BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 1302

In the Matter of an Investigation into the Treatment of CO_2 Risk in the Integrated Resource Planning (IRP) Process.	STAFF'S FINAL COMMENTS IRP Guideline 8: Environmental Costs September 26, 2007

Introduction and Recent History

On February 8, 2007, the Commission docketed as UM 1302 an investigation into IRP Guideline 8, involving the treatment of CO_2 risks. On April 20, 2007, following a pre-hearing conference and a workshop, Judge Power adopted a statement of issues for this investigation. On July 26, 2007, parties filed opening comments.

On August 16, 2007, staff held a workshop, with the Commissioners attending. The parties vocalized main points from their opening comments and replied to some of the other parties' comments. Staff circulated a much-expanded version of the recommendation that had accompanied its opening comments. Its focus was on electric utilities. The expanded Staff recommendation incorporated a number of key elements from the various parties' opening filings. At the conclusion of the August 16th workshop the parties agreed to convene a work session to explore the degree to which common ground in the development of a final recommended CO_2 risk guideline could be established.

The follow-up work session was held on August 30, 2007. The parties used a document prepared by the Joint Parties, elaborating on Staff's expanded recommendation from the August 16th workshop, as the principal working document at that session.[1] Staff incorporated material derived from the work session in its DRAFT–Final Version, circulated to the parties the following week. Mark-ups of that DRAFT comprised the parties' guideline recommendations that appeared in their Reply Comments that were filed on September 11, 2007. As should be apparent from reading all of the parties' proposed recommendations, the parties achieved a high degree of commonality. Staff very much appreciates the dedication of all the parties towards accomplishing that purpose.

Immediately following is the Staff's final recommendation for Guideline 8.[2] The section after that consists of a discussion supportive of the recommendation. The focus there is upon justifications for expanding the scope of the original guideline. Responses

[1] The Citizens' Utility Board of Oregon, the Ecumenical Ministries of Oregon, the NW Energy Coalition, and the Renewable Northwest Project comprise the Joint Parties.
[2] Given the limited resource options available to gas utilities, Staff recommends that they only be required to comply with parts a. and b. of the guideline. Electric utilities should comply with the entire guideline.

to various proposals made by the other parties in their reply comments are the subject of the final section.

OPUC Staff Recommendation: Final Draft

Guideline 8: Environmental Costs

a. BASE CASE AND OTHER COMPLIANCE SCENARIOS: The utility should construct a base-case scenario to reflect what it considers to be the most likely regulatory compliance future for carbon dioxide (CO_2), nitrogen oxides, sulfur oxides, and mercury emissions. The utility also should develop several compliance scenarios ranging from the present CO_2 regulatory level to the upper reaches of credible proposals by governing entities. Each compliance scenario should include a time profile of CO_2 compliance requirements. The utility should identify whether the basis of those requirements, or "costs," would be CO_2 taxes, a ban on certain types of resources, or CO_2 caps (with or without flexibility mechanisms such as trading or a safety valve, and potentially recognizing upstream emissions relating to energy purchases). Each compliance scenario should maintain logical consistency, to the extent practicable, between the CO_2 regulatory requirements and other key inputs including, but not limited to, expected interactive effects with sales volumes and fuel and electricity prices.

b. PREFERRED AND ALTERNATIVE PORTFOLIOS: The utility should estimate, under each of the compliance scenarios, the present value of revenue requirement (PVRR) costs and risk measures, over at least twenty years, for both its preferred portfolio and a set of reasonable alternative portfolios. The utility should incorporate end-effect considerations in the analyses to allow for comparisons of portfolios containing resources with economic or physical lives that extend beyond the planning period. The utility should also modify projected lifetimes as necessary to be consistent with the compliance scenario under analysis. In addition, the utility should include, if material, sensitivity analyses on a range of reasonably possible regulatory futures for nitrogen oxides, sulfur oxides, and mercury to further inform the preferred portfolio selection.

c. TRIGGER POINT ANALYSIS: The utility should identify a minimum CO_2 compliance costs "turning point" which, if anticipated now, would lead to, or “trigger,” the selection of a portfolio of resources that is substantially different from the preferred portfolio. The utility should develop a substitute portfolio appropriate for this trigger point scenario and compare the substitute portfolio’s expected cost and risk performance to that of the preferred portfolio -- under the base case and each of the above CO_2 compliance scenarios. The utility should provide its assessment of whether a CO_2 regulatory future that is equally or more stringent than the identified trigger point will be mandated.

d. CO_2 RISK ADAPTABILITY: The utility should assess the cost, risks and benefits of a portfolio designed to be more adaptable than the preferred portfolio in the event of an unexpected future shift in the CO_2 compliance requirements that causes the utility to fundamentally change course – by abandoning or scaling back key operating or planned-for resources and substituting new resources. The utility should employ a best cost/risk standard in designing the adaptable portfolio, and compare its cost and risks with those of the preferred portfolio in the contexts of: 1) The base case scenario itself, and 2) the as-shifted CO_2 compliance time profile that would cause the course change. The utility should describe the timing and magnitudes of the new CO_2 requirements that would elicit the indicated portfolio modifications and provide an assessment of such a CO_2 regulatory shift taking place. The utility should include the time periods required for site acquisition, engineering, and construction in the characterizations of the preferred and the adaptable portfolio.

e. OREGON COMPLIANCE PORTFOLIO: If none of the above portfolios is consistent with Oregon energy policies (including state goals for reducing greenhouse gas emissions) as they are applied to the utility, the utility should construct the best cost/risk portfolio that achieves that consistency, present its cost and risk parameters, and compare them to those of the preferred and alternative portfolios.

Staff's Recommendations: Rationale and Explanations

Staff has taken what was formerly a one-paragraph guideline and transformed it to something that is more than a page long. Much of the new language codifies established utility IRP practices. Beyond that, the principal impetus behind the guideline expansion was to better accommodate the enhancement contemplated in Commission Order No. 07-002, calling for sensitivity and trigger-point analyses. A related addition, originally advocated by the Joint Parties, requires the electric utilities to explore the costs and benefits of choosing a portfolio that is more adaptable than the utility's preferred portfolio in the event of a major alteration in the CO_2 compliance schedule. Another addition reflects a sensitivity to Oregon's evolving environmental statutory requirements. Having made the expansion, Staff organized the new guideline by major topics.

Following are comments on each topic. The numbers correspond in order to the sentences in each topic paragraph.

<u>Paragraph 8.a.</u> BASE CASE AND OTHER COMPLIANCE SCENARIOS

Overview: This paragraph sets forth the emission standards contexts within which the utility will estimate the present-value costs and risks of candidate resource portfolios.

1. "The utility should construct a base-case scenario...." Staff's final draft replicates the original guideline's requirement that each utility should construct a base-case scenario that reflects its "expectations" regarding the emissions standards that will be in effect over time related to CO_2, NOX, SOX, and mercury.

2 "The utility also should develop several compliance scenarios...." Rather than defining a specific range of potential CO_2 compliance costs as did the original guideline (which set a range of $0 to $40/ton, 1990$), our final draft generalizes -- in recognition that both the top and bottom of the range will evolve as new legislation is proposed and enacted. The utility is explicitly required to develop cost and risk metrics for the compliance scenarios which constitute the upper and lower limits of the credible range. By "several," it is Staff's hope that cost-risk metrics will be provided for at least two different compliance scenarios which fall within that range. If the Commission chooses to include a fixed upper limit for

this range, Staff notes the Joint Parties' and ODOE acceptance of an earlier Staff draft proposal of $100 (levelized 2005 dollars) per ton of CO_2.

3. "Each compliance scenario...." This sentence codifies the current utility practice of indicating the growth rates/schedules of the CO_2 taxes and/or other regulations over time.

4 "The utility should identify whether the basis of those requirements...." The final draft rectifies the omission in the original guideline that CO_2 compliance standards may be in the form of, for example, a ban on conventional coal plants rather than a simple CO_2 output tax.

5. "Each compliance scenario should maintain logical consistency...." The proposed guideline would require the utility to make its modeling inputs (e.g., the CO_2 tax) and intervening variables (e.g., fuel prices insofar as they are affected by the CO_2 tax) as internally consistent as possible.

<u>Paragraph 8.b.</u> PREFERRED AND ALTERNATIVE PORTFOLIOS

Overview: Having set forth a number of environmental compliance scenarios to measure portfolios against, the next step is to estimate the discounted, present-value expected revenue requirement and risks[3] for a number of candidate portfolios under those scenarios. Such analyses play an important role in a utility's designation of its "preferred portfolio." This paragraph elaborates upon the analytic process.

1. "The utility should estimate...the present value of revenue requirement...." While IRP Guideline #1 sets forth the duration and nature of the present value of the revenue requirement (PVRR) analyses the utility should use in the selection of the best cost/risk portfolio, it is not explicit in mandating that utilities test a number of candidate portfolios against some array of environmental compliance scenarios. This sentence in the Staff's final draft makes explicit what has been standard electric utility practice.

2. "The utility should incorporate end-effect considerations...." This sentence addressed the need to account for the fact that different portfolios will contain resources with start dates and durations that line up in varying ways relative to the IRP study period of 20 years (minimum).

3. "The utility should also modify projected lifetimes...." This sentence, based upon input from ODOE,[4] requires the utility to consider that a resource's remaining lifetime may reflect an economic obsolescence rising from environmental constraints.

4. "In addition…if material, sensitivity analyses...nitrogen oxides...." This sentence is paraphrased from the original guideline.

<u>Paragraph 8.c.</u> TRIGGER POINT ANALYSIS

Overview: There is an expectation that some portfolios will be superior to a utility's preferred resource portfolio at high CO_2 cost levels, while, obviously, inferior at lower CO_2 cost levels. This segment of the guideline is designed to reveal what the analytics of paragraph 8.b. are unlikely to reveal, i.e., the CO_2 cost level that is the cross-over point

---

[3] An example of a risk measure is the average of the upper 5% of the PVRR stochastic outcomes.

[4] Oregon Department of Energy.

where some substitute portfolio achieves its superiority over the utility's preferred portfolio.

1. "The utility should identify...a 'turning point'...." The first sentence describes the nature of trigger-point analysis, per se. It yields a CO_2 cost level that, if perfectly anticipated now, would cause the utility to select a different "preferred" portfolio from the one that is based upon its expectation of CO_2 costs.
2. "The utility should develop a substitute portfolio appropriate...." The second sentence makes explicit the second and third steps of the trigger point analysis, which are to a) formulate a portfolio that would be superior to the preferred portfolio given CO2 costs above the trigger point level, and b) project how this substitute portfolio would perform cost- and risk-wise given the other CO_2 compliance scenarios that were developed under paragraph a.
3. "The utility should provide its assessment...." The recommendation here is for the utility to provide its own assessment of the trigger-point level of CO_2 compliance costs being enacted.

<u>Paragraph 8.d.</u> CO_2 RISK ADAPTABILITY

Overview: The portfolio selections in the previous two guideline paragraphs are "static" in the sense that they are largely made as if the future CO_2 compliance cost were already known, or at least anticipated. The paragraphs appear to assume that once a utility makes a portfolio selection, it will embark upon its implementation on "day one," and continue until all the elements of the portfolio are installed. The Joint Parties, most particularly, emphasized the idea that future CO_2 compliance requirements are quite unknown, and that there is likely value in embarking on a portfolio whose elements are flexible – to be determined or adjusted over time as reality expresses itself. (The flexibility of the portfolio can take the form of short-to-intermediate-term contracts and/or of retrofitting capability, as in adding sequestration to an IGCC plant.) This paragraph asks the utility to formulate an "adaptable portfolio" that would accommodate a major change in the future CO_2 compliance regimen. This portfolio would cost more than the utility's ostensive "preferred" portfolio if the suggested change never occurred. It would <u>also</u> cost more than some other candidate portfolio <u>if</u> it were known at the present time that some very high-cost CO_2 compliance requirements were in the offing. Adaptability carries a price: The point of adaptability is to avoid the even higher costs of the "static" portfolios in the event that the CO_2 compliance expectations upon which they were founded turned out to be entirely off base. This requirement specifies analysis that would provide insights regarding the "insurance" costs and benefits of selecting an adaptable portfolio over a more static alternative.

1. "The utility should assess...a portfolio designed to be more adaptable...." This sentence sets out the purpose of the guideline.
2. "The utility should employ a best cost/risk standard...." Here the utility is asked to construct a viable, adaptable portfolio, and to determine its costs and benefits by comparing its PVRR figures to those of its preferred portfolio given the base case level of CO_2 compliance cost and the level that would cause the utility in mid-stream to abandon its preferred portfolio as best as it could and substitute some entirely different resource in the place of what it may have already installed or is constructing.

3. “The utility should describe the timing and magnitude....” The utility is asked to specify the change in the CO_2 compliance requirements that would lead to the portfolio mid-course correction and indicate its assessment of such changes occurring.
4. “Comparative factors such as times....” Timeliness is an important consideration in evaluating portfolios. The utility is asked here to present some details of that consideration.

Paragraph 8.e. OREGON COMPLIANCE PORTFOLIO

Overview: This guideline element – to formulate such a portfolio and assess its costs and risks – is self-explanatory and uncontroversial.

Responses to the Other Parties’ Reply Comments

ODOE: This party’s primary concern was to assure that the economic and regulatory lives of resources embodying different technologies will be consistent with the regulatory environments that the portfolios are being measured against. Staff’s additions and modifications to Paragraph 8.b. (in the sentences beginning with “End-effect considerations…” and “Projected lifetimes…”) address that concern to a considerable degree.

Joint Parties: They recommended the following four changes/additions:

1. “A requirement for utilities to document and explain their choice of base-case scenario.” Staff believes that if a utility does not do that to the Commission’s satisfaction, it will likely not have its IRP acknowledged. Accordingly, we did not find it necessary to include such explicit language in our final version of the guideline.
2. “The inclusion of upstream CO_2 emissions for all resources.” There are two major kinds of upstream emissions considerations that come to mind. The first is whether or not such are figured directly into a utility’s emissions cap. Explicit language, albeit brief, reflecting that consideration was added to our Paragraph 8.a. The second consideration is the indirect affect of such emissions on the price of market/purchased power. Staff believes this second consideration is implicit in the following existing Paragraph 8.a. language: “Each compliance scenario should maintain logical consistency...between CO_2 regulatory costs and...expected interactive effects with...fuel and electricity prices.”
3. “The explicit inclusion of the price elasticity of demand in scenario logic consistency.” Staff has now made that inclusion explicit by adding the phrase, “sales volumes” to the just-referenced sentence, making it “Each compliance scenario should maintain logical consistency...between CO_2 regulatory costs and...expected interactive effects with *sales volumes* [emphasis added] and fuel and electricity prices.”
4. “A specific requirement for utilities to compare the cost differences between its preferred and alternate portfolio(s) in light of the risk performance of the portfolio(s).” Staff believes that by virtue of the utilities’ calculating and

displaying both the PVRR costs and PVRR risks in their IRPs, as called for repeatedly in our Guideline 8, that that desired requirement will be satisfied.

Joint Utilities: The "Joint Utilities," consisting in this docket of PacifiCorp, Idaho Power Company, and Portland General Electric, recommend, in addition to a number of "minor" clarifying edits, three sets of substantive changes.

The recommended substantive changes and Staff's responses are as follows:

1. The Joint Utilities recommend transferring all but the first sentence in Guideline Paragraph 8.b. (formerly titled "Preferred Portfolio") to Paragraph 8.a. (formerly titled "Scenarios"), and then deleting altogether the single sentence that remained of the former paragraph. That sentence calls for the utility to "identify, *among reasonable alternatives* [emphasis added]..." its preferred portfolio. The Joint Utilities' rationale for the deletion is that Guideline 1.c. already calls for the utility to select a preferred portfolio with greenhouse emission regulations in mind.

   Staff believes that the subject sentence should be preserved (along with the originally accompanying three sentences being retained as a separate "sub-guideline") because Guideline 1.c. does not make explicit the objective that a number of candidate portfolios should be evaluated in order to add credence to the ultimate preference choice. Since the utilities already perform that comparison function as a standard feature in their IRPs, they should not object to this requirement even if it appears to them to be redundant. But to clarify the distinction between Guideline 1.c., and the two paragraphs, 8.a. and 8.b., Staff rewrote the first sentence of 8.b. to enhance the prominence of "a set of reasonable alternative portfolios" to be investigated and augmented the titles of the two paragraphs to read, as follows: "Base Case and Other Compliance Scenarios" and "Preferred and Alternative Portfolios."

2. The paragraph 8.c. sentence (as modified slightly in Staff's final version for easier reading) that underlies the Joint Utilities' second recommendation is as follows: "The utility should develop a substitute portfolio appropriate for this 'trigger point scenario' and compare the substitute portfolio's expected cost and risk performances to those of the preferred portfolio – under the base case and each of the CO_2 compliance scenarios." The Joint Utilities think that "alternative trigger point scenario" should replace "each of the CO_2 compliance scenarios" (which are defined in paragraph 8.a.). Their argument is that "the trigger point analysis should be limited to only those scenarios that lead to a substantive change in portfolio resources, *i.e.*, the trigger point scenarios."

   Staff disagrees, and our final version retains, in essence, the original language. While the trigger point scenario and the new resource portfolio that falls out from it comprise the foundation of the analysis in this section of the guideline, actually making the comparisons of the new portfolio with the preferred portfolio at the trigger point itself is not very interesting. By definition, the two portfolios will have comparable cost/risk metrics at the trigger point. What should prove of interest is how well the new portfolio performs under the *other* compliance scenarios being considered, including the base case scenario. Somewhat comparable performances at the less stringent compliance scenarios and strongly superior performances under the more stringent compliance scenarios could constitute a strong prima facie case for choosing the substitute portfolio over the ostensibly preferred portfolio.

3. The Joint Utilities' third substantive recommendation is to add the phrase, "applicable to the electric sector," within the "Oregon Compliance Portfolio" paragraph (8.e.). Their argument is that environmental goals will likely be "economy-wide," with the utilities share of those goals to be "considered at a later date." Staff accepts the argument and introduced new language into our final version accordingly.

Where the Joint Utilities' "minor edits" clarified the message without altering meanings or intent, they were generally adopted. The following are Staff's responses in those cases where their edits are regarded as substantive rather than minor:

1. The Joint Utilities object to the use of the term "optimized" as applied to "portfolios." They contend that "'optimized' suggests something that simply does not exist with IRPs." Staff believes that a "best cost/risk portfolio" (a term used in Guideline 1.) constitutes an "optimized portfolio." Nevertheless, in our final version of Guideline 8, we endeavored to substitute more acceptable expressions for the term, "optimized."
2. The Joint Utilities recommended deleting the requirement in paragraph 8.d. that an assessment be provided that the noted "major change in the CO_2 compliance requirements" might actually occur. Admittedly, the context is where the "utility must change course unexpectedly," but providing some feel for whether such would ever have to take place isn't qualitatively different from the paragraph 8.c. requirement – which the Joint Utilities did not propose to delete – that the utilities should assess the likelihood of CO_2 compliance requirements being enacted that equal or exceed the trigger point level.
3. Staff adopted the recommendation that the $100 per ton upper limit specification be deleted from paragraph 8.a. Such a specification would be limiting given a constantly changing political environment, with upward-trending environmental ambitions.
4. The Joint Utilities recommended deleting the condition, "If none of the above portfolios is consistent with Oregon energy policies," from the requirement for the utility to separately construct a consistent/compliant portfolio. Deleting the condition suggests or implies that were it not for this requirement, an Oregon-energy-policies-compliant portfolio would not be constructed. That seems implausible. Given the constraints under which a utility will select its "preferred portfolio," one might think that such would at the same time be a portfolio that was consistent with Oregon's energy policies. With that understanding, Staff retains the indicated language.

Dated at Salem, Oregon this 26th day of September, 2007

George R Compton

George R. Compton
Economic Research & Financial Analysis Division

CERTIFICATE OF SERVICE

UM 1302

I certify that I have this day served the foregoing document upon all parties of record in this proceeding by delivering a copy in person or by mailing a copy properly addressed with first class postage prepaid, or by electronic mail pursuant to OAR 860-13-0070, to the following parties or attorneys of parties.

Dated at Salem, Oregon, this 26th day of September, 2007.

Kay Barnes

Kay Barnes
Public Utility Commission
Regulatory Operations
550 Capitol St NE Ste 215
Salem, Oregon 97301-2551
Telephone: (503) 378-5763

UM 1302
Service List (Parties)

CABLE HUSTON BENEDICT HAAGENSEN & LLOYD LLP	
EDWARD A FINKLEA	1001 SW 5TH - STE 2000 PORTLAND OR 97204 efinklea@chbh.com
CHAD M STOKES	1001 SW 5TH - STE 2000 PORTLAND OR 97204 cstokes@chbh.com
CASCADE NATURAL GAS	
JON T STOLTZ SR VICE PRESIDENT--REGULATORY & GAS	PO BOX 24464 SEATTLE WA 98124 jstoltz@cngc.com
CITIZENS' UTILITY BOARD OF OREGON	
LOWREY R BROWN UTILITY ANALYST	610 SW BROADWAY - STE 308 PORTLAND OR 97205 lowrey@oregoncub.org
JASON EISDORFER ENERGY PROGRAM DIRECTOR	610 SW BROADWAY STE 308 PORTLAND OR 97205 jason@oregoncub.org
ROBERT JENKS	610 SW BROADWAY STE 308 PORTLAND OR 97205 bob@oregoncub.org
DAVISON VAN CLEVE	
IRION A SANGER ASSOCIATE ATTORNEY	333 SW TAYLOR - STE 400 PORTLAND OR 97204 ias@dvclaw.com
DAVISON VAN CLEVE PC	
MELINDA J DAVISON	333 SW TAYLOR - STE 400 PORTLAND OR 97204 mail@dvclaw.com
DEPARTMENT OF JUSTICE	
STEPHANIE S ANDRUS ASSISTANT ATTORNEY GENERAL	REGULATED UTILITY & BUSINESS SECTION 1162 COURT ST NE SALEM OR 97301-4096 stephanie.andrus@state.or.us
DAVID HATTON ASSISTANT ATTORNEY GENERAL	REGULATED UTILITY & BUSINESS SECTION 1162 COURT ST NE SALEM OR 97301-4096 david.hatton@state.or.us
JANET L PREWITT ASST AG	1162 COURT ST NE SALEM OR 97301-4096 janet.prewitt@doj.state.or.us
ECUMENICAL MINISTRIES OF OREGON	
JAMES EDELSON	415 NE MIRIMAR PL PORTLAND OR 97232 edelson8@comcast.net

EMO ENVIRONMENTAL MINISTRIES DIRECTOR JENNY HOLMES	inec@emoregon.org
ESLER STEPHENS & BUCKLEY JOHN W STEPHENS	888 SW FIFTH AVE STE 700 PORTLAND OR 97204-2021 stephens@eslerstephens.com
IDAHO POWER COMPANY RIC GALE VP - REGULATORY AFFAIRS	PO BOX 70 BOISE ID 83707 rgale@idahopower.com
BARTON L KLINE SENIOR ATTORNEY	PO BOX 70 BOISE ID 83707-0070 bkline@idahopower.com
MONICA B MOEN ATTORNEY	PO BOX 70 BOISE ID 83703 mmoen@idahopower.com
LISA D NORDSTROM ATTORNEY	PO BOX 70 BOISE ID 83703 lnordstrom@idahopower.com
MICHAEL YOUNGBLOOD SENIOR PRICING ANALYST	PO BOX 70 BOISE ID 83707 myoungblood@idahopower.com
MCDOWELL & RACKNER PC KIMBERLY PERRY	520 SW SIXTH AVENUE, SUITE 830 PORTLAND OR 97204 kim@mcd-law.com
LISA F RACKNER ATTORNEY	520 SW SIXTH AVENUE STE 830 PORTLAND OR 97204 lisa@mcd-law.com
NORTHWEST ENERGY COALITION STEVEN WEISS SR POLICY ASSOCIATE	4422 OREGON TRAIL CT NE SALEM OR 97305 steve@nwenergy.org
NORTHWEST INDUSTRIAL GAS USERS PAULA E PYRON EXECUTIVE DIRECTOR	4113 WOLF BERRY CT LAKE OSWEGO OR 97035-1827 ppyron@nwigu.org
NORTHWEST NATURAL ELISA M LARSON ASSOCIATE COUNSEL	220 NW 2ND AVE PORTLAND OR 97209 eml@nwnatural.com
INARA K SCOTT REGULATORY AFFAIRS MANAGER	220 NW 2ND AVE PORTLAND OR 97209 inara.scott@nwnatural.com

OREGON DEPARTMENT OF ENERGY	
PHILIP H CARVER SENIOR POLICY ANALYST	625 MARION ST NE STE 1 SALEM OR 97301-3742 philip.h.carver@state.or.us
OREGON PUBLIC UTILITY COMMISSION	
MAURY GALBRAITH NAT GAS/R & P	PO BOX 2148 SALEM OR 97308-2148 maury.galbraith@state.or.us
PACIFIC POWER & LIGHT	
MICHELLE R MISHOE LEGAL COUNSEL	825 NE MULTNOMAH STE 1800 PORTLAND OR 97232 michelle.mishoe@pacificorp.com
PAUL M WRIGLEY MANAGER - REGULATION	825 NE MULTNOMAH ST, STE 2000 PORTLAND OR 97232 paul.wrigley@pacificorp.com
PACIFICORP	
OREGON DOCKETS	825 NE MULTNOMAH ST STE 2000 PORTLAND OR 97232 oregondockets@pacificorp.com
KYLE L DAVIS	825 NE MULTNOMAH PORTLAND OR 97232 kyle.l.davis@pacificorp.com
GREG N DUVALL	825 NE MULTNOMAH - STE 600 PORTLAND OR 97232 greg.duvall@pacificorp.com
NATALIE HOCKEN	825 NE MULTNOMAH SUITE 2000 PORTLAND OR 97232 natalie.hocken@pacificorp.com
PERKINS COIE LLP	
JAMES M VAN NOSTRAND	1120 NW COUCH STREET, 10TH FLOOR PORTLAND OR 97209-4128 jvannostrand@perkinscoie.com
PORTLAND GENERAL ELECTRIC	
RATES & REGULATORY AFFAIRS	RATES & REGULATORY AFFAIRS 121 SW SALMON ST 1WTC0702 PORTLAND OR 97204 pge.opuc.filings@pgn.com
PORTLAND GENERAL ELECTRIC COMPANY	
J RICHARD GEORGE	121 SW SALMON ST 1WTC1301 PORTLAND OR 97204 richard.george@pgn.com
RENEWABLE NORTHWEST PROJECT	
ANN ENGLISH GRAVATT	917 SW OAK - STE 303 PORTLAND OR 97205 ann@rnp.org
JESSE JENKINS	917 SW OAK ST STE 303 PORTLAND OR 97205 jesse@rnp.org