantified in measurable production units. The seventh target (geothermal) is not. The number of megawatts should be quantified.

Page 2. Second bulleted item:
Deschutes County should be added to the locations where geothermal projects are possible.

Page 5. Examples of estimated job creation:
This should include an example of geothermal production at Newberry Volcano. Six other renewables are listed, but not geothermal.

Page 6. Actions:
Supporting and participating in the “GeoPowering the West” program should be included in the list of actions.

Working with and supporting private companies to encourage investment and development in renewables within the State should also be added to this list.

There are going to be a number of years in the immediate future in which new transmission will not be built in the Pacific Northwest. During this time, the PUC should be encouraged to allow the State's utilities to take on some non-firm transmission risk. Under the vast majority of conditions, this will represent a tiny exposure for the utilities, yet it will potentially save them considerable sums of money compared to having to purchase firm transmission, and it will help bridge the gap between the present and that time when new transmission is available. Moreover, even when/if new transmission

capacity does become available, non-firm may be more affordable and will help render wind more competitive in comparison to other resources. This issue is particularly relevant for the current PGE RFP and the risk analysis that will be conducted on PGE's proposed resource additions. We have spent considerable time working on this issue at BPA and would be happy to meet with State representatives to further discuss the topic.

page 2:

Demonstration projects on page 2 of the draft document the final bullet refers to potential sites for geothermal projects. You have limited the sites to only the Central Cluster of counties. I suggest you also include sites that would fall into an Eastern Cluster consisting of eastern Oregon, western Idaho, and southeastern Washington. Potential geothermal project sites in Malheur, Baker, and Union Counties are situated along the I-84/Boise corridor; rural areas adjacent to population growth. Regardless these additional locations in the rural eastern counties should be discussed somewhere in the plan.

Chapter 2: Why Renewable Resources Now? I add to your discussion that by developing an action plan Oregon is demonstrating forward thinking regarding supplying regional energy needs and supplying fertile ground for further innovative renewable energy projects and ideas by private industry.

Your report discusses the extraordinary benefits of renewable energy at great length, however it does not mention any of the problems that must be overcome to make things work smoothly. I strongly believe in the benefits of renewable energy but have also come to realize that there is no such thing as a free lunch.

For this reason, I think that you might want to consider ways to acknowledge and cope with problematic issues up front. You mention that regulations for noise will be made more "flexible" to expedite development of renewable energy. Will other environmental regulations designed to protect bird habitat be similarly changed to accommodate development? I am certain that this is not the best approach.

Just because renewable energy is so much better than non-renewable energy, I don't believe it should get a free pass to create nuisance or to damage important habitat areas.

Green energy will not keep Oregon's environment "clean" if it damages important habitat in the process. I hope that you will keep this in mind as you enthusiastically pursue the goal of expanding renewable energy facilities in our state. I would like to see something in your policy that

clearly mentions the need for this balance rather than solely a no-holds-barred, booster perspective that acknowledges none of the costs. A matter of fact approach to these difficult (but solvable) issues would be more honest and would ultimately result in better-sited projects.

Page 1: Under summary, I believe we should expand and clearly communicate the “vision” of the RE plan and address a multiplicity of issues that will be proactively addressed by this effort. I have come to believe that development of and communicating (marketing) that vision clearly is the key pivot point for any such efforts. From that vision statement (part of introductions) then there is a logical flow into the road map or pathway to that vision.....or on page 1, “the plan”. I believe the vision doesn’t have to be particularly detailed but broad and “eye/mind catching”. The Draft does catch some of the details of the goal/vision throughout the document; however, I believe it needs to be clearly formulated at the beginning. Secondly, upon closer examination, one will discover that by addressing some of the energy issues in the Draft there is a vast number of issues that are collaterally and proactively addressed as in the case of biomass, forest restoration, catastrophic wild fire, etc.

Page 2: Under the second bullet at the top Union , Baker and Wallowa Counties should be included in both the biomass and bio fuels from forest/cellulose waste listings of opportunities throughout the state.

Union County also has limited geothermal potential, however, steam and heat are one of the by-products of biomass processing that can be captured not only for electricity but heating (large greenhouse specialty agricultural products, etc.).

Page 3: Good first cut at “why renewable Resources now?”, however believe this might be better located at the beginning under the vision. Also might consider developing an outline for quick glance at the beginning similar to Bush’s “Healthy Forest Restoration Act” layout (Outline, then text). Lastly, I might argue there are many more than 2 main reasons to focus on renewable energy especially when you begin to consider the multitude of other “issues” that get addressed while addressing the energy (not on page 1 above).

- The document needs a good once over by a well seasoned technical editor.
- My concern is that this focus on attainable goals - not far reaching 'star trek' options that may still be years or 'light years' from reality.
- I have participated in the Wind Working Group facilitated by Carel DeWinkel for the past couple of years. That has been a truly enlightening experience. As a Planning Director participating in this group has provided me a more in depth view into the entire process for siting a Wind Farm - a great benefit recently as our county processed the Land Use application for a large Wind Farm. I am not sure if any other Planning Directors are on your distribution list. When you are ready for a broader distribution I would be willing to work with the county Planning Directors to seek a broader based comment from the county land Use planning perspective.

Page 1, under production targets: What about a commitment to solar installations, distributed generation, green building?

Page 4: A Central Oregon industry cluster of **approximately sixty** renewable energy-related companies already exists.

I would like to propose an amendment or modification to the tax incentives provided to businesses locating in non-urban Enterprise Zones in Oregon (40 locations are currently designated). A credit equal to 62.5 percent of gross payroll is currently available to businesses locating in non-urban Enterprise Zones and is to be used against state corporate excise or income taxes. An annual minimum payment of state taxes is established and this credit is applied against that amount of tax obligation that exceeds the minimum. This credit requires the approval of the Governor and may be received over a 5 to 15 year period.

I would like to propose that this **credit be changed to an incentive payment** and this incentive payment be made available only to businesses that install facilities within the non-urban Enterprise Zones that generate renewable or alternate energy or renewable or alternative fuels. No facility can receive more than \$1.0 million per year or \$10.0 million in total during the life of the Program.

Why should a Program like this be implemented? The states of Minnesota, North and South Dakota, Nebraska, Kansas, Missouri, Texas, and Mississippi offer businesses producing **ethanol** in their state a **producer incentive**. This incentive is usually \$0.10 to \$0.20 per gallon of ethanol produced. The producer payment is capped so no facility receives more than \$1.0 to \$2.0 million per year over a 7 to 10 year period. The ethanol production facilities in these Midwestern states use this producer incentive payment to offset the cost of shipping ethanol by rail to states like Oregon, Washington, and California. The incentive payment I am proposing "levels the playing field" and will enable an Oregon ethanol facility to better compete with the Midwestern producer.

The incentive payment I am proposing **also aids those businesses seeking to install electricity generating facilities using wind, solar, photovoltaic, or biomass technology**. The incentive payment will help pay debt service obligations during the early years of operation and permit the renewable energy facility to better compete in the marketplace. The U.S. government has implemented a program

where non-profit entities receive a stipend when producing electrical power from a renewable source and, if money is left over, the program distributes funds to for profit businesses that erect such facilities.

Studies done in the Midwestern states has shown that the benefits of job creation and the gross and tax receipts generated by the economic activity provided by the ethanol production facility more than offsets the producer incentive payments. I believe similar benefits would accrue to the State of Oregon.

Given the Governor's focus on CO2 emission reduction strategies, it may be appropriate to discuss CO2 impacts of various renewal renewable energy alternatives.

"I have a real concern on page 2, the bullet where it states "Local electric transmission, power purchase contracts and grid interconnection regulations and agreements will be evaluated, streamlined and solutions implemented through utility and Oregon Public Utility Commission's actions."

I wouldn't want the PUC or any other person or agency to try to void or otherwise interfere with our power purchase contracts that we have for our full requirements with BPA through 2011 or to force us into higher cost new contracts after that. I know the cost even of purchasing power from BPA will be very high then.

I wouldn't want them to try to force utilities to pay or absorb costs of building transmission to be used by generators or developers at the expense of our ratepayers. I expect that many, if not all of the developers will be for-profit operations. Small utilities, especially, don't have money, and their ratepayers can't afford to pay for these very expensive measures. That whole bullet item is alarming."

With reference to the "SUMMARY" section, I would like to suggest that in addition to the proposed economic development and jobs creation impacts from Renewable Energy initiative in Oregon, the other two(2) elements of the subject Action Plan should be 'Environmental Stewardship' and 'Community/Social Justice', which correspond to the Sustainable Development ethic as well as the Triple Bottom Line concept of the Corporate Social Responsibility vision;

As part of the proposed Plan, various New Renewable Energy Production **Targets** have been identified, such as Wind, Biomass/Biogas/Biodiesel, Geothermal, Ethanol, and Hydro-electric. I would **suggest adding** to this

portfolio, Solar/Electric(Photovoltaic or PV), Solar Thermal(e.g. Solar Domestic Hot Water), and Hybrids(any life-cycle-cost-effective combination of these technologies) with potential application of DG/CHP/DER systems;

Prior to promoting and developing the Renewable Energy Sources per the proposed Action Plan, as listed above in 3., I would like to suggest that **the State of Oregon should aggressively pursue the Energy Efficiency**, so that additional benefits from the Renewables could complement the Efficiency goal. Of course, these two initiatives can also be pursued concurrently. But from the past experience, Energy Efficiency must come ahead of Renewable Energy technologies;

The State of Oregon **should develop a Strategic Energy Management Plan(SEMP)** that lays out the Priorities, Resources, Short-term & Long-range Impacts, Cost/Benefit Analysis, and Best Mix of Energy Resources with specific Milestones, Schedules, and Strategic Performance Initiatives, Indicators, and/or Output Results from the Implementation. This multi-year(say through 2025) Energy Management Plan could thus become a ROADMAP of Oregon's future;

Since the State of Oregon and its nearly 4 million citizens spend about \$ 8 billion a year on energy & utilities(oil, natural gas, electricity), or at a rate of \$ 2,000/person/year, it becomes absolutely **critical to establish a firm Energy Reduction Goal, such as 2% per year, to be complemented by increasing the Renewable Energy or Green Power Procurement Goal of at least 1% per year to replace the current fossil fuel consumption.** This 'dual' energy strategy could generate significant Energy Cost Savings that can be utilized for such non-energy initiatives as economic development and jobs:

2. WIND

Two existing administrative rules have accounted for a significant loss in potential wind energy development: the DEQ noise standards and the ODFW habitat mitigation goals and standards. These two bodies of law already have resulted in individual turbines being deleted from projects, and in entire projects being abandoned—without the State having secured any commensurate environmental, health or safety benefit.

Furthermore, we are concerned that additional turbines or projects may be lost if Oregon agencies adopt or support the draft U.S. Fish & Wildlife Service wind project siting guidelines, which were developed without input from key industry representatives and avian consultants.² The American Wind Energy Association is currently working with

² ODFW already has cited and relied on the USFWS draft guidelines in making public comments on at least one project, the Alpine Wind, LLC proposal in Union County.

Department of Interior policy leaders to structure a more balanced process in which the participants could set about revising the draft guidelines so that they are based on adopted policies and available data.

While we recognize that local (non-EFSC) land use processes for siting projects up to 105 MW often are not tailored at all to the issues raised by large-scale wind development, we believe it would be a mistake to import the EFSC model and inflexible standards like the DEQ noise rules and ODFW or USFW draft guidelines into local ordinances.

For smaller scale projects (<105 MW) that fall outside of the jurisdiction of the state Energy Siting Council, there needs to be some type of resource to help local governments and planning commissions to deal with the technical issues of siting wind energy facilities. I am envisioning some type of consulting firm that could be available to local governments to offer recommendations (based on science and experience elsewhere) on matters such as the setbacks from residences and habitat areas, and how property valuations will change and taxation will occur. (Perhaps the Dept of Energy already has such an office that is available to local governments that I am unaware of.) So far I have found that county level staff has few answers to citizens questions because the whole project of siting wind facilities is so new. No one really knows what has to happen or how it will happen.

In our County, we have conflicts looming owing to the proposed siting of wind generation facilities in close proximity to a community and to important bird flyways and habitat.

In this and other small rural counties, siting a wind farm is considered a conditional use decided on by a planning commission; it's not all that different from getting a permit to build an extra garage. However, the issues are clearly far more complicated and need careful study and consideration.

The wind prospector/developer will be hiring consultants to do needed studies, but at the local government level, there will be little expertise to evaluate plans and studies to make sure they are adequate and make use of the best available information.

For this reason, it seems that local governments (and citizens) could benefit from having a resource to help with siting issues.

3. BIOMASS

We applaud the draft Plan’s focus on biomass. The state is host to a large number of industrial biomass facilities, mostly hog fuel boilers at forest products facilities. There appears to be a new market developing for creative, multi-function facilities that use forest thinning debris as one source of feedstock and generate electricity as one product. We are aware that other western states are investigating this possibility, and that there likely will be a competition for limited federal funds that may be available to assist with developing such facilities. Being able to offer a targeted tax credit, based on the synergies of such facilities with local industry and on other local benefits, will assist Oregon as it competes with other states.

We recommend that an action item be added to the Plan to explore development of incentives to reduce biomass fuel supply costs.

Add on page 9: after....biomass fuel supply costs may be justified: “Biomass from forest waste and can also be converted into methanol using mobile processors. Liquid fuel are easier and less costly to transport and can therefore become an economic fuel for producing electrical power, heat or hydrogen from fuel cell technology. Methanol is also a required ingredient for biodiesel production. These beneficial uses of methanol can conserve natural gas resources while creating additional rural economic opportunities in Oregon by facilitating a new economic cycle to drive technology and job growth.”

I was wondering if you have seen a copy of the Federal MOU on Policy Principles for Woody Biomass for Restoration and Fuel Treatments on Forests, Woodlands and Rangelands.

This MOU is an understanding between the following:

- United States Department of Agriculture Ann M. Veneman
- United States Department of Energy Spencer Abraham
- United States Department of the Interior Gale A. Norton

4. BIOGAS

Add as an action item: Work towards a goal of generating a sufficient amount of bio-methanol to both supply the needs of biodiesel production and provide fuel for a segment of the renewable fuel cell market.

5. ETHANOL

We suggest that an action item be added to the Biofuels-Ethanol section that calls for developing financial assistance for processors through tax credits, federal or state funding, low interest loans, etc. to install technology to process wastes for delivery to ethanol production facilities.

Page 9, add after first sentence: "Ethanol mixed with water is also an ideal fuel for fuel cells. Ethanol can also have higher water content when used for fuel cell reforming allowing lower cost ethanol production since water removal is a costly but required step for use as a transportation fuel. In fact, up to 67% of product hydrogen comes from water in the ethanol reforming process."

Page 10, add action item: Investigate high value uses of ethanol including conversion to electricity using Oregon-manufactured energy conversion devices such as fuel cells.

1) Generally, DEQ understands that the environmental benefits of ethanol from corn or wheat to be modest compared to the far greater benefits of ethanol produced from cellulosic (waste) materials. Promoting that kind of ethanol production should be cited as a worthy cause even if it is not yet practical because of the other benefits from reuse of materials that are in abundance in Oregon and in some cases contribute to other forms of environmental degradation.

2) Pg. 9: The first sentence of the ethanol passage indicates it is used "throughout North America" to oxygenate the fuel supply and that ethanol reduces ozone precursors. It would be more accurate to say that ethanol is used widely as a gasoline additive in North America for a variety of purposes. These include reducing ozone precursors where reformulated gasoline is used, reducing wintertime carbon monoxide emissions in a few areas, boosting a gasoline's octane rating and earning a 52 cent/gallon tax credit.

3) Pg. 10: The first full paragraph indicates ethanol is non-toxic. That is not correct--ethanol is a toxic compound.

4) Pg. 10: The second full paragraph speculates that a failure to develop a [manufacturing?] industry here could lead to increased use of MTBE. This logic is not compelling. Ethanol has been the dominant oxygenate in Oregon for years without local manufacturing facilities. Developing local production facilities provides no protection against the use of MTBE in Oregon. The infrastructure to deliver ethanol to Oregon (splash blending) is already in place and it seems likely to remain in use (with ethanol) in the future.

5) For your information, the Department is preparing a second

maintenance plan for carbon monoxide for the Portland area. The use of a wintertime oxygenate in gasoline has been a component of wintertime air protection strategies since the early 1990s. The oxygenate of choice for Oregon fuel providers has been ethanol. Early review of ongoing air quality protection needs indicates that a mandated use of ethanol may not be required to maintain healthy air quality levels. DEQ may soon recommend eliminating the current requirement for oxygenated fuels (i.e. ethanol in our case) as a wintertime CO strategy for the Portland area. That obviously does not mean that ethanol can not be pursued in other forums and for other goals.

- all state flex fuel vehicles be mandated to use E-85, which would help to create a local demand for ethanol statewide.
- the mandate should apply to federal vehicles.

>If Oregon ever wants to get serious on locating ethanol plants
 >in the State, it will have to implement production incentives along the
 >lines of states such as Minnesota and Nebraska. When you look at where the
 >current plants are sited it is in states that have this incentive. Adopting
 >a Minnesota plan will encourage this industry to develop in this state,
 >without it, its development will be questionable at best.

>

- This state has to send a strong signal to the ethanol industry: First ban MTBE
- Production incentive: Plants have continually gotten larger over the years.
 - >When Minnesota developed its plan, a 15 million gallon plant was a large
 - >plant and they modeled their incentive program based on that. Today a 40
 - >million gallon plant is more the norm and 100 million gallon plants will
 - >soon take that position. The incentives have to take that into account.
 - >The states that offer incentives are basically capped at 3 million a year
 - >over 10 years. The larger plants are more efficient and in the long run
 - >more likely to succeed therefore a smaller incentive per gallon over a
 - >bigger base is more effective. Something like 6 cents a gallon for the
 - >first 50 million gallons would be a better route. A sunset period is best
 - >so say the incentive timeframe runs out in 2015. That makes it
 - >quantifiable; also a max per year in the budget keeps it from being misused.
- The state only needs 100 million gallons therefore the pool is only 6 plants. If more plants apply it is prorated among them.
- Usage requirements: The state needs to promote the usage. Minnesota accomplished this by requiring a 10% ethanol blend year round. This is exactly what Oregon needs to do.
- Replace MTBE with ethanol. Instead I would use the following: **Institute a ban** on the use of MTBE in the State to prevent a possible water contamination source.

- Urge State legislation to mandate 10% ethanol in all gasoline sold in the State to reduce pollutants and decrease dependency on foreign oil.
- Encourage ethanol production in the State with incentives similar to that offered in other States such as Minnesota and Nebraska. Limit the incentive to the number of gallons estimated to be used by the State.

6. BIODIESEL

Add an action item: Support production of electricity or cogeneration that uses biodiesel fuel with clean power generators.

Regarding biodiesel, DEQ recommends that an analysis begin to identify the steps it would take to make the price point for biodiesel, at whatever blend level is considered advantageous, to reach a price point favorable to most consumers. Biodiesel is an excellent fuel with a number of outstanding qualities but is not the most effective strategy to address our concerns about mitigating the environmental and public health impacts caused by exposure to diesel exhaust. Primarily because of economics, another petroleum product, ultra low sulfur diesel, offers greater promise for air quality protection needs. While there is no reason why the two fuels cannot be blended the cost burden represented with both fuels often leads to an unfortunate choice between one or the other for those on limited budgets

The full scope of renewable energy should include biomethanol produced from agricultural, non-hydrocarbon-based, raw materials. While one use for biomethanol would be MTBE, a far more important use is as a key component for the manufacture of biodiesel. Ethanol is far too expensive, even with the proposed tax incentives for production, to be utilized as a raw material rather than as an oxygenate in gasoline.

Biomethanol produced from agriculture or waste derived synthesis gas has a far superior life cycle energy balance than ethanol produced from fermentation of corn or other cereal grain crops. Therefore, biodiesel using either mustard oil or animal fats and biomethanol will be the only 100% renewable biodiesel available.

A facility is under construction in Utah which will produce 25 tons per day of biomethanol from the waste produced by 257,000 head of finishing hogs. This technology is directly applicable to the dairy industry in Oregon. Thus, it should be included in the proposed program. Biomethanol should be

included alongside ethanol in each instance that the latter is mentioned in the writings.

7. SOLAR

In general the layout of the plan is good. We believe it provides a good structure to work from. However, one of solar's main benefits is passive solar construction which uses efficiency as a primary component. Buildings built today can either save energy for the next 50 to 100 years, or waste it by ignoring the sun. In solar, we want to see a preference for building 'solar ready homes'. This adds little or nothing to the price of new construction. Once these energy saving homes become standard, many of the homeowners will choose to add active solar panels to further offset energy use. The current plan doesn't really address these kinds of issues.

Solar energy is Oregon's largest untapped natural resource. Jobs in Oregon's solar industry include: contractors, electricians, plumbers, builders, architects, retail stores, distributors, manufactures, educators, and researchers.

The solar industry is comprised of three main areas: solar hot water, solar electricity, and passive solar construction. Oregon must capitalize on all three areas to maximize its solar resources. Further, solar opportunities exist on a local and national level. Oregon's solar action plan should reflect both local and export opportunities to fully realize its solar potential.

Develop Oregon's local solar resources:

- Continue providing tax incentives for solar technologies.
- Oregon's buildings represent one of our largest energy loads. New construction built today will either save energy for the next 50 to 100 years, or waste it by ignoring Oregon's largest source of energy – the sun. Passive solar construction saves energy by working with the sun to provide shade in the summer, warmth in the winter, and natural lighting throughout the year. New and existing buildings can benefit by using passive solar principles to reduce energy use.
 - Develop incentives for home builders to build, and buyers to purchase, passive solar homes.
 - Provide incentives for existing homes to update with passive solar techniques.
 - Demonstrate high performance energy homes that combine passive solar, advanced controls, solar hot water, and solar electricity to produce as much or more energy than the building uses on an annual basis.
- Reform the PV tax credit to allow multiple year credit for solar PV systems.
- Review Oregon's net metering law – enact improvements during 2005 legislation.
- Review Oregon's LRT and SOL licenses – enact improvements during 2005 legislation.
- Install solar hot water systems on Oregon Correction facilities, schools, and other government buildings to demonstrate responsible energy savings.

Foster Oregon Manufacturing:

- Install Oregon made PV systems on Oregon schools, and government buildings.
- Capitalize on Oregon's existing semi-conductor industry to attract a photovoltaic manufacturer with financing and tax incentives.
- Allow SELP to be used for solar manufacturing equipment.
- Reform solar tax credits to give preference to Oregon manufactured equipment.
- Support solar energy research currently happening in our colleges and universities.

Solar energy can provide space heating, hot water and electricity. Western Oregon's solar resource is equal to the national average. Southern and Eastern Oregon's solar resource is 30-40% above the national average. Currently, residents have installed more than 17,000 solar water heating systems in the last 20 years. On a per capita basis there are four times as many solar contractors in Oregon as there are in California. Our historic support for this sector has created a fertile ground for business development.

Oregon should

- Use its local markets to support the emergence of equipment manufacturing businesses.
- Support Local Markets
- Continue tax credits for solar
- Support local solar energy organizations
- Demonstrate the standards, practices and market value of new homes that incorporate renewable energy systems
- Allow spec builders to claim RETC for solar equipped homes
- Reform PV tax credit to allow multiple year credit for large systems
- Review Oregon's net metering law's impact – enact improvements during 2005 legislation
- Review LRT and SOL licenses – enact improvements during 2005 legislation
- Foster Oregon Manufacturing
- Support DOC initiative to manufacture solar equipment for state facilities using inmate labor
- Reform PV tax credit to give preference to Oregon manufactured equipment
- Install 500 PV systems on Oregon schools – using Oregon built inverter and modules
- Allow SELP to be used for solar manufacturing equipment

8. GEOTHERMAL

1. Most sections on geothermal direct use are commendable. Presumably the GeoHeat Center in Klamath Falls, a wonderful resource, was involved in preparing the draft Plan.

2. The draft Plan implies that Newberry Volcano in Deschutes County has lost its position as a major target for further exploration and development. This is not the case. Newberry Volcano represents the best prospect for developable geothermal electricity production in the Pacific Northwest.
3. Since 1975, the success of geothermal exploration and development on federal lands in Oregon has depended on collaboration and communication between a number of state and federal agencies, especially to reduce duplication and possible conflicts. MOUs (Memorandums of Understanding) have been particularly useful tools. The importance of collaboration and communication cannot be overstated and should be discussed and presented as geothermal action items in the Plan. Numerous projects – heat flow and exploratory drill holes throughout the state and the CalEnergy’s Newberry Project - were largely successful due to impressive collaboration and communication.
4. The award or anticipation of a power sales contract to a geothermal company is the essential tool to encourage and achieve geothermal electricity development. Impediments to obtaining a power sales contract should be thoughtfully addressed and discussed in the geothermal section. Of equal importance is the need to address the great values of collaboration and communication between state, federal, and other agencies.
5. Well over half the land in Oregon has an unusually high heat flow. These are the places where geothermal resources are much more likely to be found. Most areas of high heat flow are in the Cascades, central Oregon, and southeast Oregon. When power sales contracts are anticipated or awarded, the geothermal industry will likely respond with an important round of exploration and assessment in Oregon. New, developable targets will likely be discovered. The draft Plan should acknowledge this and remain focused on the importance of the power sales contract to encourage the search for geothermal resources and their development.
6. *Page 12, 1st paragraph, last sentence under heading “Geothermal”*. Eliminate word “so-called”.
7. *Page 12, under heading “Geothermal”*. Royalties and taxes. These should be identified and discussed in the Plan, both in Section 3 (pages 4 and 5) and in this “Geothermal” section.
 - A. Geothermal electricity production on federal land requires that a royalty be paid. In Oregon, half of the royalty payment would be paid to the state, and the state is obligated to pass at least 50% onto the county where the electricity was produced.
 - B. Geothermal production facilities will generate substantial county taxes.

8. *Page 12, under heading "Geothermal"*. The quality of information and presentation for direct use of geothermal resources is substantially higher than that for generation of electricity. The potential for electricity generation in Oregon is thought by most knowledgeable scientists in the USGS, DOGAMI, and other organizations to be considerable and should not be ignored. Your future geothermal contractor will readily verify this and should write about it in the Plan.
9. *Page 12, under heading "Geothermal"*. The Plan should mention that geothermal power production is a highly stable and reliable base load supply of electricity, an appropriate complement to the uneven supply of electricity from wind and solar.
10. *Page 12, 2nd paragraph under heading "Geothermal"*. This paragraph misses the point of the draft Plan, which is to encourage development of renewable energy. By recounting CalEnergy's unsuccessful attempt to produce electricity, the paragraph implies that Newberry Volcano - Oregon's best geothermal prospect - is no longer a suitable geothermal target. It's certainly informative to discuss the history and state of geothermal electricity production in Oregon, but I urge you to consider adding information, discussion, and action items based on items stated below.
 - A. A crucial distinction should be made regarding CalEnergy's Newberry Project. From the standpoint of authorizing the project and obtaining all necessary permits, the project was a great success. From the standpoint of producing electricity, the project was not a success. This paragraph is all about the second standpoint and implies that Newberry is a waste of time for developers to consider, a position ODOE should not take. A more thoughtful approach based primarily on the first standpoint should be added.
 - B. To reiterate, Newberry Volcano represents the best prospect for developable geothermal electricity production in the Pacific Northwest.
 - C. Change "Newberry Volcanic Monument" to "Newberry National Volcanic Monument".
 - D. *"The company did not find a source of heat and steam."* CalEnergy did not find sufficient steam in either of their two deeps well to support power production, but they did find abundant heat. 400° F is adequate for a geothermal power plant at Newberry. Temperatures at the bottom of both wells were nearly 600° F. This fact suggests that heat is not a constraint. Locating fluids is the next task.
 - D. CalEnergy's two, deep exploratory wells were unable to produce sufficient geothermal fluids to generate electricity. But they were the first deep wells ever drilled on Newberry Volcano, a 600-square-mile volcano. Do the results of drilling prove or even suggest that Newberry is no longer a major target for geothermal development? Certainly not. The Plan should reflect this fact.

- E. CalEnergy’s reasons for abandoning their Newberry Project go beyond two unsuccessful wells.

11. Page 12, “Actions to promote direct use”. Commendable.

12. Page 12, “Actions to promote generation of electricity”, 1st bullet. Not commendable. This action item is thoroughly inadequate and should be rewritten and considerably expanded by a knowledgeable person.

- A. “Identify barriers to development...”. This is a naïve and token statement in light of the CalEnergy Project at Newberry in the 1990s. This project was amazingly successful due to public education, public involvement, communication, collaboration, MOUs, strategic planning by state and federal agencies, and more. The project was a demonstration of how to do it right. This section (“Actions to promote generation of electricity”) should be rewritten by a skilled and knowledgeable person to reflect actions that are known to be successful.

- B. “Newberry Geothermal Resource Area”. I’m not sure what this phase is intended to mean. In 1976 the USGS identified an area of high geothermal development potential at the top of Newberry Volcano and called it the “Newberry Known Geothermal Resource Area” (KGRA). But numerous geothermal leases both in and out of the Newberry KGRA have high geothermal potential. Are those outside of the KGRA not part of this action item? Another reason to start over on this action item.

- C. “Work with developers to overcome these barriers”. Naïve. This implies that all problems are solely those of a developer. A successful project depends on all related parties working together.

Geothermal energy is not sufficiently addressed in the draft Plan, and it almost implies that there may be a bias against geothermal energy. In several sections, geothermal appears to be little more than a hastily added “after thought”. Geothermal energy should be given at least as much consideration and emphasis as the other renewable energy sources.

It should be recognized and fully noted that geothermal electricity production at Newberry Volcano in Deschutes County has high potential. Newberry continues to be considered the best prospect for geothermal development in the Pacific Northwest.

The Plan should identify the need for communication, coordination, and partnerships between the State agencies and the Federal agencies. This would include Forest Service and Bureau of Land Management (BLM) when projects are on Federal land or involve Federal leases, but it can also involve the U.S. Department of Energy, Bonneville Power

Administration, National Park Service, etc. Each of these Federal agencies may have significant roles in renewable energy projects.

Efforts to streamline and reduce redundancy between State and Federal regulations and processes should be a goal. This would include DOGAMI and EFSC regulatory needs and those of the Forest Service and BLM, for instance.

It may also be appropriate to reference the National Energy Plan and other efforts of the current administration and Federal agencies that have similar goals and related programs.

Specific comments

Page 12. Geothermal:

There should be a differentiation between the shallow heat for direct use and the deep reservoir power generation of geothermal resources. There is a big difference, but from the draft Plan, it appears that they are about the same.

It should be noted that the project and improvements at Newberry still exist. The “company” (CalEnergy) that is referred to in the second paragraph sold their geothermal leases to ORMAT (another major geothermal company). Yet another company (Northwest Geothermal) holds a large number of leases adjacent to these. These companies are in a good position for geothermal development, but are lacking a power sales agreement. With new tax incentives and/or sales agreements, there would be renewed exploration and development activity in this area. The draft Plan appears to underestimate and be naïve about the current and potential situation at Newberry.

Page 12. Actions to promote generation of electricity:

The first bulleted item relates to identifying barriers to development at Newberry. Instead of merely working with developers, it should include “working with the Forest Service and BLM to support, promote, and encourage development in a coordinated effort among agencies.” These Federal agencies have considerable regulatory and management responsibilities for geothermal exploration and development, have a considerable history of working with developers, and have already identified and successfully eliminated many barriers. To imply that the State is solely responsible for development is short-sighted. For instance, one barrier to developers for development would be confusion, overlap, and lack of coordination and communication between State and Federal agencies.

Under Geothermal (page 12):

The references to developing Mickey Hot Springs in Harney County are contrary the BLM Resource Management Plan for the Steens Mountain CMPA. Congressional action closed to mineral leasing and geothermal exploration all Steens Mountain Wilderness and the portions of the Wilderness Study Areas designated in the BLM Planning Area. This Planning Area reaches east of Mickey Hot Springs. In addition Mickey Hot Springs is designated an area of Critical Environmental Concern. Mickey Hot Springs and Borax Lake are

areas of high potential for geothermal energy development however I cannot see discussing them in the Renewable Energy Action Plan unless Oregon is willing to go before Congress to apply for exceptions for land use. I would suggest discussing with DOGAMI other areas in eastern Oregon, in particular Malheur County, that have potential for resource development yet need more detailed assessment and identifying potential developers, etc.

* I am sure you will receive several suggestions for revisions of the summary of exploratory drilling conducted near Newberry Volcanic Monument by industry. Here the bottom line rests, as with Mickey Hot Springs, with the area of highest potential having the least probability of resource development because it clashes with other land uses.

Here are a few ideas which should be considered for any plan for geothermal in Oregon. Oregon has a good potential and this document does not give it just credit. I think the eastern area of Oregon has a better potential for development in there is not as much env. sensitivity as there is in the Cascades.

This plan does not give Geothermal a very good place in the future for Oregon. I think it could be beefed up considerably. They seem to be hung up on the Newberry issue rather than looking at the potential in Oregon.

Suggestions:

More information on P2 about targets and actions relating to Geothermal
P.5- more information about the benefits of a Geothermal plane relative to economic issues as they have done for the other resources

P.7 - better description of Geothermal activities both present and future for Oregon

P.12 - The Vale area of Oregon has a great potential for both electrical as well as process heat. I know of individuals who are looking at that area for using geothermal for Biofuels process heat along with electrical generation. Another group is looking at the potential of a dehydration plant for Onions and other crops grown in Eastern Oregon and SE Idaho using geothermal in the Vale area.

Page 12 **Geothermal**

para. 2: Now reads: "Projects in our state to generate electricity have been less successful. In 1996, a company... Despite considerable investment in exploratory drilling, the company did not find a source of heat and steam sufficient for generating electricity. The company canceled the Newberry project..."

The above interpretation of the results of the 1996 Newberry Volcano drilling project is from California Energy Company, the company that drilled on the flank of Newberry

Volcano in 1996. This interpretation was promoted by California Energy Company in order to subsequently collect a multimillion dollar payment from B.P.A. and obtain the right to move a power sales contract with B.P.A. from Oregon to a California location.

Federal regulatory agencies refute the geothermal resource interpretation promoted by California Energy Company. Publicly released well data state that temperatures up to 600°F were encountered in the wells on Newberry Volcano.

US Department of Interior regulatory scientists photographed a steam plume from a distance of about 7 miles while one of the wells was tested. The authors might do well to obtain information and insight into the geothermal resources and exploration history within the State of Oregon from informed sources at the Oregon Department of Geology and Mineral Industries, the U.S. Department of Interior, the U.S. Forest Service, and local industry experts.

Suggested replacement for para. 2:

“Projects in our state to generate electricity have not yet been fully tested. In 1996, a company received a site certificate to build a 30-megawatt geothermal power plant on the flank of Newberry Volcano in Deschutes County. Despite considerable investment in exploratory drilling, the company concluded they failed to prove up 30 megawatts of production on their narrow band of leases near the crater rim. The company canceled its Newberry project and moved their project to California. Other developers with better lease positions are planning at least 50 megawatts of development at the Newberry site. Mickey Hot Springs in Harney County is also being considered for electrical generation development.”

Page 12 *Actions to promote generation of electricity.* Suggested replacement
Actions list:

- Work to obtain for geothermal energy the same Federal Production Tax Credits provided to wind energy.
- Assist the geothermal community in obtaining power sales contracts.
- Form “Base-Load Renewables on the Wires NW”, an initiative to remove bottlenecks in the transmission system, to make sure that geothermal energy has equal access and reasonably priced transmission, and to develop transmission corridors and products that allow more geothermal energy development.
- Work with Bonneville Power Administration to expand transmission capacity for geothermal power.
- Encourage the Energy Trust to provide the same level of support to geothermal projects that they have provided to wind projects over the past years.
- Offer Harney County assistance to develop the energy generation potential at Mickey Hot Springs, and provide the county with information about siting requirements and available incentives.”

9. HYDRO

First, could you add Hood River County to the list of possible sites for Irrigation/hydro development on page 2.

Second and more important is the currently open PUC docket UM-1129, the outcome of which has the potential to make or break new projects.

PUC rules concerning project size, standard prices and contract length are very important to renewable energy producers.

Oregon Department of Energy's input and expertise concerning the outcome of this investigation will assist the PUC commissioners in making an informed and balanced decision, which will in turn help to achieve the goals of this plan.

Upstream storage of water resources is a potential item for inclusion in the draft work plan under hydroelectric generation. This can be done in the spirit of ORS 536.238 passed by a 57 to 0 vote in the House and 29 to 1 in the Senate. The key is "environmentally and financially feasible storage". These will probably be small storage sites in the micro category.

Suggest the following action item wording:

Work with interested organizations, State Legislature and agencies to further explore the feasibility for multipurpose upstream storage in the spirit of ORS 536.238.

10. FUEL CELLS AND HYDROGEN

In addition to Energy Efficiency and Renewable Energy Technologies of the subject Plan, I would like to suggest adding "HYDROGEN" as a viable future energy alternative. Any cost savings from the Efficiency and Renewables' initiatives should be set aside for the Research, Development (R & D) and Deployment components of Hydrogen Energy Technology of the future, such as "Fuel Cells" for both Transportation(Mobility) and Buildings sectors.

We suggests a separate section on Fuel Cells and Hydrogen Generation with the following:

Fuel cell technology can play an important role in Oregon's renewable energy future in several ways. Fuel cell fuel reformers are able to combine water with renewable fuels including bio-methanol, biodiesel, biogas and ethanol to produce hydrogen. The renewable hydrogen can then be used in a fuel cell stack where it is converted to electricity, or the hydrogen can be used directly in commercial or industrial applications. Oregon commercial and industrial sectors use approximately 30,000,000 ft³ of hydrogen per year. All of this hydrogen is imported since there are no commercial hydrogen generation plants in Oregon. If most of Oregon's hydrogen were generated using renewable feedstocks 25 or more new jobs could be created in Central Oregon. Additionally, if Oregon were to install 10 MW of fuel cell systems operating on

renewable fuels, it would create a sustainable market for renewable liquid fuels and also support the creation of up to 75 direct jobs in Central Oregon, and up to 150 indirect jobs in the surrounding community.

Actions:

- Modify Oregon's residential fuel cell energy tax credit to provide up to \$1,500 in production tax credits for three years instead of the current one year limit.
- Support Oregon companies in attracting funding from regionally targeted federal fuel cell and hydrogen generation programs including regional US DOE and US EPA programs.
- Fund a program to demonstrate the ability to generate electricity using Oregon-made fuels with energy technologies engineered and manufactured in Oregon together in a single closed loop.
- Support tax credits for renewable fuels in stationary applications at the federal level by encouraging revision of the federal tax credit language to include off-road and stationary uses instead of exclusively supporting transportation applications.
- Encourage the establishment of a fuel cell research center to meet the skills needs of Oregon's fuel cell system developers using Oregon educated students.
- Explicitly include fuel cells as a qualifying energy conservation device in the Oregon's Business Energy Tax Credit literature in print and on the web.
- Support the use of renewable fuels such as bio-methanol and ethanol for hydrogen production through tax incentives.

11. HEAT RECOVERY SYSTEMS

I am writing to introduce you to our heat recovery systems for electric power generation. Mr. Lund indicated that you are currently working on drafting a Renewable Energy Initiative for the State of Oregon.

Our company develops, manufactures and markets the Energy Converter Power Generation System for the production of electrical power from low and medium temperature heat streams. Our company has for four decades developed and supplied Organic Rankine Cycle (ORC) technology power plants for use with locally available heat resources, with an installed total of 750 MW of geothermal and green energy world wide, with 240 MW in the US.

In addition to the application of this technology to geothermal sources, which are certainly renewable, we would like to stress that these systems are also applicable to recovered heat power generation. We believe that recovered heat power generation from existing waste streams such as gas turbine drives and industrial exhaust streams should be valued with the same status as traditional renewable sources.

Our technology allows heat to be extracted from existing waste streams such as hot exhaust gases and liquid streams and conversion of that recovered heat to electrical power. This process of recovered energy does not require

any burning of additional fuels and has zero or near zero emissions.

Oregon has significant power generation potential from these Green sources. One typical application of recovered heat is from gas turbines used for natural gas pipeline compression. Oregon has approximately 252,000 Hp of operating or planned gas turbines in service today. If only half of the heat available from these systems was recovered it has the potential to generate 24 MW of power. We estimate that 24 MW generated from existing waste streams would offset 324,000 tons per year of CO₂ emissions and 1,893,000 million Btu per year of fossil fuels combustion.

Some of the benefits of this technology are:

- Fuel-free, emissions-free electric generation from an existing waste stream.
- Zero discharge electricity
- Zero water requirements as heat transfer and working fluids are simple hydrocarbons in closed loops
- Adaptable to cold weather extremes
- Minimal environmental impact as they are located on existing industrial sites
- Low operating and maintenance requirements
- Base load generation
- Cost competitive at \$0.04-0.05/kWh

Three States have already recognized recovered energy with the same status as renewable and may be used to satisfy renewable portfolio standards. We would suggest that Oregon recognize these sources similarly.