BEFORE THE PUBLIC UTILITIES COMMISSION
OF OREGON

UG 266

In the Matter of NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL Investigation into Schedule H, Large Volume Non-Residential High Pressure Gas Service Rider.		CLEAN ENERGY'S AMENDED EXHIBIT LIST AND HEARING EXHIBITS

Clean Energy Fuels Corp. identifies its pre-filed exhibits and the exhibits it anticipates using during the hearing in this matter on December 6, 2013.

Pre-filed Testimony:

CEF 100	Prepared Direct Testimony of Warren I. Mitchell on behalf of Clean Energy Fuels Corp.

Hearing Exhibits:

CEF 300	OPUC Staff Report on Advice Letter 13-10, for October 28, 2013 Agenda Meeting
CEF 301	Governor's 10-Year Energy Action Plan
CEF 302	Order 12-013, *Investigation of matters related to Electric Vehicle Charging,* UM 1461 (January 19, 2012
CEF 303	"Fueling the Future" article published December 1, 2013, *Eugene Register-Guard.*
CEF 304	S&P Report on Northwest Natural Gas, November 4, 2013
CEF 305	ValueLine report

Dated December 5, 2013.

Respectfully submitted,

____
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CERTIFICATE OF SERVICE

I hereby certify that I served a true and correct copy of the foregoing **Clean Energy's Exhibit List** to each of the individuals on the service list below by electronic mail.

November 5, 2013

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ITEM NO. 1

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: October 28, 2013

REGULAR X **CONSENT** ____ **EFFECTIVE DATE** **November 1, 2013**

DATE: October 23, 2013

TO: Public Utility Commission

FROM: Erik Colville and Marc Hellman

THROUGH: Jason Eisdorfer, Maury Galbraith, and Aster Adams

SUBJECT: NORTHWEST NATURAL: (Advice No. 13-10) Adds Schedule H, Large Volume Non-Residential High Pressure Gas Service Rider.

STAFF RECOMMENDATION:

Staff recommends approval of Northwest Natural's request for Advice No. 13-10 to become effective on and after November 1, 2013, and:

1. NWN shall provide annual reports, no later than April 1, beginning 2014, and each year thereafter this service is offered by NWN, summarizing the status of this new rate offering with respect to number of customers, general location of customers, direct costs and associated revenues.

2. NWN be required to identify and record all start-up (first time) developmental costs, and any other start-up (first time) HPGS costs, including interest, not currently included in the tariff and submit a tariff rider to go into effect, after Commission review and approval, after the first year of service for recovery from HPGS customers. Coincident with the effective date of the tariff rider, NWN defer, with interest, an equal amount of revenues collected under the rider for later refund to non-HPGS customers so as to prevent double-recovery of such costs.

DISCUSSION:

Northwest Natural (NWN) filed Advice No. 13-10 on June 27, 2013, proposing to add Schedule H, Large Volume Non-Residential High Pressure Gas Service Rider, to its Rate Schedules 3, 31, and 32 non-residential natural gas service schedules. Revised pages incorporating input from Staff and others during review of the initial filing were filed by NWN August 13, 2013.

An informational public workshop was held on July 26, 2013, at the Public Utility Commission. During the workshop NWN presented its proposed high pressure gas service (HPGS) tariff. Workshop attendees were then provided an opportunity to ask questions and seek clarification of the NWN filing.

During the workshop representatives of the Northwest Industrial Gas Users, the Portland Area Metropolitan Service District (Metro), the Tri-County Metropolitan Transportation District of Oregon (TriMet), TechStar Energy LLC, and the Oregon Department of Energy stated their support for the proposed HPGS tariff.

Also during the workshop, and in subsequent phone conversations with Staff, Clean Energy Fuels stated its objection to NWN's proposed HPGS tariff on the grounds it introduces unfair competition in the natural gas vehicle (NGV) fueling marketplace.

The Filing

This filing introduces a new optional rider to provide HPGS through NWN owned and maintained compression equipment sited on a HPGS customer's premises. Both the costs and the revenues of this new rate rider will be treated as "above-the-line" rate regulated services. According to NWN the proposed HPGS rider responds to customer requests for utility services that would provide the infrastructure needed to support the customer's ability to fuel vehicles using compressed natural gas (CNG). In addition to responding to customer requests for utility provided HPGS, NWN notes the proposed Schedule H service also is consistent with public policy, including Governor Kitzhaber's 10-Year Energy Plan, which calls for the acceleration of a more efficient and cleaner transportation system.

NWN states that service under Schedule H provides a non-residential customer with a turn-key solution not otherwise available for providing the gas pressure required for vehicle fueling, without a significant upfront capital investment into compression facilities. The terms of service and pricing for HPGS will vary for each installation and will be laid out in the customer's HPGS Service Agreement. The customer will be billed a monthly facility charge designed to recover all equipment, permitting and siting costs. NWN proposes that the monthly facility charge be derived by multiplying the actual project costs by an annual cost recovery factor, divided by 12. The cost recovery factor is designed to recover in each year the depreciation on the HPGS equipment plus NWN's financing costs, at its authorized return, for the investment made on behalf of the customer.

In addition, NWN states the HPGS customer's monthly bill will also include a charge for scheduled maintenance, and when applicable, charges for any other services such as unscheduled maintenance or back-up gas service that NWN may provide. The charges under Schedule H will be in addition to the charges for natural gas service billed in accordance with the non-residential rate schedule on which the customer is served.

NWN offers that because customers served under Schedule H will pay all incremental costs associated with the provision of HPGS, the addition of this service offering should have no negative cost impact on, and in fact benefit, other ratepayers. NWN notes the program is also designed in such a manner as to mitigate any risks associated with providing a new utility service.

Responsive Comments

In response to Staff's September 3, 2013, invitation fifteen organizations or persons filed written comments regarding the proposed HPGS tariff. Those filing comments in support of the proposed tariff were Gary Baldwin, Columbia Willamette Clean Cities Coalition, Con-Way Freight, Inc., Diesel Service Unit, Fuelpoint CNG Innovations, LLC, Northwest Gas Association, Northwest Industrial Gas Users (NWIGU), Oregon Department of Energy, Oregon Trucking Association, Bill Stallman, State Senator Lee Beyer, and TransEnergy Solutions. Comments opposed to the proposed HPGS tariff were Blu LNG, Citizens' Utility Board of Oregon (CUB), Integrys Transportation Fuels, LLC, and Natural Gas Vehicle Fuel Providers (NGVFP).

Comments in support of the proposed HPGS tariff centered primarily around the following points:

1. There is need for NGV fueling infrastructure.

2. The proposed HPGS complies with Governor Kitzhaber's energy plan and State of Oregon greenhouse gas reduction policy.

3. The proposed HPGS tariff should be approved as long as the service is not subsidized by other customers (NWIGU Comments at 1-2).

Comments in opposition to the proposed HPGS tariff centered primarily around the following main points:

1. The potential for unfair competition introduced by allowing regulated utility participation in the NGV fueling market.

2. The potential to undermine market development since regulated utilities enjoy a substantially lower cost of capital than non-utility competitors, and have ready access to that capital (NGVFP Comments at 3).

3. Approval of Advice No. 13-10 will harm the growth of a competitive natural gas vehicle (NGV) infrastructure market (NGVFP Comments at 13) because other market participants can provide the same service to Oregon customers (at 18).

4. The terms of the proposed HPGS Schedule and Contracts are anticompetitive because they require exclusivity and restrict information sharing (NGVFP Comments at 21).

5. There is potential of cross-subsidy by ratepayers (NGVFP Comments at 24).

6. The need for demonstrable net benefit to ratepayers from the proposed HPGS tariff (CUB Comments).

7. The Commission should open a proceeding on the NWN HPGS tariff offering and presumably suspend the tariff from going into effect. (NGVFP at page 3 and 28)

Staff's Review Criteria

Criteria Staff considered in reviewing and recommending whether to allow NWN to provide HPGS as a regulated utility service include:

a. Is there is a need for HPGS market development?
b. Does participation by a regulated utility impede HPGS market competition?
c. Does the proposal aid in HPGS market development?
d. Do the rates proposed cover the costs for offering the service or is it a subsidized rate?
e. Does the proposal allow an exit strategy once the HPGS market is developed?
f. Is the proposal structured to leave room for competition by unregulated entities?
g. Is there a net benefit to ratepayers?

Based on Staff's analysis and discussion below, Staff recommends allowing NWN to provide HPGS as a regulated utility service.

Staff's Analysis

Staff's review of the HPGS tariff filing included the filing itself, the cost of service work papers, and the revised pages filed in response to Staff and other party input. Staff did not explore alternative HPGS approaches because NWN's filing asks for approval of a specific HPGS approach.

As a way of background before addressing the criteria above, Staff looked to the Commission's conclusions in Docket No. UM 1461 Investigation of Matters Related to Electric Vehicle Charging. In Order No. 12-013 resulting from that investigation the Commission addressed whether regulated utility ownership and operation of publicly available electric vehicle service equipment in any form – even without regulated rate recovery – would permit the full development of a competitive marketplace for electric vehicle charging services. Staff considers the electric vehicle service equipment (EVSE) issue addressed in Docket No. UM 1461, analogous to the HPGS issue in this filing, in that the regulatory principles are applicable for this filing. In Order No. 12-013 (Order) the Commission concluded:

> At this early stage of development for the plug-in EV industry, we deem it paramount to allow all market players, including the electric utilities, to have flexibility to respond to emerging market demands. We do not find that allowing utilities to potentially participate in the EVSE market will necessarily impede the vibrancy of the whole market. Electric utilities should be allowed to invest in EVSE and operate EV charging stations as a non-regulated, non-rate based venture. A utility may decide how to structure its ownership and operation of EVSE and charging stations, whether below-the-line as a non-regulated utility investment, or as a utility investment. Order at 6.
>
> We will use Staffs recommended criteria[1] to analyze any future utility proposals to rate base EVSE investment, but also reserve the right to consider additional criteria, as appropriate. We expect a utility that requests rate recovery for EVSE investment to make a compelling case that the utility's ownership and operation of the EVSE is beneficial to ratepayers not just the public generally. Utilities suggest that prudence be the primary measure used to determine whether EVSE investment should be recoverable in rates. We respond that prudence, in the context of EVSE investment, requires a showing of net benefits to customers. Order at 10.

Staff recognizes that the purpose of Docket No. UM 1461 as given in the Order was to address regulated utility involvement in not just ownership but also operation of EVSE, as follows:

> Specifically, we intended this docket to address general matters related to the emergence and development of the EV charging market and industry, including

[1] The Staff recommended criteria referred to in Order No. 12-013 are found on page 4 of Staff's Closing Comments in Docket No. UM 146

> the role of electric utilities with regard to owning and operating EV service equipment (EVSE) and acting as EV service providers (EVSP).

The proposed HPGS tariff does not seek approval for NWN to operate HPGS but rather to own the HPGS equipment. Staff recognizes that this difference is significant both in terms of market impact and also applicability of the Staff recommended criteria referred to in the Order.

Below, Staff returns to the criteria considered in developing its recommendation whether to allow NWN to provide HPGS as a regulated utility service.

a. Is there is a need for HPGS market development?

Governor Kitzhaber's 10-Year Energy Plan Action Item for Accelerated Fleet Turnover (residential and commercial) to Alternative Fuels in Goal 3 states:

> Oregon should develop a comprehensive alternative fuel program that allows utility-ownership of refueling infrastructure and provides incentives, where appropriate, for vehicle conversions.

Based on the Energy Plan Action Item there is a need to develop the HPGS market. Staff agrees there is a need for HPGS market development given that one has not yet arisen in Oregon. All the parties filing comments agree and support the development of NGV fueling infrastructure in Oregon.

b. Does participation by a regulated utility impede HPGS market competition?

Goal 3 of Governor Kitzhaber's 10-Year Energy Plan Action Item for Accelerated Fleet Turnover (residential and commercial) to Alternative Fuels, stated above, contemplates regulated utility participation as an integral part of an HPGS market, at least at the outset. Based on this Action Item participation by a regulated utility does not impede the HPGS market, is consistent with and is encouraged by the Governor's energy plan.

In the Order the Commission considered the issue of whether participation by a regulated utility (owning and operating EVSE) will impede the vibrancy of an emerging competitive market. The Commission found that it is paramount to allow all market players, including the regulated utilities, to have flexibility to respond to emerging market demands. Also, the Commission did not find that allowing regulated utilities to participate in an emerging competitive market will necessarily impede the vibrancy of the whole market. The same situation is applicable here where the HPGS is an emerging market and customers have submitted comments in support of the NWN offering so as to take advantage of the HPGS service.

c. *Does the proposal aid in HPGS market development?*

Again, Goal 3 of Governor Kitzhaber's 10-Year Energy Plan Action Item for Accelerated Fleet Turnover (residential and commercial) to Alternative Fuels assumes that participation by a regulated utility in the HPGS market accelerates the transition to alternative fuels and is encouraged.

The interplay between the installation of compression equipment and NGVs argues that increasing the number of compressor stations in Oregon could result in the acquisition of more NGVs in the state. As the number of NGVs in the state increases, the opportunity for competitive service could rise, too. Regulated utility participation in developing compressor equipment could actually kick start a competitive market in Oregon.

d. Do the rates proposed cover the costs for offering the service or is it a subsidized rate?

A key consideration in answering this question is to analyze the rates proposed by the Company given that the rate offering is an "above-the-line" service. The answer to this question involves a comparison of the NWN incremental costs associated with this offering as compared to the revenues received. A rate is subsidized if the rate does not fully recover the incremental costs associated with the offering. As the HPGS tariff is structured the HPGS customer will be billed a monthly facility charge designed to fully recover all capital (equipment, permitting and siting) costs. NWN proposes that the monthly facility charge be derived by multiplying the actual project costs by an annual cost recovery factor, divided by 12. The cost recovery factor is designed to recover in each year the depreciation on the HPGS equipment plus NWN's financing costs, at its authorized return, for the investment made on behalf of the customer.

Staff confirmed with NWN that the scheduled maintenance charge a HPGS customer will pay monthly as a result of receiving Schedule H service includes cost recovery for billing, accounting, management, and general administration, some of which are allocated joint costs and hence make a contribution to covering joint costs. This situation is alluded to in Schedule H by using "administrative services" in the wording for the Scheduled Maintenance Charge. In response to CUB's data request DR 34, NWN provided a work paper showing that administration and billing costs are included in the maintenance charge for the HPGS.

As for marketing expenses, NWN communicated during the workshop that it does not intend to execute a marketing campaign for the HPGS. Following the workshop NWN communicated in email to Staff that it used the term "marketing" as related to advertising efforts. Further, NWN communicated to Staff that it does expect to undertake a branding effort specific to HPGS that will be paid for using shareholder dollars. In regard to advertizing expenses, Staff expects that the parameters established in OAR 860-026-0022 for cost recovery of advertising expenses will safeguard ratepayers from inappropriate advertizing expenses in their rates.

Staff identified two other potential ratepayer subsidies: HPGS development and the company's activities to promote the service to the Public Utility Commission (PUC), and HPGS feasibility study preparation. According to Staff communications with NWN, the labor required for HPGS development and promotion to the PUC, and preparation of the feasibility study (covered by the HPGS Feasibility Agreement) are provided by NWN resources that are in base rates. NWN believes this is appropriate because HPGS is a rider to Schedule 3, 31, or 32 natural gas services. A new large non-residential gas service customer is normally addressed by NWN staff, as part of regulated services, to assess whether a new or revised tariff is needed, or a new customer is a good candidate for the gas service they are requesting, and how the related facilities can be sited. Since the impact on the NWN system of a HPGS customer is the same as a new large non-residential customer (i.e. natural gas flows increase in either case), NWN views the HPGS development and promotion to the PUC, and feasibility study preparation as no different than assessing other new large non-residential customers.

For purposes of ensuring that this service fully recovers costs, Staff does not agree with NWN that it is reasonable to use base rate NWN resources to develop and promote the HPGS tariff to the PUC, including preparing the HPGS feasibility study. In order to ensure the HPGS is not subsidized, Staff agrees in concept with the NWIGU proposal that NWN track all direct expenses and revenues related to HPGS being offered by NWN such that "if there is a revenue deficiency [from HPGS] shown in the next rate case, the rates for the compression service should be adjusted upward to cover the shortfall." NWIGU Comments at 2. Addressing this concern NWN stated in its comments that "The HPGS program is designed so that HPGS customers bear the costs related to the service." NWN Comments at 3. Further, in its comments NWN affirmed that "the costs of HPGS compression equipment will be directly assigned to the customers taking such service, which essentially accomplishes the same goal as having a separate rate class." NWN Comments at 7. Again, Staff agrees in concept with NWIGU. Therefore, Staff recommends NWN be required to identify and record all first time developmental costs, such as initial legal, general pricing review and marketing; and any other HPGS costs, including interest, not currently included in the proposed tariff and submit a tariff rider to go into effect, after Commission review and approval, after the first year of service for recovery from HPGS customers. Coincident with the effective date of the tariff rider, NWN should be required to defer, with interest, an equal amount of revenues collected under the rider for later refund to non-HPGS customers so as to prevent double-recovery of such costs. This will ensure that the start-up developmental costs will be recovered from the HPGS customers. The refunding of those revenues to non-HPGS customers will ensure NWN does not double-recover those costs as NWN states that such costs are already included in base rates. Staff has drafted a condition for Commission consideration in approving the tariff that addresses the one-time start up costs as discussed above.

Staff also explored potential costs and risks for ratepayers as additional aspects of cross-subsidization. In Staff's review of potential cost and liability risks for ratepayers the following were identified: 1) HPGS equipment rehabilitation costs before redeployment, site work costs (earthwork, underground utilities, equipment foundations, paving, landscaping, etc); 2) liability from site and equipment sizing, and; 3) liability from vehicle fueling activities.

1) HPGS equipment may need to be rehabilitated before redeployment if a HPGS customer defaults on the Gas Service Agreement with NWN. In addition, if HPGS equipment were to be redeployed, the associated site work would be left behind on the customer's site. As the HPGS tariff is structured the cost for the equipment rehabilitation would be paid for by a new HPGS customer, if one is found, but site work costs could be passed on to ratepayers. Rate Schedule H Special Condition 8 and Gas Service Agreement Article 8 require potential HPGS customers to undergo a credit review and provide financial assurance if found to be credit deficient. Given the credit review process Staff finds it unlikely that HPGS customers will default on the Gas Service Agreement with NWN. In addition, for resulting costs to be passed on to ratepayers, NWN would be required to justify in a rate case[2] that the costs were prudently incurred and that the associated activity is used and useful to ratepayers. While there is a possibility of the equipment rehabilitation and site work costs being passed on to ratepayers Staff considers it remote. As a result, Staff concludes this risk is minimal and reasonable.

2) According to NWN, site size is dictated by physical limitations of the equipment and National Electric Code, National Fire Protection Association Publications 52 and 30A, Oregon Building Code, and Oregon Mechanical Code requirements. Given the extensive code requirements to be met Staff concludes the possibility for incorrectly sizing the HPGS site is remote. While there is a possibility for costs associated with incorrect site sizing to be passed on to ratepayers, NWN would be required to justify in a rate case[2] that the costs were prudently incurred and that the associated activity is used and useful to ratepayers. As a result, Staff concludes this risk to ratepayers is minimal and reasonable.

   HPGS equipment sizing (capacity and pressure) errors are a possibility. Given that the HPGS equipment will be sized based upon HPGS-customer-provided information, and that the HPGS customer must agree to the equipment sizing when executing the Site Design and Permit Evaluation Agreement with NWN Staff concludes the potential for ratepayer risk is limited. In addition, NWN filed revised Site Design and Permit Evaluation Agreement sheets with clarifying wording that design specifications and operating specifications may be different. While Staff agrees there is a possibility for costs associated with incorrect equipment sizing to be passed on to ratepayers, NWN would be required to justify in a rate case[2] that the costs were prudently incurred and that the associated activity is used and useful to ratepayers. With the revised Agreement wording Staff concludes this risk to ratepayers is minimal and reasonable.

3) Liability related to HPGS customer fueling activities could potentially put ratepayers at risk for associated costs. The basic HPGS excludes the devices that connect to a natural gas vehicle for fueling, those devices being the responsibility of the HPGS customer. The Gas Service Agreement Article 1 includes an optional provision for NWN to supply, install and maintain (but not own) the vehicle fueling devices. Staff identified this optional provision as a potential source of liability related to HPGS customer fueling activities. To address Staff's concern NWN filed revised Gas Service Agreement Article 1 wording for non-standard, customer owned equipment. The revised wording clarifies that NWN is not liable for damage to or damage caused by the non-standard customer owned equipment. In addition, NWN directed Staff to Gas Service Agreement Article 12 Liability and Indemnification as being a reasonable reliance for associated liability concerns. Also, for costs related to vehicle fueling liability to be passed on to ratepayers, NWN would be required to justify in a rate case[2] that the costs were prudently incurred and that the associated activity is used and useful to ratepayers. With the revised Agreement wording Staff agrees with NWN that ratepayer risk for vehicle fueling liability is sufficiently mitigated.

Following exploration of costs, and risks to ratepayers Staff concludes the potential benefit discussed below is sufficient compensation to ratepayers for the small amount of risk and costs.

e. Does the proposal allow for an exit strategy once the HPGS market is developed?

NWN's participation in the HPGS market as a regulated utility will be subject to rate case proceedings. While not planning or committing to do so the Commission has wide discretion to observe, modify, and end NWN's participation in the HPGS market, as provided for in ORS 756.568.

f. Is the proposal structured to leave room for competition by unregulated entities?

As discussed above, the Governor's 10-Year Energy Plan and the Commission's Order conclude that regulated utility participation in an emerging market does not necessarily impede market development. Also, the HPGS tariff is structured to amortize the capital costs over a ten-year period rather than over the life of the equipment (customarily twenty or more years). This short amortization period, which is less than the economic life of the HPGS, raises the rate above incremental costs and thereby provides opportunity for competition to amortize the service over longer periods of time thereby potentially reducing the monthly facility charge.

In addition, according to NWN, while its proposal is addressing a demonstrated need for gas compression infrastructure among its customers (NWN Comments at 3), NWN is not proposing to operate NGV fueling stations. Thus, competitors for this service can offer customers other competing services including bundling of HPGS with operation of NGV fueling stations. Also, in response to comments from NGVFP (Comments at 21) NWN revised its filing to eliminate the exclusivity clause in HPGS Feasibility Agreement Article 9. Lastly, because of the high initial investment required for HPGS, Staff is convinced that customers seeking HPGS are motivated and sophisticated enough to study the market before signing a long-term contract with a single service provider.

g. Is there a net benefit to ratepayers?

The proposed HPGS tariff establishes rates that recover not only the direct incremental costs of the tariff offering but also includes recovery of common and joint costs thereby providing margins lowering rates for other NWN customers. The condition Staff proposes regarding recovery on the initial first-time developmental costs will also ensure the rates fully recover the costs NWN incurs to provide the service. Therefore the tariff provides a net benefit to NWN ratepayers.

<u>Conclusion</u>

Staff identified three potential paths for going forward:

1. Approve the HPGS tariff filing, as revised by NWN on August 13, 2013;
2. Suspend the HPGS tariff filing and open a brief, focused investigation; or
3. Suspend the HPGS tariff filing and open a contested case docket,

All the parties that filed comments agree and support the development of NGV fueling infrastructure in Oregon. In addition, Governor Kitzhaber's 10-year Energy Plan and Commission's Order encourage regulated utility participation in emerging alternative fuel vehicle "fueling" markets. Also, Staff's analysis and the discussion above show the proposed HPGS tariff satisfies reasonable regulatory criteria. Staff therefore recommends that NWN be allowed to provide HPGS as a regulated utility service.

After considering the HPGS tariff filing, the cost of service work papers, the revised pages filed in response to Staff, and interested party input, Staff concludes the NWN proposed tariff should be allowed to go into effect and no further proceedings are warranted. While some parties have requested the Commission hold further proceedings on this tariff filing, ORS 757.210(1)(a) states: *the commission **may**, either upon written complaint or upon the commission's own initiative, after reasonable notice, conduct a hearing to determine whether the rate or schedule is fair, just and reasonable.* Staff recommends the Commission not use its discretion to conduct further proceedings.

So that the Commission can monitor this tariff offering, Staff has proposed a condition that requires the Company to report annually on the status of this tariff.

PROPOSED COMMISSION MOTION:

Northwest Natural's request for Advice No. 13-10 to become effective on and after November 1, 2013, be approved, and:

1. NWN shall provide annual reports, no later than April 1, beginning 2014, and each year thereafter this service is offered by NWN, summarizing the status of this new rate offering with respect to number of customers, general location of customers, direct costs and associated revenues; and,

2. NWN be required to identify and record all start-up (first time) developmental costs, and any other start-up (first time) HPGS costs, including interest, not currently included in the tariff and submit a tariff rider to go into effect, after Commission review and approval, after the first year of service for recovery from HPGS customers. Coincident with the effective date of the tariff rider, NWN defer, with interest, an equal amount of revenues collected under the rider for later refund to non-HPGS customers so as to prevent double-recovery of such costs.

CEF301

JOHN A. KITZHABER, M.D.

GOVERNOR

10-Year Energy Action Plan

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CEF301

JOHN A. KITZHABER, M.D.

GOVERNOR

Dear Oregon,

Energy is THE issue of our time – both globally and here in Oregon – and no single issue will have a greater impact on our state's economy, environment and quality of life in the coming decade. The central question is whether we will shape our energy future through intentional investment and development, or whether it will shape us.

Oregon has a track record of successfully pursuing clean energy policy, programs and practices to reduce energy use and promote renewable alternatives to fossil fuels. These public and private initiatives have made Oregon a national leader, but we continue to face a fundamental challenge: to develop a comprehensive energy strategy that meets the state's carbon reduction, energy conservation and renewable energy goals and timetables, and that balances complex needs – including affordability and reliability – while enhancing our state's economic objectives.

This 10-Year Energy Action Plan takes a practical approach to that challenge, focusing on specific initiatives that move the dial in the short term and can be scaled up over time. It is also an economic action plan, emphasizing priorities that can get Oregonians back to work on energy-related projects in urban and rural communities across the state.

The 10-Year Energy Action Plan focuses on three core strategies:

1. **Maximize energy efficiency and conservation to meet 100 percent of new electricity load growth.**
   Oregon ranks fourth in the nation in energy efficiency.[1] Since 1980, Oregon households and businesses have realized energy efficiency and conservation savings equivalent to eight to ten power plants. The result has been lower energy bills, a cleaner environment, and a thriving local energy service industry that exports its technology and expertise to the world. To build on this success, to capture deeper, harder-to-reach efficiency and conservation opportunities, and to scale them community-wide, will require new data, new financing tools, rate design changes and trained workers. The Northwest Power and Planning Council's 6th Power Plan states that the region can meet 85 percent of new load growth through energy efficiency and conservation.[2] This plan calls for Oregon to meet all new electric load growth through energy efficiency and conservation. We will start at home. Every occupied state-owned building will establish baseline energy use, undergo an energy audit and identify cost-effective retrofits in the next ten years, improving the performance of up to four million square feet of identified office space and using the state as a market driver for greater energy efficiency and conservation projects.

2. **Enhance clean energy infrastructure development by removing finance and regulatory barriers.**[3]
   Since 2007, renewable energy development has resulted in more than $5 billion investment in Oregon.[4] However, the state's ability to attract new investment and pursue promising new technologies is hampered by three things: outdated and inadequate energy transmission and infrastructure; inefficient and disjointed local, state and federal regulatory processes; and limited public resources. The plan calls for the development of

1 American Council for an Energy Efficiency Economy (ACEEE) 2012 State Scorecard

2 Northwest Power and Conservation Council, Sixth Northwest Power and Conservation Power Plan, Feb. 2012.

3 Or. Rev. Stat. § 468A

4 Renewable Northwest Project, March 2011 release

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a landscape level planning tool and streamlined permitting to give clean energy developers more certainty and predictability and to ensure the State's natural resources are protected. In addition, the plan calls for developing a new regional infrastructure bank to leverage public and private investment for infrastructure projects.

3. **Accelerate the market transition to a more efficient, cleaner transportation system.** Transportation is the single largest contributor to Oregon's carbon emissions and a significant source of air toxics. Oregonians consume 1.5 billion gallons of gasoline and drive 39 billion miles every year. According to an analysis conducted by the Oregon Department of Energy from U.S. Census Bureau data, fuel costs average Oregonians nearly seven percent of disposable income; nearly double the cost ten years ago. This plan calls for focusing on achieving a 20 percent conversion of large fleets to alternative fuel vehicles over the next ten years.

Each of these initiatives are discussed in detail in the chapters ahead and will involve bolstering existing programs, pursuing regulatory changes, and capitalizing on opportunities for the state to be a market driver through creative finance, purchasing, planning and governance.

This plan is a central component of my strategy to position Oregon to be more competitive in the global economy of the 21st century. It provides a framework to move away from a boom/bust economic cycle that depletes our natural capital and leaves us vulnerable to fluctuations in global markets. This plan provides strategies to meld workforce development initiatives, higher education opportunities, and local job creation with clean energy priorities; spur investment while developing home-grown renewable energy resources; and keep capital circulating in our region through local sourcing and supply chains while reducing our dependence on carbon-intensive fuels and foreign oil.

Many of the proposed goals and action items in this plan are ambitious. For example, the goal of meeting new electric load growth with conservation and energy efficiency will be particularly challenging, as will be the effort to secure a new, non-gas tax financing mechanism for multi-modal transportation infrastructure. I believe, however, that because the stakes are high for our state we must be bold in our vision and committed to a full and honest examination of these and other issues as we build the consensus necessary to secure our common future.

Finally, the 10-Year Energy Action Plan was created with input, advice and technical assistance from hundreds of Oregonians and organizations. A citizen task force met regularly for six months and made nearly 200 recommendations that have been synthesized and incorporated into the plan. I extend my sincere thanks to everyone who has participated in this process.

Sincerely,

John A. Kitzhaber

John A. Kitzhaber, M.D.,
Governor

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Introduction

In recent years, Oregon energy innovation has contributed to a decline in statewide electricity and natural gas consumption. From 2000 to 2011, electricity and natural gas use dropped.[5] Since 2002, Oregon's commitment to investing in energy efficiency through the Energy Trust of Oregon ("ETO") has resulted in cumulative savings of 322 average megawatts of electricity and 23.2 million annual therms of natural gas, reducing the costs to serve Oregon ratepayers by an estimated $1.8 billion.[6] Since establishing the State's Renewable Portfolio, we are on track to meet approximately 25 percent of our energy needs through clean sources by 2025. This has resulted in local development of wind and other renewable resources, resulting in more than $5 billion of investment in Oregon since 2007.[7]

This leadership in energy did not happen by accident. It has been nearly 40 years since Governor Tom McCall established an emergency energy conservation program in the state and more than 30 years since incentives and loan programs were created for residents and businesses to invest in renewable energy and energy efficiency. Concurrently, an enormous amount of work has been accomplished in the public and private sectors, and many boards, commissions, agencies and other groups have furthered our understanding of clean energy opportunities. This body of analysis has informed several extensive efforts over the past two years to analyze and diagnose energy trends. In that short time, the Oregon Department of Energy ("ODOE") has produced the State's biennial energy plan; the Oregon Global Warming Commission ("OGWC") proffered its thorough "Roadmap to 2020"; and the Oregon Energy Planning Council ("OEPC") produced its "Oregon Energy Planning Report."

The last report charted a useful framework for a statewide plan in its findings, and it noted the following priorities that should be included in such a plan:

> Oregon's Department of Energy mission statement is to ensure that the state "...has an adequate supply of reliable and affordable energy and is safe from nuclear contamination, by helping Oregonians save energy, develop clean energy resources, promote renewable energy, and clean up nuclear waste." The Department is charged with developing and administering the state's energy programs and helping with strategic planning to develop the state's future energy portfolio.
>
> In addition to the Department's goals, the Council has agreed that the state's future energy strategy should include the following goals or principles:
>
> - Maintain affordable energy costs.
> - Assure a high level of regional and local system reliability.
> - Promote a clean energy economy and jobs through new business and workforce development.

5 According to 2011 Oregon Utility Statistics book, electricity sales by all Oregon utilities peaked in 2000. Oregonians used 2.4 million megawatt hours less in 2011 than in 2000. Similarly, natural gas usage (including customers who buy their own natural gas) dropped by about 150 million therms between 2000 and 2011.

6 Energy Trust of Oregon 2011 Annual Report: http://energytrust.org/About/PDF/AnnualReport_2011.pdf

7 Renewable Northwest Project Economic Development Study: http://rnp.org/sites/default/files/pdfs/OR_5_billion_2-page_11Mar23.pdf

- Meet state goals and commitments on greenhouse gas emission performance standards.
- Meet state goals and commitments on developing renewable resources.
- Ensure the health and welfare of Oregon's citizens.

This action plan adopts these elements, with emphasis on strategies for implementing them, which are discussed below. The OEPC report also contained a number of recommendations on creating a comprehensive planning document, many of which have been incorporated herein.[8] As a matter of process, the members of Governor Kitzhaber's Energy Task Force were advised to consider the recent work of the noted groups and other relevant reports in developing recommendations for the 10-Year Energy Action Plan.

The proximity in subject and time of so many different energy-related efforts in Oregon, while convenient for the purpose of cross-reference, also indicates that a review of the management of energy policy at the state level is well-timed, allowing for a more efficient use of resources for the purposes of planning, coordination and implementation.

In drafting this report and its recommendations, the following major considerations have played a primary role:

Jobs and the Economy

Oregon's innovative energy policy has made us a national leader in energy efficiency, renewable resource development, and clean energy job growth. Oregon ranks second in the nation in the clean-energy economy[9], fourth in the nation for energy efficiency[10], and fifth in the nation for green jobs per capita[11]. Oregon is widely recognized for our supportive policies, significant technology deployment, and track record of attracting capital.

Growing the number and availability of green jobs helps to competitively position Oregon to capitalize on the growing clean economy and to build resiliency into the State's economic development strategy. According to a recent study by the Economic Policy Institute ("EPI"), greener industries grow faster than the overall economy, states with more green intensive industries fare better during recessions, and green jobs are more accessible to workers without a college degree.[12] Green jobs also go beyond the renewable energy industry, permeating many industries including manufacturing. The findings from EPI provide further evidence that a sustainable economy and job creation can go hand in hand; indeed, green jobs can even be the backbone for an overall job creation strategy.

More than 22,900 Oregon businesses have invested nearly $2.4 billion in energy efficiency, including lighting, heating, industrial processes, and other measures. In Energy Trust of Oregon territory alone, energy efficiency programs have saved approximately $1 billion on program participant energy bills

8 Oregon Energy Planning Council, Oregon Energy Planning Report, Dec. 2010. The Council noted that future planning would require adequate resources, measurable benchmarks or criteria, public "buy-in", and significant leadership in managing competing interests.

9 State Clean Energy Leadership Index, Clean Edge Inc.

10 American Council for an Energy Efficiency Economy (ACEEE) 2012 State Scorecard.

11 Pollack, Ethan. Counting Up To Green, Economic Policy Institute, October 9, 2012.

12 Pollack, Ethan. Counting Up To Green, Economic Policy Institute, October 9, 2012.

while creating an estimated 2,500 jobs and spurring $90 million in wages and business income.[13] Nearly 425,000 people have installed energy efficient appliances in their homes, like refrigerators, dishwashers and washing machines.[14] Energy efficiency and conservation programs, such as the State's Residential Energy Tax Credit, have been instrumental in saving more than $1 billion in cumulative energy costs.[15] We have more to do to acquire additional electric and gas savings, which will add to these numbers and deliver still more benefits to the state.

Businesses have invested more than $5 billion in renewable energy in Oregon, including wind, solar and geothermal development.[16] Statewide, 2,600 megawatts of operating renewable energy have been installed to date, enough to power 650,000 homes.[17] This development has strengthened Oregon's economy. For example, from taxes, fees and assessments, wind farms have produced about $33.2 million annually for Sherman County alone.[18]

Vestas - the largest wind turbine manufacturer in the world - and Iberdrola Renewables - the second largest renewable power operator in the country - have both established their North American headquarters in Oregon. In addition, Oregon has become the U.S. solar manufacturing capital, employing 1,800 people in advanced manufacturing jobs at 12 manufacturing facilities.[19]

Ensuring a competitive advantage in Oregon for growing these industries includes offering a competitive regulatory environment (facility siting processes, as one example); targeted incentives (both financial and technical); a fertile research, development and commercialization effort; and a ready workforce.

Affordable and Reliable Energy

Oregon's electric rates are among the lowest in the nation,[20] and natural gas and transport fuels are competitively priced and reliably delivered.

Maintaining affordable energy, especially in a predictable manner over the long-term, is essential to helping Oregon's businesses grow - particularly many of our manufacturing-based clusters - and keeping our citizens, especially our disadvantaged and low-income households, comfortable and safe.

Energy must remain accessible, in terms of the security of its supply and breadth of its delivery, for the state to thrive. And equity in the distribution of costs, benefits, and impacts must factor consistently, transparently, and justly into energy policy decisions.

Maintaining an up-to-date statewide energy action plan will further increase the reliability and predictability of energy services and costs for both businesses and consumers.

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13 Energy Trust of Oregon, 2011 Annual Report, http://energytrust.org/About/PDF/AnnualReport_2011.pdf

14 Oregon Department of Energy

15 2011 Annual Report to the Oregon Public Utility Commission, Energy Trust of Oregon, April 16, 2012.

16 Renewable Northwest Project Economic Development Study, http://rnp.org/sites/default/files/pdfs/OR_5_billion_2-page_11Mar23.pdf

17 Oregon Department of Energy

18 Sherman County, Oregon

19 Business Oregon

20 Sixth Northwest Power and Conservation Power Plan, Northwest Power and Conservation Council, February 2012.

Environmental and Quality of Life Values

Oregon is a diverse state, but residents share a deep appreciation for a rich quality of life, livable communities - both urban and rural - and a strong connection to the natural environment. Our energy future must improve our quality of life, make our communities healthier, determine the best use of our natural resources, and protect farms, forests, water, and wildlife.

Carbon and Greenhouse Gas Reduction Goals

As we make investments necessary to provide energy for the next generation of Oregonians, our most difficult energy challenge involves reducing greenhouse gas emissions, particularly energy-related carbon dioxide. If we make the wrong choices, future carbon regulation could force us to prematurely abandon those investments, costing Oregon dearly. If we choose wisely, Oregon will be well-positioned to compete and thrive in an increasingly carbon-constrained world.

To this end, the Oregon State Legislature established greenhouse gas reduction goals for 2020 and 2050. Those goals are to reduce greenhouse gas emissions by 10 percent and at least 75 percent below 1990 levels, respectively.

Oregon has made significant progress toward reducing greenhouse gas emissions. For example, Portland General Electric has committed to end coal operations at its Boardman facility by 2020. Wind energy now contributes nearly six percent of Oregon's electricity, up from less than one percent in 2004.[21] Distributed energy generation facilities provide local, homegrown energy for ratepayers. Significant investments have been made in energy efficiency and conservation, the cheapest way to reduce greenhouse gas emissions. Oregon has successfully reduced greenhouse gas emissions while maintaining a competitively low cost of energy[22]:

Another critical opportunity to advance measurable outcomes in this area is to make sure that state and regional investments in infrastructure - estimated to be over $1 trillion along the West Coast in the next 30 years - account for climate risks in evaluating life cycle costs, siting and design. To advance this approach, Oregon is a founding partner of the West Coast Infrastructure Exchange[23], with a mission to advance this kind of innovative outcome and best practice.

As we look to the future, we need to continue to invest in demand management tools, smart grid infrastructure, energy efficiency, conservation, renewable energy and clean technology to significantly ratchet down greenhouse gas emissions, particularly from coal. The full range of impacts from such investments should be considered when weighed against cost; for example, considering socioeconomic effects in addition to greenhouse gas reductions. Recent analysis completed to inform the 10-Year Energy Action Plan is an example: the analysis used a sophisticated macroeconomic modeling tool to

21 Oregon Department of Energy, http://www.oregon.gov/ENERGY/Oregons_Electric_Power_Mix.shtml

22 U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

23 West Coast Infrastructure Exchange, http://www.westcoastx.com/home.php.

demonstrate the economic costs and benefits of achieving Oregon's greenhouse gas reduction goals under several hypothetical policy action scenarios.[24]

It is also important to determine the appropriate and responsible role of natural gas. Efficient, state of the art natural gas transmission and generation emit 50 percent less greenhouse gas than burning coal. Natural gas also has the potential to serve as a firming resource for renewable energy projects and as a cheaper alternative fuel for vehicles. For residential, commercial, and industrial customers currently using inefficient oil or other fossil fuel sources, converting electric heat to natural gas or bioenergy thermal heat technologies not only improves operating efficiency, it also results in a net greenhouse gas reduction. Natural gas can serve as a critically important tool in reducing our state's dependence on coal and in helping Oregon meet our 2020 greenhouse gas reduction goals.

This energy action plan will ensure that over the next decade we create an energy infrastructure that will enable us to thrive in a carbon-constrained future.

24 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

Process

In March 2010, then-gubernatorial candidate John Kitzhaber released an energy policy campaign paper that, among other things, called for "a strategic climate and energy roadmap that lays out the practical steps to meet and implement [our goals] ... ."[25] In order to fulfill that direction, in October 2011, Governor Kitzhaber appointed the 10-Year Energy Action Plan Task Force, an advisory committee generally charged with making recommendations on coordinated actions and initiatives that the State of Oregon can take in the next ten years to:

- Reduce our dependence on carbon-intensive fuels and foreign oil,
- Develop home-grown renewable energy resources,
- Mitigate greenhouse gas emissions,
- Improve energy efficiency and create rewarding local jobs, and
- Boost Oregon's economy through investment and innovation.

These goals build upon ensuring a continued supply of affordable, reliable energy for our citizens and businesses.

Structure

The Task Force was led by a Chair and three Vice-Chairs and organized into the following design teams:

- Energy Efficiency and Demand Management
- Resource Mix
- Siting
- Transportation Design
- Governance Design

Each design team was given a specific charge for its particular issue area and made recommendations to the Governor based on its specific charge.[26] The final report is informed primarily by the recommendations from The Task Force and from subsequent public comments.

25 Kitzhaber 2010, Building a Clean Energy Future and Safeguarding Oregon's Natural Environment, Mar. 2010.

26 http://www.oregon.gov/energy/Pages/Ten_Year/Ten_Year_Energy_Plan.aspx

Timeline

Oct 2011 - Jan 2012	Design team work
Feb 2012	Integration team work
Mar 2012	Governor's office prepares document for stakeholder review
June 2012	Governor's office release Draft 10-Year Energy Action Plan
June - July 2012	Governor's office gathers public comments on Draft 10-Year Energy Action Plan
Fall 2012	Governor's office finalizes 10-Year Energy Action Plan

Task Force Leadership

Chair **Michael Jung**, Silver Spring Networks
Vice-Chairs **Andrea Durbin**, Oregon Environmental Council
Roy Hemmingway, Energy consultant
Kevin Lynch, Iberdrola Renewables
Governor's Coordinator **Karen Joyce**, Governor's Interim Energy Policy Advisor
Governor's Office **Curtis Robinhold**, Chief of Staff
Cylvia Hayes, First Lady of Oregon
Scott Nelson, Jobs and Economy Policy Advisor
Richard Whitman, Natural Resources Policy Advisor
Lynn Peterson, Sustainable Communities & Transportation Policy Advisor
Greg Wolf, Intergovernmental Relations & Regional Solutions Advisor
Dan Carol, Director of Multi-State Issues
***Staff: Diana Enright**, Oregon Department of Energy*
***Staff: Matt Hale**, Oregon Department of Energy*

Design Team Members

Governance

Andrea Durbin, Oregon Environmental Council
Roy Hemmingway, Energy consultant
Kevin Lynch, Iberdrola Renewables

Energy Efficiency and Demand Management (EEDM)

Chair: Susan Ackerman, Public Utility Commission
Roger Gray, Eugene Water and Electric Board
Jeff Harris, Northwest Energy Efficiency Alliance

Margie Harris, Energy Trust of Oregon
Marty Sedler, Intel Corporation
Derek Smith, Clean Energy Works Oregon
Phil Welker, Portland Energy Conservation Institute
Staff: Theresa Gibney, ODOE
Staff: Vijay Satyal, ODOE

Resource Mix

Chair: Rachel Shimshak, Renewable Northwest Project
Bill Edmonds, NW Natural
Bob Jenks, Citizens Utility Board
John Mohlis, OR State Bldg & Construction Trade Council
Dave Robertson, Portland General Electric
Whitney Rideout, Oregon Association of Nurseries
John Savage, Public Utility Commission
Staff: Rebecca Sherman O'Neil, ODOE
Staff: Tom Stoops, ODOE

Siting

Chair: David Stewart Smith, Pacific Energy Systems
Scott Bolton, PacifiCorp
Mark Brown, Bureau of Land Management
Dan Erickson, fmr Wasco County Commissioner
Karen Green, fmr Chair, Energy Facilities Siting Council
Margaret Kirkpatrick, NW Natural
Monty Knudsen, US Fish and Wildlife Service
Tamra Mabbott, Umatilla County
Bruce Taylor, Defenders of Wildlife
Chris Taylor, Element Power
Staff: Hillary Dobson, ODOE
Staff: Todd Cornett, ODOE

Transportation

Chair: Jon Ruiz, City of Eugene
Charlie Allcock, Portland General Electric
Angus Duncan, Bonneville Environmental Foundation
Neil McFarlane, Trimet
David Patterson, Mitsubishi Motors
Derek Rotz, Daimler Trucks North America
Barry Woods, Drive Oregon
Jeff Hammarland, Portland State University
Staff: Bob Cortright, DLCD
Staff: Travis Brouwer, ODOT
Staff: Bill Drumheller, ODOE
Staff: Rick Wallace, ODOE

Acknowledgements:

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How to Stay Involved

Please visit the 10-Year Energy Plan web site to view the materials that helped inform this action plan, the Task Force Recommendations, and Draft 10-Year Energy Action Plan. Please sign up for email alerts so you can be involved in implementing Oregon's 10-Year Energy Action Plan.

Goals

State Energy Goal One:
Maximize energy efficiency and conservation to meet 100 percent of new electric load growth.

Over the next decade, energy efficiency and conservation will serve as the cornerstone of Oregon's energy policy. Since 1980, more than half of the increase in demand for electricity in the Northwest has been met with energy efficiency savings equivalent to eight to ten power plants.[27] Since 2002, Energy Trust of Oregon has reduced electric load 4.5 percent compared to what it would have been without their efficiency programs. These savings have been accomplished by installing improvements like building insulation, high-efficiency lighting, cooling and water heating systems, changes to industrial manufacturing and process improvements, energy management enhancements and improved irrigation. Likewise, Oregon's publicly-owned utilities have invested significantly in energy efficiency and conservation. From 2002 to 2011, public utility energy efficiency programs have saved their customers 135.3 average megawatts, resulting in an average of 239 kilowatt hours of savings per year per customer. Oregon's successes stem from longstanding public policies that recognize the myriad benefits of efficiency, including lower energy bills for consumers, a cleaner environment, and rewarding local jobs. As a result, Oregon ranks fourth in the nation in energy efficiency.

According to the Northwest Power and Conservation Council, enough cost-effective conservation measures will be available to meet 85 percent of the region's load growth for the next 20 years.[28] In Oregon, it is likely that we will exceed this, reaching zero or negative load growth in the coming decades. In fact, Oregon Public Utility Commission data show the state's total electric and gas usage has declined in recent years.[29]

Meeting 100 percent of new load growth through energy efficiency and conservation is an aggressive statewide stretch goal. Every utility serving Oregon customers is different; each has its own energy efficiency and conservation program tailored to meet the specific needs of its customers. Some utilities are better situated to meet certain load targets, and it is unfair to expect each utility to meet 100 percent of load growth through energy efficiency and conservation, particularly in those territories where there is a large single load user, such as a data center. However, an analysis completed in support of the 10-Year Energy Action Plan demonstrates a scenario in which energy efficiency measures available to the state are able to meet new load growth through 2022 while providing net savings to consumers and significant greenhouse gas reductions.[30] It is critically important that we, as a state, push to meet this stretch goal because energy efficiency is the cheapest, least-cost way to meet new

27 Sixth Northwest Power and Conservation Power Plan, Northwest Power and Conservation Council, February 2012.

28 Sixth Northwest Power and Conservation Plan, Northwest Power and Conservation Council, February 2012. The region includes Idaho, Montana, Oregon and Washington.

29 According to 2010 Oregon Utility Statistics, electricity use in Oregon peaked in 2000. Oregonians used 3.6 million megawatt hours of electricity less in 2010 than in 2000. Similarly, natural gas usage dropped by more than 200 million therms from 2008 to 2010.

30 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

consumer demand for power. If executed correctly, maximizing energy efficiency and conservation will ensure that Oregon maintains our competitively low cost of energy, making us an attractive place for businesses to locate and protecting Oregon consumers.

One of the biggest hurdles to achieving these energy efficiency gains is in commercial buildings. While publicly-owned utilities and the Energy Trust of Oregon are working with customers to retrofit many thousands of buildings a year, there are opportunities to achieve deeper savings with integrated retrofits, especially in older buildings with outdated systems. Over the next decade, the state will coordinate, focus and maintain existing energy efficiency programs, while at the same time looking at new, innovative approaches to explore the direct use of utility and other private capital for investment in energy efficiency and conservation. These new voluntary efforts will allow us to accomplish deeper energy efficiency efforts and to grow programs to reach customers who are not now adequately served.

In addition, we will establish a State Building Innovation Lab designed to help understand how to pursue deep energy efficiency and conservation retrofits in the public sector. Over the next ten years, for every occupied state-owned building, the State Building Innovation Lab will establish baseline energy use and conduct energy audits to identify cost-effective retrofits. The buildings will be retrofitted, improving the performance of up to four million square feet of identified office space and creating the data and experience to help drive a larger market.

Over the next decade, the state will coordinate, focus and build on existing energy efficiency capabilities while at the same time looking at new, innovative approaches and policies to explore direct use of utility and potentially other private capital for investment in energy efficiency and conservation. These new voluntary efforts will allow us to accomplish deeper energy efficiency efforts and to grow programs to reach customers who are not now adequately served. This investment could save home- and business-owners money on their utility bills, create more jobs, further strengthen our economy, and protect our quality of life.

Both the creation of the State Building Innovation Lab and the larger effort to address regulatory issues will be led by a public-private team with members from the Governor's office, the Oregon Department of Energy, the Oregon Public Utility Commission, the Building Codes Division, utilities, and numerous entities, such as the Energy Trust of Oregon and Clean Energy Works Oregon ("CEWO"), with expertise in the delivery of energy efficiency measures.

State Energy Goal Two:

Enhance clean energy infrastructure development by removing finance and regulatory barriers.

Oregon's natural gas, electric, water, and waste infrastructure is aging and needs to be significantly upgraded and expanded. The state has a backlog of improvements that must be made to existing infrastructure to meet the demands of Oregonians and to make communities more resilient. In order to meet this need, the State will create the West Coast Infrastructure Exchange[31]. The Exchange will align the State's capital facilities and infrastructure planning efforts by developing new mechanisms for local technical assistance, bundling water and energy innovations across borders, and attracting investment

31 West Coast Infrastructure Exchange, http://www.westcoastx.com/home.php.

capital through new performance partnerships. This strategic approach will require improved coordination and integration between energy, transportation, land use and economic development planning.

In addition, Oregon will continue to assist in the build-out of a clean energy infrastructure by removing market barriers in the Energy Facility Siting Council process. The proposed changes to the Siting Council process will create more predictability and certainty for developers and create more flexibility to protect the State's natural resources. This effort will ensure that Oregon can continue to meet the State's energy goals through harvesting clean energy resources while protecting clean air, clean water, open spaces, high-value farmland and other critical natural resources.

State Energy Goal Three:
Accelerate the market transition to a more efficient, cleaner transportation system.

Oregon communities have been working over the last 39 years to understand the connection between land use and transportation, and to maximize the capacity of our transportation system. In addition, a more robust electric vehicle pool has the potential to assist electric utilities with new grid management opportunities. Oregon's per capita vehicle miles traveled ("VMT") rose 4 percent from 1990 to 2000, but Oregon was one of only two states to experience a decline (-8 percent) since 2008.[32] This reduction benefits Oregonians by improving air quality, boosting public health, and reducing congestion.

Transportation is the single largest contributor to Oregon's greenhouse gas emissions, accounting for 37 percent of total emissions.[33] Oregon's roads accommodate four million registered vehicles for 2.7 million licensed drivers.[34] Oregonians consume some 1.5 billion gallons of gasoline to drive more than 33 billion miles every year.[35] According to analysis done by the Oregon Department of Energy from U.S. Census Bureau data, fuel costs average Oregonians nearly seven percent of disposable income, nearly double the cost ten years ago. Moreover, gasoline prices are projected to rise, so this trend is expected to continue unless the transportation system and habits are reformed.

To reach Oregon's 2020 goals, the state will need an approximately 30 percent reduction from 2010 greenhouse gas levels, which roughly translates to a 30 percent reduction in fossil fuel use.[36]

Over the next ten years, the State will reduce dependence on fossil fuels by assisting in the conversion of 20 percent of large fleets to alternative fuel vehicles, including, but not limited to, electric, compressed natural gas ("CNG"), and liquefied natural gas ("LNG"). Converting 20 percent of large fleets over the next ten years will accelerate the market for newer, cleaner-burning vehicles that are less expensive to operate over the life of the vehicle, which will help the state and businesses save money on operations and fuel.

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32 Oregon Department of Transportation, Status of Oregon GHG Emissions, October 2008.

33 Report to the Legislature: Oregon Global Warming Commission, 2011.

34 Oregon Department of Transportation.

35 Federal Highway Administration, Highway Statistics 2010.

36 Oregon Revised Statute 469A

Cross-Cutting Critical Paths

In order to meet our state energy goals over the next decade, we will focus on three cross-cutting areas.

Critical Path: Technology and Innovation

The development and application of new technologies and innovations are vital to strengthening Oregon's energy leadership over the coming decade. Levels of investment in this area have long been incommensurate with the magnitude of our energy challenges and opportunities. Addressing this gap requires closer coordination between organizations involved in such activities today, as well as focused efforts on areas generating the greatest net benefits for Oregon.

Toward these ends, the state will leverage its existing infrastructure, such as the Oregon Innovation Council, in collaboration with relevant organizations and stakeholders, both public and private, to develop a detailed proposal that:

Addresses an overall statewide approach to coordinating and leveraging public and private investment in energy technology research, development, demonstration, and deployment (RD3);

Bolsters energy efficiency and demand response research and development to meet all future load growth with next-generation technologies and approaches (State Energy Goal One);

Minimizes the cost of integrating the large amounts of intermittent renewable energy resources that will be necessary to meet both statutory obligations and growing consumer demand (State Energy Goal Two); and

Targets activities to accelerate the deployment of intelligent transportation systems and electric vehicles, including potential integration with grid modernizations initiatives (State Energy Goal Three).

Critical Path: Carbon and Climate

The most difficult energy challenge involves reducing greenhouse gas emissions across the energy and transportation sector. Failure to do so may result in investments that have to be prematurely abandoned as we move into a carbon-constrained future.

In order to identify and rank the best opportunities for cost-effective carbon reduction, the state commissioned an analysis that compares the costs and greenhouse gas reduction benefits of over 200 carbon reduction strategies.[37] This analysis demonstrates that there are significant opportunities

37 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

available to meet Oregon's energy and greenhouse gas reduction goals in every sector of the economy, and to do so cost-effectively. Moreover, the analysis demonstrated that even relatively less cost-effective measures can work together with cost-saving measures to provide important employment and economic activity benefits to Oregon.

The data from the cost-effectiveness study has informed this Action Plan and the set of actions proposed to meet the state's greenhouse gas reduction goals by 2020, and the State's ability to enforce those actions. The proposed measures will require participation from key state agencies, including, but not limited to, the Department of Environmental Quality, Department of Transportation, Public Utility Commission, Department of Agriculture, Department of Land Conservation and Development and Oregon Department of Energy. This action plan outlines the responsibilities and reporting mechanisms required from the State to meet the greenhouse gas reduction goals.

Critical Path: Cutting Edge Communities

Oregon is a national leader in energy efficiency, land use planning, multi-modal freight and passenger choices, renewable resource development and environmental stewardship. However, we have not yet asked our state or local entities or citizens to have a complete conversation about the integration of these elements.

The Cutting Edge Communities program will ensure that local governments statewide have access to state programs that will help fund their individual efforts to help meet the State's ten year energy goals. Implementation of locally adopted energy action plans will create more resilient communities that can meet their own long-term goals of energy independence, reliability, affordability and job creation.

Urban and rural communities interested in taking advantage of the goals of the 10-Year Energy Action Plan can work through the Regional Solutions network to access state programs that would help advance their goals.

Critical Path: Bioenergy Development

Oregon's natural resources and environment are at the center of the state's identity and economy. Agriculture and forestry represent two of Oregon's top three industries and employ more than a hundred thousand Oregonians while contributing billions of dollars to the state's economy. Natural resource management, utilization and protection form the core of rural economies and are the shared heritage of Oregon communities. Strengthening the health of our environment, these key industries and rural communities is a priority for the state and will be advanced by a strategic, integrated approach to bioenergy opportunities.

In order to ultimately develop a robust restoration economy for rural Oregon and increase energy production from biomass, the state will focus incentives on building the energy production market. While issues related to secure fuel supplies are important, the next Legislature could repurpose existing incentives to focus on capital investment in biomass energy and biofuels production facilities. The existing biomass collector tax credit has indeed been shown to increase economic activity in the sector.[38] Supporting capital investment in biomass energy and biofuels facilities will drive market expansion. Thus, this plan proposes a shift of incentive investments from collection of fuel sources to investment in facilities such as institutional boilers, cogeneration facilities, and cellulosic biofuels production.

The state will develop a coordinated approach to bioenergy opportunities that support key outcomes for a healthy environment, thriving communities, and a strong economy. This approach will accomplish the following:

- Support key Oregon industries – such as food processing, forest products, dairy and production agriculture – and help them save energy, integrate local energy sources, and develop new energy products. Specific action plans will be developed to advance energy conservation and renewables within each of these industries.
- Integrate local energy sources into residential, commercial and industrial buildings. This will encourage energy dollars to stay within the local economy and help to drive down spending on energy by governments, school districts and others. The Governor's Cool Schools Initiative and the State Building Innovation Lab will be the catalysts to move these efforts forward.
- Develop new and expanded markets for advanced biofuels and engineered solid fuel products, such as the Clean Fuels Program. Markets will include local, domestic and export-focused opportunities. Supporting a clean fuel industry will help develop new biofuel manufacturing capabilities in Oregon, such as the new ZeaChem facility in Boardman, and help commercialize new technologies that create advanced fuel from woody biomass, agricultural residuals and energy crops, algae, and materials from the waste stream.
- Prioritize and coordinate state agency actions that will efficiently deploy tools and resources that support bioenergy development and ensure a consistent regulatory approval process. State research, development, commercialization, regulation, incentives, and technical support programs will be aligned to bring bioenergy technologies and projects to fruition. This includes coordination with existing state strategies such as the Integrated Water Resources Strategy, the Oregon Strategy for Greenhouse Gas Reductions, Oregon's Forest Biomass Strategy, and the State Transportation Strategy.
- Encourage integration of anaerobic digestion projects into composting and food waste collection programs to support increased energy generation and co-product development, including nutrient recovery and soil amendments.
- Bioenergy projects will be coordinated to help support environmental health and protection objectives and develop beneficial co-products. Anaerobic digestion projects will help reduce waste going into the landfill, support nutrient recovery and management, and help achieve water protection goals. Woody biomass projects will help leverage forest health restoration projects and utilize forest residuals that would otherwise be released as smoke into the environment.

38 Nielson-Pincus, M., Krumenauer, M., MacFarland, K. Mosely, C. . Impacts of the Biomass Producer or Collector Tax Credit on Oregon's Wood Fuel Market and Economy. Ecosystem Workforce Program Working Paper Number 32. http://ewp.uoregon.edu/

Taking Action: The Plan for our Energy Future

Goal One:
Maximize Energy Efficiency and Conservation

Unlock Energy Efficiency as a Resource

In Oregon and elsewhere, stakeholders have long discussed how to more effectively integrate energy efficiency and conservation into both investor- and consumer-owned utility models that currently deliver energy services. Oregon has made significant strides in this area, including the creation of the ETO, collection and allocation of the public purpose charge, and "decoupling" our utilities. This regulatory framework has propelled Oregon to the forefront as an energy efficiency leader. However, with projections showing that access to currently-defined, cost-effective modes of efficiency is diminishing, and with our understanding that efficiency is still the cleanest, cheapest form of energy and absolutely essential to resilience and success in a resource-constrained environment, it is time to pioneer a new regulatory regime and business model that allows investor-owned utilities to invest in deeper efficiency savings while still meeting customer and shareholder needs.

The public benefits are many, including the fact that extensive energy efficiency retrofit work in the public, commercial and industrial sectors can create thousands of good jobs that cannot be outsourced. With an impressive track record of innovation and excellent working relationships between the state and the utilities that serve us, building a new model is a difficult but achievable goal.

Action Item: The state will analyze market barriers and work with stakeholders and the legislature to develop a new regulatory framework and financial mechanisms that allow for new consumer demand for energy to be met through energy efficiency and conservation.

Create the State Building Innovation Lab

Building efficient new buildings is the most cost-effective way of reducing the State's utility bill. However, given the State's aging building infrastructure, the State Building Innovation Lab will ensure that Oregon reduces energy consumption in all state-owned buildings by 20 percent over the next ten years. Managed by the Oregon Department of Energy, and in close coordination with the Department of Administrative Services, the Lab will conduct energy audits and identify cost-effective retrofits for every occupied state-owned building, improving the performance of up to four million feet of identified state office space.

The U.S. DOE Better Building Initiative sets a national target of improving energy efficiency in commercial and industrial buildings by 20 percent by the year 2020. The Initiative includes a challenge to states and local governments to lead by example. The State Building Innovation Lab would work to achieve this transition, focusing on technologies like more energy-efficient water and space heating and cooling technology, such as ductless heat pumps and heat pump water heaters, or other energy efficient natural gas solutions, consistent with organizations like the Northwest Energy Efficiency Alliance.

It has been estimated by ODOE that a 20 percent reduction in the electric utility costs for state-owned buildings in Oregon would result in annual savings of at least $100 million. That money could be leveraged to obtain at least $1.4 billion in borrowing capacity to finance the upgrades. Initially, much of the savings would be used to finance the underlying debt, but as time progresses, the actual savings will begin to accrue to the state.

In addition, the State Building Innovation Lab provides an opportunity to pilot and test commercial building asset ratings and public disclosure mechanisms that can create competition for energy efficiency and conservation in the private sector.

Undertaking this initiative would have a direct and immediate impact on Oregon's economy, resulting in savings for the state and creating jobs. Through this work, benefits can be created by testing and scaling different tools to help drive deeper, harder-to-reach savings in the commercial sector. For example, through the Lab, ODOE can establish a baseline for building performance and demonstrate which energy efficiency and sustainability measures can be taken to decrease the cost of energy for the State of Oregon. This tool would help demonstrate the value of energy efficiency and conservation to the private sector.

Through this effort, ODOE will explore public-private partnerships and other funding mechanisms, such as an energy efficiency power purchase agreement, on-bill finance or repayment, and energy services company models to finance the work. Understanding how these financial mechanisms work for state-owned buildings will help provide an understanding of how a similar model could function in the commercial market to capture harder, deeper-to-reach efficiencies and savings in commercial and industrial building stock.

Through this effort, ODOE will gather and analyze data, including the number of jobs created, the amount of money state entities save on utility bills, and overall carbon reduction. The data will serve as the foundation for understanding how to create innovative market opportunities and streamline the regulatory environment.

The State Building Innovation Lab will serve as a replicable model for both the commercial sector and one that could be adopted by local and regional governments to help them save money, reduce their energy consumption, create local jobs, and strengthen the local community.

Action Item: Create the State Building Innovation Lab to conduct energy audits, identify cost-effective retrofits and complete the retrofits for every occupied state-owned building over the next ten years.

Oregon Innovation Council ("Oregon InC")

The Oregon Innovation Council works to ensure the global competitiveness of Oregon industries by helping innovators create high-paying jobs, entrepreneurs create companies, and university researchers bring federal and private research dollars to Oregon in a partnership between the state's private sector leaders and its research universities. Oregon InC's labs and researchers can provide companies with access to cutting-edge research and development capacity. And Oregon InC commercialization grants help turn innovative ideas into commercial products, helping startup companies develop products that attract additional financial backing to grow ideas into revenue. In only three biennia of funding, Oregon InC initiatives have created 30 new companies marketing innovative products, captured $350 million in federal and private grants, and raised more than $115 million in private capital for emerging companies.

Many of the Oregon InC-funded efforts relate directly or indirectly to advanced energy applications for energy efficiency, transportation, and generation. Further investment in Oregon InC can help pave the way for significant breakthroughs and commercialization of these critical technologies and help grow Oregon's innovation economy. Over the next decade, implementation of this plan should be carefully coordinated with Oregon InC, helping to maximize development of homegrown applications that can accelerate energy applications.

***Action Item:** Increase funding for the Oregon Innovation Council.*

Unparalleled Public-Private Work

The ETO, Bonneville Power Administration ("BPA") and publicly-owned utilities serve as the foundation for energy efficiency, conservation, and small-scale renewable investment in Oregon.

Over the past 30 years, BPA programs have made the Northwest a leader in treating energy efficiency and conservation as a power resource. The Northwest Power Act of 1980 called on the Northwest to give energy conservation top priority in meeting its power needs, and the region quickly learned that a megawatt saved is the equivalent of a megawatt produced.

As of 2009, energy efficiency accounted for only one percent of all electricity production in the United States. But in the Northwest, it accounted for 12 percent, thanks to collaboration among a number of entities: the Bonneville Power Administration, Northwest Power and Conservation Council, regional utilities, state agencies and environmental interests.

In fiscal year 2009 alone, BPA secured approximately 70 average megawatts of energy efficiency for the Northwest – enough energy to power 60,000 homes[39]. Through BPA programs, Oregon's municipal, cooperative and public utilities have saved their customers an average of 239 kilowatt hours per year.

The ETO, funded through a public purpose charge, has achieved further efficiency, conservation and renewable deployment gains for its customers while transforming markets. The ETO charter must be expanded to allow the Trust to leverage existing infrastructure to deliver broader benefits, like carbon reduction and economic gains, from energy efficiency and renewable energy investments to the state. This will allow the ETO to begin to provide new clean generation opportunities and savings for their customers, and to focus on sustainability to allow community-level scalable investment.

Market transformation programs – such as the Northwest Energy Efficiency Alliance ("NEEA"), ETO, BPA and the state's Residential Energy Tax Credit ("RETC") – can help scale energy efficient technologies. This not only helps grow Oregon businesses and strengthen our economy, it also provides homeowners and business owners with less expensive, cleaner alternatives to existing technologies.

EnergyTrust of Oregon

Timber Products builds a foundation of energy efficiency

Timber Products Company, which manufactures a wide range of environmentally certified hardwood, plywood and decorative panels, incorporated energy efficiency into it business model in the late 1990s. "Energy conservation plays a key role in our company's economics and community stewardship," said Brad Beavers, process control manager. "If we can do it cheaper and with less environmental impact, we do it."

PROJECT-AT-A-GLANCE

- Oregon manufacturing facilities in Medford, Grants Pass and White City
- 650 Oregon employees

Project benefits

- Lower operating and energy costs
- Reduction in material processing
- Less waste of raw materials
- Opportunity to extend equipment life
- Decreased noise
- Improved lighting levels
- Reduced environmental impacts

Financial analysis

- $94,409 estimated annual energy cost savings
- $385,095 total of project costs
- $175,325 in cash incentives from Energy Trust

Estimated annual savings

- 1,787,221 kilowatt hours
- 679 tons of carbon dioxide
- 679 tons of carbon dioxide

39 Bonneville Power Administration, http://www.bpa.gov/Energy/N/

Another example of the kind of public-private partnership at which Oregon excels, and which is necessary for technology deployment, is Clean Energy Works Oregon ("CEWO"). Since 2010, CEWO has remodeled more than 1,500 homes throughout Oregon to make them more efficient, comfortable, and safe for residents. This program has created or sustained more than 150 direct construction jobs and leveraged nearly $20 million in private capital investment. CEWO is a national leader in delivering residential and other energy efficiency related services; as such, the state will continue to support CEWO to deliver such services, make energy efficiency gains in the residential sector, and save Oregonians money on their utility bills.

The Governor's Cool Schools program illustrates how the public-private relationships in energy efficiency can work quickly and well to deploy projects. Just a few months after being sworn into office, the Governor and his staff were working with groups like ETO and CEWO, at no additional fiscal impact to the State, on Phase 1 of the Cool Schools effort. During the course of Phase 1, the state's Small Energy Loan Program ("SELP") was tracking potential projects at 51 schools in 19 school districts, with project costs of around $17 million. To date, the program has leveraged a $175,000 investment from the State to generate over $21 million in energy efficiency upgrades for schools. The program directly catalyzed projects in 13 school districts, improving 39 school buildings in 10 counties across the state. SELP financed $4.8 million of $5.3 million in project costs, which enabled improvements at 28 schools in eight school districts statewide.

To date, ODOE has received loan applications from eight school districts requesting $2.8M in loans. ODOE is actively working with 15 school districts at various points in the process of project design and planning. ODOE anticipates another $2.3 million in loan applications between now and the close of the application period.

Lastly, more needs to be done to provide low-income Oregonians access to energy efficiency and conservation programs. Using $3.6 million from the American Recovery and Reinvestment Act, the Oregon Department of Energy and Housing teamed up to offer the State Energy Efficient Appliance Rebate Program to low-income homeowners. This program has provided 3,212 rebates to 2,555 homeowners in every county, including 1,102 for heat pumps and 597 for furnaces, covering 70 percent of the system cost. Savings from this program include one-million kWh of electricity, 33,000 therms of natural gas, and 1.6 million gallons of water.

The Oregon Department of Energy, in conjunction with the Oregon Public Utility Commission and other stakeholders, will analyze current funding for weatherization programs, identify gaps in resources and develop innovative new strategies to increase the amount of energy efficiency and conservation delivered to low-income Oregonians.

Today, energy efficiency is more important than ever. It is clean and emission free. It is also low cost relative to new energy generating resources. It serves our national goals of reducing our carbon footprint and enhancing our energy independence. In short, it is the world's most environmentally and economically friendly energy resource.

Public Performance Disclosure Mechanisms

Public building performance disclosure mechanisms are a critical tool in driving demand for energy efficiency and conservation. Currently, the ETO is providing homeowners with an energy performance score, a new tool that is similar to a miles-per-gallon rating for their home. The score provides homeowners with information about how much it costs to operate their home and a list of potential upgrades that will make their homes more comfortable and affordable.

Action Item: The state will build on this pilot program to provide a tool that would be available to all homeowners. This tool can help accelerate the market for energy efficiency and, when provided to potential buyers at the point of listing, would allow homeowners to retrofit their new homes and amortize the costs of upgrades over the life of the mortgage.

Financing Energy Efficiency and Conservation

Innovative finance mechanisms are not the only tool needed to help scale energy efficiency over the long term. However, developing private sector finance mechanisms, such as an energy efficiency mortgage, that lead to the creation of a secondary market for this product will prove essential. In order for the private sector to develop a finance mechanism of this nature, it is critical that the state, in coordination with other jurisdictions, the federal government, and utility energy efficiency programs, continues to demonstrate the value of energy efficiency and conservation.

As stated above, the 2011 Legislature and the Governor created the Cool Schools program. Although this program is helping to decrease the cost of operations and maintenance for school districts statewide, it is also an important step in establishing the foundation for energy efficiency financing. Using the state's unique SELP program as a base, other incentives and authorization for additional capital to SELP-related reserve funds can be added to drive down the cost of lending for energy projects. As additional projects are undertaken, the state will be able to gather and aggregate energy performance data, ultimately leading to a private-sector driven financing tool.

This new financing tool will continue to allow greater access to low-interest financing, for example leveraging the low-interest financing provided by consumer-owned utilities, for schools across the state and providing one-stop-shopping for technical assistance.

In addition, the state has a number of programs that help drive energy efficiency projects in the commercial, industrial, and residential sector. These financial tools help local governments, businesses, and manufacturers retrofit their buildings and purchase highly efficient appliances so they can save money on energy bills. The state has incentive programs designed to help homeowners purchase more efficient appliances. To help reduce Oregonians' utility bills, the state should update current programs to include new appliances, including televisions, set-top boxes, battery charges, and shower heads. State investments have, over the years, helped scale new technologies and transform markets to make efficient technologies more affordable.

Despite the success of these programs, the state can always work to better direct investment in meeting our energy goals. Lack of capital is often cited as a barrier to energy efficiency upgrades; however, there is a barrier in the current incentive structure for building owners and tenants. This split incentive happens when one person owns a building and another uses it and pays the utility bill. The owner and tenant fundamentally do not have the same incentive to retrofit the building to be more energy efficient. The state, in partnership with the Legislature, should identify this and other market barriers to help drive investment in programs that meet the state's energy goals.

Lastly, since its inception in 1980, SELP has provided over $550 million through nearly 850 loans spread throughout the state. The program has achieved this significant level of financing in a self-sufficient manner without any initial capitalization. To continue this capability, SELP will need to be capitalized over the next several biennia.

Action Item: The state will develop a new financial tool in concert with new financing infrastructure to help utilities, consumers, and commercial and industrial property owners leverage existing investor-owned and publicly-owned utility programs to unlock the benefits of energy efficiency. The state will align existing incentive programs to support the state's goals to maximize energy efficiency, create the State Building Innovation Lab, Cool Schools and other programs that benefit the consumer. The state will develop a plan to capitalize the SELP program over the next several biennia.

Updating Energy Codes and Standards

Codes and standards are a useful way to drive investment toward a common energy goal. Strong building codes ensure that newly constructed buildings operate in an efficient manner. In addition, standards, in conjunction with Northwest Energy Efficiency Alliance and other utility-funded programs, help to transform markets and make energy and water efficient technologies available to all Oregonians, regardless of their income status.

Action Item: The state will work with market transformation programs to update Oregon's codes and standards.

Goal Two:
Enhance Clean Energy Infrastructure

The Backbone of Oregon's Energy Supply

Investments in Oregon's clean energy infrastructure will be built on the existing foundation of hydroelectric power, a resource that for decades has made the state one of the nation's leaders in clean, renewable energy. The existing federal hydropower system operated by the Bonneville Power Administration ("BPA") has created substantial value for Oregon through low-cost, reliable, and emission-free power that provides an economic advantage not found outside the Pacific Northwest. This important resource currently accounts for 43 percent of Oregon's electricity mix and acts as the principle source of balancing reserves for managing fluctuations in wind generation and other renewable energy resources. Preserving and enhancing the assets and value of the hydroelectric generation and transmission system are critical, especially given an aging infrastructure, high operational demand from variable generation, and a future with increasing carbon constraints.

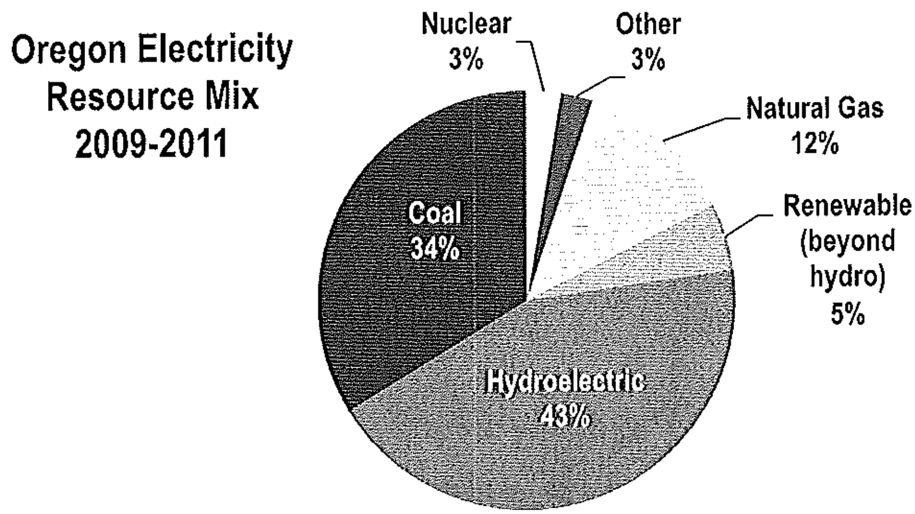
Current Resource Mix

Oregon is rich in energy resources, including, but not limited to wind, solar, geothermal, wave, and biomass. Oregon will, to the extent possible, capitalize on harvesting these energy resources to meet Oregon's demand for power.

The state has invested a great deal of capital in growing the energy industry in Oregon. This focused investment has made Oregon a leader in reducing our dependence on fossil fuels, attracting a cluster of renewable energy companies – including, just to name a few, Vestas, Iberdrola Renewables, EDP Renewables, and SolarWorld – creating jobs and stimulating our economy. Our investment, coupled with the state's Renewable Portfolio Standard (RPS), has resulted in a $5.4 billion investment in the state's economy.[40]

40 Renewable Northwest Project, http://rnp.org/sites/default/files/pdfs/OR_5_billion_2-page_11Mar23.pdf

Oregon's recent electricity mix (3-year average, 2009-2011[41]) breaks down as follows:



The Oregon RPS directs Oregon utilities to meet a percentage of their customers' energy needs through renewable resources. Oregon's three largest utilities – Portland General Electric, PacifiCorp and the Eugene Water and Electric Board – will supply 25 percent of their customers' retail electricity needs through renewable resources by 2025. Likewise, other electric utilities in the state, depending on size, have standards of 5 or 10 percent in 2025. Eligible renewable resources include biomass, geothermal, hydropower, ocean thermal, solar, tidal, wave, wind, waste to energy and hydrogen (if produced from any of these sources). Twenty-five percent of the projected load for PGE and PacifiCorp alone in 2025 is 1,218 average megawatts of energy, or enough to serve just over one million residential customers.[42]

The RPS includes rate-payer protections to ensure that while transitioning to a fossil fuel-free future, we maintain low energy rates for customers and that Oregon remains a competitive and attractive place for manufacturers and businesses. The RPS limits rate impacts to no more than 4 percent of a utility's total revenue requirement. As of 2012, Portland General Electric reported an estimated cost of compliance with the RPS of 0.04 percent, and PacifiCorp reported negative compliance costs, meaning the utility actually saved money by complying with the RPS. The state's RPS clean energy goal serves as the floor, not the ceiling, for new, renewable energy development, and does so at no significant incremental cost to utilities or rate-payers.

Future Resource Mix Potential

Smart Grid

To more efficiently, effectively, and reliably deliver energy across the state, we need to improve and invest in infrastructure. More efficiently operating the grid in the future will require expanding our

41 Oregon Department of Energy, http://www.oregon.gov/ENERGY/Oregons_Electric_Power_Mix.shtml.

42 Oregon Department of Energy, http://www.oregon.gov/ENERGY/RENEW/RPS_home.shtml

Smart Grid capacity. Installation of Smart Grid meters and the associated automated metering infrastructure would allow for utility companies to more intelligently deploy energy to consumers to incentivize and increase demand management capabilities, and help transmission operators to balance intermittent resources. Smart Grid technology can also provide consumers information that allows them to actively participate in the energy system, enabling smart appliances and automated building management systems that can optimize both their owner's preferences and grid operations. These technologies can also greatly increase the integration of building energy systems with the requirements of grid operations through automated communications of grid needs in the forms of dynamic pricing and distributed decisions reflecting the preferences of the building owners and occupiers.

Exemplifying the future of a smarter grid are participants in the Pacific Northwest Smart Grid Demonstration Project, the largest of its kind in the nation. This five year project involving 112 megawatts of capacity and more than 60,000 metered customers in five states will gather data to provide utilities with two-way communications between distributed generation, storage, demand assets, and existing infrastructure. The $178 million project is half funded by the U.S. DOE through the American Recovery and Reinvestment Act; the other half comes from project participants. Managed by Battelle and involving the Bonneville Power Administration and 11 utilities, the project will help to quantify the costs and benefits of a Smart Grid while bringing the electric transmission system into the information age. More than $100 million in physical assets, including smart meters and demand response control units, will remain in the region when the pilot is complete. Oregon has much to gain by participating in this groundbreaking project, both in the added electric infrastructure and the information that will transition our electric system to the modern era, giving consumers new choices and lowering costs.

Storage

Numerous storage options – including battery-based or pumped energy storage – can also increase the ability to balance out intermittent resources, such as wind or solar, and provide an alternative to building new infrastructure, such as transmission line expansion. As battery technology continues to become more efficient and the need to integrate more diverse generation resources increases, battery-based energy storage has the potential to offer a cost-competitive option.

Distributed Generation

Distributed generation and combined heat and power (CHP) has huge potential to help the state meet its energy goals. As distinct from large, central station power plants that send electric power over many miles of transmission, distributed generation is energy that is used near the location where it is generated. The benefits of distributed generation are many, including increased efficiency, typically reduced environmental impact, reduced grid cost, increased reliability and quality, and business certainty.

A 2005 report by the Public Utility Commission found that with favorable conditions, Oregon could increase our distributed generation systems from about 500 megawatts to over 1800 megawatts by 2025.[43] As a general matter, the state exhibited these favorable conditions for several years through the BETC, the Renewable Energy Tax Credit ("RETC"), the Solar Photovoltaic Volumetric Incentive Rate

43 Oregon Public Utility Commission, Distributed Generation in Oregon: Overview, Regulatory Barriers and Recommendations, Feb. 2005.

Pilot Program ("Solar Rate Pilot"), and net-metering, mostly or exclusively focused on distributed solar technologies. However, communities like Klamath Falls have successfully installed distributed generation geothermal systems to heat municipal buildings, and many school districts throughout Oregon are swapping out old oil boilers for highly efficient biomass boilers. The Oregon Public Utility Commission will issue a report on the solar feed-in tariff pilot program and this data, combined with data collected from other distributed generation programs, can be used to determine which policies will best support expansion of distributed generation while protecting Oregon consumers. With more efficient solar systems and an increased focus on geothermal, biomass, and waste-to-energy technologies, Oregon now has the opportunity to significantly increase distributed generation resources.

Thermal Energy

In early 2011, co-chairs of Governor Kitzhaber's Forest Health & Biomass Energy Transition Team produced recommendations to the Governor. Recommendations included working with the Environmental Protection Agency to avoid discrimination against biomass heat and power generation, including a preference for biomass boilers with strong particulate controls in retrofit programs; ensuring that energy incentives maintained support of community-scale biomass projects; excluding woody biomass from regulation of solid waste; and reauthorizing the biomass producer and collector tax credit. In addition, the state's Forest Biomass Working Group released a more detailed set of recommendations[44].

The first step to support this resource diversification is to complete a full assessment of thermal energy use in the state, including its current applications, the potential for its further development, and the economic and environmental benefits of its use, provided funding for the assessment can be identified. In addition to this thermal assessment, the analysis would analyze the potential for renewable natural gas from sources such as waste water treatment plants, food waste and other sources. With this assessment completed, the state can then tailor a program to incent investment in thermal energy where appropriate.

Wave Energy

Following the successful path of more mature renewable technologies, such as wind and solar, Oregon has become a national leader in the development of wave energy through a combination of public investment and groundbreaking public-private partnerships. Oregon's leadership is the result of focused implementation of a strategic vision to recruit and support a wave power industry. The Oregon Wave Energy Trust ("OWET") was created by the Oregon Innovation Council in 2007. OWET funds a variety of projects that are accelerating the development of wave power in Oregon. Working with partners, Oregon has developed significant potential for an ocean energy industry. Oregon State University, for example, was awarded a multi-million dollar federal grant to establish the first National Marine Renewable Energy Center in the United States and is building the premier testing facility in North America. Responsibly sited wave energy has significant potential not only to provide additional resources to power Oregon, but to create a business cluster and models that can be exported to other states and countries around the world. The state is committed to developing a regulatory structure

44 Oregon Department of Energy, http://www.oregon.gov/energy/RENEW/Biomass/Pages/forest_biomass_working_group.aspx

that is useful and provides clear guidelines for developing wave energy facilities off of the Oregon coast.

Action Item: Align the state's incentive programs to support meeting the state's energy generation goals. Through targeted investment not only will the state meet its energy goals, it will transform markets for existing and new technologies to help Oregon establish and fully realize a new resource mix that provides stable, reliable, and clean energy for Oregonians. In addition, the state will create a regulatory structure that removes market barriers and allows for investment in diversifying the state's future resource mix.

Establish Landscape-Level Plan

To meet the state's clean energy requirement, there is a need to align the state's energy and land use goals. Too often, individual siting decisions lack context for evaluating tradeoffs among conflicting public policy priorities, and decision-makers struggle to understand cumulative impacts on wildlife, working farm and forest landscapes, and other natural resources. On the other side, developers often embark on projects without a clear understanding of the nature and magnitude of potential conflicts and how decision-makers will weigh tradeoffs. In the absence of any overarching conservation framework, requirements for mitigation of wildlife impacts for development are cumbersome and ad hoc, with high transaction costs to developers and few assurances that mitigation actions will adequately offset impacts with quantifiable environmental benefits. Although many parties recognize the potential value of offering an alternative approach with ecosystem market-based options that could be applied to a landscape scale, the state does not, at present, have the clear priorities needed to target mitigation actions for the greatest conservation benefit or a policy framework to support this approach.

Landscape-level planning will provide a tool to balance the need to site new energy development and transmission facilities with environmental constraints and other conservation values, helping to create a shared vision for long-term interaction of development and conservation. The product of these planning efforts, conducted on a regional scale, should be a decision support tool that provides geographic priorities to guide and inform siting decisions at the state, federal and local levels. Landscape planning is not intended to be a regulatory tool or replace project-level impact studies that are required as part of the siting process, but it may allow a more streamlined approach by directing development to areas with fewer conflicts and focusing attention on the most significant issues. Adoption of a landscape approach to mitigation based on regional conservation priorities should provide more efficient and effective options to offset impacts of permitted development. The result should be net conservation benefits for wildlife and habitats, and a process that is more efficient, transparent, and cost-effective. Landscape planning efforts should focus initially on eastern Oregon and expand to other regions in the future. In addition, relevant agencies will set up a mitigation bank to provide agencies tasked with mitigation efforts the ability to make strategic investments to protect habitat regardless of the location in which the project they are mitigating is located. The goal is to achieve greater predictability and certainty for all parties involved in the siting process.

Action Item: The state will create a landscape level plan decision-making tool and a mitigation bank.

Create Strong Project Officer Model

Multiple governmental entities, including state and federal agencies, tribes, and local governments, are involved in the siting and permitting of energy facilities, particularly linear projects. Their approvals are governed by separate laws, with different objectives, standards, and processes. We will work to improve agency coordination and seek greater uniformity of standards and thresholds, where appropriate.

The Project Officer will be the point person to ensure appropriate state coordination and participation at all levels of government. This includes coordinating with tribal and federal agency efforts, and entering into programmatic and project-specific Memorandums of Understanding ("MOUs") as needed. Coordination mechanisms for projects under federal and state review must be formalized, as well as processes for state participation in Federal Energy Regulatory Commission ("FERC") proceedings.

Action Item: The state will create and adopt the "Strong Project Officer" model by establishing an interdisciplinary team ("IDT") of agencies, led by the Project Officer, to review proposed Energy Facility Siting Council ("EFSC") projects. Agencies will make participation in the IDT a priority and raise issues in a timely manner in the IDT setting. Any conflicts within the IDT will be resolved by the Project Officer to the extent possible, with elevation to agency directors and then to the Governor's office to assure timely progress.

Adjust Jurisdictional Thresholds for Renewable Facilities

Renewable energy facilities are often approved through local county land use review rather than through EFSC's siting process. This is due in part to EFSC's jurisdictional thresholds for such facilities and in part to the perception by applicants that county approval can be obtained more quickly and easily, and at less cost. However, county staff and resources often are too limited to provide meaningful review of proposed energy facilities, and state agency staff may not always respond in a timely manner to counties' requests for assistance in their review. In addition, county approval standards may not be consistent with EFSC standards and as such may not be effective in implementing state energy and natural resource conservation policies.

In order to achieve more consistent standards and reduce forum shopping, the State will create a tiered threshold structure to encourage local governments to adopt standards for renewable facilities consistent with state standards. Local jurisdictions with standards that differ significantly from state standards would be subject to a lower jurisdictional threshold. Conversely, local governments with standards that are consistent with state standards would be authorized to review larger projects. The purpose of this new regulatory structure would be to preserve local governments' ability to make siting decisions that affect their communities while ensuring they have the resources necessary to implement state energy and natural resource conservation policies.

Action Item: The state will amend the Energy Facility Siting Council statute to adjust the jurisdictional threshold for renewable generation facilities.

Clarify Definition of Single Energy Facility

To avoid more stringent state siting requirements, wind power developers in some areas have, on occasion, split large projects into separate projects of less than 105 megawatts, allowing permitting by local land use authorities rather than the state. The result has been piecemeal permitting of large-scale development without a full evaluation of impacts and no assurance for needed mitigation. To prevent segmentation of large energy development proposals into separate smaller projects to avoid state siting requirements, the Legislature should amend statute to give EFSC the authority to develop a rule on what constitutes a "single energy facility" for purposes of state permitting jurisdiction.

Action Item: The Energy Facility Siting Council will by statute amend the definition of a single energy facility.

Amend EFSC "Balancing Rule"

To address concerns regarding local control, speed of review, and state interests involved in facility siting, the state will amend the EFSC "balancing" rules to include triggers for invoking the balancing process, notice to affected agencies, and timelines for response. This includes eliminating the requirement that an applicant must concede that it cannot meet the applicable standard in order to invoke the balancing process.

Action Item: The state will amend by rule to adjust the Energy Facility Siting Council "balancing" rule.

Allow Right-Sizing of Transmission Facilities

When Oregon's regulated utilities are developing major linear facilities, such as electric transmission lines or natural gas pipelines, current Oregon Public Utility Commission ("OPUC") requirements discourage overbuilding that would minimize future impacts of multiple facilities. Currently, OPUC regulatory practice allows utility cost recovery only for those facilities that will be deemed "used and useful" to customers. Allowing utilities to right-size linear projects would have the effect of saving rate-payers from bearing the cost of making multiple transmission investments over a longer period of time. The state should consider allowing utilities to make investments in transmission infrastructure to meet projected future demand and to allow for additional capacity if the additional capacity would save rate-payers from bearing the cost of multiple capital construction investments over time.

Action Item: Through a statutory or administrative rule change the state will create a regulatory structure to allow right-sizing of transmission facilities while protecting rate-payers from bearing unnecessary financial burden.

Bonneville Power Administration

The Bonneville Power Administration ("BPA") is a critical link to the future of renewable resource development in the Northwest. The federal agency owns and operates over 70 percent of the transmission capacity in the region. As BPA implements its statutory responsibility to "encourage the development of new, renewable resources," it will be important to operate the transmission system to deliver low-cost energy to the region while continuing to integrate variable renewable resources.

Working with the region's stakeholders to identify a more cooperative and efficient method of managing within-hour variability and seasonal generation issues is a key challenge for BPA. Progressing toward more modern grid operation should be done in a way as to encourage new renewable resources to develop in the region. Market-oriented solutions, such as the creation of an energy imbalance market, have the potential to stimulate renewable energy development and green power sales throughout the West, bringing with them critical jobs and tax dollars for rural Oregon. Building out proposed transmission lines, such as Boardman to Hemingway and Cross-Cascades, would ease the burden on the Bonneville system, create more diverse access to Oregon's renewable energy potential, and help Oregon utilities meet the state's greenhouse emissions reductions goals.

Financing Clean Energy Infrastructure

Perhaps the single most important short-term issue affecting continued investment in clean energy production is the federal renewable production tax credit. The credit, which is set to expire at the end of 2012 for wind production and shortly thereafter for other renewable technologies, yields private investment of well over 10 times the investment that taxpayers make on the capital investment alone. While the credit has averaged a cost of a little over $1 billion per year, the American Wind Energy Association estimates that it drives more than $15 billion in private investment each year.[45] The effectiveness of the tax credit has, in the past, been hamstrung by short-term extensions and uncertainty around whether or not it would be renewed. In those instances when it has not been renewed, renewable production has been nearly completely wiped out. In a competitive world where these technologies need to be deployed at an even faster rate, the United States Congress should extend the tax credit for the long-term. Due to the importance of federal incentives for renewable energy generation, a critical component of Oregon's energy future, and the economic impact the wind industry has had on the state, Governor Kitzhaber serves as Vice-Chairman of the Governors Wind Energy Coalition and will continue to work in close collaboration with Oregon's federal delegation to drive clean energy policy on a national level.

At the state level, there are several tools available for investing in clean energy infrastructure. The state supports several tax incentives and has a unique tool in the SELP program.

Action Item: The state will assess how each incentive program functions in the market and will, while protecting tax-payer investment, remove market barriers to ensure the money is accessible to clean energy generation projects.

45 American Wind Energy Association, Federal Production Tax Credit for Wind Energy, http://www.awea.org/issues/federal_policy/upload/PTC-Fact-Sheet.pdf

Goal Three:
Accelerate the market transformation to a more efficient, cleaner transportation system

Oregon has made huge strides in increasing efficiencies in the transportation sector and reducing emissions and fuel use over the last four decades. The majority of the gains in reductions are the result of community based initiatives that integrate land use and multi-modal transportation planning. Due to the cumulative investments by cities, counties and businesses, among other factors, our state has seen a leveling off, and slight decline, statewide, in the amount of vehicle miles traveled on state highways.[46] While other states have also seen a leveling off,[47] the VMT in Oregon has dropped dramatically in comparison to other states,[48] whose urban areas allow development that puts people farther away from their jobs and services and who do not maximize the use of other modal capacity. Oregon's gains in transportation efficiency equate to real savings for citizens of Oregon; less fuel consumed, less time spent in the vehicle and easier access for businesses to reach consumers.

All of the strides and cumulative investments made in the state have put Oregon on a path to reduce greenhouse gas emissions from the movement of people on the ground by 34 percent below 1990 levels by the year 2050.[49] Additional community investments and integration of transportation with our land use decisions, enhanced operations, and technological gains are needed to reach Oregon's 2050 reduction goal (ORS468.205). The Statewide Transportation Strategy, developed by the Oregon Department of Transportation, shows that a mix of technology, transportation and land use actions are needed to achieve this goal. For emissions resulting from the movement of both people and goods on all modes of transportation, the STS shows a future with 60 percent fewer GHG emissions than 1990. To reach this level, aggressive programs and strategies must be employed that address transportation systems, vehicle and fuel technology, and urban land use. Demand management and technology are key components.

There are four major strategies identified in this ten year timeframe that balance demand management with technological advances to bend the emissions curve and put us on a trajectory toward our 2050 goals:

- Continued Investment in Compact, Multimodal, and Mixed-use communities,
- Accelerated Fleet Turnover (residential and commercial) to Alternative Fuels,
- Implementation of Intelligent Transportation Systems, and

46 Oregon Department of Transportation. State of the System: 2012 Report on Oregon Transportation System. To be published December 2012.

47 Victoria Transport Policy Institute. The Future Isn't What It Used To Be: Changing Trends And Their Implications For Transport Planning. 7 October 2012.

48 Bureau of Transportation Statistics. State Transportation Statistics. Accessed electronically at: http://www.bts.gov/publications/state_transportation_statistics/ November 2012.

49 Oregon Department of Transportation. Ground Passenger Summary Sheet. Meeting Materials for the Statewide Transportation Strategy Policy Committee, October 24, 2011.

- Innovation in Financing a Clean Transportation System.

Compact, Multi-modal and Mixed-use Communities

As stated in the Oregon *Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Reduction*, "Oregon has been a leader in planning communities and transportation infrastructure to support expanded transportation options that not only create livable communities, but have also gone a long way in reducing greenhouse gas emissions." Additionally, technological innovations and operational efficiencies have further reduced emissions in the state. In total, Oregon is well situated to reduce emissions as implemented and planned work has created a strong foundation on which to build.

The importance of the linkage between transportation and land use planning has been acknowledged for many years and has helped to manage transportation travel demand. Oregon was a leader 40 years ago, when the Legislature put in place management techniques to help reduce transportation-related emission by controlling sprawl. To date, all Oregon cities have adopted Urban Growth Boundaries ("UGBs"). Oregon is one of the few states with such management measures.

Planning efforts such as the development of Regional Transportation Plans have included multi-modal elements, providing transportation options to the single- occupancy driver, and managing the system for optimized travel.

As a result of past efforts to plan for compact growth and build in transportation options, metropolitan Oregonians already drive less, and emit fewer GHG emissions, than residents of comparably sized metropolitan areas around the country. Beyond the metropolitan areas, other local governments around the state have accomplished much through their planning efforts.

Community leaders across Oregon are concerned about the increasing price of fuel and impacts to household budgets and costs of doing business. Communities across Oregon are attempting to invest limited resources in programs and projects that will give citizens the greatest rate of return on investments and create livable places to live and work.

There are two important programs that will further the discussion of how to get the biggest bang for the limited transportation buck for the public and private sectors: Metropolitan Scenario Planning and Least Cost Planning.

Metropolitan Area Scenario Planning

In order to weigh the options and their relative impacts, many regions across the country have begun to use scenario planning. Scenario planning is an opportunity for policy makers, stakeholders and the public to think outside the box and consider a wider range of opportunities, challenges, and possible futures than may be considered in other planning efforts.

The Oregon Sustainable Transportation Initiative ("OSTI") is an integrated statewide effort to reduce GHG emissions from the transportation sector while creating healthier, more livable communities and greater economic opportunity. Land use and transportation system optimization strategies have been shown to be among the most cost-effective strategies to reduce greenhouse gas emissions in Oregon.[50] Land use planning can proactively decrease emissions while making communities more accessible and user friendly. The efforts of OSTI and Statewide Transportation Strategy are the result of several policies designed to help the state meet our 2050 goal of reducing GHG emissions by 75 percent below 1990 levels (ORS468.205).

Action Item: The state, including DEQ, ODOT, DLCD, Housing, ODOE and Business Oregon, will continue to work with communities to move from research to policy development and actionable items that combine land uses and increase modal choice for freight and passenger travel.

State agencies will adopt appropriate policies and program implementation, including project prioritization criteria, that reflect energy efficiency and demand management to meet the 2050 goal.

The state, including DLCD, DEQ, and ODOT will continue to partner with MPOs to use scenario planning to quantify and forecast potential economic, environmental and equity impacts from different approaches as we look to reduce greenhouse gas emissions from the transportation sector.

Least Cost Planning Tool

ODOT's least cost planning tool ("LCP") is an attempt to improve the ability to measure the true costs and benefits of transportation plans, strategies, and action for development and project identification. This tool has been used extensively in the energy utility world to manage demand through planning for capacity additions and demand management. This methodology has reduced the cost to consumers, both business and residential, over the past five decades.

LCP seeks to incorporate utility-based efficiency and conservation tools to better address issues such as public health, economic, and environmental impacts. In doing so, it will increase diversity of information considered in transportation decision-making in Oregon. It also can provide a more accurate assessment of potential benefits relative to costs and impacts.

ODOT is in the process of working with stakeholders to develop a Least Cost Planning tool that can be applied at different stages of project definition and development.

Action Item: The Department of Transportation will use the least cost planning tool in scenarios for corridor planning as well as prioritization in investments including demand management. DLCD may also use this tool to inform the development of regional and local plans. Agencies with investment portfolios will consider the use of LCP in their decision-making processes as applicable to energy use and energy conservation.

The Oregon Transportation Commission ("OTC"), in coordination with the LCDC, state agencies, stakeholders, and the public, will update the State's long-term Modal Plans for Rail, Public Transportation and Bike and Pedestrian to reflect the need for multi-modal, mixed use development at both the state and local level. In addition, OTC will focus on the following important additional

50 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, Center for Climate Strategies, July 30, 2012.

elements in an updated OTP: energy efficiency and demand management, public health, complete streets design, practical design, least cost planning and inter-modal connectivity.

ODOT staff will propose a process for Project Design that would require Traffic Engineers to evaluate the mobility of walking, biking, and transit users in communities when assessing the capacity and mobility of the needs of vehicles. They will then test the evaluation process in demonstration projects. In addition, ODOT, DLCD, DEQ, Public Health, Housing and ODOE staff will work together to develop a multi-modal Level of Service for projects in communities where the existing modal split is 10 percent or higher for combined bike, pedestrian and transit.

Fleet Conversion

Oregon citizens are already ahead of the pack when it comes to early adoption of highly efficient and alternative fuel vehicles. Oregon consistently ranks in the top states for purchases per 1,000 households of hybrid Toyota Prius cars.[51] The state's market readiness and customer interest earned it a spot among the initial five states for the deployment of the first affordable, mass-produced, all-electric car, the Nissan Leaf.

The anticipated increased use of alternative fuel vehicles is creating a new role for Oregon's utilities as they become fuel providers for the transportation sector. Further down the road, emerging smart grid technologies promise to leverage electric cars into mobile energy resources for the grid. Such trends pave the way for innovation, technology, and a rise in public-private partnerships. Both investor-owned and consumer-owned utilities, along with their oversight boards, councils, commissions, and the state, can help accelerate the early deployment of alternative fuel vehicle infrastructure, as can third-party efforts.

Action Item: *Based on successful programs elsewhere, Oregon should develop a comprehensive alternative fuel program that allows utility-ownership of refueling infrastructure and provides incentives, where appropriate, for vehicle conversions. Replacement vehicles include, but are not limited to, biodiesel, electric, CNG, propane and LNG vehicles for all vehicle types including heavy trucks and school buses. In promoting such conversions, the state will consider how smart grid technologies and practices could increase the value of the converted fleets to the overall energy infrastructure and grid operations. This process will inform the kind of regulatory framework and incentive structure that would be required to further accelerate the market for alternative fuel vehicles.*

The state will continue to work with the transportation manufacturing cluster on advancing innovation in alternative fuels through research and development of technology and deployment to grow these innovations.

The state will implement the recommendations of the Energizing Oregon Plan that identifies regulatory streamlining and infrastructure needs.

51 Hybrid Market Dashboard, www.hybridcars.com

The State will support fleet financing projects like Clean Fleets Work that are currently supported through USDOE grants.

Supporting the Alternative Fuels Economy

The state will continue to build out an alternative fuel infrastructure in Oregon, including, but not limited to, biofuels, propane, electric and natural gas. In 2007, Oregon passed the Renewable Fuel Standard ("RFS") legislation that requires 10 percent ethanol to be mixed into gasoline and 5 percent biodiesel in diesel. The Clean Fuels Program ("CFS") was passed in 2009 and is scheduled to sunset in 2015. The CFS does not mandate the use of specific fuels, but instead allows fuel importers and distributors to use a mix of traditional fuels and lower carbon alternatives. Extending the CFS beyond the current 2015 sunset will reduce demand for carbon intensive fuel sources, create demand for alternative fuels, such as electricity, natural gas and second-generation biofuels, and provide the market predictability essential to supporting investment in and development of refueling infrastructure. Doing so has been shown to provide important economic benefits to Oregon's economy under a number of different potential compliance pathways.[52]

Action Item: Amend statute to remove the sunset for the clean fuels program and continue efforts to grow the alternative fuel industry in Oregon through market analysis and regulatory streamlining.

Clean Cities Plan and Implementation

The Energizing Oregon project, funded by the U.S. Department of Energy ("USDOE") planning grant, has three main objectives: to integrate and optimize existing Oregon Plug-in Electric Vehicle ("PEV") readiness and efforts, develop a statewide PEV market and community plan, and create momentum for reaching the national PEV deployment goal. The Clean Cities Plan is slated to be approved by the USDOE within the next year. The State must adopt policies and programs to make our state more competitive, and use existing state infrastructure to leverage federal investment in our transportation system.

Action Item: The State will implement the recommendations in the Energizing Oregon Plan that identifies regulatory streamlining and infrastructure needs.

The State will work with Business Oregon, the Department of Consumer and Business Services ("DCBS"), Building Codes Division, DEQ, ODOT and ODOE to apply for infrastructure grants from USDOE and the US Department of Transportation ("USDOT"), as they become available, to help strengthen our communities.

Intelligent Transportation Systems

A significant part of the demand management equation for conservation of fuel will depend on our ability to manage the assets we have today for both freight and passenger travel. The effectiveness of

52 Economic Impact Analysis of the Low-Carbon Fuel Standard Rule for the State of Oregon, Jack Faucett Associates, Inc., January 2011.

that system can be increased by how we provide information to the traveling public about travel time and costs by mode as well as increasing safety which decreases delay in the system.

Intelligent Transportation Systems over time have grown in application from highway capacity management through on-ramp metering to arterial signal progression to transit arrival time information access through phone apps.

There is projected growth in vehicle-to-vehicle communication, vehicle automation, and communication between transportation hard infrastructure such as signals and vehicles. Oregon's high tech and gaming industries have the potential for growth in this field.

The ability to provide real-time information to users of the system to make decision on travel time and cost will depend on the ability of public agencies to coordinate together as well as with private industry. Data sharing will be at the core of this new integrated system.

Action Item: The Governor's office will act as convener for a statewide conversation with industry and public sector agencies that will acknowledge the state of the system, where we want to be in ten years and what needs to be accomplished to fill the gap. A prioritized list of programs and or projects will be recommended to the Governor for action.

The Department of Transportation and our University System will partner with the Metropolitan Planning Organizations and other jurisdictions on unique opportunities to maximize the capacity of the entire transportation system using LCP principles and include transit and freight.

Financing the Transition to a Cleaner Transportation System

The state will advance an investment package that includes increased funding for local roads and bridges that incorporate multi-model design elements, bicycle and pedestrian infrastructure, transit operations and capital, freight and passenger rail improvements, as well as marine and air. This package should support development of all our modes to manage demand for travel. The estimated annual need for capital investment in these elements of our transport system exceeds $500 million.

In addition, as federal fuel efficiency standards increase, low- and zero-emission vehicles hit the road and fuel use decreases. This trend challenges a transportation system funded by gas taxes that are restricted to road and automobile-based investments. To address this revenue challenge, the state will develop alternative transportation funding strategies that will provide stable and flexible funding to help the state achieve our energy and emission reduction goals.

Action Item: The legislature should consider the use of a Road User Fee for highly efficient vehicles (55 mpg or greater) in lieu of a gas tax.

ODOT's Innovate Partnership Section should work with stakeholders to consider a demonstration of an alternative revenue model based on road user fee in an area of Oregon. The Road User Fee should include a vehicle impact fee based on vehicle class, including weight and emissions.

The state will support continued conversations about sustainable funding multi-modal transportation infrastructure in order to meet its greenhouse gas reduction goals for the transportation sector including freight and passenger travel by air, marine, rail, transit, bicycle and pedestrian.

Workforce Development

According to the Oregon Employment Department's second statewide green jobs survey, Oregon had an estimated 43,148 green jobs spread across 4,339 employers during 2010[53]. While the survey is titled a "green jobs" survey, the vast majority of the job titles included in the survey correlate directly or indirectly to the areas discussed in this plan.

The construction industry reported the largest number and highest share of green jobs. About one-fourth of all green jobs statewide were found in construction. Natural resources and mining, state and local government, manufacturing, and professional and technical services accounted for more than three-fourths of all green jobs.

According to employer responses to the survey, 44 percent of all green jobs either had no educational requirements or required no degree, while 39 percent of green jobs require some form of postsecondary education. The Employment Department estimates indicate that the average hourly wage for all green jobs in Oregon ($23.07) was somewhat higher than that of all non-federal jobs in Oregon ($19.83). Generally, those green jobs with higher educational requirements also provided higher wages.

Labor market analysis of these jobs can be challenging. Most green jobs do not have their own occupational codes. Companies in many emerging green industries cross over into other sectors. In many cases, training for green jobs is based on traditional training programs, with additional "green" coursework or certifications. In some cases, new green jobs will evolve from the need for new and different mechanisms for planning and coordinating to increase efficiency or mitigate damage, like in the case of landscape level planning. In other situations, additional jobs will emerge from newly commercialized and implemented technologies, as in the case of Intelligent Transportation Design.

clean energy works oregon

Clean Energy Works Oregon: Making the Program Work for Contractors

From day one, the leadership at Clean Energy Works Oregon (CEWO) knew that their program wouldn't work if it didn't work for contractors – but figuring out how to make that a reality has been an active learning process. As a program charged with saving energy, CEWO had to balance the priorities of multiple stakeholders – in particular, contractors' interests in upgrading as many homes as possible, with the program's need to enforce quality installation standards, track impacts, and ensure a good customer experience.

It was only with ongoing feedback from contractors, participants, and program data analysis that they were able to identify problems quickly, and find solutions acceptable to both the contractors and the program. CEWO leadership came to understand the importance of a coordinated "voice of the contractors." They observed that, despite having training standards in place, their contractors had varying levels of technical experience and business savvy – which inspired the creation of a set of business development classes and mentoring opportunities for new contractors.

Program Stats:
Home energy upgrades from summer 2010 through March 2012: 1,300

Average cost of residential upgrade: $14,300

Contractors in CEWO's network: 50

[53] "The Greening of Oregon's Workforce: Jobs, Wages, and Training", Oregon Employment Department,
January 2012: QualityInfo.org/Green

In June 2012, Oregon released a new ten year Strategic Workforce Development Plan. The plan identifies three strategies for developing a workforce that can support the growth and innovation of Oregon companies. Certified Work Ready Communities will assure that workers have the foundational and problem solving skills necessary for new and emerging industries including "green" jobs. Sector strategies are industry-led efforts to better meet the specific workforce needs of industry sectors. Oregon's State Workforce Investment Board has developed a Green Jobs Council to focus specifically on the needs of the industries defined in this plan. In order for Oregon to increase family wage jobs via this plan, we must work with the OWIB Green Jobs Council as it works to align workforce development and education systems to pay close attention to the needs of these emerging and evolving industries, identify career pathways that lead to higher wage jobs, invest in the type of skill development that leads to good jobs, and coordinate responses to industry needs. To assist with this effort, the state will conduct a gap analysis in each of the sectors listed in this plan to understand whether or not we have the workforce we will need to meet our state's ten year energy goals. By working with this committee, the state will bolster existing labor, community college and university system workforce develop and education programs to build the local labor force needed to meet our 10-Year Energy Plan goals.

Oregon's workforce system is evolving to provide more opportunities for on-line training and certification for industry recognized credentials. Many of the occupations related to the strategies in this plan will benefit from the state's ability to provide the skills training and certification in a more cost effective and efficient manner. The system is partnering with industries to support more cost effective ways for companies to train their own through on-the-job training programs. This is another opportunity for the industries related to energy to find skilled workers who can quickly transfer existing skills to new jobs. By helping the workforce system better understand the opportunities and trends that emerge within the energy sector as a result of this plan, industry and policy leaders will be able to influence the development of a skilled and innovative workforce to meet industry needs.

Oregon National Guard Fort Oregon Project

Oregon is a geographically and climatically diverse state which offers numerous possibilities for renewable energy that other installations do not possess. Due to these unique features, the Oregon Military Department ("OMD") is exploring industrial scale solar, wind turbines, geothermal, and wave energy opportunities to offset the annual energy consumption of the OMD.

Energy Security projects have now become a central part of the mission statement of all Department of Defense agencies, which coincides with the Oregon Legislature's mandate to invest 1.5 percent of all construction projects into Solar Energy development. OMD, with Legislative approval, has sought to maximize these investments by moving solar requirements from construction projects in northwest Oregon to Ontario, which increased our energy output and will reduce current and future state operational costs.

The high desert of Oregon is ideal for solar energy development and more efficient than other desert climates because of the large number of sunny days along with cooler ambient temperatures. It is abundantly clear that by developing an Energy Security project at Christmas Valley through use of the abandoned infrastructure, the OMD would save significant taxpayer dollars in the future. While Christmas Valley offers some of the best conditions for a solar project in the country, other renewable opportunities such as wind and geothermal should also be studied. The land, climate, and existing electrical infrastructure provides an opportunity to develop an industrial scale renewable energy project that can produce more than enough energy to offset the energy consumption of the OMD.

Next Steps

Item	Legislation	Exec/Admin Action	Recommendation Team
Unlocking Energy Efficiency	Yes	Yes	
State Building Innovation Lab		Yes	
Conservation Tax Incentive ("RETC" and "Connie")	Yes	Yes	EEDM Design Team
Oregon Innovation Council Funding	Yes (Budget)		
Clean Energy Works Oregon	Yes (Budget)		
Energy Efficiency Research & Development/Commercialization		Yes	EEDM Design Team
Small Scale Energy Loan Program (SELP) Capitalization	Yes (Budget)		
Energy Performance Score	Yes		EEDM Design Team
Landscape Level Planning	Yes	Yes	Siting Design Team OEPC Report
Strong Project Officer Model		Yes	Siting Design Team OEPC Report
Jurisdictional Threshold Adjustment	Yes		Siting Design Team OEPC Report
Balancing Rule	Yes		Siting Design Team OEPC Report
Ocean Energy Siting Statute	Yes		
Generation Tax Incentive	Yes		
Biomass Collector Incentive Redesign	Yes		Oregon Biomass Working Group

Infrastructure Financing Mechanism (Transportation, Grid Improvements; Transmission; Energy Efficiency)		Yes	
Fleet Conversion	Yes	Yes	Transportation/Demand Mgmt. Design Team
Clean Fuels Program	Yes		Transportation Design Team
Least Cost Planning Tool Use By ODOT		Yes	Transportation Design Team
Clean Cities Plan Management		Yes	Transportation Design Team
Non-Gas Tax Transportation Financing	Yes	Yes	Transportation Design Team
New Governance Model	Anticipated	Anticipated	Governance Task Force
Workforce Development Programs		Anticipated (Budget)	Task Force

Appendices

- Oregon Energy Task Force Report and Recommendations to the Governor (PDF)
- Task Force Addendum Including Design Team Reports (PDF)
- Building a Clean Energy Future and Safeguarding Oregon's Natural Environment
- Sixth Northwest Conservation and Electric Power Plan (PDF)
- 2011-2013 State of Oregon Energy Plan (PDF)
- Oregon Public Utility Commission Report on Distributed Generation (PDF)
- Oregon Energy Planning Commission, 2010 Report (PDF)
- Oregon Global Warming Report to Legislature, 2010 (PDF)
- Financial and Economic Impact of the Business Energy Tax Credit, Final Report, May 2011 (PDF)
- 10-Year Energy Action Plan Modeling: Greenhouse Gas Marginal Abatement Cost Curve Development and Macroeconomic Foundational Modeling for Oregon, July 2012.

ENTERED JAN 19 2012

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 1461

In the Matter of PUBLIC UTILITY COMMISSION OF OREGON Investigation of matters related to Electric Vehicle Charging.	ORDER

DISPOSITION: GUIDELINES ADOPTED; UTILITIES ORDERED TO MAKE REVISED TARIFF FILINGS

I. PROCEDURAL HISTORY

At our December 8, 2009, Public Meeting, we opened this docket at our Staff's request to investigate matters related to the charging infrastructure for plug-in hybrid vehicles and electric vehicles (collectively referred to as EVs).[1] Specifically, we intended this docket to address general matters related to the emergence and development of the EV charging market and industry, including the role of electric utilities with regard to owning and operating EV service equipment (EVSE) and acting as EV service providers (EVSP). The Citizens' Utility Board of Oregon (CUB) noticed its intervention in the investigation, and the following parties were authorized over the course of the docket to intervene as parties: the Oregon Department of Energy (ODOE); ECOtality, Inc.; Smart Grid of Oregon (SGO); Grid Mobility LLC; Mitsubishi Motors R&D of America; the Oregon Department of Environmental Quality (DEQ); Nissan North America, Inc.; CleanFuture; the Northwest Energy Coalition (NWEC); Portland General Electric Company (PGE); PacifiCorp, dba Pacific Power (Pacific Power); and Idaho Power Company (Idaho Power).

On June 22, 2010, Staff and interested parties participated in a public workshop to discuss the scope of the investigation. Staff subsequently prepared a "straw proposal," published on July 22, 2010, that was intended to facilitate and focus further discussion in the docket. On August 6, 2010, a second public workshop was held. Staff and parties submitted opening comments on August 27, 2010.

[1] *See* Staff Report for December 8, 2009 Public Meeting, Item No. 4.

On September 9, 2010, we presided over a technical workshop with Staff and the parties. Following this workshop, the presiding Administrative Law Judge (ALJ) suspended the procedural schedule to allow us time to consider the issues identified by the parties' opening comments, and to issue a bench request seeking comment on additional issues. On November 15, 2010, the ALJ issued a bench request on our behalf, directing Staff and the parties to provide more information and answer questions regarding specific issues.

On December 9, 2010, a prehearing conference was held to establish a procedural schedule to continue the docket. On February 10, 2011, Staff and parties responded to the bench request, as well as to the opening comments that had been submitted on August 27, 2010. Another public workshop was held on March 2, 2011. Closing comments were submitted by the parties on April 1, 2011.

II. DISCUSSION

Before we discuss the issues identified in our bench request, we address the scope of this docket. During the various rounds of comments, Staff and the parties discussed a wide variety of EV-related issues, including overarching goals for the development of the EV market in Oregon.

We reiterate that we opened this docket to evaluate the state of the nascent plug-in EV market and determine what, if any, regulatory guidance the market needed to guide its development. We deemed it important to initially address what role, if any, investor-owned utilities should play in owning and operating charging stations and promoting EVs in other ways, and the nature of cost recovery for any activities by the utilities. We also determined that there were issues to address at the outset of EV market development in the following areas of concern:

1. The jurisdictional status of non-utility EVSPs;
2. Rate design for EV charging;
3. The allocation of costs for distribution system upgrades;
4. Whether changes to the Integrated Resource Planning (IRP) guidelines to address flexible resources are needed; and
5. Whether new planning and reporting guidelines are needed.

Although we appreciate the thoughtful discussion among Staff and the parties regarding goals for the development of the EV market, we find it too early to declare overarching goals. We will continue to assess the market as it develops and address issues as they arise.

A. Ownership and Operation of EVSE

1. *Non-Utility EVSPs*

a. *Parties' Positions*

Concerns were raised very early in these proceedings about a lack of regulatory certainty regarding the jurisdictional status of non-utility sales of EV charging services including the provision of electricity to the public. Staff initially identified four legal issues: (1) is a provider of EV charging services a "public utility" under Oregon law; (2) is an EVSP is an "electric service supplier" (ESS) under Oregon law; (3) are there legal constraints on electricity sales by an EVSP's sales of electricity to an EV owner, and (4) is the sale of electricity by a public utility to an EVSP subject to regulation by the Federal Energy Regulatory Commission (FERC)?[2]

First, Staff contends an EVSP would be neither a public utility nor an ESS under Oregon law. Staff states that ORS 757.005 broadly defines a "public utility" as an entity that "owns, operates, manages or controls all or part of any plant or equipment" in the state of Oregon "for the production, transmission, delivery or furnishing of * * * power, directly or indirectly to or for the public."[3] Staff notes, however, that ORS 757.005(1)(b)(G) exempts from that definition any entity providing electricity as motor fuel, provided the entity does not also furnish any utility service. Staff argues that a non-utility EVSP that owns and operates equipment solely to provide charging services to EVs is not a utility under the ORS 757.005(1)(b)(G) exception.

ECOtality, Inc., CUB, and Idaho Power agree that EVSPs are not public utilities under Oregon law. PGE notes that a determination about the legal status of any entity depends on the specific facts, but agrees that EVSPs will usually not be defined as public utilities under ORS 757.005(1)(b)(G). Pacific Power expresses concern, however, that it is arguable that when an EVSP sells "electric charging services," and not just electricity, that the ORS 757.005(1)(b)(G) exception may not apply.

Second, Staff contends that a non-utility EVSP is not an ESS subject to regulation under ORS 757.600 to 757.689, because an ESS is defined by its provision of "ancillary services."[4] If an EVSP does not provide ancillary services, or use a utility distribution system to provide power to EVs, the EVSP is not an ESS, Staff reasons. ECOtality, Inc. and PGE agree with Staff's analysis. CUB agrees as well, observing that the statutory list of ancillary services does not contemplate EV charging services as an ancillary service.

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[2] Staff Opening Comments, p. 4.
[3] ORS 757.005(1)(a).
[4] *See* Order No. 08-388 (Docket DR 40). ORS 757.600(2) defines the term, "Ancillary Services," as services "necessary or incidental to the transmission and delivery of electricity from generating facilities to retail electricity consumers, including but not limited to scheduling, load shaping, reactive power, voltage control and energy balancing services."

Third, with regard to other legal constraints on non-utility EVSPs, Staff states that the territory allocation statutes[5] do not apply to EVSPs because of the exception found in ORS 757.005(1)(b)(G). Staff expresses concern, however, that each electric utility has a retail tariff that prohibits a customer from "reselling" electricity provided by the utility. Although it is arguable that this prohibition would not apply to the resale of electricity under ORS 757.005(1)(b)(G), Staff recommends that the utilities revise the tariffs to explicitly allow a customer to resell electricity as motor fuel. PGE agrees, indicating that the current wording of the company's retail tariff likely prohibits an EVSP from buying electricity and reselling it to charge an EV.[6]

Finally, Staff does not believe that FERC would exert jurisdiction over the sale of electricity by a utility to an EVSP for resale to an EV owner. Staff notes that this issue was raised in a proceeding regarding EVs before the California Public Utility Commission (CPUC) due to the grant to FERC, pursuant to 16 U.S.C. § 824, *et seq.*, of exclusive authority over interstate sales of electricity for resale by public utilities (i.e., wholesale sales).[7] Staff reports that the CPUC concluded that an EVSP buys electricity from a utility as an end-user, making the transaction a retail sale that is not subject to FERC jurisdiction.[8] Staff adds that the EVSP's sale of charging services to an EV owner could be considered as "a sale of something other than 'electricity.'"[9] Staff suggests it could be argued that EVSPs sell "alternative fuel," or value-added electrical charging services.[10]

Idaho Power makes a case, however, that a transaction that involves the sale of electric power from a public utility to an EVSP that immediately resells the power as charging services to an EV owner is arguably a wholesale transaction subject to regulation by FERC. Idaho Power observes that the Federal Power Act defines the "sale of electric energy at wholesale" as a "sale of electric energy to any person for resale,"[11] whereas a retail sale involves the sale of electricity to end user that consumes the energy.[12] Idaho Power argues that an EV charging station will not consume the electricity purchased from a utility, but will rather sell it to another customer for actual consumption. ECOtality, Inc., counters that the sale of electricity by a utility to an EVSP can be structured to be a retail sale, not a wholesale sale, by avoiding a reference to the sale of kWh.

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[5] The territorial allocation statutes at ORS 758.400 to ORS 758.475 generally prohibit any person from providing a utility service in a territory that has been allocated to another "person."
[6] PGE Opening Comments, p. 11.
[7] 16 U.S.C. §824 (a)-(b); *Transmission Agency of Northern California v. Sierra Pacific Power Co.*, 295 F.3d 918, 928 (9th Cir. 2002) ("16 U.S.C. §§ 824-824m delegates to the Federal Energy Commission 'exclusive authority to regulate the transmission and sale at wholesale of electric energy in interstate commerce'") (quoting *New England Power Co. v. New Hampshire*, 455 U.S. 331, 340 (1982)).
[8] Staff Opening Comments, p. 7, citing to CPUC Final Decision on Rulemaking R0908009 (Jul 29, 2010).
[9] *Id.* at 7.
[10] *Id.* at 7-8.
[11] Idaho Power Opening Comments, p. 4, citing 16 U.S.C. § 824(d).
[12] *Id.* citing Rules Concerning Certification of the Electric Reliability Organization, 114 FERC P 61104 at **18 (Feb 03, 2006).

b. Resolution

For the reasons above , we conclude that ORS 757.005(1)(b)(G) expressly exempts a non-utility EVSP that provides charging services to EVs from being defined as a public utility. Regardless of how charging services are defined, we find that when electricity is furnished as part of the charging services provided by an EVSP and that electricity is used as motor fuel only, the exception to ORS 757.005 applies. We further conclude that an EVSP exempted under ORS 757.005 is not subject to other regulatory requirements imposed on utilities in ORS Chapters 757 and 758, including the territorial allocation laws.

We also conclude that a non-utility EVSP is not an ESS to the extent that it does not own generating facilities. As we determined in Order No. 08-388, a person is not an ESS unless it "offers to sell electricity services available *pursuant to direct access* to more than one retail electricity consumer."[13] We noted in Order No. 08-388 that, "'[d]irect access' is defined as 'the ability of a retail electricity consumer to purchase electricity *and* certain ancillary services * * * directly from an entity other than the distribution utility.'"[14] An EVSP that purchases electricity rather than generates electricity from a generating facility cannot provide ancillary services and is, therefore, not an ESS.

To the extent a utility's retail electric tariff may be interpreted to prohibit the sale of electricity by a charging station that purchases electricity from the utility, we direct the utility to submit an advice filing, within sixty days of the entry of this order, with a revised tariff that permits a customer to re-sell electricity as motor fuel, consistent with ORS 757.005(1)(b)(G). If a utility does not interpret its retail electric tariff to prohibit the sale of electricity by a charging station that purchases electricity from the utility, we direct the utility to file a letter explaining why no revisions are needed to the tariff.

We do not make any conclusions at this time regarding whether the FERC may exert jurisdiction over an EVSP. The plug-in EV market is nascent, and EVSP business models are just beginning to develop. While we acknowledge the benefits of jurisdictional certainty for all potential EV market players, we find we cannot prognosticate about the course of EV market development, nor about how FERC may or may not exercise jurisdiction over future market players. We advise parties to raise their concerns directly to FERC.

2. Utility Ownership and Operation of EVSE Without Rate Recovery

Most parties addressed the proper role of utilities in the provision of EVSE. The comments focused on the question whether utility ownership and operation of publicly available EVSE in any form—even without regulated rate recovery—would permit the full development of a competitive marketplace for EV charging services.

[13] Order No. 08-388 at 12, citing ORS 757.600(6) (emphasis in original) (Docket DR 40) (Jul 31, 2008).
[14] *Id.*

a. Parties' Positions

Staff originally proposed a guideline that would allow public utilities to own and operate publicly available EVSE, but would preclude rate recovery for any utility investment, including, but not limited to, investment for the design, installation, operation, and maintenance of publicly available EVSE stations. Staff envisioned that utility ownership and operation of the EVSE would be conducted as an unregulated, competitive "below-the-line" venture by the utility or by an unregulated and competitively priced affiliate company of the utility. Staff took no position regarding which arrangement is preferred.

ECOtality, Inc., argues that only utility affiliates should own and operate EVSE stations. ECOtality, Inc., cautions that unregulated utility ownership of EVSE stations on a below-the-line basis may create latent competition that discourages the private market. ECOtality, Inc., argues that utilities may have a marketing advantage to the extent that preexisting relationships exist between municipality officials and utility representatives.[15] CUB also recommends that utilities own and operate EVSE stations through affiliate companies as a means to ensure financial separation. ODOE opines that utility affiliate ownership of EVSE stations may be ideal, but recommends adopting a flexible approach to ownership and operation of EVSE stations by utilities. NWEC similarly prefers utility affiliate ownership, but is hesitant to recommend that an exception never be made for certain circumstances such as pilot station development, technological testing, or investment in underserved areas.

Pacific Power argues that there should be no predeterminations regarding whether utilities will own and operate EVSE stations, and the scope or nature of any utility ownership or operation of EVSE.[16] Pacific Power urges the Commission to be flexible at this early stage of market development. PGE and Idaho Power similarly recommend flexibility, urging the Commission to not overly restrict the form and nature of utility investment at this time.

b. Resolution

At this early stage of development for the plug-in EV industry, we deem it paramount to allow all market players, including the electric utilities, to have flexibility to respond to emerging market demands. We do not find that allowing utilities to potentially participate in the EVSE market will necessarily impede the vibrancy of the whole market. Electric utilities should be allowed to invest in EVSE and operate EV charging stations as a non-regulated, non-rate based venture. A utility may decide how to structure its ownership and operation of EVSE and charging stations, whether below-the-line as a non-regulated utility investment, or as a utility investment.

[15] ECOtality, Inc., Closing Comments, p. 2.
[16] Pacific Power Response to Bench Request, p. 2.

Our rules provide a Code of Conduct (*see* OAR 860-038-0560) that applies equally to utility investments structured below-the-line or undertaken by a utility affiliate and addresses the fair treatment of competitors and the prevention of cross-subsidization between competitive operations and regulated operations.

We advise a utility to thoroughly and carefully consider how to structure the ownership and operation of EVSE. We are concerned that legal questions related to this decision were not fully explored in these proceedings. For example, whether a utility can provide electricity without any rate regulation, even as part of EV charging services on a below-the-line basis, needs to be thoroughly analyzed. A utility providing EVSE on a below-the-line basis would also need to be careful to avoid violation of territorial allocation laws. We address issues related to rate recovery of any EVSE investment immediately below.

3. *Utility Investment and Operation of EVSE With Rate Recovery*

At the September 10, 2010, workshop, we heard conflicting opinions on whether a utility should be able to recover in rates the costs of publicly available EVSE stations. To gather more information on the issue, we asked the following questions in the bench request:

> If the Commission permits utilities to own publicly available EVSE stations, what standards of review should the Commission use to determine when recovery of utility investment in publicly available EVSE stations is warranted? What are the implications, if any, of the used and useful standard (ORS 757.355) for utility investment in charging stations?[17]

a. Parties' Positions

At the outset, Staff notes that the Commission may allow rate recovery for utility investment in EVSE. Staff states that providing electricity for the purpose of charging an EV is a utility service, but it is a service that non-utilities may also provide under the exemption stated in ORS 757.005(1)(b)(G), as discussed above.[18] Staff explains, "if EV charging were not a utility service, then the legislature would not have needed to create the ORS 757.005(1)(b)(G) carve-out."[19] Staff therefore concludes that ORS 757.355, which precludes recovery of investment not used to provide utility service, does not apply.

Although there is general agreement that rate recovery is allowed for EVSE, there are varying positions regarding whether the Commission should permit such recovery, and under what circumstances. Staff recommends the Commission set a very high bar for rate recovery of utility investments in EVSE. Staff asserts that rate-based charging stations should not unfairly compete with independent charging stations, nor should

[17] Commission Bench Request, p. 1 (Nov 15, 2010)
[18] Staff Response to Bench Request, p. 10.
[19] *Id.*

utility owned charging shift costs from EV owners to all ratepayers. Staff proposes that the Commission permit rate recovery of utility investments in EVSE only when the following criteria are met:

1. The utility's cost (investment and operating) in charging stations must meet the same net benefit test as other utility investments.[20]

   Staff indicates that utility EVSE costs should be evaluated within the Commission's traditional regulatory measures of service quality, the fairness and reasonableness of rates, and the prevention of undue cost shifting. Staff observes that the net benefit analysis will vary depending upon whether a utility seeks to recover costs from the EV class alone, or from all ratepayers. In order to justify general rate recovery, Staff states that a utility would have to demonstrate net benefits provided to all ratepayers. Staff explains, "[f]or example, the utility might show that investments in public charging will help implement demand response or achieve better utilization of existing fixed assets."[21]
   would also need to show that the benefits could only be provided by the utility and not another party—e.g., a utility affiliate or a third party EVSP.

2. Charging infrastructure is essential at the location to facilitate plug-in EV adoption in the area.

   Staff suggests that the Commission should consider factors such as: (a) whether the proposed location is on an important travel corridor that requires adequate charging; (b) the proposed location would fill a gap on a corridor that could not be adequately served by private charging stations; and (c) utility service at the proposed location would enable private charging stations to competitively serve other locations on the corridor.

3. There is no likelihood that a third party EVSP or utility affiliate could provide the same services at the location or a nearby location.

   Staff suggests that solicitation of third party bids should always precede utility investment.

4. The utility has a separate EV rate class.

[20] Staff Closing Comments, p. 4.
[21] Staff Response to Bench Request, p. 9-10.

Regardless of the circumstances, CUB takes the position that EVSE investment should not be included in a utility's rate base.

All three utilities argue that regulatory flexibility with regard to the development of the plug-in EV market should allow for the possibility that circumstances might warrant utility investment in EVSE that is rate-based. Analogizing to municipal street lighting systems provided for the public benefit with costs therefore rate based, Pacific Power recommends that the Commission not preclude a utility from bringing forth a proposal to rate base prudently-incurred EVSE investment. PGE similarly urges the Commission to not preclude or limit utility ownership of EVSE, but instead evaluate specific utility proposals to the extent they are made.[22] Idaho Power observes that the company generally agrees with Staff's proposed guidelines, but points to Pacific Power's example of municipality street lights as a reason why that it may not be necessary to establish a separate rate class. Idaho Power observes that since "the potential models for utility ownership of EV charging infrastructure are all hypothetical at this time * * * the Commission should wait until a specific factual scenario arises before making a definitive finding."[23]

ECOtality, Inc., argues that utilities do not necessarily have an inherent advantage working with local governments to site EV charging stations in public rights-of-way, and points out that ECOtality, Inc., is actually working now with several local governments. ECOtality, Inc., also observes that the "streetlight" analogy falls short because municipalities do not use streetlights to generate revenue. ECOtality, Inc., also observes that utilities are obligated to provide electrical service, not equipment. ECOtality, Inc., offers the following advice:

> While flexibility is a virtue in an emerging market with many unknowns, third parties nonetheless need some degree of certainty that utilities won't be allowed to crowd out the rapid evolution of a cost effective, innovator-led market for the charging infrastructure space. Stated alternatively, the foundational rules of the market must be sound and predictable. Allowing utilities to profess lack of serious interest in being EVSPs on the one hand but granting them that future capacity on the other purposefully alienates those innovators who have made the commitment and allocated the resources to build robust Oregon wide charging station infrastructure right now. Accordingly, this is the Commission's best early market opportunity to provide guidance in a clear manner that protects the competitiveness of this fledgling industry.[24]

[22] Docket No. UM 1461, PGE Final Comments, p. 3.
[23] Idaho Power Closing Comments p.5
[24] ECOtality, Inc., Closing Comments, p. 3.

b. Resolution

We agree with Staff and parties that the used and useful test under to ORS 757.355 does not preclude rate recovery for utilities providing plug-in EV charging services, and conclude that utilities may legally recover EVSE installation and operation costs in rates. Utility requests for rate recovery for EVSE investment will be very closely scrutinized, however. We will use Staff's recommended criteria to analyze any future utility proposals to rate base EVSE investment, but also reserve the right to consider additional criteria, as appropriate.

We expect a utility that requests rate recovery for EVSE investment to make a *compelling* case that the utility's ownership and operation of the EVSE is beneficial to ratepayers—not just the public generally. Utilities suggest that prudence be the primary measure used to determine whether EVSE investment should be recoverable in rates. We respond that prudence, in the context of EVSE investment, requires a showing of net benefits to customers. We find, therefore, that Staff's first criterion is fundamental to the analysis. We note, however, that a showing that utility EVSE investment has net benefits to customers may be dependent on a showing of Staff's other criteria, such as the necessity of installing and operating charging infrastructure at the particular location to facilitate plug-in EV adoption in the greater area, and the lack of a third party EVSP or utility affiliate to provide the same services at the location or a nearby location.

B. Rate Design

At the start of these proceedings, some parties favored use of a separate plug-in EV rate with sub-metering, while others urged adoption of seasonal, time-of-use (TOU) rates. In our bench request, we asked the following:

> The Commission asks parties to further discuss both approaches—a seasonal/time-of-use-rate schedule with separate or sub-metering for EV charging versus a time-of-use rate for the entire home or business with an EV charging station. The Commission also encourages parties to think more broadly about the issue to consider alternatives other than time-of-use rates that could be used by utilities and other to encourage off-peak charging. For example, Staff has considered whether a discounted rate class should be created for EV charging in exchange for service being interruptible during on-peak periods. The Commission asks parties to comment on the merits or disadvantages of this approach. Should any approach used to encourage off-peak charging of electrical vehicles be initially implemented as a pilot program? The Commission also asks parties to comment about the role of customer education with regard to EV charging during the off-peak.[25]

[25] Bench Request, p. 2.

1. Parties' Positions

a. Staff

In opening comments, Staff recommended that utilities be required to create a separate EV rate schedule that would be mandatory for all EV charging customers. Staff favored creating a separate EV rate in order to encourage off-peak charging for the vehicles, and to provide utilities and the Commission with data on charging patterns.[26] Staff also noted that "if a separate EV rate is not in place during the early adoption phase, it will only get harder over time to require appropriate cost-based EV rates."[27]

Staff recommended spreading the costs associated with metering and billing for a separate EV rate schedule across all ratepayers. Although assigning these costs to the EV class would be more consistent with traditional cost causation principles, Staff argued that off-peak charging will improve utilities' load profiles and create benefits for all ratepayers. Staff also worried that the one-time costs associated with creating a new rate class would likely be too large, relative to the small number of early adopters for plug-in EVs.

In response to the Commission's bench request, Staff acknowledged that a TOU rate for an EV customer's entire premise would retain the benefits of promoting off-peak charging. Staff identified five plug-in EV rate policies for the Commission's consideration:

1. The status quo, with voluntary whole premise TOU rates and no EV-specific rate;
2. Mandatory whole-house TOU rates for customers whose utility currently has a TOU rate, with the status quo for EV customers with no currently offered TOU rate;
3. Mandatory separately metered TOU-EV rates for all customers;
4. A choice of separately metered EV rates versus whole premise TOU rates for all EV customers; or
5. Allowing only residential EV customers the choice, with all non-residential EV customers on a mandatory separately metered EV rate.

Staff further modified its proposal, however, in response to concerns raised by other parties about Staff's original recommendation. Staff now recommends that residential and small commercial (below 30 kW) EV customers be allowed to choose between a separate rate for EV charging and a whole premise TOU rate. Staff still recommends that a separate EV rate schedule with a three time period structure be created and be the only option for large customers.

[26] Staff Response to Bench Request, p 17.
[27] *Id.* at 18.

b. CUB

CUB takes the position that separate metering is largely unnecessary for residential EVs and ill-advised because meter installation would discourage adoption of plug-in EVs. CUB also observes that separate metering is superfluous for data collection purposes since the vehicles and charging stations could be utilized for this purpose. CUB recommends that there be a wide range of charging rate options for plug-in EV owners, including TOU and voluntary service interruptible rates. CUB indicates that the available rate structures should be revenue-neutral in aggregate, but have enough variation across time periods to provide incentives to try the TOU or voluntary interruptible rates.

CUB also encourages the Commission and the utilities to contemplate smart charging systems that match EV charging and excess wind and hydro capacity. CUB recommends the Commission require the three utilities to report within six months of closure of this docket on steps necessary to implement smart charging in their Oregon service territories.

c. ODOE

ODOE expresses concern that mandating specific rate designs at the beginning stages of market development may create barriers to adoption of the technology. ODOE urges the Commission to make EV and whole premise TOU rates available on a voluntary basis.

d. ECOtality, Inc.,

ECOtality, Inc., contends a separate EV rate should be created that would be voluntary for residential customers but mandatory for all non-residential customers. ECOtality, Inc., argues that this approach, "best balances the policy objective of consumer choice while addressing cost-shifting concerns that would otherwise exist from daytime non-residential charging as well as create the broadest consistence of EVSE by keeping the rate structures identical."[28] ECOtality, Inc., explains the separate EV rate should be mandatory for all non-residential customers due to concerns about the potential impact of demand charges on EVSE installations. Otherwise, ECOtality, Inc., notes that small commercial customers such as gas stations or convenience stores may install DC fast-charging stations and have high traffic, causing the hosts to exceed their monthly peak limits, thereby incurring high demand and high capacity, rendering the charging stations uneconomic. At the very least, ECOtality, Inc., asks that a separate EV rate be available, if not mandatory.

ECOtality, Inc., asserts that any issues related to separate metering will lessen as the advantages of embedded meters become clearer. ECOtality, Inc., agrees with Staff's recommendation that the Commission open a second investigation into sub-metering. ECOtality, Inc., suggests that submetering pilot studies or voluntary joint collaborations with utilities would be appropriate. ECOtality, Inc., also agrees with CUB's suggestion that a pilot study examining smart charging and wind integration be undertaken.

[28] ECOtality, Inc., Closing Comments, p. 4.

e. NWEC and SGO

Although NWEC favors separate metering for EV customers, NWEC worries that cost and logistical issues associated with a separate meter mandate might pose significant barriers to EV adoption, particularly in the residential setting. For this reason, NWEC does not support a requirement for separate or sub-metering, at least at this time. NWEC instead recommends that all EV charging customers be able to choose among existing flat rates, a whole premise TOU rate, or a separately metered EV TOU rate. NWEC recommends that EV charging customers be assigned, as a default, a TOU rate, thereby encouraging off-peak charging, but allowing customers to opt-out.

SGO also supports customer choice. SGO is confident that EV consumers will gradually choose TOU rates for charging needs, but asserts that it is important not to be overly prescriptive in the early stages of EV adoption.

f. PGE

PGE opposes the creation of a separately metered EV rate, arguing that a separate rate would impose additional costs and administrative issues that would encourage customers to bypass notification to the utilities. PGE also worries that potential savings would initially be mitigated by costs associated with metering. Hypothetically, PGE illustrates that a residential plug-in EV driver that drives 1,000 miles per month would pay about $17.50 for the month on an EV TOU as opposed to $25 a month at the regular retail rate of 250 kWh, but that such savings do not account for metering costs. PGE observes that a separate meter would require a separate customer account that requires a basic monthly charge.

PGE agrees with CUB that there should be collaboration among the parties to investigate the ability to use EV and EV charging stations for data collection and metering. PGE recommends that a research project be undertaken that would compare on-board information to metered data to investigate the validity of on-board data collection.

g. Pacific Power

Pacific Power contends that plug-in EVs should not be treated differently than other electrical appliances from a rate design perspective. Pacific Power asserts that no compelling argument has been made that power delivered to a level 2 or higher EV charging station must be separately metered. Pacific Power takes the position that a customer should choose, rather than be forced, to install a separate meter. Pacific Power worries that mandatory end use rates may conflict with existing rules and laws, such as ORS 757.601(2) which provides that residential customers must be allowed to have rate options.[29]

[29] Pacific Power Closing Comments, p. 4, fn. 2.

h. Idaho Power

Idaho Power also opposes the creation of a separate EV rate class because there are too few customers to justify a new rate schedule, and too little data to properly design a rate schedule that reflects the actual costs to serve EV customers. Idaho Power argues that creation of a separate rate now would essentially be experimental, and would likely require significant redesign later. Idaho Power cautions that poorly designed rates can have negative effects on the market.

Idaho Power asserts Staff's argument that all customers should pay for the costs to create a separate EV class because the EV class is too small to bear the start-up costs on its own is evidence that it is premature to develop a separate EV class. Idaho Power also points out that while EVs may eventually provide system-wide benefits, they will not do so initially, at the time all customers are paying to create a separate EV class, thereby making costs and benefits asynchronous contrary to rate policy.

2. Resolution

Plug-in EVs are already available on the market, but market penetration of the cars will likely be measured. As previously noted, the industry is nascent, with development of the market inevitable, but in a manner and a scope that are not necessarily predictable at this time. We agree with Staff and other parties that it would be beneficial to establish rate mechanisms upfront to guide development in a manner that minimizes impact to the grid, provides cogent data about usage patterns, and sends accurate price signals to consumers. At the same time, however, we hesitate to exert undue influence too early on an embryonic market that may develop in ways we do not yet envision.

We also recognize that we do not yet have the means to identify the first adopters of plug-in EVs other than by self-identification. For this reason, EV-specific rates would be effectively offered on a voluntary basis, as consumers would need to report an EV load in order to be classified by the utility in the EV class. The voluntary nature of EV-specific rates likely would further reduce an initial EV customer base that is already too small to sustain the administrative costs that would be associated with creating and managing a separate rate class. Although we could spread the administrative costs of creating a separate EV rate class across all ratepayers, we acknowledge that it would be better to wait to do so in order to better match the net costs of creating and managing a separate EV rate class with the net benefits to the electric system from a vibrant EV market.

For these reasons, we conclude it is inappropriate, at least at this stage of the EV market development, to require mandatory EV-specific rates. Instead, we direct the utilities to provide all EV customers, regardless of rate class, with the following rate choices: (1) any existing applicable flat rate; (2) a whole premise TOU rate (to the extent a utility already offers this rate); and (3) an EV TOU rate that mimics a utility's whole premise TOU (to the extent a utility already offers this rate) but applies only to a plug-in EV by submeter. We direct each utility to submit an advice filing, within sixty days of the entry of this order, with the utility's revised electric tariff that provides this choice of rates to EV consumers, detailing the EV TOU rate. We expect the costs associated with creating and managing an EV TOU rate that mimics a utility's whole premise TOU rate to be relatively minimal and spreadable to all ratepayers. We encourage the utilities to provide information to EV customers about the benefits of a TOU rates for EV use.

C. Distribution System Upgrades Guideline

Staff originally proposed that the "[e]xisting policies governing cost allocation for distribution upgrades or reconfigurations, including but not limited to line extensions and new connections, shall apply to new infrastructure requirements for publicly available EVSE service."[30] In our bench request, we asked parties to answer three questions related to Staff's original proposal:

1. Will it be possible to assign responsibility for a utility's need to make significant distribution system upgrades to one or a limited number of "last to the system" EV customers?

2. If so, should the last to the system EV customer(s) be burdened with the full cost of the distribution system upgrade?

3. If not, what are reasonable rate alternatives to assigning full cost responsibility to the last to the system EV customer(s)?"

1. Parties' Positions

All three electric utilities have existing line extension polices. Under these policies, a customer that requests a line extension is provided with a cost allowance. Costs within the allowance amount are treated as an operation expense by the utility. Costs above the allowance are charged directly to the customer. Staff takes the final position that the utilities' existing policies governing cost allocation for line extensions should be applied in the context of plug-in EV charging loads. All parties agree with this position.

Staff and all other parties concur that the need to upgrade local distribution facilities results from the cumulative effect of numerous new loads, and that it is impractical and unfair to assign upgrade costs to any one load, even if the "last to the system" customer, such as a large plug-in EV charging load, could be identified. CUB, for example, states that rate recovery for all distribution upgrades, whether due to the installation of a hot tub or an EV charger should be handled in the same way same—i.e., as a monthly distribution charge on each customer's bill and a per-kWh charge, both of which varies by rate class.

Staff and other parties add that electric system load additions due to plug-in EV charging may not necessitate significant distribution upgrades should off-peak charging be successfully encouraged and EVSE facilities are strategically located.

[30] Staff Opening Comments, p. 9.

2. *Resolution*

We agree with Staff and all of the other parties in this docket that there is no discernible reason, at least at this time, to treat EV charging load differently than any other load with regard to distribution system upgrades. Moreover, we acknowledge that EV charging load may not necessitate system upgrades at any time should the load be effectively managed. Consequently, we adopt Staff's recommendation that utilities' existing line extension policies continue to apply, without modification, to all loads, including plug-in EV load.

D. Integrated Resource Planning Flexible Resources Guidelines

The current Integrated Resource Planning (IRP) guidelines are silent regarding flexible capacity. In opening comments, Staff proposed an IRP guideline to fill this need.

1. *Parties' Positions*

Staff's proposed IRP guideline has three parts, as follows:

1. Forecast the Demand for Flexible Capacity: The electric utilities shall forecast the balancing reserves needed at different time intervals (e.g. ramping needed within 5 minutes) to respond to variation in load and intermittent renewable generation over the 20-year planning period;

2. Forecast the Supply of Flexible Capacity: The electric utilities shall forecast the balancing reserves available at different time intervals (e.g. ramping available within 5 minutes) from existing generating resources over the 20-year planning period; and

3. Evaluate Flexible Resources on a Consistent and Comparable Basis: In planning to fill any gap between the demand and supply of flexible capacity, the electric utilities shall evaluate all resource options, including the use of EVs, on a consistent and comparable basis.

Staff asserts that the proposed IRP guideline is consistent with the language and content of the existing IRP guidelines, and addresses an issue that is relevant for resource and planning both now and in the future. Staff states, "[f]lexibility is an increasingly important consideration in the integration of higher percentages of variable renewable generation resources."[31] Staff further comments that "EVs, as the first 'smart appliance', represent an opportunity to capture the power of demand response flexibility as a compliment to other flexibility strategies coming from generation and storage technologies."[32] Although Staff realizes that EVs will not be ready to provide flexible

[31] Staff Response to Bench Request, p. 25.
[32] *Id.*

capacity any time soon due to measured market penetration and technical challenges, Staff argues that it appropriate to begin planning for the future and that a 20-year planning horizon is consistent with current IRP practice.

ECOtality, Inc., agrees, observing that as IRPs involve long-range planning, they should include developing technologies, or events may eclipse planning. ODOE recommends supports Staff's proposed IRP guideline. Neither NWEC nor CUB object to Staff's proposed IRP guideline, although CUB notes a possible practical limitation to EVs functioning as a flexible capacity resource should the manufacturers of EVs or EV batteries be reluctant to allow third parties access to EV battery storage capacity, thereby limiting flexible capacity availability from EVs.

All three utilities oppose adoption of Staff's proposed IRP guideline, arguing that the guideline is prematurely too prescriptive about planning for a resource that is still unknown and uncertain. Pacific Power complains about the administrative burden on a utility versus the analytical value of studies that would be undertaken pursuant to Staff's proposed guideline. Similarly, Idaho Power argues that given the significant uncertainties about whether and when EVs might provide flexible capacity, the Commission should direct utilities to consider, but not model such resources. PGE takes the position that adoption of Staff's proposed guideline is premature, and would impose long range speculative assumptions and create significant administrative burden.

All three utilities recommend further discussion and study in some other forum before adopting an IRP guideline related to flexible resource planning. Pacific Power urges the Commission to further study flexible capacity resources in a manner that accounts for each utility's planning and modeling framework, whether as part of an evolving investigation or through the public IRP processes. Pacific Power also notes that to the extent that these new guidelines are intended to inform the development of demand response programs more generally, the Commission should open an investigation to reevaluate all IRP guidelines related to demand response programs, rather than adopting certain new guidelines in an EV-specific proceeding. As already discussed, PGE suggests the Commission develop a pilot program to collect information to be used to late guide policy. PGE observes, however, that the company is increasing non-controllable variable generation in the form of wind and losing access to controllable flexible generation in the form of hydro. PGE acknowledges, therefore, that this situation makes the assessment of flexible generation an important component of PGE's IRP planning on a going forward basis. Consequently, PGE indicates that the first two parts of Staff's proposed guideline may have value. PGE argues, however, that it is unreasonable to link flexible capacity to EVs at this time, since EVs may be at least a decade away from commercial viability.

2. *Resolution*

At the outset, we conclude there is no need for further discussion on this issue. All three utilities submitted several rounds of comments regarding Staff's proposed guideline, including responses to our bench request. Although all three utilities stated a preference to delay action on this matter, we find no procedural or legal obstacles that would prevent adoption of the proposed guideline now.

We acknowledge that it will take time until plug-in EVs are prevalent enough to provide flexible capacity, but, as PGE indicates, assessing flexible capacity is increasingly relevant now, and effective planning requires an expansive outlook. Staff's proposed IRP guideline relates primarily to planning for flexible capacity, with a reference to the need to begin evaluating, at the industry's developmental start, the ability for plug-in EVs to eventually provide flexibility capacity. We find both efforts appropriate to undertake at this time. While EV data is limited at this time, we agree with Staff that resource planning is always done on the basis of the best information available, and that not including EVs in current planning for the future assumes failure of the market.

Consequently, we adopt Staff's proposed IRP guideline. We direct each electric utility to address the new IRP guideline in its next IRP filing.

E. Additional Guidelines

In our bench request, we asked parties to consider whether there was a need for additional planning or reporting requirements to monitor the EV and EVSE markets.
We also encouraged Staff and the parties to propose and discuss additional guidelines.

1. Parties' Positions

Staff does not recommend, at least at this time, the imposition of additional reporting requirements at this time. Rather, Staff contends that the utilities should report on EV issues in their respective IRPs. Staff also envisions that EV issues may eventually be addressed in smart grid plans, but indicates that such reporting will be addressed in another proceeding, docket UM 1460. Staff adds that its ability to serve data requests in an IRP docket or, as necessary, a rate case, provides sufficient opportunity to gather information on specific issues that may arise in the future. Pacific Power agrees.

CUB was the only party to recommend separate reporting requirements. CUB recommends that each utility submit quarterly reports with information about the number of registered EVs in the utility's service territory, the number of customers on each available rate plan, and analysis, to the extent possible, of average electricity consumption of each registered EV versus the owner's household usage. Additionally, CUB recommends that each utility report annually about EV consumption and charging patterns, system impacts, and the use of EVs as a load-balancing resource.

All three utilities opposed CUB's additional reporting requirements. Pacific Power responded that reporting by the EV Project by the Idaho National Laboratory on EV adoption, charging station use and EV owners' charging habits would be sufficient in the near-term. Pacific Power asserted that CUB's proposed reporting requirements would be burdensome and not easily utilized.

CUB also recommends an additional reporting guideline. CUB proposed that the Commission mandate each utility provide, within six months of the closing of this docket, a comprehensive analysis of what would be required under the utility's distribution system to allow EVs to be charged as a variable load that offsets intermittent wind. Other parties recommended further study of the market, discussion of pilot EV programs, and efforts to collect data or track federal programs, but did not suggest specific guidelines.

2. *Resolution*

We conclude that, at this time, the reporting and discovery associated with the new IRP guideline adopted above will be sufficient to monitor the EV markets. We are persuaded that Staff and parties will have appropriate opportunities to request information and ask questions during future IRP proceedings. To the extent EV related issues arise in general rate revision cases, Staff and parties will also have additional opportunities for investigation.

We will watch the EV market closely as it develops, and revisit these issues or address new issues as necessary and appropriate. We are open to proposals from Staff and any other party regarding EV pilot programs or other developmental programs, but we do not have sufficient information at this time to direct the utilities to participate.

III. ORDER

IT IS ORDERED that:

1. Within sixty days of the date of entry of this order, each electric utility will file a revised electric tariff by advice filing that:

    a. explicitly permits a customer to re-sell electricity as motor fuel, consistent with ORS 757.005(1)(b)(G);

    b. Provides all EV customers, regardless of rate class, with the following rate choices: (1) any existing applicable flat rate; (2) a whole premise TOU rate (to the extent a utility already offers this rate); and (3) an EV TOU rate that mimics a utility's whole premise TOU (to the extent a utility already offers this rate) but applies only to a plug-in EV by submeter.

    If a utility determines it is not necessary to revise its electric tariff to explicitly permit a customer to resale electricity as motor fuel, consistent with ORS 757.005(1)(b)(G), we direct the utility to explain why in the advice letter.

2. We direct each electric utility to fully address the new Integrated Resource Planning guideline adopted herein in the utility's next Integrated Resource Planning proceeding.

Made, entered, and effective JAN 19 2012.

John Savage
Commissioner

Susan K. Ackerman
Commissioner

Stephen M. Bloom
Commissioner

A party may request rehearing or reconsideration of this order under ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements in OAR 860-001-0720. A copy of the request must also be served on each party to the proceedings as provided in OAR 860-001-0180(2). A party may appeal this order by filing a petition for review with the Court of Appeals in compliance with ORS 183.480 through 183.484.

BUSINESS

Fueling the future

A compressed natural gas station in Eugene is unique in Oregon

PHOTOS

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John Anderson (left), with his sisters Tricia Howell and Paula Fry, are opening the first compressed natural gas fueling station in Lane County. The Togo's delivery vehicle (Anderson owns the local franchises) is powered with compressed natural gas. (Chris Pietsch/The Register-Guard)

BY ILENE ALESHIRE

The Register-Guard

PUBLISHED: 12:00 A.M., DEC 1

John Anderson has seen the future, and its initials are CNG.

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"Compressed natural gas is the transportation energy of the future, for both large and small vehicles," said Anderson, who is president of the family-owned Eugene Truck Haven, which operates the Truck N' Travel truck stop in Coburg.

Anderson and his siblings are in the process of building a compressed natural gas fueling station in west Eugene that will, hopefully, be open by the end of the year, and will cost upward of $1 million, he said. The company will receive a 35 percent tax credit for the station, under the state's program to encourage use of fuels other than petroleum.

It will be the only such station in Oregon designed to serve the public, according to Department of Energy spokesman Cliff Voliva, although there are three stations set up by companies to fuel their own vehicles.

CNG is natural gas that has been compressed to less than 1 percent of its volume while still remaining a gas. But, because it has been compressed, it doesn't require much space so vehicles can carry enough of it to travel reasonably long distances before they need to refuel. It is a greener, cheaper fuel that bolsters the United States' goal of increasing energy independence, Anderson said.

When compressed natural gas is readily available, as it is in some parts of the country, it's the preferred fuel for commercial vehicle fleets, he said.

"We have so much natural gas domestically, and it's environmentally friendly — 30 percent less greenhouse gases than gasoline or diesel," he said. Plus, "it's about $1 a gallon cheaper than gasoline."

In Oregon, he added, "it's very high on the governor's 10-year environmental plan."

Voliva said the state's 10-year plan calls for a reduction of greenhouse gas emissions to 10 percent below 1990 levels by 2020, and to at least 75 percent below 1990 levels by 2050.

"The transportation sector is the single largest contributor to the state's carbon dioxide emission," he noted, "and a significant source of air toxins."

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Municipalities in some parts of the country have already begun switching over to CNG. And commercial trash haulers are switching in droves, Anderson said.

Waste Management Inc., one of the two largest waste haulers in the country, has said that 80 percent of its new vehicles will be powered by CNG. And Waste Connections, which owns local trash hauler Sanipac, recently opened a CNG fueling station in Vancouver, Wash.

Waste Connections Inc. "has a nationwide CNG fueling infrastructure and maintenance program in progress with many locations already on line," company officials said in a written statement. "We believe CNG has quickly become the alternative fuel that is readily available and demand is growing."

Because the use of CNG as transportation fuel is still so new to Oregon, the Anderson siblings aren't anticipating much demand from the average consumer at first. But they are taking a long-term view of the fuel's prospects.

"I think my nieces and nephews and daughter are going to see more of it than you and I will," John Anderson said.

Because there is not yet a network of CNG fueling stations in Oregon, Anderson anticipates the first generation of his customers will be commercial fleets operated by area businesses, particularly those that already have CNG-fueled fleets in other parts of the country where the fuel is more common.

Those users will be fueling vehicles based locally that go out for the day and then return to their base at night, he said, because they won't yet be able to refuel on long trips.

"It will mostly be smaller commercial vehicles — not the big 18-wheelers — and then it will grow from that, kind of mushroom out from that," Anderson predicted.

"Once people see that it works," he said, "other people will build stations. Eventually, it will growinto a network of stations. I think we will spend the next 12 years (growing slowly).

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"Then from 2025 through the end of the century," he said, he expects use of CNG will skyrocket. By the end of the century, he said, "that's what everybody will use. That's how fast it will grow."

For now, though, he knows of only one local vehicle using CNG — the delivery vehicle for Togo's Eateries, which happens to be another of his business ventures.

Unlike some other alternative fuels, CNG doesn't require buying a new vehicle, Anderson said, as existing vehicles can be modified to use it. It cost about $10,000 to modify the Togo's vehicle for CNG use, he said.

Anderson expects oil prices to continue rising in the coming years, which will make CNG more attractive as time goes by.

"As oil goes up in price, CNG probably won't parallel it," he said. "Only about 60 percent of the cost of CNG is actually the gas itself. The rest is compression costs."

With plentiful supplies of natural gas in the United States, natural gas prices and supplies also aren't as subject to outside pressures as is oil, Anderson added.

Northwest Natural Gas Co. will supply the Anderson station with its raw material, which will be compressed and pumped at the station at 65 N. Seneca Road.

The initial capacity of the fueling station there will probably be a couple of hundred gallons an hour, he said, with some storage capacity.

"We can probably do a couple of thousand gallons a day," he said, "We would have to spread it out throughout the day. If we had five trucks at 8 a.m., the fifth truck may have to wait awhile."

But the Andersons also can expand the station as demand grows, John Anderson said. Although demand isn't high yet for CNG fuel, he said, "our belief is that if we build it, they will come."

"We just really believe in it as an environmentally friendly energy source," he said. "Maybe there's kind of some ego in this, but we just really want to do this. You talk to the people at the (Oregon) Department of Energy. They really believe in it, but

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they've struggled with how to get it started, how to get it off the ground. So we're going to do it.

"We've always been in the petroleum business, the energy business for transportation," Anderson said.

"I started going to some seminars and started believing that we need to find solutions (to energy problems)...Three years ago, I realized how much natural gas we have out there."

"I followed what they are doing now in the Port of Long Beach — a lot of freight, a lot of our customers, comes from those ports. They have pretty much quit allowing vehicles into the port that run on diesel because of the pollution. They all run on natural gas. Emission standards are quite strict.

"We're kind of excited as a family about doing this," Anderson said.

"We believe in stewardship, and that's what we're doing with this," he said.

> *"We just really believe in it as an environmentally friendly energy source."*
> *— John Anderson, president of Eugene Truck haven, on compressed natural gas*

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BUSINESS

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LOCAL NEWS

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Marcus Mariota orchestrated the greatest comeback in Oregon football history on Tuesday. The dynamic quarterback delivered an early Christmas present to Duck fans by announcing ...

COMMENT

- North plans program reset
- Bandon course closer to reality
- Does Stanford have advantage again?

More **SPORTS »**

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COOKING

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Some recipes are created out of happy accidents. Others are the fruition of careful planning and execution. And then, there are the recipes that are ...

COMMENT

- Restaurateur buys her old place back
- Buzzworthy
- Build a healthy, 'grapey' pan sauce for flavorful pork chops

More **FOOD »**

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RESTAURANTS

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There's no safety net for Ashley Hawkins at her new evening restaurant in the Whiteaker neighborhood of Eugene. Her diehard pledge at Grit, an intimate, ...

COMMENT

- Wines with a German accent
- Putting a new stir on vermouth
- Sailing the world of wine

More **TASTINGS** »

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STANDARD
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Summary:
Northwest Natural Gas Co.

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Secondary Contact:
Gerrit W Jepsen, CFA, New York (1) 212-438-2529; gerrit.jepsen@standardandpoors.com

Table Of Contents

Summary:

Northwest Natural Gas Co.

Corporate Credit Rating	A+/Stable/A-1

Profile Assessments

BUSINESS RISK	EXCELLENT

Vulnerable Excellent

FINANCIAL RISK	INTERMEDIATE

Highly leveraged Minimal

Rationale

Business Risk: Excellent

- Primarily low-risk natural gas distribution operations in a strong service territory with some regulatory and economic diversity
- Northwest Natural Gas Co. has pursued infrastructure investments that will help offset supply risk and that will shore up reliability
- Comparatively ahead of schedule in replacing aging pipeline infrastructure in Oregon
- Unregulated businesses are related and help mitigate volatility in natural gas pricing, but are subject to some commodity risk

Financial Risk: Intermediate

- Moderate leverage by utility standards and sufficient cash flow measures to maintain an "intermediate" financial risk profile
- Diminished capital spending expected in coming years because of less emphasis on gas storage capacity and decreased need for pipeline replacement
- Relatively conservative financial policy, including a dividend payout ratio that has been about in line with industry averages

Outlook: Stable

The stable rating outlook on Northwest Natural Gas Co. reflects Standard & Poor's Ratings Services' expectation of solid consolidated financial performance, the projected mix of regulated and nonregulated activities, and steady operating performance and regulatory support. We expect funds from operations (FFO) to debt of between 20% and 22% during the next few years and adjusted debt to capital of about 54% to 57%.

Downside scenario

Ratings pressure could occur if the company made significant acquisitions or investments that mostly use debt or if credit measures deteriorated on a sustained basis, specifically FFO to debt to less than 17% on a sustained basis or total debt to capital to more than 60%. We could also lower the ratings if growth in the nonregulated businesses exceeded what we currently expect.

Upside scenario

We could raise the ratings if the company achieved a sustained improvement in financial ratios, specifically FFO to debt of more than 30% and total debt to total capital less than 45%. However, this would seem to hinge on better regulatory outcomes than the company has recently achieved.

Standard & Poor's Base-Case Scenario

Assumptions

- EBITDA growth of about 1% in 2013
- Capital spending of about $160 million in 2013 and 2014
- Dividend growth rate of about 3% per year, in line with industry averages
- Rate increase of $5 million in 2013 and $10 million in 2014.

Key Metrics

	TTM June 30, 2013	2013E	2014E
FFO to debt	16.9%	20%-22%	19%-21%
Debt to capital	57.1%	55%-57%	54%-56%
Debt to EBITDA	4.3x	4.1x-4.3x	3.9x-4.1x

TTM—Trailing 12 months. E—Estimate.

Business Risk: Excellent

Northwest Natural Gas Co.'s relatively constructive relationship with the Oregon Public Utility Commission (OPUC, unrated), which covers fully 90% of the customer base, has resulted in consistently supportive rate design and incentive programs that allow somewhat stable cash flows that are largely insulated from gas price, weather, and usage rate fluctuations, though 2012 cash flows were somewhat lower than anticipated due to unique timing differences. Regulators changed the incentive-sharing mechanism in the company's purchased gas adjustment (PGA) tariff in Oregon to decrease the company's risk associated with the difference between actual gas costs and the estimated costs that are incorporated into base rates. The utility must defer either 80% or 90% of the difference annually, which it will collect in customer rates in the subsequent year. Although this reduces the company's exposure to commodity price volatility compared with the previous PGA tariff, this specific mechanism is not as supportive of credit as the mechanism in Washington that more swiftly passes 100% of purchased gas costs to ratepayers. In Oregon, the company benefits from weather-normalization tariffs that insulate margins from a drop in delivered gas volumes resulting from lower customer usage levels caused by warmer-than-normal weather patterns during the heating season; this was upheld during the most recent rate case.

In October 2012, the OPUC approved rate changes with respect to Northwest Natural Gas's general rate case filing, wherein the utility benefited from a continuation of a decoupling, weather normalization, and system integrity program to address pipeline replacement issues, though these were offset by decreases in customer rates tied to lower natural gas prices. The commission also assessed certain previously incurred environmental remediation expenses as prudent (though NWN agreed not to seek recovery of $7 million), and allowed the utility to collect $4.5 million in carrying costs on working gas inventory annually. It still does not have a decoupling mechanism in Washington State, though the Washington Utilities and Transportation Commission has more recently shown a willingness to consider a similar feature for other utilities, and the WUTC authorized a 1.5% rate increase in October 2013; around the same time, a similar rate increase was authorized in Oregon.

Northwest Natural Gas has undertaken a joint venture with Encana Oil & Gas (unrated) to receive a working interest in leases in the Jonah Field in Wyoming. The company expects to receive about 93 billion cubic feet (bcf) of gas over 30 years (60% in the first 10 years) at an all-in cost of about $5.15 per dekatherm. The all-in cost includes an estimate for the return on investment for the company. Because the cost of gas is recoverable through a PGA mechanism subject to the same incentive-sharing mechanism that the company has in Oregon, it is exposed only to modest regulatory risk. However, customers are exposed to geological and project risks through either lower-than-expected volumes or higher-than-expected costs.

Northwest Natural's nonregulated cash flows come primarily from its Mist and Gill Ranch storage facilities, which have contributed between 5% and 10% of EBITDA annually. Mist, in Oregon, provides mainly storage services to various utilities' (60% of Mist's capacity) operations and contributes about 90% of the company's nonregulated cash flow. We consider the cash flow from this asset to be fairly reliable given the essential nature of the commodity. The investment in the Gill Ranch natural gas storage facility, near Fresno, Calif., presents business and financial risks because the nonregulated investment is outside of the company's service territory and in an area in which it will likely compete with several other proposed storage projects, potentially depressing rates. In addition, this type of project increases the company's exposure to market-based revenue streams in an environment of low short-term contract rates. The company has partnered with Pacific Gas & Electric Co. (25% ownership; BBB/Negative/A-2) to develop this storage reservoir. The company expects the first phase to hold 20 bcf upon completion, with a possible expansion to 40 bcf if business conditions improve. Currently, Gill Ranch has about 15 bcf of total storage capacity. Of this, about 13.5 bcf is contracted to a series of highly rated counterparties with a mix of short- and medium-term contracts. The remaining capacity is being used for optimization activities overseen by an experienced third party. The company has also been more proactive than other gas utilities in replacing aging pipeline infrastructure, which suggests that its capital spending, which was elevated in 2012, will decrease somewhat in 2013 and beyond.

Financial Risk: Intermediate

Strong cash flow measures and high leverage for its current rating category characterize the company's intermediate financial risk profile. We expect financial ratios to weaken slightly in the near term as the company progresses through start-up operations at Gill Ranch and funds its equity contributions to the Palomar joint venture, though the measures are still appropriate for this financial risk profile. We expect that FFO to total debt could reach 20% in 2013 and in 2014. Total adjusted debt to capital should be around 56% in 2013. As of June 30, 2013, FFO to debt was about 16.9%, and debt to total capital was about 57.1%.

Liquidity: Strong

We view Northwest Natural's's liquidity as "strong" under our corporate liquidity methodology, which categorizes liquidity in five standard descriptors: exceptional, strong, adequate, less than adequate, and weak. We expect cash uses to exceed sources by 1.5x during the next 12 months. The company's liquidity position benefits from its ability to absorb high-impact, low-probability events with a limited need for refinancing; its flexibility to lower capital spending; its solid bank relationships; its consistent access to the capital markets; and its prudent risk-management practices led by the chief financial officer.

The company's debt agreements require a debt to capital ratio of less than 70%. On June 30, 2013, the company was in compliance, with moderate headroom under the covenants.

Principal Liquidity Sources	Principal Liquidity Uses
• FFO of $192 million during the next 12 months • Credit facility availability of $110 million during the next 12 months	• Dividends of $43 million over the next 12 months • Capital spending of $160 million over the next 12 months • No significant debt maturities over the next 12 months

Recovery Analysis

We assign recovery ratings to first mortgage bonds (FMBs) issued by U.S. utilities, which can result in issue ratings being notched above a corporate credit rating on a utility depending on the rating category and the extent of the collateral coverage. The FMBs issued by U.S. utilities are a form of "secured utility bond" (SUB) that qualify for a recovery rating as defined in our criteria (see "Collateral Coverage and Issue Notching Rules for '1+' and '1' Recovery Ratings on Senior Bonds Secured by Utility Real Property", published Feb. 14, 2013).

The recovery methodology is supported by the ample historical record of 100% recovery for secured bondholders in utility bankruptcies in the U.S. and our view that the factors that enhanced those recoveries (limited size of the creditor class and the durable value of utility rate-based assets during and after a reorganization given the essential service provided and the high replacement cost) will persist in the future.

Under our SUB criteria, we calculate a ratio of our estimate of the value of the collateral pledged to bondholders relative to the amount of FMBs outstanding. FMB ratings can exceed a corporate credit rating on a utility by up to one notch in the 'A' category, two notches in the 'BBB' category, and three notches in speculative-grade categories depending on the calculated ratio.

NWN's FMBs benefit from a first-priority lien on substantially all of the utility's real property owned or subsequently acquired. Collateral coverage of more than 1.5x supports a recovery rating of '1+' and an issue rating one notch above the corporate credit rating or 'AA-'.

Related Criteria And Research

- Liquidity Descriptors For Global Corporate Issuers, Sept. 28, 2011
- Criteria: Key Credit Factors: Business And Financial Risks In The Investor-Owned Utilities Industry, Nov. 26, 2008
- Key Credit Factors For U.S. Natural Gas Distributors, Feb. 28, 2006

Business And Financial Risk Matrix

	Financial Risk					
Business Risk	Minimal	Modest	Intermediate	Significant	Aggressive	Highly Leveraged
Excellent	AAA/AA+	AA	A	A-	BBB	--
Strong	AA	A	A-	BBB	BB	BB-
Satisfactory	A-	BBB+	BBB	BB+	BB-	B+
Fair	--	BBB-	BB+	BB	BB-	B
Weak	--	--	BB	BB-	B+	B-
Vulnerable	--	--	--	B+	B	B- or below

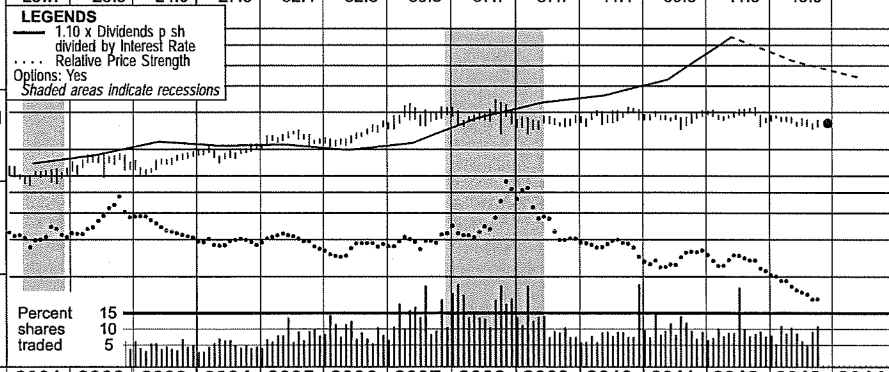
Note: These rating outcomes are shown for guidance purposes only. The ratings indicated in each cell of the matrix are the midpoints of the likely rating possibilities. There can be small positives and negatives that would lead to an outcome of one notch higher or lower than the typical matrix outcome. Moreover, there will be exceptions that go beyond a one-notch divergence. For example, the matrix does not address the lowest rungs of the credit spectrum (i.e., the 'CCC' category and lower). Other rating outcomes that are more than one notch off the matrix may occur for companies that have liquidity that we judge as "less than adequate" or "weak" under our criteria, or companies with "satisfactory" or better business risk profiles that have extreme debt burdens due to leveraged buyouts or other reasons. For government-related entities (GREs), the indicated rating would apply to the standalone credit profile, before giving any credit for potential government support.

N.W. NAT'L GAS NYSE-NWN

RECENT PRICE	42.80	P/E RATIO	19.3 (Trailing: 19.3) (Median: 17.0)	RELATIVE P/E RATIO	1.05	DIV'D YLD	4.3%	VALUE LINE

TIMELINESS 3 Raised 7/5/13
SAFETY 1 Raised 3/18/05
TECHNICAL 3 Lowered 11/8/13
BETA .65 (1.00 = Market)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
High:				30.7	31.3	34.1	39.6	43.7	52.8	55.2	46.5	50.9	49.0	50.8	46.6		
Low:				23.5	24.0	27.5	32.4	32.8	39.8	37.7	37.7	41.1	39.6	41.0	40.0		



Target Price Range

2016	2017	2018

120, 100, 80, 64, 48, 32, 24, 20, 16, 12, 8

% TOT. RETURN 10/13

	THIS STOCK	VL ARITH.* INDEX
1 yr.	-2.8	37.3
3 yr.	-2.0	59.6
5 yr.	2.1	177.0

2016-18 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(+40%)	12%
Low	50	(+15%)	8%

Insider Decisions

	J	F	M	A	M	J	J	A	S
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	0	0	0	0	0
to Sell	3	0	0	0	0	0	0	0	0

Institutional Decisions

	1Q2013	2Q2013	3Q2013
to Buy	75	79	74
to Sell	53	63	53
Hld's(000)	16036	15076	15196

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	© VALUE LINE PUB. LLC	16-18
15.82	16.77	18.17	21.09	25.78	25.07	23.57	25.69	33.01	37.20	39.13	39.16	38.17	30.56	31.72	27.14	*26.50*	*27.40*	Revenues per sh	*28.95*
3.72	3.24	3.72	3.68	3.86	3.65	3.85	3.92	4.34	4.76	5.41	5.31	5.20	5.18	5.00	4.94	*4.05*	*4.25*	"Cash Flow" per sh	*5.30*
1.76	1.02	1.70	1.79	1.88	1.62	1.76	1.86	2.11	2.35	2.76	2.57	2.83	2.73	2.39	2.22	*2.15*	*2.30*	Earnings per sh A	*3.20*
1.21	1.22	1.23	1.24	1.25	1.26	1.27	1.30	1.32	1.39	1.44	1.52	1.60	1.68	1.75	1.79	*1.83*	*1.87*	Div'ds Decl'd per sh B■	*2.00*
5.07	4.02	4.78	3.46	3.23	3.11	4.90	5.52	3.48	3.56	4.48	3.92	5.09	9.35	3.76	4.91	*6.10*	*6.35*	Cap'l Spending per sh	*6.95*
16.02	16.59	17.12	17.93	18.56	18.88	19.52	20.64	21.28	22.01	22.52	23.71	24.88	26.08	26.70	27.23	*27.90*	*29.10*	Book Value per sh D	*31.65*
22.86	24.85	25.09	25.23	25.23	25.59	25.94	27.55	27.58	27.24	26.41	26.50	26.53	26.58	26.76	26.92	*27.00*	*27.00*	Common Shs Outst'g C	*28.00*
14.4	26.7	14.5	12.4	12.9	17.2	15.8	16.7	17.0	15.9	16.7	18.1	15.2	17.0	19.0	21.1	*Bold figures are*		Avg Ann'l P/E Ratio	*17.0*
.83	1.39	.83	.81	.66	.94	.90	.88	.91	.86	.89	1.09	1.01	1.08	1.19	1.35	*Value Line*		Relative P/E Ratio	*1.15*
4.8%	4.5%	5.0%	5.6%	5.1%	4.5%	4.6%	4.2%	3.7%	3.7%	3.1%	3.3%	3.7%	3.6%	3.9%	3.8%	*estimates*		Avg Ann'l Div'd Yield	*3.3%*

CAPITAL STRUCTURE as of 9/30/13
Total Debt $741.7 mill. **Due in 5 Yrs** $200 mill.
LT Debt $681.7 mill. **LT Interest** $45.0 mill.

(Total interest coverage: 3.3x)

Pension Assets-12/12 $249.6 mill. **Oblig.** $435.9 mill.

Pfd Stock None

Common Stock 27,002,556 shares as of 10/25/13

MARKET CAP $1.2 billion (Mid Cap)

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014		16-18
611.3	707.6	910.5	1013.2	1033.2	1037.9	1012.7	812.1	848.8	730.6	*715*	*740*	Revenues ($mill)	*810*
46.0	50.6	58.1	65.2	74.5	68.5	75.1	72.7	63.9	59.9	*58.0*	*62.0*	Net Profit ($mill)	*90.0*
33.7%	34.4%	36.0%	36.3%	37.2%	36.9%	38.3%	40.5%	40.4%	42.4%	*38.0%*	*37.5%*	Income Tax Rate	*31.0%*
7.5%	7.1%	6.4%	6.4%	7.2%	6.6%	7.4%	8.9%	7.5%	8.2%	*8.1%*	*8.4%*	Net Profit Margin	*11.1%*
49.7%	46.0%	47.0%	46.3%	46.3%	44.9%	47.7%	46.1%	47.3%	48.5%	*48.5%*	*48.5%*	Long-Term Debt Ratio	*48.0%*
50.3%	54.0%	53.0%	53.7%	53.7%	55.1%	52.3%	53.9%	52.7%	51.5%	*51.5%*	*51.5%*	Common Equity Ratio	*52.0%*
1006.6	1052.5	1108.4	1116.5	1106.8	1140.4	1261.8	1284.8	1356.2	1424.7	*1470*	*1525*	Total Capital ($mill)	*1705*
1205.9	1318.4	1373.4	1425.1	1495.9	1549.1	1670.1	1854.2	1893.9	1973.6	*2055*	*2135*	Net Plant ($mill)	*2400*
5.7%	5.9%	6.5%	7.1%	8.5%	7.7%	7.3%	7.0%	6.2%	5.7%	*5.0%*	*5.0%*	Return on Total Cap'l	*6.5%*
9.1%	8.9%	9.9%	10.9%	12.5%	10.9%	11.4%	10.5%	8.9%	8.2%	*7.5%*	*8.0%*	Return on Shr. Equity	*10.0%*
9.0%	8.9%	9.9%	10.9%	12.5%	10.9%	11.4%	10.5%	8.9%	8.2%	*7.5%*	*8.0%*	Return on Com Equity	*10.0%*
2.6%	2.7%	3.7%	4.5%	6.0%	4.5%	5.0%	4.0%	2.4%	1.6%	*1.0%*	*1.5%*	Retained to Com Eq	*4.0%*
72%	69%	63%	59%	52%	59%	56%	61%	73%	80%	*85%*	*81%*	All Div'ds to Net Prof	*63%*

CURRENT POSITION ($MILL.)	2011	2012	9/30/13
Cash Assets	5.8	8.9	16.1
Other	342.9	274.8	179.6
Current Assets	348.7	283.7	195.7
Accts Payable	86.3	85.6	67.7
Debt Due	181.6	190.3	60.0
Other	146.6	92.5	214.8
Current Liab.	414.5	368.4	342.5
Fix. Chg. Cov.	334%	329%	249%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '10-'12 to '16-'18
Revenues	2.0%	-4.0%	-.5%
"Cash Flow"	3.0%	1.0%	1.0%
Earnings	3.5%	0.5%	4.5%
Dividends	3.5%	4.5%	2.5%
Book Value	4.0%	4.0%	3.0%

Cal-endar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2010	286.5	162.4	95.1	268.1	812.1
2011	323.1	161.2	93.3	271.2	848.8
2012	309.6	104.0	87.5	229.5	730.6
2013	277.9	131.7	88.2	*267.2*	*715*
2014	*240*	*140*	*90*	*270*	*740*

Cal-endar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2010	1.64	.26	d.28	1.11	2.73
2011	1.53	.08	d.31	1.09	2.39
2012	1.51	.05	d.39	1.05	2.22
2013	1.40	.08	d.31	*.98*	*2.15*
2014	*1.45*	*.10*	*d.30*	*1.05*	*2.30*

Cal-endar	QUARTERLY DIVIDENDS PAID B ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2009	.395	.395	.395	.415	1.60
2010	.415	.415	.415	.435	1.68
2011	.435	.435	.435	.445	1.75
2012	.445	.445	.445	.455	1.79
2013	.455	.455	.455	.460	

BUSINESS: Northwest Natural Gas Co. distributes natural gas to 90 communities, 681,000 customers, in Oregon (90% of customers) and in southwest Washington state. Principal cities served: Portland and Eugene, OR; Vancouver, WA. Service area population: 2.5 mill. (77% in OR). Company buys gas supply from Canadian and U.S. producers; has transportation rights on Northwest Pipeline system. Owns local underground storage. Rev. breakdown: residential, 59%; commercial, 29%; industrial, gas transportation, and other, 12%. Employs 1,092. BlackRock Inc. owns 8.2% of shares; officers and directors, 1.8% (4/13 proxy). CEO: Gregg S. Kantor. Inc.: Oregon. Address: 220 NW 2nd Ave., Portland, OR 97209. Telephone: 503-226-4211. Internet: www.nwnatural.com.

Northwest Natural Gas reported decent third-quarter results. Though the top line was lower than expected, the bottom-line loss of $0.31 a share was better than expected. Margins expanded, allowing for the smaller loss, and the top line benefited from a recovering Portland area. The company received small increases in residential rates, which should benefit margins heading forward. The company has some outstanding rates cases concerning the pensions and incentive sharing percentages, which will likely be decided in 2014, leaving further upside to 2014 estimates. A $7 million disallowance from recovery was ruled to be too low, and will take until 2014 for a decision, potentially hurting next year's bottom line. We lowered our top line estimate by $20 million, to $715 million.

Compressed natural gas vehicles may be able to provide Northwest Natural Gas with some growth opportunities. The company filed a tariff, that if approved, would establish rates for vehicles. We think this could be decided in early 2014, but would take some time to be implemented.

The board raised the dividend by 1%, to $0.46 quarterly. This dividend aristocrat has raised its payout for 58 consecutive years. That said, this increase is one of the smallest that it has had in a decade. The yield remains one of the highest in the industry, and will likely continue to be the main attraction here. Further out, we expect dividend increases to remain small, as the company historically has kept a payout ratio between 60% and 70% (Its projected to pay out 85% in 2013).

The balance sheet is in good shape. The company sold some bonds worth $50 million during the third quarter, and cash flow remains solid. We think that capital projects will accelerate after decisions are given in the aforementioned cases.

Northwest Natural Gas shares have a Timeliness rank of 3 (Average). They are ranked 1 (Highest) for Safety and offer a good yield and 3- to 5-year total return potential. This issue carries a high Financial Strength rating of A, and has our highest Price Stability score. This issue is a solid choice for investors with a low risk tolerance.

John E. Seibert III *December 6, 2013*

(A) Diluted earnings per share. Excludes nonrecurring items: '98, $0.15; '00, $0.11; '06, ($0.06); '08, ($0.03); '09, 6¢; Next earnings report due in early February.

(B) Dividends historically paid in mid-February, May, August, and November.
■ Dividend reinvestment plan available.
(C) In millions.

(D) Includes intangibles. In 2012: $387.9 million, $14.41/share.

Company's Financial Strength	A
Stock's Price Stability	100
Price Growth Persistence	55
Earnings Predictability	95