

BEFORE THE ENERGY FACILITY SITING COUNCIL
OF THE
STATE OF OREGON

In the matter of the Application)
for Site Certificate for the)
Klamath Cogeneration Project)

FINAL ORDER

The State of Oregon
Energy Facility Siting Council

August 1997

KLAMATH COGENERATION PROJECT

FINAL ORDER

TABLE OF CONTENTS

I. INTRODUCTION.....1

II. PROCEDURAL HISTORY.....2

III. GENERAL FINDINGS OF FACT.....6

 A. Description of the Proposed Facility6

 1. The Energy Facility6

 2. Related or Supporting Facilities.....8

 B. Location of the Proposed Facility.....9

 1. The Energy Facility Site.....9

 2. Related or Supporting Facility Sites.....9

IV. EFSC FACILITY SITING STANDARDS: FINDINGS AND CONCLUSIONS.....10

 ORS 469.503(1)

 A. Introduction: General Standard of Review.....10

 B. Need for the Facility (500-Megawatt Exemption).....11

 C. Standards About the Applicant.....26

 1. Organizational, Managerial and Technical Expertise..26

 2. Financial Assurance.....29

 D. Standards About the Site and Structures.....30

 1. Land Use.....30

 2. Structural Standard.....32

 3. Retirement.....36

 E. Standards About Impacts of Construction and Operation...37

 1. Soil Protection.....38

 2. Protected Areas.....40

 3. Fish and Wildlife Habitat.....43

 4. Threatened and Endangered Species.....51

 5. Scenic and Aesthetic Values.....55

 6. Historic, Cultural and Archaeological Resources.....58

 7. Recreation.....61

 8. Socio-Economic Impacts.....63

 9. Waste Minimization.....70

V. OTHER APPLICABLE REGULATORY REQUIREMENTS: FINDINGS AND CONCLUSIONS

 ORS 469.503(3).....73

 A. Requirements Under EFSC Jurisdiction.....73

1.	Noise.....	74
2.	Wetlands.....	76
3.	Water Rights.....	77
4.	Public Health and Safety (ORS 469.401(2)).....	79
B.	Requirements Which Are Not Under EFSC Jurisdiction.....	82
1.	Federally-Delegated Programs.....	82
2.	Requirements Which Do Not Relate to Siting.....	83
VI.	CONDITIONS REQUIRED BY COUNCIL RULES.....	84
A.	Mandatory Conditions in Site Certificates.....	85
B.	Site Specific Conditions.....	86
C.	Monitoring Conditions.....	87
D.	Requirements for Gas Pipelines and Transmission Lines....	87
E.	Construction and Operation Rules for Facilities.....	88
VII.	CONDITIONS REQUIRED FOR THIS FACILITY.....	90
A.	General Conditions.....	90
B.	500-megawatt Exemption.....	95
C.	Organizational, Managerial and Technical Expertise.....	100
D.	Financial Assurance.....	100
E.	Land Use	102
F.	Structural	102
G.	Retirement and Site Restoration.....	103
H.	Soil Protection.....	104
I.	Protected Areas.....	105
J.	Fish and Wildlife Habitat.....	105
K.	Threatened and Endangered Species.....	106
L.	Scenic and Aesthetic Values.....	106
M.	Historic, Cultural and Archaeological Resources.....	106
N.	Recreation.....	107
O.	Socio-Economic Impacts.....	107
P.	Waste Minimization.....	108
Q.	Noise.....	109
R.	Wetlands.....	109
S.	Water Rights.....	109
T.	Public Health and Safety.....	111
VIII.	GENERAL CONCLUSION.....	112
IX.	FINAL ORDER.....	112
	APPENDICES.....	114

KLAMATH COGENERATION PROJECT

FINAL ORDER

I. INTRODUCTION

The Energy Facility Siting Council ("EFSC" or "Council") issues this Final Order pursuant to Oregon Revised Statutes ("ORS") 469.370. This Final Order addresses the Application for Site Certificate ("ASC" or "application") for the construction and operation of a proposed gas fired cogeneration facility near the city of Klamath Falls. The application was submitted by Pacific Klamath Energy, Inc. ("PKE"), on behalf of the city of Klamath Falls. The proposed facility is known as the Klamath Cogeneration Project ("KCP" or "Project").

This Final Order is based on the Council's review of the ASC, the Office of Energy's ("Office" or "OE") Draft Proposed Order, the contested case proceeding and hearing officer's proposed order, the parties' exceptions to the hearing officer's order, and the comments and recommendations on the ASC by state agencies, local governments, Indian tribes, and the public.

With certain exceptions, no energy facility with an electric generation capacity of 25 megawatts ("MW") or more may be constructed or operated in Oregon without first obtaining a Site Certificate from the Council. ORS 469.300(9)(a) and 469.320.

It is the public policy of the State of Oregon that "the siting, construction and operation of energy facilities shall be accomplished in a manner consistent with protection of the public health and safety and in compliance with the energy policy and air, water, solid waste, land use and other environmental protection policies of this state." ORS 469.310.

To issue a Site Certificate, the Council must determine that the proposed facility complies with the "standards adopted by the Council pursuant to ORS 469.501 or the overall public benefits of the facility outweigh the damage to the resources protected by the standards that facility does not meet." ORS 469.503(1). The Council, further, must decide whether the proposed facility complies with all other applicable Oregon statutes and administrative rules identified in the Project Order, excluding requirements governing design or operational issues that do not relate to siting and compliance with requirements of federally delegated programs. ORS 469.401(4) and 469.503(3). In addition, the Council must assure that the Site Certificate contains "conditions for the protection of the public health and safety, for the time for completion of construction, and to ensure compliance with the standards, statutes and rules described in ORS 469.501 and ORS 469.503." ORS 469.401(2).

A Site Certificate issued by the Council binds the state and all counties and cities and political subdivisions of Oregon. Once the Council issues the Site Certificate, any necessary permits that are addressed in the Site Certificate must be issued by the responsible state agency or local government without further proceedings. ORS 469.401(3).

The Office is required under ORS 469.370(1) to issue a Draft Proposed Order on an application. Following the issuance of that draft, the Council must conduct at least one public hearing in the affected area, and elsewhere as the Council deems necessary. At these hearings the Council takes public comment on the application and Draft Proposed Order. ORS 469.370(2). Any issues that may be the basis for a contested case hearing must be raised by the public hearing comment deadline or they are waived and may not be considered in the contested case. ORS 469.370(3).

After the public hearing the Office must issue a Proposed Order recommending approval or rejection of the application. The Office must also issue public notice of the Proposed Order. The notice includes notice that the Council will conduct a contested case hearing on the application and Proposed Order, and specifies a deadline to request to participate as a party in the contested case and the date for the initial prehearing conference. ORS 469.370(4). Only those who appeared in person or in writing at the public hearing on the application may become parties to the contested case and only those issues that were raised on the record of the public hearing may be considered in the contested case. ORS 469.370 (5).

At the conclusion of the contested case the Council must issue a Final Order which either approves or rejects the application based on the standards adopted under ORS 469.501 and any additional state statutes, rules or local government ordinances determined to be applicable to the proposed facility by the Project Order. ORS 469.370(7).

The Council's Final Order is subject to judicial review by the Oregon Supreme Court. Only a party to the contested case may request judicial review and the only issues which are subject to judicial review are those raised by parties to the contested case. A petition for judicial review must be filed with the Supreme Court within 60 days after the date of service of the Council's Final Order. ORS 469.403.

The definitions in ORS 469.300 and Oregon Administrative Rules ("OAR") 345-01-010 apply to terms used in this order.

II. PROCEDURAL HISTORY

On February 14, 1995, Klamath Energy, Inc., ("KE") a wholly owned subsidiary of Diamond Energy, Inc., submitted a Notice of Intent ("NOI") to the Oregon Office of Energy ("OE") for the proposed Klamath Cogeneration Project ("KCP").

On April 25, 1995, OE deemed the NOI complete. On April 28, 1995 OE gave notice of the NOI to agencies, local governments and tribes and requested their comments and recommendations on the proposed facility.

In May 1995 OE gave public notice of the NOI and of a public information meeting. On June 7, 1995 OE conducted a public information meeting on the proposed KCP in the city of Klamath Falls.

On June 7, 1995 Klamath County granted the proposed KCP a Conditional Use Permit (CUP 29-95) which included several conditions. On August 1, 1997 the county granted a second Conditional Use Permit (CUP 54-97), which contained one condition, for the revised electrical transmission line, cooling water supply pipeline, sanitary/wastewater pipeline and potable water pipeline routes.

On July 24, 1995, OE issued a Project Order specifying the applicable state statutes and rules, applicable state and local permits, and information and issues to be addressed in an Application for Site Certificate ("ASC") for the KCP.

On September 12, 1995 EFSC appointed the Klamath County Board of Commissioners and the Klamath Falls City Council as Special Advisory Groups pursuant to ORS 469.480(1).

On February 21, 1996 KE submitted, on behalf of the city of Klamath Falls, an ASC for the KCP, a 305 MW natural gas-fired, combined cycle combustion turbine cogeneration facility proposed on Weyerhaeuser property within Klamath County several miles southwest of the city of Klamath Falls.

On February 29, 1996, KE submitted pursuant to OAR 345-23-010(2), on behalf of the city of Klamath Falls, an Application for Exemption From Need For Facility Determination for the KCP.

On March 6, 1996 the city of Klamath Falls granted a Conditional Use Permit (6-CUP-96), which included several conditions, for the portion of the proposed KCP 230 kV transmission line which passes across land within the city's jurisdiction.

On August 1, 1996 EFSC issued a final Order granting KCP an exemption from demonstrating need under ORS 469.501(2) and the EFSC need rules, OAR chapter 345, division 23. The final Order contains proposed conditions for a Site Certificate if KCP demonstrates compliance with all applicable EFSC Site Certificate criteria and is granted a Site Certificate.

On November 6, 1996, Pacific Klamath Energy, Inc. ("PKE") submitted, on behalf of the city of Klamath Falls, a supplement to the ASC. The supplement indicated that Diamond Energy, including its subsidiary KE, was no longer involved in the proposed KCP and had been replaced by PKE. The supplement also indicated that the Weyerhaeuser plant and property, on which the

proposed KCP would be built and to which it would provide steam, had been sold to Collins Products. The supplement also included updated information in response to OE information requests and the final Order granting the KCP an exemption from demonstrating need.

On November 12, 1996 OE determined the ASC complete and deemed it filed pursuant to OAR 345-15-190.

On November 13, 1996 OE issued notice of the filing of the ASC to state agencies, tribes and local governments and requested their written comments and recommendations pursuant to OAR 345-15-200.

On November 22, 1996 OE issued public notice of the filing of the ASC pursuant to OAR 345-15-190(2) and (4). Notice was sent to persons on the Council's general mailing lists and its KCP- specific mailing list, and to the property owners listed in Exhibit E of the ASC. A notice also was published in the Klamath Falls area newspaper, the Klamath Falls Herald and News, on November 27, 1996.

On December 6, 1996 the Council appointed John Burgess as its hearing officer for the public hearing and contested case hearing for the proposed KCP.

On February 6, 1997 OE issued a Draft Proposed Order on the proposed KCP as provided in ORS 469.370(1) and OAR 345-15-210.

On February 6, 1997 OE mailed notice of a public hearing in Klamath Falls on February 26, 1997, pursuant to ORS 469.370(2) and OAR 345-15-220(2). The notice was sent to persons on the Council's general mailing lists and its KCP-specific mailing list, and to the property owners listed in Exhibit E, as revised in January 1997 by PKE, of the ASC. Also on February 6, 1997 the Klamath Falls Herald and News published a notice of the February 26 public hearing.

On February 26, 1997 the Council's hearing officer conducted a public hearing in Klamath Falls, Oregon as provided in ORS 469.370(2) and OAR 345-15-220. The hearing officer accepted written comments until 5:00 p.m., March 4, 1997.

On March 6 and 7, 1997 OE presented the Draft Proposed Order to the Council at the first reading as provided by OAR 345-15-230. No public comment was taken at the first reading.

On March 28, 1997 OE issued a Proposed Order for the proposed KCP as provided in ORS 469.370(4) and OAR 345-15-230. Based upon the findings of fact, reasoning and conclusions of law contained in the Proposed Order, the Office recommended that the Council approve the application, subject to the conditions stated in the Proposed Order, and that the chairperson of the Council execute a Site Certificate for the proposed Klamath Cogeneration Project.

Also on March 28, 1997 the Council's hearing officer for the contested case proceeding issued notice of the Proposed Order and a contested case hearing on the proposed KCP as required by ORS 469.370(4), OAR 345-15-014 and OAR 345-15-230(3). This notice was mailed to persons on the Council's general mailing lists, its KCP-specific mailing list, property owners listed in Exhibit E, as revised in January 1997, of the ASC. These lists included all persons who were eligible to request party status because they had commented orally at the February 26 public hearing or in writing prior to the March 4 written comment deadline as required in ORS 469.370 and OAR 345-15-014.

Contested Case Proceeding

ORS 469.370(5) authorizes a contested case proceeding on an Application for a Site Certificate. KCP and OE were by law parties to the proceeding. ORS 469.370(5), OAR 345-15-016(1). Other interested persons, who were eligible to participate in the contested case proceeding by reason of their previous participation in the public hearing process, had to request party or limited party status. ORS 469.370(3) and (4).

Don't Waste Oregon Council (DWOC), Utility Reform Project (URP) and Lloyd K. Marbet were eligible to participate in the contested case proceeding because they had collectively submitted timely written comments (received on March 4, 1997) as part of the public hearing process. Their written comments addressed the proposed conditions relating to the exemption from demonstrating need. Umatilla Generating Company, L.P. (UGC), and Klamath County also were eligible because they had submitted timely written comments as part of that process.

After notice of the contested case proceeding, UGC and Klamath County submitted timely petitions to participate in the proceeding. Neither UGC nor Klamath County raised any issue or objected to the OE Proposed Order. DWOC, URP and Mr. Marbet submitted a collective petition for party status two days after the deadline of April 7, 1997, provided in the notice. Their collective petition identified all of the issues which they had raised in their March 4, 1997, public comments. After reviewing the petitions and responses to the petitions, the hearing officer granted limited party status to UGC and Klamath County. OAR 137-03-005. The hearing officer granted DWOC, URP and Mr. Marbet (hereinafter referred to as Intervenors) party status. The hearing officer found sufficient reason to excuse their late petition. OAR 137-03-005(5). The contested case focused exclusively on the conditions relating to the exemption from need and are discussed in section IV. B of this order.

On May 16, 1997, the hearing officer presided over a prehearing conference in which all the parties participated. On May 19, the hearing officer issued an order that provided that there was no need for a trial-type hearing on the issues raised by the public comments of Intervenors. (Or. 1). The order further provided for written arguments on the issues, and set a schedule for submission of memoranda.

Intervenors submitted their opening memorandum on June 9. KCP and OE submitted their responses on June 19. UGC and Klamath County chose not to file responses. Intervenors submitted their reply on June 27.

After consideration of the parties' memoranda, the hearing officer issued his proposed order on July 8, 1997. The hearing officer's order provided that exceptions to his order were due July 17, and that responses to the exceptions were due July 24. The order also provided for oral argument on the exceptions and responses before the Council. The applicant and the OE both submitted exceptions to the hearing officer's proposed order. Intervenors submitted a reply to the exceptions.

On August 14 and 15, 1997 the Council met in Klamath Falls and considered the parties' exceptions and responses. The Council's findings, reasoning and conclusions as they relate to the contested issues are contained in section IV. B. of this order. At the meeting the Council also considered a Recommended Final Order and Recommended Site Certificate. On August 15, the Council approved the ASC for the KCP and directed OE to prepare this Final Order and a Site Certificate consistent with its decision for the chair's signature.

III. GENERAL FINDINGS OF FACT

III. A. Description of the Proposed Facility

III. A. 1. The Energy Facility

Major Structures and Equipment

The proposed energy facility is a single, combined-cycle combustion turbine cogeneration facility. It would be capable of producing about 300 megawatts (net) of electricity while providing about 200,000 lbs. per hour of steam to off-site industrial use. The proposed energy facility would burn primarily natural gas, but could burn low-sulfur oil as a backup fuel. The estimated life of the proposed energy facility is at least 30 years. The proposed energy facility is shown in the ASC, Fig. B-3 which is included in this order as appendix A.

The proposed energy facility consists of three major pieces of equipment: one combustion turbine (CT), one heat recovery steam generator (HRSG), and one steam turbine generator.

The proposed energy facility would include a turbine generator building about 70 feet tall and related structures; an approximately 110-foot-high heat recovery steam generator building; a 150-foot-high emission stack; a mechanical evaporation cooling tower about 50 feet tall; an auxiliary boiler with an approximately 75-foot-high stack; an approximately 60-foot-high, above-ground 2,500,000 gallon fuel oil storage tank; an electrical substation with outdoor transformers and switches; an approximately 290-foot by 290-foot stormwater retention/evaporation pond; on-site parking; and a variety of storage tanks and other structures.

The proposed energy facility includes four major systems: the power generation system, the cycle cooling system, the control system, and the electric and transmission system.

The power generation system would include three primary components: the combustion turbine generator, the HRSG, and the steam turbine generator.

The cycle cooling system would include a water-cooled steam surface condenser, an evaporative mechanical induced draft cooling tower consisting of approximately four cells, boiler and cooling tower water chemical treatment systems, and a component cooling system.

The control system would include distributed control systems, an uninterruptible power supply, and an instrument air system.

The electric and transmission system would include an electric power system and a 230 kV electric transmission line to the Klamath Falls substation.

The proposed energy facility would also include NOX control systems, a continuous emissions monitoring system, a fire protection system, water treatment systems and a stormwater drainage system.

Capacity and Output

The proposed energy facility would have an expected nominal generating capacity at annual average conditions of about 300 MW (net) with 200,000 pounds per hour process steam flow to off-site industrial use. The actual capacity and output would vary depending on actual ambient conditions (especially temperature) and operating considerations. The expected ratings of the energy facility at annual average conditions (48 degrees F) adjusted to site elevation are (See ASC, Exhibit B, p. 11, November 6, 1996):

Gross power output is estimated to be about 328 MW at zero steam to off-site industrial use, 315 MW at 143,400 pounds per hour steam to off-site industrial use, and 310 MW at 200,000 pounds per hour steam to off-site industrial use. Minimum expected gross generation is 157 MW based on 315 MW gross output.

Net power output is estimated to be about 318 MW at zero steam to off-site industrial use, 305 MW at 143,400 pounds per hour steam to off-site industrial use, and 300 MW at 200,000 pounds per hour steam to off-site industrial use.

The proposed energy facility would be designed to achieve a capacity factor in excess of 93 percent. Actual capacity factor would depend on dispatch of the facility, operating and maintenance considerations, and other factors. The forced outage rate for the proposed energy facility is expected to be about two percent.

The proposed energy facility would be designed to operate as a dispatchable facility capable of stable operation from at least 50 up to 100 percent of its rated output and with multiple starts.

Water Use¹

The proposed energy facility would reuse treated effluent from the city of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP) for its major source of water. This water would be used in the cooling tower system for evaporative cooling. The proposed energy facility is estimated to use about 1,211 gallons per minute (gpm) (about 1.74 million gallons per day) of treated effluent on an annual average basis.

The proposed energy facility would obtain good quality water from the city of Klamath Falls' existing municipal water supply system. The proposed energy facility is estimated to use about 160 gpm (about 0.23 million gallons per day) of this water on an annual average basis.

The proposed energy facility would obtain good quality water from Collins to make steam for Collins. The proposed energy facility is estimated to use about 400 gpm of Collins' water on an annual average basis. This water would reduce by an equal amount the amount of water that Collins uses to make its own steam. Of the 400 gpm, 200 gpm would be condensed steam and 200 gpm would be from a Collins' groundwater well.

The proposed energy facility would dispose of its wastewater (both process wastewater and sanitary wastewater) to the SSWTP. The proposed energy facility is estimated to produce about 444 gpm (about 0.64 million gallons per day) of wastewater on an annual average basis.

III. A. 2. Related or Supporting Facilities

The proposed facility would include the following related or supporting facilities:

A steam pipeline to carry steam from the proposed energy facility to the Collins plant and a pipeline to return condensed steam and water to the energy facility. The proposed steam line would be above ground, about 18 inches in diameter and about a mile long. The proposed return line would be above ground, about six inches in diameter and about one mile long.

A natural gas interconnection with Pacific Gas Transmission Company's recently built Medford Lateral natural gas pipeline which crosses Collins property adjacent to the proposed energy

¹ Water use and wastewater estimates in this order are from a January 2, 1997 letter from RMI to OE, page 2 (Fig. B-1 "Process Flow Diagram" and Fig. F-1 "Water Balance Diagram: Annual Average Conditions") which are in appendix D to the Site Certificate. These estimates are based on a 300 MW net output and 200,000 pounds per hour of steam to off-site industrial use. These estimates supersede water estimates in the November 6, 1996 ASC.

facility site. The interconnection would be about 12 inches in diameter and less than 300 feet long.

A new 230 kilovolt ("kV") electric transmission line from the proposed energy facility to the PP&L Klamath Falls substation. The line would be about four miles long. It would consist primarily of H-frame wood pole structures about 75 feet high, but might include some single-pole steel structures about 95 feet high. Taller structures might be required under special conditions such as highway crossings, angle points or to address property owner concerns. The single-pole steel structures would be a brownish color with a non-reflective surface. (H. Ferris, PacifiCorp, pers. comm. 1/23/97, 3/4/97)

A new underground pipeline to supply cooling water to the proposed energy facility. The pipeline would carry treated wastewater from the Klamath Falls Spring Street Wastewater Treatment Plant. It would be about 14 to 16 inches in diameter and about six miles long.

A new underground pipeline to return wastewater from the proposed energy facility to the city's existing sewer system. This line would be about eight inches in diameter and about two miles long.

A new underground water line to supply good quality water to the proposed energy facility from the city's existing water system. This line would be about six inches in diameter and about two miles long.

III. B. Location of the Proposed Facility

III. B. 1. The Energy Facility Site

The proposed energy facility site is about one-half mile west of the U.S. Highway 97 bridge over the Klamath River. It is on about 15 acres of land owned by Collins Products. The proposed site is within Klamath County and is outside the city limits and the Urban Growth Boundary. The proposed site is in Section 18 of Township 39 South, Range 9 East, in Klamath County, Oregon. The location of the proposed facility is shown in the ASC, Fig. C-1 which is included in this order as appendix B.

III. B. 2. Related or Supporting Facility Sites

The proposed routes of the proposed related or supporting facilities are shown in the ASC, Fig C-1 which is included in this order as appendix B.

The proposed steam and condensate return pipelines would be entirely within land owned by Collins. They would run between the proposed energy facility and the Collins plant to the southwest. They would be within Section 18 of Township 39 South, Range 9 East, and Sections 13 and 24 of Township 39 South, Range 8 East.

The proposed natural gas interconnection would be entirely on Collins property. It would be immediately south of the proposed energy facility. It would be within Section 18 of Township 39 South, Range 9 East.

The proposed new 230 kV electric transmission line would run north and east from the proposed energy facility site across Heavy Industrial zoned land, continue north between Highway 97 and the Stewart Lennox subdivision, cross Highways 66 and 140 and continue north until it reaches an existing PP&L transmission line (Line 59) which runs east and west. At this point the proposed new line would turn east and run parallel to the southern side of the existing PP&L Line 59 until it reaches PP&L's Klamath Falls substation northeast of Memorial Park. The proposed line would be within Sections 18, 7 and 8 of Township 39 South, Range 9 East.

The proposed underground cooling water supply pipeline would begin at the city of Klamath Falls Spring Street Wastewater Treatment Plant. Within city limits, the pipeline would be placed within existing city street rights-of-way. It would cross the Link River attached to the underside of an existing bridge near the north end of Lake Ewauna. Upon leaving city limits, the pipeline would follow an existing roadway corridor. Near Memorial Park, it would follow an existing sewer force main easement to Highway 97 and then run within Highway 97 right-of-way until it reaches Collins property. From this point it would cross Collins property to the proposed energy facility site. The pipeline would be within Sections 32 and 33 of Township 38 South, Range 9 East, and Sections 5, 8, 7 and 18 of Township 39 South, Range 9 East.

The entire length of the proposed underground wastewater return pipeline would run next to the proposed cooling water supply pipeline. It would begin at the proposed energy facility, cross Collins property and join Highway 97 right-of-way just north of the bridge across the Klamath River. From there it would follow Highway 97 right-of-way north to the intersection with Highway 66. Near the Highway 66 intersection, it would connect into the city's existing sewer force main. It would be within Sections 18 and 7 of Township 39 South, Range 9 East.

The proposed underground potable water line would connect to an existing city potable water main near the intersection of Highway 66 and Weyerhaeuser Road. The proposed line would be within existing county street rights-of-way from Highway 66 along Weyerhaeuser Road until it reaches Collins property. It would then go east across Collins property to the proposed energy facility site. It would be within Section 13 of Township 39 South, Range 8 East, and Section 18 of Township 39 South, Range 9 East.

IV. EFSC FACILITY SITING STANDARDS: FINDINGS AND CONCLUSIONS ORS 469.503(1)

IV. A. Introduction: General Standard of Review

Under ORS 469.503 and OAR 345-22-000(1), the Council must determine, before issuing a Site Certificate, that a preponderance of the evidence on the record supports the following conclusions:

- (1) The proposed facility complies with the standards adopted by the Council pursuant to ORS 469.501;
- (2) Except as provided in section 5 of HB 3283 (1997) [formerly ORS 469.503(2) (1995)] and OAR 345-22-030 for land use compliance, and except for those statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council, the proposed facility complies with all other Oregon statutes and administrative rules identified by the Project Order as applicable to the issuance of a Site Certificate for the proposed facility; and
- (3) The proposed facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission.

The Council must also impose conditions for the protection of the public health and safety, for the time of commencement and completion of construction, and to ensure compliance with the standards, statutes and rules addressed in this order. ORS 469.401(2). The Council is not authorized to determine compliance with regulatory programs that have been delegated to another state agency by the federal government. ORS 469.503(3). The Council also does not have jurisdiction over design or operational issues that do not relate to siting, such as matters relating to employee health and safety, building code compliance, wage or hour or other labor regulations, or local government fees and charges. ORS 469.401(4). Some of these exempt programs are listed in section V.B. The Council may, however, consider these programs in the context of its own standards to ensure public health and safety, resource efficiency and protection of the environment as discussed below.

IV. B. Need for the Facility (500-Megawatt Exemption)

The Requirement

ORS 469.501(2) (1995 Edition) provided that "... up to 500 megawatts of natural gas fired facilities shall be exempt from any need standard if the applications for such facilities are deemed complete on or before July 1, 1997."

On June 26, 1997, the governor signed HB 3283 into law. It became effective on that date. This legislation amends ORS 469.501(2) to repeal the above language. It also amends ORS 469.503. That statute now states:

"In order to issue a site certificate, the Energy Facility Siting Council shall determine that the preponderance of the evidence on the record supports the following conclusions:

...(2) If the energy facility is a fossil-fueled power plant, the energy facility complies with any applicable carbon dioxide emissions standard adopted by the council or enacted by statute."

Section 8 of HB 3283 further provides:

"(2) A recipient is deemed to meet any applicable need standard and carbon dioxide emissions standard for the nominal generating capacity of the 500-megawatt exemption provided that the recipient satisfies the conditions of the 500-megawatt exemption, unless the council modifies the conditions.

(3) As used in this section:

(a) "Recipient" means any base load gas plant, as defined in ORS 469.503, determined by the council to have the lowest net monetized air emissions among the applicants participating in a contested case proceeding.

(b) "500-megawatt exemption" means the council order in which a recipient was determined to have the lowest net monetized air emissions."

Findings of Fact

The proposed KCP is a base load gas plant as defined in ORS 469.503, as amended.

In 1996, the Council held a contested case proceeding to determine which of three proposed fossil-fueled facilities had the lowest net monetized air emissions. This proceeding is known as the 500-megawatt exemption proceeding. The KCP and two other interested applicants participated. OAR 345-023-0010(2). On August 1, 1996, the Council issued a final order which determined that the KCP had the lowest net monetized air emissions of the facilities that participated in the 500-megawatt exemption proceeding. This order is known as the 500-megawatt exemption. The KCP is therefore a recipient as defined in Section 8 of HB 3283.

In order to assure that KCP will implement the air emissions offset programs and achieve the cogeneration which it proposed in the 500-megawatt exemption proceeding, the Council adopted certain conditions which it attached to the 500-megawatt exemption final order. (500 MW Or., App A). In the order, the Council stated that it intends to impose these conditions in [KCP=s] site certificate if [KCP] demonstrates compliance with all EFSC site certificate criteria. (500 MW Or., 97). The record of the 500 MW exemption proceeding is included in the record of the contested case proceeding on the ASC for the KCP. OAR 345-15-240.

Contested Case Proceeding on the Application for Site Certificate

Background

OE, in its Draft Proposed Order, revised the wording of Conditions 20 and 24 which the Council had attached to its final order in the 500-megawatt exemption proceeding. OE explained the bases of its revisions in the Draft Proposed Order. ORS 469.370(1).

Intervenors' written comments, submitted as part of the public hearing process, were critical of 11 conditions which the Council had attached to its 500-megawatt exemption final order. ORS 469.370(3). In general, they considered that certain terms of the conditions were vague, lacked clarity and could be better worded. Intervenors did not criticize OE's revisions of Conditions 20 and 24.

OE considered the comments made by Intervenors, and OE made additional revisions to Conditions 3, 6, 13 and 14 in its Proposed Order, which it issued on March 28, 1997. OE explained the bases of the revisions in the Proposed Order. ORS 469.370(4).

At the prehearing conference on May 16, 1997, the hearing officer determined that there were no issues which needed a trial-type hearing, and that the only issues were over the wording of the conditions. The parties expressed an interest in discussing informally among themselves further revisions to the wording of the conditions in an attempt to resolve some of the issues raised by Intervenors. After the conference, the hearing officer entered an order which provided for the submission of memoranda on the issues.

About June 6, 1997, OE submitted further revisions to the conditions to KCP and Intervenors in an attempt to resolve some of the issues raised by Intervenors. These revisions were generally acceptable to KCP and Intervenors (hereinafter the June 6 agreement).²

The exchange of the memoranda on the issues also resulted in agreement by OE, KCP and Intervenors on additional revisions to the wording of the conditions. But there still remained some issues related to the wording of the conditions.

In the following section, each of the conditions about which Intervenors raised an issue is discussed. Where the parties have agreed on revisions to the wording, an explanation of the revisions is provided. Where there was a dispute over the wording, a determination of the appropriate wording is made. Although no issue was raised in the contested case proceeding over OE's revisions to Conditions 20 and 24 in the Draft Proposed Order, an explanation of the revisions is also provided. Only revisions which were consistent with the Council's intent in adopting the conditions in the 500-megawatt exemption proceeding are made.

Preamble

In its Proposed Order, OE added wording to the preamble to the conditions as an aid in interpreting the conditions:

² Intervenors have objected to the term Agreement with reference to the OE revisions. The use of the term Agreement is merely a shorthand expression to indicate the affirmative agreement of Klamath and OE and the lack of objection by Intervenors to those revisions.

"In interpreting these conditions, any ambiguity will be clarified by reference to the 500 megawatt exemption final Order and, if necessary, the record of the proceedings which led to that Order."

No one objected to the wording.

OE's suggestion is acceptable. But in light of this order, the preamble should provide:

"In interpreting these conditions, any ambiguity will be clarified by reference to, and in the following priority, this order, the 500 megawatt exemption final Order and, if necessary, the record of the proceedings which led to those Orders."

Ultimate Findings of Fact, Reasoning and Conclusions of Law

Condition 1. This condition requires that AKCP=s steam host shall use at least 200,000 pounds of steam per hour on a five year basis.≡

Intervenors objected that the requirement did not unequivocally provide that the steam would be put to a Aproductive use.≡ (Int. Comm. 3/4/97, 1). In order to make clear that the condition required Aproductive use,≡ Intervenors suggested that a definition of Ause≡ be added to the condition: Ause≡ means that

A...the steam is used to displace another source of carbon dioxide emissions that would have otherwise occurred or continued to occur.≡ (Op. Memo. 2).

The suggested definition is based upon a provision in the current HB 3283, which amends ORS 469.503 by adding subsection (2)(b)(A).

Both KCP and OE agreed that the definition of Ause≡ may be added to Condition 1. OE explained that:

A...It was EFSC=s understanding in the 500 MW case that the steam would displace boilers burning oil, thereby reducing CO2 emissions. It is appropriate to make that explicit in the conditions....≡ (Resp. memo. 1).

The definition of Ause≡ more clearly expresses the Council=s intention in adopting Condition 1, and the definition has been added to the condition.

Intervenors also considered that the measurement of KCP=s steam host use of steam Aon a five year basis≡ was ambiguous because the measurement could mean A5-year average use≡ or Asuccessive discrete 5-year blocks.≡ (Int. Comm. 3/4/97, 1). In the June 6, 1997, agreement of KCP, Intervenors and OE, they agreed that the measurement should be Ain discrete, successive five-year periods.≡ Considering the measurement in the context of Condition 1, the parties=

agreed upon wording makes more clear the Council's intent, and the wording has also been added to Condition 1.

With the above wording added, Condition 1 now provides:

AKCP's steam host shall use at least 200,000 pounds of steam per hour on a five year basis, measured in discrete, successive five-year periods. >Use= of the steam means that the steam is used to displace another source of carbon dioxide emissions from fossil fuels that would have otherwise occurred or continued to occur....=

In the June 6 agreement, KCP, Intervenors and OE agreed that KCP's steam host would use the steam in productive, industrial processes. This wording was intended to remedy Intervenors' concern that Condition 1 did not unequivocally require that the steam be put to productive use. But the parties agreed to this wording before they agreed to the addition of the definition of A-use. Intervenors would like both this wording and the definition. In light of the definition of A-use, it is unnecessary to also require that the steam be used in productive, industrial processes.

Condition 1 further requires that if KCP's steam host uses less than the requisite quantity of steam AKCP shall offset an amount equivalent to the monetized incremental emissions resulting from the lower use. Intervenors pointed out that Condition 1 did not identify the method of calculation of the monetized emissions. In their June 6 agreement, the parties agreed on clarification of the method to be used: the calculation would be the same methodology and monetary values of emissions employed in the 500 MW exemption final order. None of the parties considered that a different methodology was intended by the Council. The agreed upon wording is acceptable. Therefore, to clarify the requirement the wording is added, and Condition 1 now provides:

A...In any event, KCP shall offset an amount equivalent to the monetized incremental emissions resulting from the steam host's use of less than an average of 200,000 pounds of steam per hour, measured on a five year basis, and for 30 years. Calculations of monetized emissions shall use the same methodology and monetary values of emissions employed in the 500 MW exemption final order.=

Condition 2. This condition requires that AKCP shall provide to the Council an executed steam sales contract with its steam host before beginning construction.

Intervenors found that the wording was vague. Intervenors stated that the Council's purpose in adopting this condition must be to require that KCP provide assurance, prior to construction of its project, that the steam is salable[,] [b]ut the language of Condition 2 would be satisfied, if KCP were merely to show a one-month contract. (Op. Memo. 4). Additionally, they argued

that the Council must have intended that KCP's contract with the steam host be for a substantial period of time. (Op. Memo. 4).

OE responded that Condition 2 was intended to assure that before the plant is built there is an agreement in place as a show of good faith on the part of KCP and its steam host. (Res. Memo. 3). But both OE and KCP argued that the Council did not intend to require that the contract be of some minimum term.

Both also argued that the requirements in Condition 1 make it unnecessary to specify the length of contract between KCP and its steam host. They relied upon the requirement in Condition 1 that the steam host use at least 200,000 pounds of steam per hour and the offset requirements if the steam host fails to use the requisite quantity.

Strictly speaking, intervenors are correct that KCP may comply with Condition 2 by entry into a one-month contract. But there is no basis for believing that KCP would do so.

Implicit in the requirement is that KCP would act in good faith, and we expect that good faith to be reflected in the length of the contract KCP submits to the Council. Therefore, we make no change to this condition.

Condition 3. This condition requires KCP to establish an escrow account in the amount of \$3.1 million for implementation of the offset portfolio.

OE added "in 1998 dollars" to the condition at the time of issuance of the Proposed Order in response to intervenors' public comment that the condition failed to specify the vintage of the \$3.1 million. (Int. Comm. 3/4/97, 2). KCP did not object to the specification of "1998 dollars" because 1998 is KCP's projected date of financing. (KCP Res. Memo. 4, n. 2).

But intervenors argued that the wording should be "January 1, 1998 dollars" not just "1998 dollars" because the value of a dollar changes during the course of the year. (Op. Memo. 5). Intervenors provided no basis for finding that the Council intended a specific date.

The addition of "in 1998 dollars" clarifies the vintage of the \$3.1 million in Condition 3, and is consistent with the Council's intent in adopting the condition. Because the Council stated no specific date in Condition 3, intervenors' suggestion of "January 1, 1998 dollars" is rejected. The average value of the dollar during 1998 is to be used.³

Condition 3 now provides that:

³

Intervenors similarly argued that Condition 6 should state "January 1, 1996" dollars, not just "1996 dollars" as it does. (Op. Memo. 5). This argument was not raised in intervenors' public comments and, therefore, is not an issue in this proceeding. ORS 469.370(3) and (5).

Before commencing construction, KCP shall establish an escrow account in the amount of \$3.1 million, in 1998 dollars, for implementation of the offset portfolio described in its Request for Exemption.≡

Intervenors also argued that Condition 3 should require that the \$3.1 million escrow account accrue interest at least at the rate of return of Pacific Power & Light Company. (Int. Comm. 3/4/97, 2). Intervenors considered that such a requirement would provide an incentive to KCP to invest the fund productively, and would remove the financial incentive for KCP to delay making the deposit, thus depriving the escrow account of interest.≡ (Op. Memo. 4).

But Condition 3 requires KCP to establish the escrow account before, commencing construction≡ so that KCP cannot delay in making the deposit beyond that point.

Intervenors, in their exceptions, proposed that the funds set aside in escrow accounts for this condition and for Condition 6 be placed in interest bearing accounts and that the accrued interest remain in the account and be available for use under that condition.

We agree that this would be appropriate. KCP has agreed to this proposal, and we adopt it. We do not adopt Intervenor's proposal that the interest rate be set at the rate of PP&L, but would leave it to KCP to select appropriate conservative investments. Therefore we modify the conditions to read as follows:

"Before commencing construction, KCP shall establish an interest bearing escrow account in the amount of \$3.1 million, in 1998 dollars, for implementation of the offset portfolio described in its Request for Exemption. Any interest accrued in the account shall be used to implement the offset portfolio."

Intervenors also argued that there should be a generic statement regarding vintage of dollars expressed without a vintage.⁴ OE recommended a preamble to the conditions in its Proposed Order which provided the kind of statement which Intervenors sought. OE recommended:

A...For these conditions, the index by which the future value of money shall be converted to 1996 or 1998 dollars shall be the Implicit Price Deflator for the Gross Domestic Product as published by the U.S. Bureau of Economic Analysis of the Department of Commerce or a successor agency. These values are published annually each February in the >Economic Report of the President=≡ (Pro. Order. 93).

OE explained that the Implicit Price Deflator

4

Intervenors pointed out that the dollars referred to in Conditions 12-16 were without a vintage. But the provisions in those conditions allocate the \$3.1 million in the escrow account established under Condition 3, which now provides that the money is based upon 1998 dollars.

A...is the broadest measure of inflation in the U.S. economy. It also does not suffer from the problems associated with fixed-weight indices, such as the Consumer Price Index. As the mix of products in the economy changes over time, fixed-weight indices tend to overstate inflation.≡ (Pro. Or. 22).

Use of the Implicit Price Deflator as the method of inflation adjustment is acceptable, and the above statement is added as a preamble to the conditions.

Condition 4. This condition requires that A[b]efore commencing construction, KCP shall commence good faith implementation of its offset portfolio.≡ Intervenors questioned in their public comments whether the term Aoffset portfolio≡ referred to AKCP=s original proposal to EFSC in the 500 MW exemption proceeding≡ or a subsequent modification of that portfolio. (Int. Comm, 3/4/97, 2 n. 1). As a result, the parties agreed to add the phrase Adescribed in its Request for Exemption≡ at the end of the condition. This wording removes any doubt about the meaning which the Council intended.

With the additional wording, Condition 4 now provides that:

ABefore commencing construction, KCP shall commence good faith implementation of its offset portfolio described in its Request for Exemption.≡

Intervenors initially understood that AKCP=s only obligation is to >commence good faith implementation of its offset portfolio=≡ under Condition 4, and that KCP had no reporting requirements until year 10. (Int. Comm. 3/4/97, 2). But both KCP and OE explained in their response memoranda that Condition 8 requires that AKCP shall annually report offset performance to the Council and the U.S. Department of Energy,≡ and Condition 10 requires that A[e]very five years for the life of the facility KCP shall report to the Council offset portfolio performance...and explain changes from the offset benefits projected in the Council=s analysis of KCP=s request for exemption.≡ Intervenors appeared to accept their explanation. (Reply Memo. 3).

Condition 5. This condition provides that if the facility does not achieve Acommercial operation,≡ KCP shall have no obligation to further fund and implement the offset portfolio. Intervenors stated that the term Acommercial operation≡ was ambiguous. (Int. Comm. 3/4/97, 2). The parties agreed to additional wording to clarify the term. They agreed on the phrase Athe milestone of commercial operation≡ to indicate that the Council intended a specific date, not a period of operation of the facility such as one month. The phrase is consistent with the Council=s intent, and Condition 5 now provides:

Alf the facility does not achieve the milestone of commercial operation, KCP=s obligation to further fund and implement the offset portfolio shall end and any remaining funds shall revert to KCP.≡

Although Intervenors found that the addition of the phrase clarified the Council=s intent, they contended that the Council=s intent would be further clarified if the phrase were defined. Both KCP and OE offered similar definitions in their memoranda based upon the date when the facility was ready for operation and the rights and obligations pass to KCP. (KCP Res. Memo. 6-7) and (OE Res. Memo. 6). But KCP argued that no definition of the phrase Ais needed as it is a commonly used term in the energy industry.≡ (Res. Memo. 7).

Intervenors accepted the definitions stated by KCP and OE, but argued that without a definition the phrase Awill remain undefined and subject to future dispute.≡ (Reply Memo. 4).

During the 500 MW exemption, members of the Council were also concerned about the meaning of the term Acommercial operation.≡ (500 MW Tr. 590-99). The question was whether the term meant when the facility Ais built≡ or when Athe switch is on.≡ (500 MW Tr. 591). After some discussion, Chairman Edvalson stated that he accepted that the term meant Acertified, available for operation,≡ and Council Member Elms-Sutherland stated that she wanted Ato make sure it=s clear to everybody that it doesn=t mean it's operating, it means that it can operate.≡ (500 MW Tr. 597). Assistant Attorney General Perry explained that the Council has used the term as a milestone in the past: the Adate of completion of construction is defined as the date of commercial operation.≡ (500 MW Tr. 597-98). Council Member Schell stated that:

AI don=t feel uncomfortable with the definition that has been given here, recognizing that we have got legislative history made right now as to what we mean.≡ (500 MW Tr. 599).

In an effort to be as clear as possible in the Site Certificate and to reduce the need for future readers to have to refer to this order in order to interpret the Site Certificate, we adopt the following definition:

"The facility will be deemed to achieve the milestone of commercial operation when KCP accepts the facility as available for commercial operation from the facility's constructor."

Condition 6. This condition requires KCP to establish a contingency account to provide additional funding if the mitigation portfolio does not meet projections. Five revisions are made to this condition.

The condition provides that if Athe effects of actual CO2 mitigation are≡ less than 90 percent of projected CO2 offsets after 10, 20 and 30 years, and if cogeneration or other offsets do not

compensate for this Aincrease,≡ KCP will make a sum Aup to≡ the total amount of the contingency fund available to purchase or fund additional CO2 offsets.

Intervenors found that the term Aeffects≡ was ambiguous. (Int. Comm. 3/4/97, 2). OE agreed, and removed the term from the condition in its Proposed Order. The revision is consistent with the Council=s intent. The condition now provides:

A...In the event ~~the effects of~~ actual CO2 mitigation ~~are~~ is less than 90 percent of projected CO2 offsets after 10, 20 and 30 years, ...≡

In the exchange of memoranda, KCP and OE agreed with Intervenors that if the mitigation portfolio does not meet projections, the event is a Ashortfall≡ not an Aincrease≡ as the condition states. Therefore, the condition now provides:

A...and if cogeneration or other offsets do not compensate for this ~~increase~~ shortfall....≡

In their June 6 agreement, the parties agreed with two other revisions to Condition 6. The first revision was intended to clarify the Council=s intent if the mitigation portfolio does not meet projections. In such case, KCP is required to make an amount available to purchase or fund additional CO2 offsets Aup to≡ the total amount of the contingency fund. Intervenors pointed out that Aup to≡ the total amount Acould be half of it or a tenth of it.≡ (Int. Comm. 3/4/97, 2).

The parties agreed on adding wording to Condition 6 to clarify that the Council intended KCP to spend as much of the contingency fund as is available to make up the deficiencies in meeting projections.⁵ The context of Condition 6 supports the parties= view of the Council=s intent, but their suggested wording is somewhat cumbersome.

Instead of the parties= suggested wording, Condition 6 is revised as follows to express the Council=s intent:

AIn the event actual CO2 mitigation is less than 90 percent of projected CO2 offsets after 10, 20 and 30 years, and if cogeneration or other offsets do not compensate for this shortfall (including offsets resulting from reduced methane emissions based on the then-prevailing IPCC CH4-CO2 equivalency factor), KCP shall ~~make a sum up to the total amount of~~ use the contingency fund ~~available~~ to

5

The parties suggested revision is as follows:
AIn the event actual CO2 mitigation is less than 90 percent of projected offsets after 10, 20 and 30 years, and if cogeneration or other offsets do not compensate for this increase (including offsets resulting from reduced methane emissions based on the then-prevailing IPCC CH4-CO2 equivalency factor), KCP shall make a sum up to the total amount of the contingency fund available to purchase or fund additional CO2 offsets sufficient to make up the deficiencies in meeting projected CO2 offsets to the extent possible with the available contingency funds....≡

~~purchase or fund~~ implement additional CO2 offsets. The amount used shall be sufficient to make up the deficiencies in meeting projected CO2 offsets to the extent possible with the available contingency funds. The contingency fund available in years 10, 20 and 30 shall comprise the ~~remainder of the contingency fund less additional~~ funding draws in years 10 and 20, respectively. Any unused portion of the fund shall revert to the Project after year 30."

The second revision agreed upon by the parties in their June 6 agreement is non-substantive, and acceptable:

~~A~~Before commencing ~~constructing~~ construction, the facility KCP shall make available a contingency account in the amount of \$300,000 in 1996 dollars....≡

As noted earlier in the discussion of Condition 3, Intervenors proposed, in their exceptions, that the KCP be required to place the funds in an interest bearing account. We have resolved that issue in our discussion of Condition 3, and adopt that reasoning and conclusion here.

The following sentence should be inserted after the first sentence in Condition 6:

"The funds shall be placed in an interest bearing account, and accrued interest shall be available to address contingencies as provided in this condition."

Condition 7. This condition requires that any Afinancial returns≡ associated with implementation of KCP=s carbon offset portfolio be reinvested in carbon offset portfolio activities. Intervenors contended that the term Afinancial returns≡ is vague, and should be defined. (Int. Comm. 3/4/97, 3). In the exchange of memoranda, the parties agreed that the Council intended to include as Afinancial returns≡ both the return of capital and accrued interest.

Therefore, Condition 7 now provides:

AAny financial returns, including the return of capital investment along with accrued interest, associated with implementation of KCP=s carbon offset portfolio during the first 30 years shall be reinvested in carbon offset portfolio activities as proposed in the request for exemption....≡

Condition 8. This condition relates to two aspects of KCP=s offset portfolio. First, on implementation of its portfolio, KCP Ashall undertake offset monitoring and verification programs described in its Request for Exemption,≡ and KCP will make available up to \$50,000 per year for the monitoring and verification program. Second, KCP shall annually report offset performance to the Council and the U.S. Department of Energy.

OE stated in its response memorandum its understanding of the Council=s intent on the period of time which KCP is required to perform the monitoring and verification programs and to submit reports:

A...the monitoring, verification and reports were expected to continue for at least thirty years, which was the expected life of the facility, and this was the time frame used for most of the modeling in the 500 MW [exemption] case....≡ (Res. Memo. 8).

KCP and Intervenors agreed that the Council intended a 30-year reporting requirement. (KCP Res. Memo. 8)(Int. Reply Memo. 5).

OE suggested making more clear the intended 30-year reporting requirement in Condition 8 by expressly stating the requirement. Because the Council intended that KCP have a 30-year offset portfolio responsibility (*see* Conditions 6 and 7), OE=s suggestion is consistent with the Council=s intent. Therefore, the reporting provision in Condition 8 now requires that:

A...KCP shall annually report offset performance to the Council and the U.S. Department of Energy Section 1605(b) greenhouse gas registry for 30 years....≡

The Council adopts this revision.

OE has also suggested that this reporting requirement be moved from Condition 8 to Condition 10, where it would then be grouped with other conditions which relate to reporting.

We adopt this suggestion.

As part of the parties= discussion regarding their June 6 agreement, additional wording related to KCP=s requirement to perform the monitoring and verification programs was suggested:

AKCP shall use the monitoring and verification funds to provide adequate monitoring and verification to meet the requirements of the site certificate conditions.≡

Intervenors agreed to the additional wording. (Reply Memo. 4). KCP agreed to the wording except for the term Adequate.≡ (Res. Memo. 8). KCP argued that the term Adequate≡ suggested that it must potentially meet some standard other than that in the Council=s condition adopted in the 500 MW exemption proceeding. (Res. Memo. 7-8).

Intervenors did not object in their public comments that Condition 8 needed additional wording on KCP=s use of the monitoring and verification funds. In other words, the parties= disagreement over the term Adequate≡ is not strictly speaking an issue in the contested case proceeding. ORS 469.370(3) and (5). Although the parties through their cooperative efforts

have resolved many of the issues and their efforts are much appreciated, resolution of their disagreement over Adequate is unnecessary.

When Conditions 3 and 8 are considered together, the additional wording is somewhat redundant. Condition 3 requires KCP to establish a \$3.1 million escrow account for implementation of the offset portfolio described in its Request for Exemption, and Condition 8 requires that in implementation of its offset portfolio, KCP shall undertake the offset monitoring and verification programs described in its Request for Exemption. (The monitoring methodology is contained at pages 3-67 and 3-68 of the Request for Exemption.) Therefore, the conditions already require KCP to use the escrow funds to provide monitoring, the methodology of which the Council has accepted, according to provisions of the Request for Exemption. Nevertheless in order to provide more clarity on this issue, we adopt the following:

"KCP shall use the monitoring and verification funds to provide monitoring and verification adequate to meet the requirements of the Site Certificate conditions."

Condition 10. This condition requires that KCP will report to the Council every five years for the life of the facility on offset portfolio performance, benefits associated with performance and changes from the projections.

The parties agreed that 30 years rather than for the life of the facility was consistent with the Council's intent as discussed in Condition 8 above.

Intervenors contended that the Council should seek to account for actual CO₂ and other gases mitigated or at a minimum the actual physical installations and continued operations of each type of system. (Int. Comm. 3/4/97, 3). In response to intervenors' contention, the parties agreed in their June 6 agreement to additional wording which identifies the contents of KCP's reports.

The additional wording is consistent with the Council's intent in that it clarifies the contents of the reports. As discussed earlier, the reporting provisions from Condition 8 are added to Condition 10 with a new opening sentence. Condition 10 now requires that:

Based on the monitoring and verification programs in Condition 8, KCP shall report as follows. KCP shall annually report offset performance to the Council and the U.S. Department of Energy Section 1605(b) greenhouse gas registry, for 30 years. Every five years for the life of the facility 30 years KCP shall report to the Council offset portfolio performance, associated CO₂ and methane benefits, and explain changes from the offset benefits projected in the Council's analysis of KCP's request for exemption. KCP shall report, among other things, actual or estimated carbon dioxide offsets achieved, the quantity and type of each offset measure, and the expenditure of funds for each type of measure in the offset portfolio.

Condition 13. This condition requires KCP to fund new projects to generate electricity, and that the net revenues from the installation of these new generation facilities are to be placed into a Revolving Trust Fund for a period of 10 years. Intervenors complained that the term net revenues is vague and that the term installation seemed inappropriate because there will likely be zero net revenues from installation. (Int. Comm. 3/4/97, 3).

In its Proposed Order, OE agreed in part with Intervenors. OE added the wording and operation so that the provision read:

A...Net revenues from the installation and operation of each electrical generation facility....

Then in their June 6 agreement, the parties agreed on a definition of net revenues as total revenues less operating costs, and agreed to strike the term installation. Both revisions are acceptable. Condition 13 now requires:

A...Net revenues, which are total revenues less operating costs, from the ~~installation and operation~~ of each electrical generation facility shall, for a period of ten years, be returned to a Revolving Investment Fund (RIF) established by KCP....

Condition 14. This condition requires KCP to create a Revolving Investment Fund (RIF) to fund photovoltaic (PV) systems as described in KCP's Request for Exemption. The condition requires the Fund manager to track the number of PV systems attributable to the Fund and report to KCP on the performance of the Fund. Intervenors suggested that "attributable to" should instead be APV systems paid for by the RIF. (Int. Comm. 3/4/97, 3). OE agreed that the requirement should be restated, and in its Proposed Order OE revised the provision as follows:

"... SELF (or the Fund manager) shall track the number of PV systems ~~attributable to~~ financed by the RIF and report regularly to KCP on the performance of the RIF...."

Both Intervenors and KCP accepted the revision. The revision clarifies the Council's intent, and the revision is made to Condition 14.

Condition 20. This condition imposes requirements on the annual use of water by KCP. In its Draft Proposed Order and Proposed Order, OE recognized a need for change in this condition. No one objected to the change. The revision is as follows:

"The facility shall not use more than ~~429~~ 160 gallons per minute (gpm) on an annual average basis (8,760 hours) from sources other than Spring Street Wastewater Treatment Plant (SSWTP) effluent during all times when the SSWTP is permitted to deliver effluent to the facility. This limit shall not include water supplied as steam to the steam host."

OE recommended this revision because it considered that the original condition limit of 129 gpm is inconsistent with Condition 1 which requires that KCP make available to its steam host at least 200,000 pounds of steam per hour on an annual basis. In order to provide 200,000 pounds of steam per hour, KCP will need 160 gpm of good quality water rather than 129 gpm. The 129 gpm was based on 143,400 pounds of steam per hour, not 200,000 pounds per hour.

OE believed that this revision was both necessary and appropriate. It was necessary in order for the facility to meet its primary requirement of making available 200,000 pounds per hour of steam to its steam host, which was an important factor in the Council's determination in granting the exemption. It was appropriate because this condition relates to water use, which was not a factor in the Council's decision to grant the exemption. Thus, the revision would not change the basis for the Council's decision.

Under such circumstances, the revision is acceptable.

Condition 24. This condition concerns the use of oil as a back-up fuel by KCP. OE considered that the condition as originally written is ambiguous. In its Proposed Order, OE recommended the following revision:

"The units shall be fueled solely with natural gas or with synthetic gas with a carbon content per MMBtu no greater than natural gas except that oil may be used for steam and power production for no more than an average of 360 hours per year calculated on a rolling average of the previous five years. This 360-hour limit does not apply to the use of oil in the auxiliary boiler."

No one objected to the change.

OE explained that although the energy facility would normally burn natural gas, it could burn low-sulfur oil as a backup fuel. It could burn oil in two ways: in the combustion turbine to produce electricity and steam, and in an auxiliary boiler to make steam for the steam host, when the combustion turbine was not operating. The 360-hour limit is based on the assumption that the oil would be used in the combustion turbine to generate power at a rate of 2,335 million Btu per hour. The auxiliary boiler would use oil at a rate of 400 million Btu per hour.

As the condition was originally written, OE was concerned it might be interpreted to limit the facility to 360 hours on average without consideration of whether the oil use rate was 400 MMBtu/hr or 2,335 MMBtu/hr. This was not the Council's intent. The Council's intent was that the 360-hour limit be based on emissions from the combustion turbine, and assumed an oil-burning rate of 2,335 MMBtu/hr. The condition was not meant to apply to the auxiliary boiler. The auxiliary boiler's oil consumption was assumed to directly offset oil use at the steam host. The Council's intent in adopting this condition was that KCP be limited to an average 360 hours at the 2,335 MMBtu/hr rate.

Under such circumstances, the revision is acceptable.

Based upon the above findings of fact, reasoning and conclusions of law, the Council adopts the conditions as revised in section IV. B. of this order.

Conclusions of Law

The Council concludes that the proposed facility, subject to the conditions stated in this order, complies with the provisions of Section 8(2) of HB 3283.

Conditions related to the Council's 500-megawatt exemption final Order, as revised in section IV. B. of this order, are listed in section VII.B. of this order.

IV. C. Standards About the Applicant

IV. C. 1. Organizational, Managerial and Technical Expertise

The Standard

OAR 345-22-010(1) "To issue a Site Certificate, the Council must find that the applicant has the organizational, managerial and technical expertise to construct and operate the facility. To conclude that the applicant has the organizational, managerial and technical expertise to construct and operate the proposed facility, the Council must determine that the applicant has a reasonable probability of successful construction and operation of the facility considering the experience of the applicant, the availability of technical expertise to the applicant, and, if the applicant has constructed or operated other facilities, the past performance of the applicant, including but not limited to the number and severity of regulatory citations, in constructing or operating a facility, type of equipment, or process similar to the proposed facility.

(2) If the applicant will not itself obtain any state or local government permit or approval for which the Council would ordinarily determine compliance with applicable standards, but will rely on a permit or approval issued to a third party, the Council must determine that the named third party has, or has a reasonable likelihood of obtaining, the necessary permit or approval, and that the applicant has, or has a reasonable likelihood of entering into, a contractual or other arrangement with the third party for access to the resource or service secured by that permit or approval.

(3) If any third party named by the applicant does not have the necessary permit or approval at the time the Application for Site Certificate is approved, the Council may require as a condition that the Site Certificate holder may not commence construction or operation as appropriate until the third party has obtained the necessary permit or approval and the applicant has a contract or other arrangement for access to the resource or service secured by that permit or approval."

Findings of Fact

Applicant's Experience

The applicant is the city of Klamath Falls. The city will contract for necessary services to develop, finance, construct and operate the proposed KCP.

The city has entered into an agreement with Pacific Generation Company (PGC) in which PGC or its affiliates will provide the services needed to develop, construct and operate the proposed KCP. PGC is the nonregulated energy services affiliate of PacifiCorp. PacifiCorp is an established, diversified, northwest based utility with an extensive transmission and distribution system serving 1.3 million customers in seven western states.

PGC was formed in 1989 through the merger of Onsite Energy, Inc. and Energy National, Inc. when their respective parent companies, Pacific Power & Light Co. and Utah Power & Light Co., merged into PacifiCorp. PGC develops, owns and operates independent power facilities. PGC currently participates in the ownership of twelve generation facilities with a combined capacity of 847 megawatts located throughout the United States and Canada. These include natural gas, coal, hydroelectric, wind and waste-burning facilities. Ten of these projects are in operation. Two are scheduled to begin operation in the first quarter of 1997.

PGC was and is managing general partner during construction and operation of the 240 MW Crockett Cogeneration Project in California which began operation in May 1996. PGC was a partner during construction and is general partner during operation of the 49.5 MW Mt. Poso Cogeneration Project in California which began operation in May 1989. PGC was the general partner during construction and operation of four other projects: the 110 MW PowerSmith Cogeneration Project in Oklahoma (began operation in 1989); the 22 MW Penobscot Energy Recovery Project in Maine (began operation in 1988); the 7 MW Carolina Energy Project in North Carolina (to begin operation in spring 1997) and the 110 MW Kingston Cogeneration Project in Ontario, Canada (to begin operation in spring 1997).

PGC currently operates three projects: the Crockett Cogeneration Project, the Mt. Poso Cogeneration Project and the Penobscot Energy Recovery project. PGC will operate the Carolina Energy project.

With one exception, none of the projects that PGC is currently involved in has received a regulatory violation during the period of PGC's involvement, either during construction or operation. The exception is a notice of violation regarding emission recording and exceedance reporting violations from the Bay Area Air Quality Management District during the startup phase

of the Crockett Cogeneration Project. This issue has been resolved and the project has completed its testing, is now in commercial operation, and has successfully completed emission source tests.

PGC intends to provide development and construction services through its indirect wholly owned subsidiary, Pacific Klamath Energy, Inc. (PKE). PKE was incorporated on October 4, 1996 under the laws of the State of Oregon as a special purpose company organized specifically to manage development and construction of the proposed KCP. PGC intends to provide operation and maintenance services through its operating company affiliate, ESOCO Klamath, Inc.

The city of Klamath Falls intends to contract with a reputable and fully-qualified engineering, procurement and construction (EPC) firm to build the proposed KCP. PKE as part of its joint development responsibilities for the KCP would prepare EPC contract documents, prequalify potential EPC contractors, solicit competitive firm price and schedule bids, evaluate the bids and recommend a single EPC contractor, and assist the city in reviewing and approving the EPC contractor and negotiating an EPC contract between the city and the approved contractor.

Upon notice to proceed to the EPC contractor, PKE would provide project management services under contract to the city. PGC has performed these tasks on a number of the projects that it is involved in. PGC hired and managed the EPC contractor on the recently completed Crockett Cogeneration Project. PGC has or is performing some level of project management or construction oversight on each of the other eleven projects in which it is participating.

Third-party Permits

The proposed KCP does not involve any third-party permits. The city of Klamath Falls, as owner of the proposed KCP, will obtain and hold all permits for which the Council determines compliance. These include a Site Certificate and a Permit to Appropriate Ground Water (see section V.A.3.) for the proposed KCP. The city has authorized PKE to act as its agent in applying for these permits. Certain other permits have been delegated by the federal government to other state agencies and are not under the Council's jurisdiction. They include, among others, an air quality permit from the Department of Environmental Quality (DEQ) and a water quality permit also from DEQ. Certain permits that are typically obtained by and issued to the construction contractor, such as building permits and oversize load movement permits would be obtained by the construction contractor. These permits are not under EFSC jurisdiction as they do not relate to siting (see ORS 469.401(4)).

Section V.A. describes permits and approvals which are under EFSC jurisdiction and V.B. those which are not under EFSC jurisdiction.

Conclusions of Law

The Council concludes that the city of Klamath Falls, subject to the conditions stated in this order, has demonstrated through its agreement with Pacific Generation Company, that it has the

organizational, managerial and technical expertise to construct and operate the proposed facility. The Council further concludes that the city will not rely on a third party to obtain any permit or approval for which the Council would ordinarily determine compliance with applicable standards.

Conditions that relate to the Council's organizational standard are listed in section VII.C. of this order.

IV. C. 2. Financial Assurance

The Standard

OAR 345-22-050 "To issue a Site Certificate, the Council must find that the applicant has a reasonable likelihood of obtaining a bond or comparable security, satisfactory to the Council, in an amount adequate to restore the site if the certificate holder:

- (1) Begins but does not complete construction of the facility; or
- (2) Permanently closes the facility before establishing a financial mechanism or instrument, satisfactory to the Council, that will assure funds will be available to adequately retire the facility and restore the site to a useful, non-hazardous condition."

Findings of Fact

Estimated Cost of Site Restoration

PKE estimates the cost for restoring the site at 5 million in 1996 dollars (ASC Exhibit Z, p. 2). This estimate is consistent with estimates the Council has received and accepted for other similar proposed energy facilities.

Financial Instrument

The city of Klamath Falls has sold \$220 million in revenue bonds, the proceeds of which will be used to construct the proposed KCP. These proceeds are adequate to provide for all costs likely to be incurred in the development, construction, and initial operation of the KCP.

The Bond Indenture requires a Construction Fund, the funds from which would be used to construct the proposed facility. These funds may be used to restore the site if construction is begun but not completed. The Construction Fund is presently funded in the amount of \$161 million.

The Bond Indenture also requires a Reserve and Contingency Fund, the funds from which would be used for unexpected expenses during the period the proposed facility is in operation. The

Bond Indenture requires that the Reserve and Contingency Fund be maintained at a minimum of \$2.5 million, and that if the fund is drawn below \$2.5 million, it must be restored to \$2.5 million within 36 months. The fund is presently funded in the amount of \$8 million. The money in this fund may legally be used for restoring the site.

The city of Klamath Falls will cause the KCP to maintain either in the Reserve and Contingency Fund, or in a separate fund established to provide for termination and site restoration costs, a total of \$5 million. The amounts in the two funds may vary, but their combined value will be at least \$5 million. The KCP will provide a satisfactory performance and payment bond, surety bond or letter of credit in lieu of funding all or part of the \$5 million requirement with cash or Investment Securities.

The city has agreed that the monies in the Reserve and Contingency Fund could only be drawn upon by the KCP for the purposes which are currently stated in Section 5.5 of the Bond Indenture, which include termination and decommissioning, including site restoration. The city has further agreed that monies in the separate fund could only be drawn upon by the KCP to provide for termination and decommissioning, including site restoration. The city has further agreed that the KCP would not draw the combined funds below \$5 million unless, prior to such draw, the KCP provides to the Council a performance and payment bond, surety bond or letter of credit in the amount needed to provide that the balance equals \$5 million.

The city has further agreed that the index by which the future value of money shall be converted to 1996 dollars shall be the Implicit Price Deflator for the Gross Domestic Product as published by the U.S. Bureau of Economic Analysis of the Department of Commerce or a successor agency. These values are published annually each February in the "Economic Report of the President". This index is the broadest measure of inflation in the U.S. economy. It also does not suffer from the problems associated with fixed-weight indices, such as the Consumer Price Index. As the mix of products in the economy changes over time, fixed-weight indices tend to overstate inflation.

Conclusions of Law

The Council concludes that \$5 million (1996 dollars) is a reasonable estimate of the cost to restore the site to a useful, non-hazardous condition. The Council further concludes that the city of Klamath Falls, subject to the conditions stated in this order, has demonstrated a reasonable likelihood of obtaining financial resources, satisfactory to the Council, in an amount adequate to restore the site to a useful, non-hazardous condition.

Conditions which are related to the Council's Financial Assurance standard are listed in section VII.D. of this order.

IV. D. Standards About the Site and Structures

IV. D. 1. Land Use

The Standard.

OAR 345-22-030(1) "To issue a Site Certificate, the Council must find that the facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission.

- (2) A proposed facility shall be found in compliance with section (1) of this rule if:
- (a) The facility has received local land use approval under the acknowledged comprehensive plan and land use regulations of the affected local government, or...."

Findings of Fact.

The city elected to satisfy the Council's land use standard by obtaining all local land use approvals from affected local governments as provided by section 5 of HB 3283 (1997) [formerly ORS 469.503(2)(a)] and OAR 345-22-030(2)(a) and .

The proposed site of the energy facility is in Klamath County. The proposed locations of all or part of each of the related or supporting facilities are in Klamath County. The proposed locations of part of three related or supporting facilities, the cooling water supply pipeline, the sanitary sewer/wastewater pipeline and the electric transmission line, are within the city of Klamath Falls. Klamath County and the city of Klamath Falls are each affected local governments.

Klamath County and the city each have an acknowledged comprehensive land use plan and land use regulations. The Land Conservation and Development Commission (LCDC) acknowledged the county's plan on June 1, 1984 and the city's plan on June 30, 1984.

Klamath County and the city have Joint Management Agreements (JMAs) that specify which jurisdiction's land use decision applies within common urban growth boundary (UGB) areas. The potable water pipeline and parts of the electric transmission line, cooling water supply pipeline and sanitary sewer/wastewater pipeline are within the UGB and governed by the JMA.

Klamath County granted the energy facility and its related or supporting pipelines and electric transmission line a Conditional Use Permit (CUP 29-95), including several conditions, on June 7, 1995. In February 1996 the county accepted amended locations for the electric transmission line and certain pipelines and found them consistent with the CUP decision. The city requested that the county conform the CUP to incorporate the amended locations. On August 1, 1997, after the city obtained the necessary right-of-way easements or other property interests for the proposed electric transmission line, Klamath County granted the electric transmission line, cooling water supply pipeline, sanitary sewer/wastewater pipeline and potable water pipeline a Conditional Use Permit (CUP 54-97) which includes one condition. No other county land use approval is required.

The city granted a Conditional Use Permit (6-CUP-96), including several conditions, for the portion of the electrical transmission line which crosses land within the city's jurisdiction, on March 6, 1996. The city, under its land use regulations, does not require a land use approval for underground utility structures. Because the proposed cooling water supply, potable water and sanitary sewer\wastewater pipelines are proposed to be placed underground, they do not require city land use permits or review and are compatible with existing city land use regulations. No other city land use approval is required.

Conclusions of Law.

The Council concludes that the proposed facility has obtained all local land use approvals required under the acknowledged comprehensive plans and land use regulations of the affected local governments and therefore, subject to the conditions stated in this order, complies with the statewide planning goals adopted by the Land Conservation and Development Commission.

Conditions related to the Council's Land Use standard are listed in section VII.E. of this order.

IV. D. 2. Structural Standard

The Standard.

OAR 345-22-020 "To issue a Site Certificate, the Council must find that:

(1) The applicant, through appropriate site-specific study, has adequately characterized the site in terms of seismic zone and expected ground response during the maximum credible and reasonably probable seismic events; and

(2) The facility can be designed, engineered, and constructed adequately to avoid potential dangers to human safety presented by seismic hazards affecting the site, as defined in ORS 455.447(1)(d) and including amplification, that are expected to result from all reasonably probable seismic events."

Findings of Fact.

Site Characterization

Golder Associates, Inc. performed preliminary geotechnical and seismic evaluations for the proposed KCP on behalf of the applicant.

Sixteen faults within 60 miles of the energy facility site may be considered potential seismogenic sources. These were used in evaluating potential seismic hazards. The range in maximum

magnitudes of surface waves from maximum earthquakes at each of these sources is estimated to be Ms 6.1 to 7.0 (ASC Exhibit G, p. 12).

Golder used three types of design earthquakes to estimate earthquake strong ground motions (mean peak horizontal acceleration) at the proposed energy facility site: the maximum credible earthquake (MCE), maximum design earthquake (MDE) and operating design earthquake (ODE).

Maximum Credible Seismic Event. The maximum credible earthquake (MCE) is the largest reasonably conceivable earthquake that appears possible along a recognized fault or within a defined tectonic province. This is equivalent to the maximum credible seismic event in the Council's standard.

There are two dominant MCE acceleration sources. One source could generate an MCE of Ms 6.6 at a distance of four miles and a second source could generate an MCE of Ms 6.8 at a distance of five miles from the energy facility site. These sources could result in MCE mean peak horizontal accelerations (ground response) at the proposed energy facility site area ranging from 0.30 to 0.42 g. The average mean peak horizontal acceleration values for each source are 0.36 and 0.35 g (ASC Exhibit G, p. 13).

Reasonably Probable Seismic Events. A reasonably probable seismic event is an earthquake that is likely to occur in the vicinity of the proposed site during the life of the proposed facility.

The remaining 14 potential seismogenic sources could result in average mean peak horizontal accelerations at the proposed energy facility site ranging from 0.06 to 0.26 g.

The maximum design earthquake (MDE) for the evaluation of the proposed facility is the earthquake, and its resultant acceleration, that has a 10 percent chance of being exceeded (chance that a larger earthquake would occur) in a 100-year period at the energy facility site. This equates to a recurrence interval of 950 years (RMI October 3, 1996 letter to OE, including Golder Associates October 3, 1996 letter). Based on preliminary review of available information, the MDE mean peak horizontal acceleration in the energy facility site area is estimated to be in the range of about 0.25 to 0.30 g (ASC Exhibit G, p. 13).

The operating design earthquake (ODE) as defined for the evaluation for the proposed facility is the earthquake, and its resultant acceleration, that has a 10 percent chance of being exceeded in a 50-year period at the energy facility site. This equates to a recurrence interval of 475 years (RMI October 3, 1996 letter to OE, including Golder Associates October 3, 1996 letter). Based on preliminary review the ODE mean peak horizontal acceleration in the energy facility site area is estimated to be about 0.17 to 0.20 g (ASC Exhibit G, p.13). The ODE, with a recurrence interval of 475 years, is a reasonably probable seismic event for the proposed facility.

Seismic Zone. The Uniform Building Code (UBC) shows the Klamath Falls region, including the area of the energy facility site, to be within seismic zone 3. The seismic zone factor for

seismic zone 3 is 0.30. This corresponds to a mean peak horizontal ground acceleration of 0.3 g. This is in good agreement with the mean peak horizontal ground accelerations that are predicted at the proposed energy facility site based on the applicant's preliminary geotechnical and seismic evaluation for the proposed facility.

The predicted seismic hazards at the proposed energy facility site are consistent with those which are considered in the UBC requirements. Thus, compliance with the Oregon Building Codes requirements should be sufficient to avoid potential dangers to human safety posed by the seismic hazards that could affect the proposed site.

Facility Design

The preliminary geotechnical and seismic evaluation did not indicate any major geologic or seismic hazard that would significantly impact the development of the proposed KCP. The potential impacts would be relatively minor and can be mitigated by implementing standard geotechnical engineering practices.

Potential impacts of possible design earthquakes on the proposed facility include: 1) site ground motion amplification, 2) initiation of mass movement of slopes, 3) differential soil compaction or settlement, 4) soil liquefaction, and 5) primary surface fault displacement.

Ground Motion Amplification. Amplification of the input earthquake motion at the energy facility site is not expected because the site foundations would be designed to be situated on low-dipping, competent Tertiary sedimentary bedrock that extends to depth. Further, the energy facility site is on relatively horizontal terrain and does not present hazards such as large landslide areas or unstable slopes.

Likewise the proposed routes of the transmission line and pipelines do not present major hazards, such as large landslide areas or unstable slopes, which would preclude construction or require route modification. Moreover, the proposed transmission line and pipelines are relatively flexible structures that can be designed to accommodate large ground motions or movements.

Mass Movement. The occurrence of design earthquakes may result in seismically-induced landsliding. There are no mapped large volume slump or debris landslides at the energy facility site or along the linear facility routes, and none were recognized during the preliminary field reconnaissance. Thus, future activation of slope instability in the form of significant mass movement as a result of a design earthquake is considered to be unlikely. This is particularly the case for the energy facility site because the slopes are relatively flat.

There is potential for seismically-induced rock falls where linear facilities traverse steep terrain. Such conditions occur locally along the basalt ridges that are traversed by the transmission line. This can be addressed by locating structures away from rockfall areas or designing the structures to withstand rockfalls.

Soil Compaction or Settlement. The energy facility site is underlain at the surface by non-engineered rocky and organic debris fill which could be susceptible to differential settlement. However, because the energy facility would be designed for, and constructed in the underlying competent Tertiary sandstone bedrock, differential soil compaction or settlement would not be an issue for the energy facility site. Moreover, differential compaction or settlement can be mitigated by over-excavating and replacing the fills with engineered fill materials.

Transmission line pole foundations would be designed to address the need to locate poles on competent bedrock or natural and man-made soil materials. Pipeline routes do not appear to contain unusually settlement-prone soils. Moreover, for the most part, pipelines would be placed along existing utility or highway rights-of-way that have likely addressed the issue of foundation settlement. If areas of soft, loose or compressible soils are encountered, they can be over-excavated and replaced with engineered fill to reduce the potential for settlement to tolerable limits.

Soil Liquefaction. Soil liquefaction resulting from the design earthquakes for the energy facility site is not an issue because the proposed energy facility would be founded in Tertiary sandstone bedrock, and the groundwater table is at a depth of 45 to 80 feet below the ground surface, which is within the bedrock.

Liquefaction may be an issue for some portions of the proposed pipelines that traverse low lying areas adjacent to the Klamath River, where high groundwater tables may occur in conjunction with loose granular soils. This issue would be addressed in the second phase of geotechnical studies as discussed in the ASC, pages G-18 and 19. If necessary, flexible connections can be designed to increase the magnitude of tolerable movements or ground improvement techniques can be implemented to mitigate liquefaction impacts.

Liquefaction is not anticipated for the proposed transmission line route because it is located on upper plateaus above the Klamath River and on bedrock. If second phase geotechnical studies identify local areas with liquefaction potential, these can be mitigated by deepening the transmission structure foundations.

Surface Fault Displacement. There are active faults in the region surrounding the facility area. However, none of these faults is mapped at or across the proposed site, and the closest ones are four miles, five miles and five and one-half miles from the energy facility site area. In addition, preliminary analysis of available site area information suggests that there is no active surface faulting. Therefore, the potential for surface fault displacement at the energy facility site area and along the linear facilities is considered to be low.

Other Potential Impacts. Other potential impacts associated with construction and operation are relatively minor and can be mitigated by implementing standard geotechnical engineering practices.

Conclusion of Law

The Council concludes that the applicant, through appropriate site-specific study, has adequately characterized the proposed site in terms of seismic zone and expected ground response during the maximum credible and reasonably probable seismic events, and has shown, subject to the conditions stated in this order, that the proposed facility can be designed, engineered, and constructed adequately to avoid potential dangers to human safety presented by seismic hazards affecting the proposed site, including amplification, that are expected to result from all reasonably probable seismic events.

Conditions related to the Council's Structural standard are listed in section VII.F. of this order.

IV. D. 3. Retirement

The Standard.

OAR 345-22-130 "To issue a Site Certificate, the Council must find that the site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following facility retirement."

Findings of Fact.

For the purposes of the retirement standard, a "useful, non- hazardous condition" is a condition consistent with the applicable local comprehensive land use plan and land use regulations.

Energy Facility Site

The proposed energy facility site is located on, and surrounded by, land zoned Heavy Industrial. The proposed energy facility site and surrounding Collins property has already been cleared of vegetation, graded and disturbed by industrial use. The energy facility site is adjacent to a natural gas pipeline and has access to a rail line and a major U.S. Highway. After development of the proposed KCP, the site would also have potable water and sanitary sewer connections to the city's systems and a 230 kV transmission interconnection. A useful condition for the energy facility site after retirement would be a condition that is consistent with continued industrial use.

The estimated life of the proposed energy facility is at least 30 years. The life beyond 30 years would depend upon the economic, environmental and regulatory conditions at that time.

The proposed energy facility would require only minor alterations of topography. It would not include underground storage tanks. There would be no long term storage or on-site disposal of hazardous wastes. There would be no on-site disposal of non- hazardous wastes. Any on-site storage of non-hazardous wastes would comply with applicable federal, state and local

regulations. Proposed hazardous substance storage tank areas would have a secondary containment volume large enough to contain the full contents of the largest tank, within that storage tank area, and precipitation. Accidental spills of hazardous materials at the energy facility site would be contained on-site by containment structures or procedures designed to minimize or prevent off-site releases. Thus, the potential for uncontrolled spills and contamination of the soils would be unlikely.

Restoration actions to retire/restore the proposed energy facility site to a condition consistent with industrial use could range from removal of major equipment to dismantling of buildings, demolition of foundations to a depth of about three feet, and regrading. Either of these actions would be feasible.

Restoration of energy facility site to a useful, non-hazardous condition is feasible.

Related or Supporting Facilities

The proposed locations of the proposed transmission line, cooling water supply, wastewater return and potable water supply pipelines cross lands currently zoned for industrial, commercial, residential and public facility uses.

The proposed routes of the transmission line and pipelines cross primarily level to gently sloping land. Extensive earth moving would not be required. The proposed pipelines would be buried and would be within public rights-of-way or easements for most of their lengths.

Generally these types of pipelines and transmission lines have long useful lives and could still be used after the energy facility is retired if needed.

The actions required to retire these facilities and restore their sites would depend on future land uses and needs. It is likely that the pipelines would be left underground and abandoned in place. The transmission line could be left in place if needed for other service, or it could be dismantled with minimal impact to surrounding areas, if necessary.

Restoration of each of the related or supporting facilities to a useful, non-hazardous condition is feasible, and would present no major problems.

Conclusion of Law.

The Council concludes that the proposed site, taking into account mitigation and subject to the conditions stated in this order, can be restored adequately to a useful, non-hazardous condition following facility retirement.

Conditions related to the Council's Retirement standard are listed in section VII.G. of this order.

IV. E. Standards About Impacts of Construction and Operation

IV. E. 1. Soil Protection

The Standard.

OAR 345-22-022 "To issue a Site Certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, is not likely to result in a significant adverse impact to soils."

EFSC considers adverse impacts to soils because of potential related impacts to agricultural and forest land uses, native vegetation, fish and wildlife habitat and water quality. Relevant under this standard are the facility's potential for impacts such as erosion, compaction, mass wasting and slumping.

Findings of Fact.

There are 15 soil series/complexes in the area of the proposed facility. They are: Calimus loam, Capona loam, Dodes loam, Harriman loam, Harriman-Lorella complex, Henley-Laki loams, Laki Loam, Laki-Henley loams, Lorella very stony loam, Lorella-Calimus association, Malin clay loam, Modoc fine sandy loam, Stukel- Capona loams, Tweeters silt loam and Tulana silt loam.

Some of these would not be affected by proposed facility. Others would only be affected for a short distance along a linear facility.

Construction

Erosion. Four of the soils which might be encountered during construction have potential to cause erosion problems. Stukel- Capona loams, which may be encountered in the area of the proposed energy facility site and along proposed transmission line and pipeline routes, have relatively high erosion potential. Lorella very stony loam, which may be found along the proposed transmission line and pipeline routes, has a high potential for erosion during rainy or runoff periods. Tweeters Silt loam and Tulana Silt loam, which may be found during excavation of the proposed cooling water pipeline and construction of the proposed steam and condensate return pipeline respectively, each pose a high wind erosion hazard when dry.

Construction measures are available to address each of these potential concerns. Erosion hazards associated with Stukel- Capona loams and Lorella very stony loam can be avoided or controlled by scheduling construction in these soils, to the extent possible, in drier months, and by using erosion control techniques such as water bars, siltation fences and straw bales during construction. Potential for wind erosion in Tweeters silt loam can be controlled by the use of

geotextile blankets and hydroseed mixtures with tackifying agents. Potential wind erosion in Tulana silt loam can be controlled by using wood chips from the Collins facility.

The applicant plans to develop, in consultation with appropriate agencies, an erosion control plan for construction activities which incorporates Best Management Practices. The applicant also plans to develop a post-construction re-vegetation plan. This plan would address restoration, to the extent practicable, of natural vegetation affected by facility construction, and would minimize erosion potential in affected areas over the life of the proposed KCP. (See Fish and Wildlife Habitat)

Areas disturbed during construction but not required for the energy facility structures would be restored so as to reduce potential for soil erosion from rain or wind.

Soil Compaction. Soil compaction, in relation to this standard, is a potential concern where it could reduce productivity of agricultural or forest soils, or prevent or delay the re-establishment of vegetation. Soil compaction is not an issue for proposed project facilities on Collins property because those lands are zoned Heavy Industrial and do not support native vegetation, agricultural or forestry uses, and are of low value as wildlife habitat. Soil compaction is also not an important issue for the proposed transmission line and pipelines because their proposed routes generally follow existing utility, highway or other facilities, and cross lands which are not zoned for, and do not support, agricultural or forestry uses, or high value wildlife habitat.

Mass Wasting and Slumping. The proposed energy facility site, access road, construction parking and laydown areas, and the proposed pipeline and transmission line routes are on level to gently sloping terrain. Preliminary geotechnical studies found no evidence of large landslide areas or unstable slopes. Thus the potential for mass wasting and slumping as a result of construction is low.

The proposed transmission line route crosses several moderately steep slopes. However, preliminary design indicates that transmission structures can be placed to avoid the steeper slopes. Large scale cut and fill activities are not anticipated for transmission line construction. Thus, mass wasting and slumping as a result of transmission line construction are not anticipated.

Operation

Operation of the proposed KCP would have little potential to adversely impact soils. All stormwater runoff at the proposed energy facility site would be directed to, and stored in, an on-site retention-evaporation pond. All proposed hazardous substance storage tank areas would have a secondary containment volume large enough to contain the full contents of the largest tank, within that storage area, and precipitation. Thus, potential for uncontrolled spills and contamination of soils would be unlikely.

Once constructed, operation of the proposed transmission line and pipelines would have very low potential to result in adverse impact to soils.

Conclusions of Law.

The Council concludes that the design, construction and operation of the proposed facility, taking into account mitigation and subject to the conditions stated in this order, is not likely to result in a significant adverse impact to soils.

Conditions related to the Council's Soil Protection standard are listed in section VII.H. of this order.

IV. E. 2. Protected Areas

The Standard

OAR 345-22-040(1) "The facility must not be located in the areas listed below. To issue a Site Certificate, the Council must find that, taking into account mitigation, the design, construction and operation of a facility located outside the areas listed below is not likely to result in significant adverse impact to the areas listed below: ..."

Findings of Fact

The proposed facility would not be located within any protected area designated under OAR 345-22-040(1).

There are ten protected areas within a 20-mile radius of the energy facility site. The approximate distance of each, in miles, from the proposed energy facility site is:

Klamath Wildlife Refuge (managed by ODFW)	0.5
Oregon State University Klamath Experiment Station	2.5
Gorr Island State Wildlife Area	6
Upper Klamath National Wildlife Refuge (Hanks Marsh)	8
Lower Klamath National Wildlife Refuge	9
Bear Valley National Wildlife Refuge	9
Squaw Point State Wildlife Area	13
Wild and Scenic section of the Klamath River (both federal and state)	13
Mountain Lakes Wilderness (Winema National Forest)	15
Shoalwater Bay State Wildlife Area	16

The purpose of a protected area is relevant to a decision on compliance with this standard. Depending on the purpose of the protected area, possible impacts from the proposed KCP could include:

- Noise from facility construction or operation;
- Traffic during construction and operation;
- Visual impacts from air emissions during plant operation on oil;
- Visual impacts and salt drift from cooling tower operation;
- Consumptive water use during operation;
- Wastewater discharge during operation.

Noise. The Klamath Wildlife Refuge is directly across the Klamath River from the proposed energy facility site (about 700 meters or about 2300 feet). The predicted noise levels at the Klamath Wildlife Refuge from operation of the proposed KCP would comply with the DEQ noise level criteria for designated "Quiet Areas." Operation of the proposed KCP is predicted to increase noise levels (during the quietest conditions) at the northern (closest) boundary of the Klamath Wildlife Refuge by two to three decibels (dBA, L-50). This increase would be barely perceptible to the human ear and would have an insignificant impact on the refuge. There would be no significant impact on other protected areas which are much further away. (See Noise; Fish and Wildlife Habitat)

Traffic. Traffic associated with construction and operation of the proposed KCP would not pose a significant adverse impact to any protected area. Construction of the proposed KCP is anticipated to result in a temporary increase in traffic on major highways in the proposed energy facility site area. The Klamath Wildlife Refuge, which is located adjacent to U.S. Highway 97, is the only protected area that is near the proposed energy facility site and a major highway. The anticipated increase would not pose a significant adverse impact to the refuge for the following reasons. Most workers are anticipated to commute from the city of Klamath Falls area and would not drive past the refuge. Highway 97 is a major interstate highway and currently carries a large volume of traffic. The anticipated increase in traffic as a result of project construction would be small in comparison to the current volume on U.S. Highway 97. The increase in traffic during operation would be substantially less than construction. The increase due to construction would not be long-term, but would occur for about a 27-month period. The increase would not require highway improvements in the vicinity of the refuge. (See Socio-Economic Impacts: Traffic Safety).

Air Emissions. Air emissions from operation of the proposed KCP when burning oil could possibly result in: 1) impact to visibility in areas where visibility is important, such as designated Class 1 visual areas; and 2) adverse impacts, such as acid rain, resulting from increased levels of pollutants in the atmosphere.

The proposed KCP must obtain an Air Contaminant Discharge Permit (ACDP) from DEQ before it may be built or operate. The authority to issue this permit for facilities proposed in Oregon has been delegated to DEQ by the U.S. Environmental Protection Agency (EPA).

In order for DEQ to issue the permit, DEQ must determine that the proposed KCP will meet federal primary and secondary air quality standards. The primary standards were adopted to protect human health. The secondary standards were adopted to protect economic and environmental values and are sometimes referred to as the "welfare" standard. Both of these sets of standards set limits on the concentrations in the air of specified pollutants, such as sulfur dioxide (SO₂) and oxides of nitrogen (NO_x). As part of its analysis, DEQ will consider the potential for impacts to visibility in Class 1 areas, and other air-quality related potential impacts, such as acid rain. Compliance with the federal standards can reasonably be expected to prevent any significant adverse impact, including degradation of visibility, on protected areas.

For these reasons, the air emissions from the proposed facility would not have a significant adverse impact on protected areas.

Cooling Tower. The visible plume from proposed cooling tower operation would not adversely impact any protected area. It would be visible from the Klamath Wildlife Refuge which is directly across the Klamath River, and perhaps from the OSU Klamath Experiment Station. The primary purposes of these areas are for wildlife habitat and agricultural research, respectively, and not for their visual characteristics. Thus, this would not be an adverse impact. (See Scenic and Aesthetic Values)

Salt drift from the proposed cooling tower operation would not adversely impact any protected area. Salt drift is projected to be insignificant (0.00035 g/m²-month) at the distance of the closest protected area, the Klamath Wildlife Refuge (about 700 meters or about 2300 feet from the proposed energy facility site). (See Fish and Wildlife Habitat)

Water Consumption. Water consumption of the proposed KCP would not adversely impact any protected area. The proposed KCP would require water from three sources: the city of Klamath Falls municipal system; Collins Products' groundwater well; and effluent (wastewater) from the city's treatment plant.

The proposed KCP would require about 160 gallons per minute (gpm) of good quality water which would be supplied by the city of Klamath Falls under its current municipal water rights from its existing municipal water supply system (See Socio-Economic Impacts: Water). This small amount of water would not adversely impact any protected area.

The proposed KCP would make steam for Collins. The water to make this steam would come from an existing groundwater well on Collins' property. Collins now uses water from this same well to make its own steam under its existing manufacturing water right. The steam that the proposed KCP would provide to Collins would reduce by an equal amount the steam that Collins now makes for itself. Thus the total amount of water needed to make steam for Collins, by both Collins and the proposed KCP, would not increase and would continue to be provided from the same well. Thus there would be no additional adverse impact on any protected area. (See Water Rights)

The proposed KCP would reuse wastewater from the city of Klamath Falls Spring Street Wastewater Treatment Plant for its major source of water. This would reduce the amount of wastewater effluent which the treatment plant now discharges into the Klamath River by about 1.7 cubic feet per second (cfs). (See Fish and Wildlife Habitat)

The only protected areas which might be affected by this small reduction in flow are the Klamath Wildlife Refuge, directly across the river from the proposed energy facility site, the Gorr Island State Wildlife Area and the Klamath River Scenic Waterway which are about 12 and 18 river miles, respectively, downstream from the treatment plant. The Oregon Department of Fish and Wildlife (ODFW) has determined that this reduction would not adversely affect any of these protected areas (Agency Report, December 12, 1996). The Oregon Parks and Recreation Department has indicated that a two cfs reduction in flow would not adversely affect the state designated Klamath River Scenic Waterway (Agency Comments, November 18, 1996; S. Brutscher, ODPR, pers. comm. December 17, 1996). The Council concurs that a reduction in Klamath River flow of about two cfs would not result in an adverse impact to any protected area.

Wastewater Discharge. Wastewater from the proposed KCP would not adversely impact any protected area. All proposed KCP wastewater would be discharged to the city of Klamath Falls sanitary sewer system pursuant to an industrial wastewater discharge permit issued by the city. The sanitary sewer would deliver the wastewater to the city's Spring Street Wastewater Treatment Plant (SSWTP). At the SSWTP the wastewater would be treated and discharged to the Klamath River in compliance with the SSWTP's federally delegated National Pollutant Discharge Elimination System (NPDES) permit granted by DEQ. Proposed facility operation would result in a reduction in the volume of wastewater currently discharged by the SSWTP and a reduction in biological oxygen demand (BOD) loading on the Klamath River. The ODFW considers this reduction in BOD to be a beneficial impact on the water quality of the Klamath River (Agency Report, December 12, 1996). Thus, wastewater from the proposed KCP would not adversely affect any protected area. (See Fish and Wildlife Habitat)

Conclusions of Law

The Council concludes that the proposed facility is not located in a protected area as defined by OAR 345-22-040(1) and that the design, construction and operation of the proposed facility, taking into account mitigation and subject to the conditions stated in this order, is not likely to result in significant adverse impact to any protected area.

Conditions related to the Council's Protected Areas standard are listed in section VII.I. of this order.

IV. E. 3. Fish and Wildlife Habitat

The Standard.

OAR 345-22-060 "To issue a Site Certificate, the Council must find that the design, construction, operation and retirement of the facility, taking into account mitigation, is consistent with the fish and wildlife habitat mitigation goals and standards of OAR 635-415-030."

OAR 635-415-030 describes four categories of habitat in order of their value. The rule then establishes mitigation goals and corresponding implementation standards for each habitat category.

Habitat Category 1 is habitat of exceptional value. The goal is "no loss of either habitat units or habitat value." The implementation standard requires avoidance of impact.

Habitat Category 2 is habitat of high value. The goal is "no net loss of either habitat units or habitat value." The implementation standard is avoidance of impact or mitigation in-kind, on-site.

Habitat Category 3 is habitat of high to medium value. The goal is "no net loss of either habitat units or habitat value." The implementation standard is avoidance of impact or mitigation either in-kind or out-of-kind, and either on-site or off-site.

Habitat Category 4 is habitat of low value. The goal is "minimize the loss" of habitat value or, if possible, conserve or enhance habitat. The implementation standard provides for flexible mitigation.

Findings of Fact.

Habitat Categories

Nine ecological communities are present in the study area. They are in the following habitat categories (ODFW Agency Report, December 12, 1996):

The Klamath River in the vicinity of the project area is Category 1 habitat;

Riparian, permanent freshwater marsh/ditch/pond, seasonal freshwater marsh and most open water habitats are Category 2 habitats;

Juniper woodland, shrub-steppe and grass/forb are Category 3 habitats as they are disturbed in the project area;

Ruderal and development/landscape are Category 4 habitats.

The proposed KCP would directly affect five of these ecological communities. Three are Habitat Category 3: juniper woodland, shrub-steppe, grass/forb. Two are Habitat Category 4: ruderal and development/landscape.

Operation of the proposed KCP would have a slight indirect impact on the Klamath River as explained below. The U.S. Fish and Wildlife Service (USFWS) has proposed that the upper Klamath River be designated as critical habitat, as defined in the federal Endangered Species Act, for two endangered fish species (see Threatened and Endangered Species)(RMI October 2, 1996 letter to OE). Under the ODFW rules (OAR 635-415-030) habitat areas which have been designated as critical habitat under the Endangered Species Act are considered Habitat Category 1. Since the USFWS has not yet officially made this designation, the upper Klamath River is legally not Habitat Category 1, but rather is Habitat Category 2, at this time. However, the ODFW recommends that the Council treat this area of the river as Habitat Category 1 (ODFW Agency Report, December 2, 1996). Moreover, the USFWS could act to make this designation in the near future. Therefore, this order will treat the upper Klamath River as if it were Habitat Category 1.

Potential Impacts - Construction

The proposed KCP would result in temporary loss/disturbance of about 43 acres during construction. This acreage would be disturbed during construction of the proposed transmission line, cooling water supply, potable water supply, sanitary sewer/wastewater and steam/condensate return pipelines. About 19.6 acres would be Category 3 and about 23.6 acres would be Category 4 habitat. The proposed access road and construction parking and laydown areas are not included because they already exist and were used during the recent construction of the Medford lateral natural gas pipeline that crosses Collins property.

Construction would result in the permanent loss of about 16 acres from facility structures and the transmission line access road. About 0.8 acre would be Category 3 for linear facilities and about 15 acres would be Category 4 at the proposed energy facility site on Collins property.

Construction related noise and traffic would be limited to about a 27-month construction period and would not occur within important wildlife habitat.

Construction would have no affect the Klamath River. Stormwater runoff would be managed in compliance with a federally delegated DEQ-issued National Pollutant Discharge Elimination System (NPDES) construction permit.

Potential Impacts - Operation

Operation of the proposed facility would have minimal impact on fish and wildlife habitat.

Noise. Present noise levels in the vicinity of the proposed energy facility site are dominated by operations at the Collins facility, traffic on Interstate Highway 97, railroad operations and aircraft activity. Current noise levels at the northern edge of the Klamath Wildlife Refuge, directly

across the Klamath River from the proposed energy facility site, range from about 48 to 54 decibels (dBA, L-50).

Noise levels due to operation of the proposed KCP are predicted to be less than 50 dBA, L-50 at the northern edge of the Klamath River (which is on Collins property and zoned Heavy Industrial) and less than 45 dBA, L-50 at the northern edge of the Klamath Wildlife Refuge. These levels meet the noise level criteria set by DEQ for "residential areas" and "quiet areas" respectively. Predicted noise levels from the proposed facility are anticipated to increase background noise levels (during the quietest conditions) along the closest edge of the Klamath Wildlife Refuge by about two to three dBA, L-50. This level of increase would be barely perceptible to the human ear. Moreover, it would be constant rather than highly variable and unpredictable. For these reasons, this small increase would not cause an adverse impact on fish or wildlife. (See Noise)

Traffic. Construction traffic for the proposed KCP would not adversely impact fish or wildlife habitat. Traffic would use existing, well-traveled highways. No highway improvements have been determined to be necessary. The likely travel routes in the vicinity of the proposed KCP site pass through habitat of medium to low value (Habitat Categories 3 and 4). (See Protected Areas; Socio-Economic Impacts: Traffic Safety).

Spills. Accidental spills at the energy facility site would be contained on-site by containment structures or procedures designed to prevent any off-site releases. Therefore, it is unlikely that accidental spills would result in adverse impact to fish or wildlife habitat, including the Klamath River.

Cooling Tower. No significant adverse impacts to wildlife habitat are anticipated from cooling tower drift from the proposed KCP. Operation of the proposed cooling tower would release small droplets of cooling water into the atmosphere. This is known as cooling tower drift. These droplets would contain dissolved materials (primarily salts) that are in the cooling water system. After the droplets evaporate (in the air or on a surface), the dissolved material remains as a particulate. Thus, the operation of the cooling tower would result in the release of particulate material into the atmosphere which would eventually be deposited onto surfaces in the surrounding area.

The applicant evaluated the extent of this cooling tower drift and particulate deposition. (RMI August 2, 1996 letter to OE). The evaluation assumed a drift rate of 16.2 grams per second of drift droplets, a total dissolved concentration (TDS) in the cooling water of 1,680 parts per million (ppm) and four cycles of concentration in the cooling tower water system. The deposition rates are projected to be highest within about 100 meters (330 feet) of the cooling tower and to decrease rapidly with increasing distance from the cooling tower. The highest rates are on the Collins property and surrounding Heavy Industrial (IH) zoned land which is of low value to wildlife.

The highest deposition rate is projected to be about 14 kilograms (kg) per square kilometer (km²) per month (14 kg/km²-month) which equals 0.014 grams (g) per square meter (m²) per month (0.014 g/m²-month). This is projected to occur at 100 meters (about 330 feet) to the SSE of the proposed cooling tower site. This is within the Collins property and is low value wildlife habitat. The highest rate beyond land zoned IH is 0.71 kg/km²-month (0.00071 g/m²-month) at the boundary of land zoned Suburban Residential (RS) about 400 meters (about 1320 feet) WNW of the proposed cooling tower site. The deposition rate at the nearest point on the Klamath River, about 450 meters (about 1500 feet) south of the proposed cooling tower site, is projected to be less than 1.60 kg/km²-month (0.0016 g/m²-month). The rate at the closest point of the Klamath Wildlife Refuge (about 700 meters or 2300 feet) across the Klamath River to the south is about 0.35 kg/km²-month (0.00035 g/m²-month).

DEQ has adopted a standard for particulate deposition of 10,000 kg/km²-month (10 g/m² per month) for industrial sites and 5,000 kg/km² per month (5 g/m² per month) residential sites. The ASC for the proposed Umatilla Generating Project (Exhibit BB-3, p. 4, submitted to OE July 1995 and resubmitted March 1996) estimated a threshold for crop damage of about 10 kg/hectare-month which equals 1,000 kg/km²-month or 1 g/m²-month.

The highest projected deposition rates from the proposed KCP cooling tower are well below these levels. Even under conservative operating conditions (a TDS level of 3,360 ppm in the cooling tower water), the projected deposition rates are below significant levels. Therefore, no significant adverse impacts to wildlife habitat, including the Klamath River and the Klamath Wildlife Refuge, are anticipated from cooling tower salt drift.

Operation of the proposed cooling tower would also result in infrequent periods of ground-level fogging. Ground-level fogging is predicted to occur only one or two hours per year. Because of its limited extent and occurrence and because habitat near the proposed energy facility site is medium to low value wildlife habitat (Category 3 and 4), ground-level fogging is not anticipated to adversely affect wildlife habitat.

Transmission Line. There is no significant potential for bird collisions with the proposed 230 kV transmission line. The proposed route is located inland and is not within the dense fog zone or primary flyways which tend to follow the Klamath River. The proposed route does not cross a primary flyway. The proposed route is adjacent to an existing 230 kV transmission line for about one-third of its length which should increase its visibility and reduce potential for avian collisions.

There is no significant potential for bird mortality from electrocution. It is generally not a problem for 230 kV lines because of the spacing (adequate separation) between conductors

Water Consumption. Operation of the proposed facility would involve three sources of water. Potable water for domestic and high quality water needs, water to make steam for Collins, and water for operating the cooling tower.

Operation of the proposed KCP would not require any new water right for additional consumptive use of water. However, the city must obtain a new water right for the proposed KCP to use water from Collins to make steam at a new location (see Water Rights).

Operation of the proposed KCP would require about 160 gpm (0.36 cfs) of potable water (under average annual conditions). This water would be supplied by the city of Klamath Falls under its current municipal water rights from its current water supply system. The proposed KCP's needs are less than one percent of the amount of water for which the city has water rights (0.36 cfs/52.22 cfs), and about two percent of the current peak demand on the city's system (0.23 MGD/12 MGD). The city's water supply is from city-owned groundwater wells. (See Socio-Economic Impacts: Water)

The proposed KCP would make steam for Collins. The water to make this steam would come from an existing groundwater well on Collins' property. Collins now uses water from this well to make its own steam under its existing manufacturing water right. The steam that the proposed KCP would provide to Collins would reduce by an equal amount the steam that Collins now makes for itself. Thus the total amount of water needed to make steam for Collins, by both Collins and the proposed KCP, would not increase and would continue to be provided from the same well. Thus there would be no additional adverse impact on fish or wildlife or their habitat.

The primary water requirement for the proposed KCP is for evaporative cooling in a proposed cooling tower. The proposed KCP plans to "reuse" effluent from the city of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP) as its source of cooling water. This effluent is currently discharged, after treatment, into the Klamath River. Rather than being discharged directly to the Klamath River, a large portion of the effluent would be sent to the proposed KCP. The reuse of SSWTP effluent by the KCP does not require a new water right.

The proposed KCP would require about 1,211 gallons per minute (gpm) (under average annual conditions) of effluent from the SSWTP for cooling water. Much of this water would be evaporated during KCP operation.

Wastewater from the proposed KCP would be about 444 gpm (under average annual conditions). It would be discharged to a sanitary sewer/wastewater pipeline and returned to the SSWTP where it would be mixed with wastewater from other sources, treated and discharged to the Klamath River. As a result of the evaporation of effluent at the KCP, the volume of SSWTP effluent discharged to the Klamath River would be reduced by about 767 gpm (1,211 gpm - 444 gpm) or about 1.7 cubic feet per second (cfs). This would result in about a 0.10 percent reduction in the annual average flow in the Klamath River near Keno (1,705 cfs at Keno, ODFW Agency Report, December 12, 1996) and about a 2.8 percent reduction in the minimum monthly flow (60 cfs at Keno) (Applicant February 2, 1997 comments on Draft Proposed Order to OE).

The implementation standard for Habitat Category 1 requires avoidance of adverse impact. The ODFW indicates that the small anticipated decrease in Klamath River flows (about 1.7 cfs; about 0.10 percent) would avoid adverse effect on both endangered fish species. Moreover, the ODFW points out that historic discharges of effluent from the SSWTP have been implicated as a factor in the decline of both species (Agency Report, December 12, 1996).

Thus, the proposed reuse of wastewater by the proposed KCP would avoid adverse impact on Category 1 habitat.

Wastewater Discharge. Wastewater from the proposed KCP would be sent to the city of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP). There it would be treated and discharged to the Klamath River in compliance with the requirements of a federally delegated National Pollutant Discharge Elimination System (NPDES) permit issued by DEQ to the city of Klamath Falls for the SSWTP.

The conditions of the NPDES permit are designed to protect water quality, including water temperature, of the Klamath River. Before it may be built, the proposed KCP must demonstrate to the DEQ that discharge of its wastewater to the SSWTP would not result in a violation of the treatment plant's NPDES permit conditions, including those for water temperature.

The wastewater from the proposed KCP might be warmer than the effluent it receives from the SSWTP. If this occurs, the discharge of this warmer wastewater back to the SSWTP could result in a small increase in the temperature of the effluent the SSWTP discharges to the Klamath River. This in turn could result in an unacceptable increase in water temperatures in the Klamath River.

The KCP, at DEQ and OE's request, evaluated the potential for the proposed discharge of its wastewater to the SSWTP to increase water temperature in the Klamath River. The analysis indicates that the predicted temperature of the proposed KCP's wastewater would not be greater than the temperature of other wastewater that enters the SSWTP for treatment. Thus, the proposed KCP's wastewater would not cause an increase in the temperature of the effluent which the SSWTP discharges to the Klamath River or to the Klamath River. (RMI 1/20/97 letter to DEQ; D. Nichols, DEQ, pers. comm. to OE, 2/2/97)

Moreover, the expected 767 gpm reduction in effluent which the SSWTP currently discharges into the Klamath River would reduce the biological oxygen demand (BOD) loading on the upper Klamath River. At some times of the year there are undesirably low levels of dissolved oxygen in Upper Klamath Lake and much of the upper Klamath River, including Lake Ewauna (DEQ's 1994/96 303(d) List of Water Quality Limited Waterbodies, July 1996). This is in part caused by high BOD levels in these waters (D. Nichols, DEQ, pers. comm. January 10, 1997). The reduction in BOD from the SSWTP would thus have a small beneficial impact on the water quality of the upper Klamath River. For these reasons the proposed wastewater discharge from

the proposed KCP would not adversely impact fish or aquatic life (ODFW Agency Report, December 12, 1996).

Potential Impacts - Retirement

Retirement of the proposed KCP is described above under the Council's Retirement standard, section IV.D.3.

The proposed energy facility site is zoned Heavy Industrial, has been graded and cleared of vegetation by industrial activities and is currently low quality (Category 4) wildlife habitat. The anticipated actions to retire the energy facility and restore the energy facility site to a useful condition would not adversely affect important wildlife habitat.

Underground pipelines likely would be left in place upon retirement. Thus, there would be no adverse impact to wildlife habitat. Removal of the transmission line towers and conductors would likely result in some temporary disturbance of wildlife habitat along the transmission line route. However, the route does not cross unusually important or sensitive habitat (Category 3 and 4) and the disturbance would be short-term.

Furthermore, under OAR 345-27-020(10), prior to retirement, the applicant must prepare and submit to the Council a retirement plan which describes how wildlife impacts will be minimized.

Under OAR 345-27-110, the retirement plan must receive Council approval prior to retirement and termination of the Site Certificate.

Mitigation

The KCP proposes to locate facilities to maximize the use of existing utility corridors and previously disturbed and/or currently developed areas, when feasible.

The KCP proposes to restore areas temporarily disturbed during construction to pre-disturbance conditions (ASC, Exhibit N, page 12).

The KCP proposes to mitigate for permanent loss of Category 3 habitat (about 0.8 acre) by creating habitat, within Collins property or other acceptable location, at a 1:1 ratio to that lost (ASC, Exhibit N, page 12).

The KCP has further agreed to assist the ODFW in improving a wetland habitat area at the ODFW Klamath Wildlife Area across the Klamath River from the Collins' property. Although the KCP would have no adverse impact on the Klamath Wildlife Area, the KCP has agreed to fund needed repair of a dike which controls water levels in, and allows the maintenance of, wildlife habitat. This would more than offset any loss of Category 4 wildlife habitat at the proposed energy facility site as a result of construction and operation of the proposed KCP.

Consistency with ODFW Goals

The proposed KCP meets the ODFW Fish and Wildlife Mitigation Policy rules (OAR, chapter 635, division 415) including its Fish and Wildlife Habitat Mitigation Goals and Standards (OAR 635-415-030) with the following conditions: 1) that the applicant coordinate its restoration plan to mitigate for permanent loss of habitat with ODFW; and 2) that the project's proposed discharge of wastewater to the city's treatment plant not result in a violation of DEQ's water quality standard for temperature in the Klamath River. (ODFW Agency Report, December 12, 1996)

Conclusions of Law.

The Council concludes that the design, construction, operation and retirement of the proposed facility, taking into account mitigation and subject to the conditions stated in this order, is consistent with the fish and wildlife habitat mitigation goals and standards of OAR 635-415-030.

Conditions related to the Council's Fish and Wildlife Habitat standard are listed in section VII.J. of this order.

IV. E. 4. Threatened and Endangered Species

The Standard.

OAR 345-22-070 "To issue a Site Certificate, the Council, after consultation with appropriate state agencies, must find that:

(1) The design, construction, operation and retirement of the proposed facility, taking into account mitigation, is consistent with any applicable conservation program adopted pursuant to ORS 496.172(3) or ORS 564.105(3); or

(2) If no conservation program applies, the design, construction, operation and retirement of the facility, taking mitigation into account, does not have the potential to significantly reduce the likelihood of the survival or recovery of any threatened or endangered species listed under ORS 496.172(2) or ORS 564.105(2)."

Findings of Fact.

Threatened & Endangered Species - Plants

PKE studied the project area for the presence of threatened and endangered plant species. Seven species of state-listed threatened or endangered plants are known within a 50-mile radius of the site. One species, Applegate's milkvetch, *Astragalus applegatei*, which is state-listed as endangered, is known to occur within several miles of the site area.

No state-listed plant species were found during field surveys and there are no current records of extant state-listed plant species populations within the study area.

In particular, no suitable habitat was found for the Applegate's milkvetch, *Astragalus applegatei*, although suitable habitat does occur in close proximity to the study area.

Potential Impacts - Plants

The proposed KCP would have no adverse impact on state-listed threatened or endangered plant species.

Consistency with Applicable Conservation Programs - Plants

A conservation program is being prepared, but has not yet been adopted, for Applegate's milkvetch (R. Meinke, ODOA, pers. comm. October 1, 1996).

Threatened & Endangered Species - Animals

PKE evaluated the potential for threatened and endangered animals species to occur in the study area. Four species of state-listed threatened or endangered animals are known to occur, at least occasionally, in the facility area. They are the bald eagle (*Haliaeetus leucocephalis*), American peregrine falcon (*Falco peregrinus anatum*), shortnose sucker (*Chasmistes brevirostris*), and Lost River sucker (*Deltistes luxatus*).

Bald Eagle. The bald eagle (state-listed threatened) occurs year-round in the facility area. The Klamath Basin supports a large breeding population of bald eagles (60+ pairs) and the largest wintering concentration in the lower 48 states. The only bald eagle nest within the facility area is the Moore Park Nesting Territory which is just south of Upper Klamath Lake and about four miles north of the proposed energy facility site. The nesting pair at the Moore Park site typically forage in Upper Klamath Lake and Lake Ewauna during the breeding season. During the winter, the pair and numerous migrants occur within the facility area, especially along the Klamath River where they roost in scattered large trees and feed on waterfowl and fish. A frequently used perch is located on the south end of the Highway 97 bridge across the Klamath River from the proposed energy facility site.

Peregrine Falcon. The American peregrine falcon (state-listed endangered) is a regular, but not common, winter visitor to the Klamath Basin where large concentrations of waterfowl and shorebirds are available as prey. No known nest sites are located within the facility study area.

Shortnose Sucker and Lost River Sucker. The shortnose sucker and Lost River sucker (both state-listed endangered) are known to occur in the Klamath River and its tributaries in the vicinity of the proposed facility. The present distribution of these species includes Upper Klamath Lake and its tributaries, the Klamath River and its tributaries, and the Lost River and its

tributaries. The U.S. Fish and Wildlife Service (USFWS) has proposed that the Klamath River in the vicinity of the proposed KCP be designated as critical habitat, as defined in the Endangered Species Act, for both of these species.

Potential Impacts - Animals

Bald Eagle. KCP evaluated the potential adverse impacts that could result from loss or degradation of habitat, direct mortality and from increased noise from facility operation.

Direct Impact and Habitat Loss. Construction of the proposed facility is not likely to have adverse impact on bald eagles or their habitat or food sources. No potential roost trees would be removed by construction. The nearest known nest site is several miles from the proposed location of above-ground facility structures. Project construction would not affect the Klamath River or any wetland areas. Thus, there would be no reduction in feeding habitat or prey base.

Transmission Line. Construction of the proposed 230 kv line is not likely to adversely affect bald eagles. The route now proposed for the transmission line was selected in consultation with local ODFW biologists to reduce the likelihood of collisions by moving the line away from high use areas and areas with heavy fog. (ODFW Agency Report, December 12, 1996)

Facility Operation. Operation of the proposed facility would have an insignificant adverse impact on bald eagles. Operation would have negligible affect on the Klamath River and its fish populations or on wildlife habitat in the Klamath Basin.

Noise levels due to facility operation are predicted to be less than 50 decibels (dBA, L-50) at the northern edge of the Klamath River and less than 45 dBA, L-50 at the northern edge of the Klamath Wildlife Refuge directly across the Klamath River. These levels meet the noise level criteria set by DEQ for "residential areas" and "quiet areas" respectively. Predicted noise levels from the proposed facility are anticipated to increase background noise levels (during the quietest conditions) along the north edge of the Klamath Wildlife Refuge by about two to three dBA, L-50. This level of increase would be barely perceptible to the human ear. It is unlikely that this small increase, especially as it would be essentially constant, would adversely affect bald eagle use of this area. (See Noise; Fish and Wildlife Habitat)

Peregrine Falcon. The potential for adverse impacts, including loss or degradation of habitat and direct mortality, are insignificant. Project construction would not affect the Klamath River or any wetland areas. Thus, there would be no reduction in feeding habitat or prey base. Possible mortality resulting from collisions with the proposed transmission line is very unlikely because of the infrequent occurrence of peregrine falcons and for the reasons stated above for bald eagles. Potential impacts from increased noise from facility operation are unlikely because of the infrequent occurrence of peregrine falcons and because the expected increase in noise levels is low except in the immediate vicinity of the proposed energy facility site which is not important habitat.

Shortnose Sucker and Lost River Sucker. Construction of the proposed facility would not involve or affect the Klamath River, its tributaries or wetlands. Therefore, construction of the proposed facility would not result in adverse impacts on either fish species or its habitat.

Operation of the proposed facility is not expected to have any significant adverse effect on the Klamath River, its tributaries, associated wetlands, or on either endangered fish species (ODFW Agency Report, December 12, 1996).

Operation would reduce the amount of effluent (wastewater) which the Spring Street Wastewater Treatment Plant (SSWTP) discharges into the Klamath River by about 767 gallons per minute (1.7 cubic feet per second) or about 18 to 38 percent⁶ of its current discharge rate. This reduction would reduce the flow in the Klamath River downstream by about 1.7 cfs which is about 0.10 percent of its average flow at Keno. This reduction would also reduce the biological oxygen demand loading (BOD) loading in the river (ODFW Agency Report, December 2, 1996).

This reduction in effluent discharge would be beneficial since historic discharges of effluent from the SSWTP have been implicated as a factor in the decline of both fish species. The decrease in wastewater effluent would not adversely affect either species, given the average flow in the river and the fact that water quality would be improved by the reduction of effluent discharge (ODFW Agency Report, December 12, 1996).

Consistency with Applicable Conservation Programs - Animals

There is no state conservation program for bald eagle, peregrine falcon, shortnose sucker or Lost River sucker. (ODFW Agency Report, December 12, 1996; P. Snow, ODFW, pers. comm. to OE 2/2/97)

Conclusions of Law.

The Council concludes that no conservation program applies and concludes that the design, construction, operation and retirement of the proposed facility, taking into account mitigation and subject to the conditions stated in this order, does not have the potential to significantly reduce the likelihood of the survival or recovery of any threatened or endangered species listed under Oregon law.

Conditions related to the Council's Threatened and Endangered Species standard are listed in section VII.K. of this order.

⁶ The SSWTP currently discharges 2.9 to 6.2 million gallons per day of effluent, which equals about 2,000 to about 4,300 gallons per minute.

IV. E. 5. Scenic and Aesthetic Values

The Standard.

OAR 345-22-080 "To issue a Site Certificate, the Council must find that the design, construction, operation and retirement of the facility, taking into account mitigation, is not likely to result in significant adverse impact to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in the local land use plan for the site or its vicinity."

Findings of Fact.

Potential Impacts

The proposed energy facility site is about 15 acres. It is located on property owned by Collins Products and is about 3000 feet east Collins' existing mill complex. The land in the vicinity of the proposed energy facility site is zoned Heavy Industry (IH), has been heavily disturbed by industrial activity and has been cleared of vegetation.

The highest structures at the proposed KCP energy facility would be the 110-foot high (approximate) heat recovery steam generator building and the 150-foot high (approximate) emission stack.

Operation of the proposed cooling tower would produce a visible condensed water vapor plume under certain weather conditions. The plume would be largest during cold, low-wind speed, high humidity conditions. These occur primarily during night time hours. The largest plumes are expected to occur most frequently in winter. During winter, when the plume would be most common, its length is predicted to be between 100 meters (about 333 feet) and 500 meters (about 0.3 miles) about 46 percent of the time, and greater than 500 meters about 28 percent of the time. Its height is predicted to be between 50 meters (about 165 feet) and 100 meters about 45 percent of the time. The annual average plume length is predicted to be between 100 meters and 500 meters about 31 percent of the time and its height between 50 meters and 100 meters about 25 percent of the time.

Applicable Plans

For this order, applicable federal land management plans and local land use plans are those for lands from which the facility would be clearly visible, up to 30 miles from the proposed site. These plans are: the city of Klamath Falls' comprehensive land use plan; Klamath County's

comprehensive land use plan; the land management plans for the Lakeview and Medford districts of the U.S. Bureau of Land Management (BLM); the land management plans for the Klamath, Modoc, Rogue River and Winema (which includes the Mountain Lakes Wilderness) National Forests; the land management plan for the Lava Beds National Monument administered by the National Park Service (NPS); and the management plans for the Klamath Basin National Wildlife Refuges administered by the U.S. Fish and Wildlife Service (USFWS) (RMI January 7, 1997 letter to OE).

Potential Impacts on Significant or Important Values

City of Klamath Falls Plan. The city's comprehensive plan identifies Moore Mountain and six other scenic vantage points, all of which are located in the downtown area, as important.

Moore Mountain is located at the southern end of Upper Klamath Lake, west of downtown Klamath Falls and about three and one-half miles north of the proposed energy facility site. It is about two miles north of the nearest point along the proposed transmission line route and about one-half mile northwest of the nearest point along the proposed cooling water supply pipeline route.

Due to intervening topography the proposed energy facility site is not visible from Moore Mountain. Under certain conditions a portion of the cooling tower plume would be visible from the upper southern facing slopes of the mountain. This plume would appear similar to plumes from the existing Collins operations and Columbia Plywood facilities near the proposed energy facility site. It would not constitute a significant adverse impact, especially given its distance from the mountain. A portion of the proposed transmission line may be visible from the upper southern facing slopes of Moore Mountain. However, this would not represent a significant adverse impact given the distance to the line, the proposed design of the line's structures (wood or brownish color steel poles) and the presence of other transmission lines, highways and other development in the same viewshed (See Recreation).

The six other scenic vantage points are each over four miles from the proposed energy facility site (RMI January 2, 1997 letter to OE). It is unlikely that the proposed energy facility site would be visible from any of these sites due to the distance and intervening topography and development. The proposed facility would not result in significant adverse impact to views of areas such as Mt. Shasta to the southwest, Stukel Mountain to the southeast, Hogback Mountain and Basin View Ridgeline to the northeast or the Cascade Mountains to the west.

Klamath County Plan. The county plan does not identify any scenic or aesthetic values that are applicable to the proposed KCP. Moreover, the county has granted the proposed KCP a conditional use permit (See Land Use).

BLM. The eastern edge of the BLM Medford District is about 25-30 miles west of the proposed energy facility site. The portion of BLM land within 30 miles of the site does not contain any

Visual Resource Management (VRM) Class I areas (preserve existing landscape character). Moreover, the proposed facility would not be clearly visible from this distance.

The BLM Lakeview District has no VRM Class I areas. The Upper Klamath Lake viewshed to the north of the proposed site and the wild and scenic section of the Klamath River about 10 miles to the southwest are VRM Class II areas (retain existing landscape character). The proposed facility would not be clearly visible from either of these areas.

National Forests. The Klamath National Forest is about 15 miles southwest of the proposed site. It does not contain Visual Quality Objectives (VQO) of preservation or retention for lands within a 30 mile radius of the proposed site. Moreover, the proposed facility would not be clearly visible from this national forest.

A portion of the Modoc National Forest is about 20 to 25 miles southeast of the proposed site. The VQO for forest lands in this area are primarily partial retention and modification. Moreover, the proposed facility would not be clearly visible from this distance.

A portion of the Rogue River National Forest is about 25 to 30 miles west of the proposed site. The proposed facility would not be visible from this distance due to intervening topography.

Two sections of the Winema National Forest are within 30 miles of the proposed site. One, which contains the Mountain Lakes Wilderness which is a Class 1 visual resource, is about 15 miles to the northwest of the proposed site. The other is about 18 miles to the north of the proposed site. The proposed facility would not be clearly visible from either of these areas. As discussed under Protected Areas, the air emissions from operation of the proposed facility would not be likely to cause a significant adverse impact on the visibility of the Mountain Lakes Wilderness (See Protected Areas: Air Emissions).

National Park Service A portion of the Lava Beds National Monument is just within a 30-mile radius of the proposed site. The National Park Service has designated it as a Class 1 visual resource. It is doubtful that the cooling tower plume from the proposed facility could be seen from this distance. Moreover, even if it could be seen, its distance would make it so low on the horizon and so inconspicuous that it would not create an adverse visual impact. As discussed under Protected Areas, air emissions from the operation of the proposed facility would not be likely to cause a significant adverse impact on this area. (See Protected Areas: Air Emissions)

U.S. Fish and Wildlife Service. The proposed site is located in the Klamath Basin National Wildlife Refuge (NWR) area. This area contains the Upper Klamath NWR (along portions of Upper Klamath Lake), the Klamath Marsh NWR (about 20 miles north of Upper Klamath Lake), the Bear Valley NWR (about 10 miles southwest of the proposed site), the Lower Klamath NWR (about 10 miles south of the proposed site), the Tule Lake NWR (about 20 miles southeast of the proposed site) and the Clear Lake NWR (over 30 miles southwest of the proposed site). There are no applicable management plans for visual resources for these national wildlife refuges.

Moreover, the proposed facility would not be visible from most of these areas, and would not be clearly visible from the others.

Conclusions of Law.

The Council concludes that the design, construction, operation and retirement of the proposed facility, taking into account mitigation and subject to the conditions stated in this order, is not likely to result in significant adverse impact to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in the local land use plans for the site or its vicinity.

Conditions related to the Council's Scenic and Aesthetic Values standard are listed in section VII.L. of this order.

IV. E. 6. Historic, Cultural and Archaeological Resources

The Standard.

OAR 345-22-090 "To issue a Site Certificate, the Council must find that the construction, operation and retirement of the facility, taking into account mitigation, is not likely to result in significant adverse impacts to:

- (1) Historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places;
- (2) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c); and
- (3) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c)."

Findings of Fact.

Jensen and Associates performed an archaeological inventory survey and Native American consultation for the proposed site area on behalf of the applicant. The surveys found four archaeological sites: the former Weyerhaeuser property, which constitutes a recorded historic-period site, and three historic- period sites along proposed transmission line and pipeline corridors.

Potential National Register of Historic Places Sites

The former Weyerhaeuser property (which is now owned by Collins Products) has recently been recorded as an historic-period archaeological site (OR-KL-40) which is eligible for the National Register of Historic Places (NRHP). The proposed KCP energy facility site is located on about 15 acres within the former Weyerhaeuser property. The proposed steam supply and condensate

return pipelines, access road, construction parking and laydown areas are also located on the former Weyerhaeuser property.

Construction and operation of the proposed KCP including the related or supporting facilities which are proposed to be located on the former Weyerhaeuser property would not adversely affect those qualities of the Weyerhaeuser site which make it eligible for listing on the NRHP.

The qualities which render the Weyerhaeuser site eligible derive from the site's association with individuals and events important in local and regional history. Except for several designated structures, the physical remains at the site are not considered significant for residual information values, research potential, or public exhibition and do not contribute to the site's eligibility for NRHP. The proposed KCP would not affect any of the designated structures.

The proposed KCP also would not affect contributing attributes of the site. It would affect only previously bulldozed or otherwise disturbed areas within the site boundary. The proposed locations of the energy facility site and the steam supply and condensate return pipelines would not disturb features of the site which contribute to its eligibility. Likewise, the proposed locations for the access road, construction parking and construction laydown areas are already disturbed and do not contribute to potential eligibility.

Three historic trash dumps were found during surveys of the proposed locations of related or supporting facilities which extend beyond the Weyerhaeuser site. All three were recorded. Two (Cogen-3 and Cogen-2) are along the proposed transmission line route. Cogen-3 is eligible for the NRHP. Cogen-2 is not eligible for listing on NRHP. The third site (Cogen-1) is near the proposed cooling water supply pipeline route. It is not eligible for the NRHP. (ASC, pages T-8 and 9; RMI 10/2/96 letter to OE, including Jensen 9/30/96 letter)

The proposed corridor for the transmission line is sufficiently wide that poles can be placed to avoid direct impact to both sites Cogen-3 and Cogen-2. Construction of the cooling water pipeline can avoid the third site, Cogen-1. The KCP has agreed to flag the perimeter of these sites prior to construction so that they will not be inadvertently disturbed.

Archaeological Sites and Archaeological Objects Under State Law

An "archaeological site" as defined by ORS 358.905(1)(c) is a location in Oregon that contains a group of archaeological objects and their contextual associations. An "archaeological object" as defined by ORS 358.905(1)(a) is an individual object which is at least 75 years old and meets several other criteria. An archaeological site will contain archaeological objects, but an isolated or individual archaeological object is not an archaeological site.

The Weyerhaeuser site is an "archaeological site" as defined by ORS 358.905(1)(c). It contains "archaeological objects" as defined by ORS 358.905(1)(a).

As described above, the proposed locations of KCP facilities--the energy facility site, the steam/condensate return pipelines, access road, and construction parking and laydown areas--would not adversely affect the Weyerhaeuser archeological site. Within the site, no archeological objects as defined by ORS 358.905(1)(a) were found on the surface in the proposed locations of KCP facilities. All of the proposed locations are already highly disturbed and do not contain structures, and in most cases, have already been used during the construction of the Medford Lateral pipeline. There is some potential that archeological objects might be uncovered during construction activity. (RMI 10/2/96 letter to OE, including Jensen 9/30/96 letter)

All three historic trash dumps are considered "archaeological sites" as defined in ORS 358.905(1)(c). However, Cogen-1 and 2 are not significant or important sites because they do not meet the contextual criteria under ORS 358.905 and because no Indian tribe has determined them to be significant. None of the three sites are archaeological objects as defined in ORS 358.905(1)(a): they are collections of objects, not isolated objects. (RMI 10/2/96 letter to OE, including Jensen 9/30/96 letter)

As stated above, none of these three sites would be affected by the proposed facility.

Native American and Tribal Sites

No prehistoric cultural resources were observed at the proposed energy facility site or along the proposed routes of the transmission line, pipelines, or other related or supporting facilities.

However, several Indian mortuary sites have been documented within a one-mile radius of the proposed locations of some facility structures. In particular, an Indian burial is located within about one-half mile of the proposed energy facility site. The Klamath Tribes considers the facility site area to be a high probability area for (prehistoric) archaeological sites. These sites could be subsurface and therefore not observed during the archaeological field surveys conducted for the facility. The Tribes requested that Tribal monitors be present during ground- disturbing activities during construction. The KCP has agreed to this. (The Klamath Tribes letter to OE (undated) and Reviewing Agency Response Form dated 6/20/96)

Conclusions of Law.

The Council concludes that construction, operation and retirement of the proposed facility, taking into account mitigation and subject to the conditions set forth in this order, is not likely to result in significant adverse impacts to historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places, or to archaeological sites or archaeological objects as defined in ORS 358.905(1)(a) and (b).

Conditions related to the Council's Historic, Cultural and Archaeological standard are listed in section VII.M. of this order.

IV. E. 7. Recreation

The Standard.

OAR 345-22-100 "To issue a Site Certificate, the Council must find that the design, construction and operation of a facility, taking into account mitigation, is not likely to result in a significant adverse impact to important recreational opportunities in the impact area. Factors which will be considered in judging the importance of a recreational opportunity include:

- (1) Any special designation or management of the location;
- (2) The degree of demand;
- (3) Uniqueness;
- (4) Outstanding or unusual qualities;
- (5) Availability or rareness; and
- (6) Irreplaceability or irretrievability of the opportunity."

Findings of Fact.

The impact area for the recreation standard is 5 miles from the proposed site boundary including the proposed transmission line and pipeline routes.

The applicant evaluated recreation opportunities within the study area. They include defined areas and facilities such as parks and athletic fields, non-defined areas such as scenic landscapes and non-localized activities such as day hiking, hunting and fishing.

The more important recreation opportunities in the impact area based on the criteria listed in this standard are Moore Park and the OC&E Rail Trail (RMI December 20, 1996 letter to OE). As noted under Protected Areas, the wild and scenic portion of the Klamath River and the Mountain Lakes Wilderness are both beyond the five mile impact area.

Moore Park is the city's premier park. It is about three and one-half miles north of the proposed energy facility site. It is about two miles north of the nearest point along the proposed transmission line route and about one-half mile northwest of the nearest point along the proposed cooling water supply pipeline route.

The OC&E Rail Trail begins southeast of downtown Klamath Falls and to the east of Lake Ewauna and extends a number of miles to the north. It is about four miles from the proposed energy facility site, about two miles from the closest point along the proposed transmission line and about one mile from the closest point along the proposed cooling water supply pipeline route.

Construction of the proposed KCP, including its proposed transmission line and cooling water pipeline, would not directly affect either of these areas.

Construction of the proposed KCP is not anticipated to cause any significant indirect adverse impact to either area. Construction traffic would be limited to about 27 months. It is not expected to result in a significant increase in local area traffic nor the need to expand local roads. (See Socio-Economic Impacts: Traffic Safety)

Construction noise would be insignificant at either area given their distances from the proposed energy facility, transmission line and pipeline. (See Noise)

Operation of the proposed KCP would have an insignificant effect on the park and the trail. Traffic related to operation would be less than that associated with construction (See Socio-Economic Impacts: Traffic Safety). Operation noise levels would be insignificant at the distances to the park or trail. (See Noise)

Due to intervening topography the proposed energy facility site is not likely to be visible from Moore Park or the OC&E Rail Trail. Under certain conditions a portion of the cooling tower plume would be visible from the upper southern facing slopes of the park and perhaps from the trail at some locations. This plume would appear similar to plumes from the existing Collins operations and Columbia Plywood facilities near the proposed energy facility site. It would not constitute a significant adverse impact, especially given its distance from the park and the trail. A portion of the proposed transmission line may be visible from the upper southern facing slopes of Moore Park. However, this would not represent a significant adverse impact given the distance to the line, the proposed design of the line's structures (wood or brownish color steel poles) and the presence of other transmission lines, highways and other development in the same viewshed.

The Reames Golf and Country Club is a private facility located on the east side of Highway 97, about three-quarter miles from the proposed energy facility site. The proposed cooling water supply and wastewater return pipelines would be located on the west side of U.S. Highway 97. Construction of these pipelines could have some temporary impact due to elevated noise levels, but this would not be significant because of the volume of traffic on the highway.

The proposed energy facility site is not visible from the country club. A portion of the proposed transmission line might be visible from the entrance road and western side of the golf course. The line would not be visible from most areas within the country club due to trees and topography. The visual impact would be minor given the distance to the line (about 1000 feet), the proposed use of wood or brownish color steel pole structures, the intervening topography, trees and highway, and the presence of other development near the country club including a larger transmission line and the Columbia Plywood facilities which are adjacent to the southern end of the country club.

A portion of the cooling tower plume from the proposed KCP might be visible from the country club under some conditions. This plume would appear similar to the plumes from the existing Collins facilities, which are near the proposed project site, and the Columbia Plywood facilities which are adjacent to the southern end of the country club.

Conclusions of Law.

The Council concludes that the design, construction and operation of the proposed facility, taking into account mitigation and subject to the conditions stated in this order, is not likely to result in significant adverse impact to important recreational opportunities in the impact area.

Conditions related to the Council's Recreation standard are listed in section VII.N. of this order.

IV. E. 8. Socio-Economic Impacts

The Standard.

OAR 345-22-110 "To issue a Site Certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, is not likely to result in significant adverse impact to the ability of communities within the study area to provide the following governmental services: sewers and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools."

Findings of Facts.

The study area for the Socio-Economic Standard is thirty miles from the proposed energy facility site. Communities within the study area, their approximate populations and distances from the proposed energy facility site are:

City of Klamath Falls (pop. about 18,500), about five miles;
City of Merrill (fewer than 1000), about 15 miles;
City of Malin (fewer than 1000), about 22 miles;
City of Bonanza (fewer than 1000), 22 miles.
City of Chiloquin (fewer than 1000), about 28 miles;
Community of Midland (fewer than 250), about five miles;
Community of Olene (fewer than 250), about 10 miles;
Community of Keno (fewer than 250), about 10 miles;
Community of Dairy (fewer than 250), about 15 miles;

Construction of the proposed KCP would take about 27 months. A maximum of about 250 direct construction workers would be required during periods of peak construction, and the average direct construction force would be about 110 people. Indirect construction-related jobs would also be created and would equal about 80 percent of direct construction jobs.

About 50 percent of the direct construction jobs, and about 70 percent of the indirect construction-related jobs, would be filled by current area residents. Of the "in-migrant" workers about 60 percent would actually move into the area during construction. About 80 percent of the construction work force would be single. The average family size would be 3.5 per household for the 20 percent that are married.

Operation of the proposed energy facility would require about 20 permanent employees. Indirect operation-related jobs would equal about 75 percent of direct operation jobs. About 50 percent of the direct operation jobs would be filled by current local residents, and about 70 percent of the indirect operation-related jobs would be filled by current local residents. About 25 percent of the operation work force would be single. The average family size would be 3.5 per household for the 75 percent that are married.

The current population of the city of Klamath Falls is about 18,765 as of July 1996. The current population of Klamath County is about 60,000, and is projected to be about 63,400 in 2000.

The estimated increase in Klamath County population as a result of construction of the proposed KCP is about 168 to 208 new people. This includes direct and indirect workers and their families. This is about a 0.28 to 0.35 percent increase in the population of Klamath County and about a 0.9 to 1.1 percent increase in the population of the city of Klamath Falls.

The estimated population increase as a result of operation of the proposed KCP is about 42 people. This includes direct and indirect workers and their families.

These estimated population increases during construction and operation are so small that no adverse impacts on local communities, particularly the city of Klamath Falls, are anticipated as a result of increased population.

Sewer and Sewage Treatment. During construction the applicant anticipates using portable toilets to manage sanitary wastewater. As an alternative, the applicant might arrange a temporary hookup to the existing Collins sanitary sewage treatment system. Neither of these methods would adversely impact the city's sewage treatment system (RMI December 20, 1996 letter to OE).

During operation the proposed KCP is projected to produce about 0.64 million gallons per day (MGD) (based on 444 gpm) of wastewater which would be sent to the city of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP) for treatment. The proposed KCP includes construction of a new eight inch (approximate) diameter underground pipeline to deliver its wastewater to the city's existing collection system. The SSWTP has capacity to process about 6 MGD and is currently operating at about one-half capacity (ASC, Exhibit U, p.4). The proposed KCP's wastewater is not expected to contain anything that would prevent the SSWTP from accepting and treating its wastewater. The SSWTP should have no difficulty in handling the

volume of additional wastewater from the proposed facility. Thus, the proposed KCP should not result in any significant adverse impacts on sewers or sewage treatment.

Water. During construction the proposed KCP would require potable water as well as water for construction processes. Assuming the use of portable toilets, the applicant estimates that the average use of water would be 2,000 to 3,000 gallons per day. This water would most likely be supplied by tanker trucks to one or more temporary on-site storage tanks. Alternatively, the applicant might arrange a temporary connection to either the city of Klamath Falls' or Collins' water supply systems. An average increase of 3,000 gallons per day would be a small increase for either the city or Collins to supply given their respective existing water rights and uses (see below) (RMI December 20, 1996 letter to OE).

Operation of the proposed KCP would involve three sources of water. Water for cooling the proposed energy facility, potable water for domestic and high quality water needs, and water for the steam that would be used at the Collins (formerly Weyerhaeuser) wood products plants.

Cooling water would be provided by the city from its SSWTP. Treated effluent from the SSWTP would be transported about five and one-half miles to the proposed KCP in a proposed new 14 to 16 inch (approximate) diameter pipeline. The proposed KCP would require about 1.74 MGD of water for its cooling system (based on 1,211 gpm). (About 1.3 MGD (based on 915 gpm) of this would be evaporated into the atmosphere as part of the evaporative cooling process.) The SSWTP generates about 2.9 to 6.2 MGD of wastewater effluent which is discharged to the Klamath River (ASC Exhibit U, p.4). Thus, the proposed KCP's entire cooling water needs can be met by effluent from the SSWTP. In addition, stormwater collected in the on-site retention/evaporation pond could be used to meet the KCP cooling water needs (Applicant February 3, 1997 comments on Draft Proposed Order to OE). If stormwater were used for cooling tower makeup, cooling water blowdown would continue to be discharged along with other project wastewater to a sanitary sewer for delivery to the SSWTP. No new groundwater or surface water withdrawals would be required to meet the proposed KCP's cooling water needs.

Good quality water requirements would be met by the city from its domestic water supply system. The proposed KCP would require about 0.23 MGD (based on 160 gpm) of good quality water. This would be transported to the proposed KCP by a proposed new underground water line along Weyerhaeuser Road to the proposed energy facility site. The city's present potable water production and distribution system has a capacity of about 25 MGD. The current peak (summer) demand is about 12 MGD (RMI January 7, 1997 letter to OE, p. 6). Thus, the city has adequate available water to meet the proposed KCP's good quality water needs.

The KCP would make steam for Collins. The water for this steam is currently used by Collins, under its existing water rights, to make steam. The steam that KCP would provide to Collins would reduce by an equal amount the steam that Collins now makes for itself. Thus the total amount of water needed to make steam for Collins by both Collins and the proposed KCP would not increase. (see Water Rights)

The proposed KCP would not result in any significant adverse impact to the city's ability to provide water to its customers.

Stormwater Management. During construction, stormwater runoff would be managed in compliance with federal, state and local requirements. The proposed KCP would be required to obtain and comply with a federally delegated DEQ-issued National Pollution Elimination System (NPDES) Stormwater Discharge Permit for construction activity. No adverse impacts on local communities are anticipated.

During operation, stormwater runoff from the proposed energy facility site would be collected in an on-site retention/evaporation pond. No stormwater is proposed to be directly discharged from the energy facility site. Thus, there would be no adverse impacts on local communities associated with stormwater runoff.

Solid Waste Management. Solid waste generated during construction would generally consist of non-hazardous materials including discarded equipment packing materials, wood materials, and construction debris including excess piping, concrete, and steel scrap. These would be recycled where practicable or sent to a sanitary landfill. Concrete would be used for on-site fill, where practicable. During construction, the total amount of non-hazardous solid waste requiring disposal is estimated to be about 40 cubic yards per week (uncompacted) (RMI October 9, 1996 letter to OE).

Solid waste generated during operation would consist of both hazardous and non-hazardous wastes. Non-hazardous solid wastes would include spent demineralizer resins and office and administration area trash and garbage (See Waste Minimization). The proposed KCP is estimated to generate about 20 cubic yards per week of uncompacted non-hazardous solid waste during operation (RMI October 9, 1996 letter to OE).

The city of Klamath Falls Landfill accepts non-hazardous solid waste. It has a remaining capacity of about 880,000 compacted cubic yards. Assuming two years for construction and 30 years of operation, the total non-hazardous solid waste generated by the proposed KCP would be about 35,360 cubic yards (uncompacted). This is equivalent to about 3,500 to 17,700 compacted cubic yards of non-hazardous solid waste. This represents from 0.4 percent to 2.0 percent of the landfill's remaining capacity (RMI October 9, 1996 letter to OE, pp. 2 and 3).

Hazardous solid wastes such as used lead acid batteries, spent selective catalytic reduction (SCR) catalyst and oily rags, filters and other oily materials would be collected for disposal by a licensed contractor or shipped back to the vendors for recycling.

The proposed KCP would not result in a significant adverse impact to the ability of local communities to provide for solid waste management and disposal.

Housing. Construction of the proposed facility is anticipated to result in about 92 to 112 new households, most of which would be single workers. Operation of the proposed facility is anticipated about 14 new households, most of which would be married workers.

In 1998-1999 it is estimated that the city of Klamath Falls will have about 7,000 occupied residential rentals and about 540 rental vacancies (RMI January 20, 1997 letter to OE). Thus, even if all new households during construction were rentals, they would require about 21 percent of the estimated vacancies. This would reduce the vacancy rate from about 7.2 percent to about 5.7 percent (RMI January 20, 1997 letter to OE).

Based on 1990 census data, about 73 percent of the owner occupied homes in Klamath County are located in the Klamath Falls area. During 1993-1996 residential homes sales are estimated to have averaged about 1,160 per year. Assuming that 73 percent of these sales were in and near Klamath Falls, there are about 845 home sales per year in the Klamath Falls area. Thus, even if all new households during construction purchased homes, they would require about 13 percent of the estimated yearly sales. Moreover, the construction of about 700 new housing units have been approved by the Klamath Falls' City Council and Klamath County (combined) since 1994 and at least 250 of these are expected to be built by May 1998 which is before construction workers are expected to begin moving into the area (RMI January 20, 1997 letter to OE).

For these reasons, the proposed KCP would not result in a significant adverse impact on the ability of local communities to provide housing.

Traffic Safety. The applicant estimates a maximum of about 250 round trips per day for construction workers. The applicant plans to coordinate working hours with other industries in the area to minimize traffic congestion. The applicant anticipates a maximum of about 50 other round trips per day from vendors and others. The proposed KCP would provide for construction parking for 300 vehicles. The applicant estimates truck traffic during construction to be about 25 deliveries per day. The applicant estimates that the maximum round trips per day during periods of peak construction would be about 325 (650 trips) and that the actual traffic during peak construction would be about 240 round trips (480 trips) per day due to carpooling. Construction traffic during much of the 27 month construction period (non- peak) would be less than these levels.

During operation, the applicant estimates about 20 round trips per day for employees. These would be spread over three shifts. The applicant expects about 20 additional trips per day, primarily during the day shift, for tradespeople, vendors, management and others. The applicant estimates about three to five deliveries by small trucks per day, and about three to five deliveries per month from larger, semi-trailer size trucks. The applicant anticipates filling the fuel oil tank once per year. This would require large tanker trucks at a rate of several per hour for two to four weeks.

Most of construction and operation work force would likely travel to the proposed energy facility site from the city of Klamath Falls area. Most are expected to primarily use State Highways 140, 66 and 39, and U.S. Highway 97.

Roads used by construction and operation traffic are sufficient to handle heavy traffic that is generated by other industries in the area, including the Collins operations. No street modifications, with the possible exception of the proposed access location on U.S. Highway 97, are expected to be needed to accommodate the traffic or weight of equipment moving to the proposed KCP site. Projected construction traffic would exist for about 27 months. Peak construction traffic would occur for only a portion of this time. Peak construction traffic would increase current traffic on highways 140, 66 and 97 about 7 to 13 percent, depending on the location (RMI January 2, 1997 letter to OE).

Projected operation traffic (about 40 round trips per day) would not be a significant addition to current levels. No additional maintenance and/or operation costs to the roads have been identified or are anticipated as a result of the proposed KCP.

Access to the proposed KCP site during both construction and operation is proposed to be directly from U.S. Highway 97 onto an existing private access road on Collins property. The Oregon Department of Transportation (ODOT) has reviewed the proposed location of the access road interconnection with U.S. Highway 97. ODOT has a concern for safety at this access location in regard to truck traffic making left turns in and out of the access, especially during fuel oil delivery and during construction (ODOT Agency Comments, December 5, 1996). ODOT has requested more detailed information on the number of trucks per hour and their expected direction of travel to and from the proposed access location. ODOT indicates that some modification to U.S. Highway 97 at the access location, such as channelization (a turning lane) or other improvements might be required. ODOT has also indicated that truck movement at the access might be limited to right turns only. However, ODOT believes that subject to any needed improvements and appropriate conditions, the proposed location of the access would be acceptable. Because of the proximity to an interstate highway (U.S. Highway 97), large- truck traffic on city and county streets should be minimal.

As discussed in the Public Health and Safety section, operation of the proposed KCP cooling tower would not cause rime icing nor result in fogging impacts to local roads.

Police and Fire Protection. The Klamath County Sheriff's Department has jurisdiction over the proposed facility site and surrounding areas. The department is part of a larger cooperative effort with the Oregon State Police and the Klamath City Police departments. The department employs about 80 deputies in the main office in Klamath Falls and has between 20 to 50 officers on patrol. The department does not anticipate any problems with the construction or operation of the proposed KCP. Similar construction activities and operating facilities have caused no major difficulties for the department.

The proposed energy facility would have its own fire protection system per applicable codes and National Fire Protection Association standards. It would include water storage, fire pumps, fire water loop and monitors, chemical extinguishing for combustion equipment and portable fire extinguishers.

The proposed energy facility site is in the jurisdiction of Fire District #4. It has 30 volunteer firefighters, and a medical unit of one paramedic, eight EMTs and two ambulances. It has mutual aid agreements with other fire departments in area. Fire District #4 is experienced in and capable at combatting industrial fires. With assistance of other fire departments, it would be capable of handling any fire emergency that could occur at the proposed KCP.

Health Care. The estimated increase in population of the Klamath Falls area during construction is 168 to 208 people, including family members and indirect workers. The estimated population increase as result of operation is about 42 people. This includes family members and indirect workers.

The Merle West Medical Center is the largest health care facility in Klamath County. It is located in the city of Klamath Falls about six miles from the proposed energy facility site. It has 176 beds, over 70 doctors and about 1500 employees. It is well equipped to respond to large emergency or disaster situations. It has a 13-bed emergency room and a 4-bed urgent care center with plans to expand the emergency room to 25 beds within two years. It runs its own ambulance service of three full-time ambulances and 25 employees. It coordinates with Klamath County's emergency plan to mobilize resources within the hospital or in the field. It does not have a burn unit, but is equipped to stabilize burn victims and air-transport them to regional medical centers in Medford, Eugene, Portland or San Francisco. The Merle West Medical Center is able to handle any emergency that might occur at the energy facility site.

Due to the small increases in population resulting from construction and operation, and the preparedness, capabilities and near proximity of the Merle West Medical Center, the proposed KCP facility is not expected to result in adverse impacts on health care services in the impact area.

Schools. The city of Klamath Falls school district and the Klamath County school district provide 20 elementary and nine junior/senior high schools for about 11,000 students. The city district has nine schools with about 3,936 students as of 1995. Schools in the two districts are generally at or exceed capacity. Three of the city schools are over capacity. However, new students in the city district could still be accommodated by transferring them to other schools within the city, if deemed necessary.

The applicant estimates that construction of the proposed KCP might add a maximum of from 27 to 34 new students to the Klamath Falls area school systems, as a result of new workers moving into the area. The applicant estimates that operation of the proposed KCP might add about 17 new students to the Klamath Falls area school systems (RMI January 20, 1997 letter to OE).

New students projected from construction might cause a 0.7 to 0.9 percent increase in the city district's student population (27/3,936; 34/3,936). New students from operation might cause a 0.4 percent increase (17/3,936). New students are anticipated to be enrolled in different schools and at different grade levels. Also, schools could install portable structures and hire teaching assistants if a particular class size were to become too large. School officials indicated that an increase of this size would not pose a hardship on the school system (ASC, page U-10). Thus, the estimated increase would not result in a significant adverse impact on the school system.

Conclusions of Law.

The Council concludes that construction and operation of the proposed facility, taking into account mitigation and subject to the conditions stated in this order, is not likely to result in a significant adverse impact to the ability of communities within the study area to provide governmental services, including sewers and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.

Conditions related to the Council's Socio-Economic Impacts standard are listed in section VII.O. of this order.

IV. E. 9. Waste Minimization

The Standard.

OAR 345-22-120(1) "To the extent reasonably practicable, the applicant shall minimize generation of solid waste and wastewater in the construction, operation, and retirement of the facility, and when solid waste or wastewater is generated, recycle and reuse such wastes.

(2) To the extent reasonably practicable, the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility must have minimal adverse impact on surrounding and adjacent areas."

Findings of Fact.

Solid Waste

The applicant proposes to develop and implement a solid waste reduction and recycling program for both hazardous and non-hazardous solid waste for construction and operation. The program would address the handling, separation, containerization, and shipping of the waste streams. The program would include an employee training program covering both the rationale and operation of the waste reduction and recycling program.

Construction. Solid waste generated during construction would generally consist of non-hazardous materials including discarded equipment packing materials, wood materials, and

construction debris including excess piping, concrete, and steel scrap. These would be recycled where practicable or sent to a sanitary landfill. Concrete would be used for on-site fill, where practicable. Wastes such as oily rags, filters, or hazardous solid wastes would be collected for disposal by a licensed contractor.

Operation. Solid waste generated during operation would consist of both hazardous and non-hazardous wastes. Hazardous solid wastes would include used lead acid batteries, spent selective catalytic reduction (SCR) catalyst and oily rags and other oily materials.

Used batteries would be shipped to vendor recycling facilities for heavy metal recovery to reduce the final amount of waste requiring disposal at a hazardous disposal site. Spent SCR catalysts would be shipped to the manufacturer or to a metals reclaiming facility to remove heavy metal. The SCR catalyst is expected to be recycled. Oily rags and other oily materials would be disposed in a licensed landfill. The proposed energy facility would be operated and maintained by qualified and properly trained personnel in accordance with procedures designed to reduce the potential for oil material spills.

Non-hazardous solid wastes would include spent demineralizer resins and office and administration area waste (trash and garbage).

Spent resins would be shipped to vendor recycling facilities to reduce solid waste generation. Office and administration waste would be recycled to extent practicable by providing separate disposal containers at the energy facility site. This would reduce the amount of waste requiring disposal in a sanitary landfill.

Retirement. The proposed KCP would use primarily natural gas for fuel. Natural gas-fired energy facilities generally do not produce or accumulate on-site significant amounts of solid waste which would require disposal upon retirement.

In addition, the potential for reducing, reusing and recycling solid waste upon retirement would be addressed as part of the applicant's retirement plan which must be approved by the Council prior to retirement (See section VI.A. condition (10)).

Wastewater

The applicant proposes to develop and implement a wastewater reduction and reuse program for construction and operation. The program would focus on collection and recycling of runoff in the project area during construction. The program would address the handling and reuse of KCP wastewater streams during operation.

Construction. Wastewater generated during construction would include sanitary wastewater and wastewater from construction processes. The amounts of these wastewaters, especially process

wastewater, would be small compared to the quantities generated during operation. Practicable opportunities to reduce and reuse wastewater during operation are limited.

KCP estimates that about 3.9 million gallons of sanitary wastewater could be generated during construction (based on 10 gpm). This compares to about 31.5 million gallons that could be generated during operation over 30 years (based on 2 gpm) (Applicant February 3, 1997 comments of Draft Proposed Order to OE).

Operation. The proposed KCP would use a number of features which would reduce its water consumption. This in turn would reduce the amount of wastewater generated. Moreover, all wastewater, including that from which oil has been separated, would be discharged to the city of Klamath Falls wastewater treatment plant and then to the Klamath River.

The proposed KCP would generate three types of wastewater: sanitary wastewater, demineralization system backwash water, and cooling tower blowdown.

Sanitary wastewater would be reduced by using water flow restricting devices on bathroom and locker room sinks and showers, and by using low water consumption water closets.

The water treatment demineralizers would use programmable logic controls and would be set to maximize resin efficiency thus reducing overall water consumption during resin regeneration and backwashing.

Cooling tower blowdown would be reduced by automating the chemical treatment and blowdown system to allow the cooling tower to operate at the highest practical number of cycles of concentration.

In addition, on-site stormwater runoff from non-equipment areas would be directed to the on-site stormwater retention/evaporation pond. This water could be reused as makeup water for the KCP cooling water system.

Retirement. Retirement would likely result in some wastewater. The amount of such wastewater would likely be a very small fraction of the total wastewater which the proposed KCP would generate over its lifetime. The amounts and types of wastewater, and the practicable opportunities to reduce or reuse this wastewater, would depend upon the circumstances of retirement and are not known at this time.

The potential for reducing, recycling and reusing wastewater upon retirement would be addressed as part of the applicant's retirement plan which must be approved by the Council prior to retirement (See section VI.A. condition (10)).

Impact on Surrounding and Adjacent Areas

The accumulation, storage, disposal and transportation of waste generated by construction and operation of the proposed KCP would have minimal adverse impact on surrounding and adjacent areas.

The proposed energy facility site is on, and surrounded by, land owned by Collins wood processing plants and is zoned Heavy Industrial. The proposed KCP would not accumulate, store or dispose on-site significant quantities of waste materials. Transportation of solid wastes off-site would be via an existing access road on Collins property to U. S. Highway 97 and would have no adverse impact on local residential areas or local streets. Transportation of wastewater off-site would be via a proposed underground pipeline into an existing city sewer line. Disposal of solid wastes would be to either a licensed landfill for hazardous wastes or to a sanitary landfill for non-hazardous wastes.

Conclusions of Law.

The Council concludes that the applicant will, to the extent reasonably practicable, minimize the generation of solid waste and wastewater in the construction, operation and retirement of the proposed facility, and when such solid waste or wastewater is generated, will recycle and reuse such wastes. The Council further concludes that, to the extent reasonably practicable, the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the proposed facility will have minimal adverse impact on surrounding and adjacent areas.

Conditions related to the Council's Waste Minimization standard are listed in section VII.P. of this order.

V. OTHER APPLICABLE REGULATORY REQUIREMENTS: FINDINGS AND CONCLUSIONS ORS 469.503(3)

V. A. Requirements Under EFSC Jurisdiction

Under ORS 469.503(3), EFSC must determine that the proposed facility complies with all other Oregon statutes and administrative rules identified in the Project Order, as amended, as applicable to the issuance of a Site Certificate.

Applicable Oregon statutes and administrative rules identified in the Project Order which are not addressed in any of the Council's standards discussed in section IV of this order include the Department of Environmental Quality's (DEQ) noise control regulations, the Division of State Lands' (DSL) regulations for disturbance to wetlands, the Water Resources Department's (WRD) regulations for appropriating groundwater, and the Council's statutory authority to consider protection of the public health and safety.

V. A. 1. Noise

The Requirement

Regulations adopted by DEQ on noise from new industrial and commercial sources apply to the proposed facility. The applicable regulation is OAR 340-35-035(1)(b)(B)(i). It requires that:

"No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point..."

This DEQ noise regulation has two components. The first component limits the noise levels that may be caused by a new noise source, as measured at residential receptors and areas designated by the Oregon Environmental Quality Commission under its rules as "Quiet Areas", to the limits in Table 8 of the DEQ noise control regulations. This component is referred to as the "Table 8 criteria".

The second component requires that if the ambient (existing) noise levels at residential receptors are determined to be more than 10 decibels (dBA) below the criteria in Table 8, then the new noise source may not increase the ambient noise levels by more than 10 dBA. This component of the regulations is to prevent large increases in noise levels in areas that are unusually quiet. This component is referred to as the "ambient degradation rule".

Findings of Fact

The nearest noise sensitive property in the case of the proposed KCP energy facility is the residential area of West Klamath which is about 1000 feet to the west of the proposed energy facility site. No areas in the vicinity of the proposed facility site have been designated a "Quiet Area" by the commission. (T. Obteshka, DEQ, pers. comm. to OE, 1/23/97). (For wildlife see Fish and Wildlife Habitat)

The primary noise sources in the vicinity of the proposed energy facility site are Collins (formerly Weyerhaeuser) plant operations, traffic on Highway 97, nearby railroad operations, and aircraft operations associated with the Klamath Falls Airport, which is about five miles from the proposed energy facility site.

Current ambient noise levels at the nearest residential site range from about 46 to 58 dBA, L-10 and 43 to 55 dBA, L-50.

The primary noise sources associated with the proposed energy facility include the combustion turbine and associated electrical generator, steam turbine and its associated electrical generator, a heat recovery steam generator (HRSG), and an axial fan mechanical draft cooling tower consisting of approximately four cells. As proposed, both the combustion turbine and its associated generator, and the steam turbine and its associated generator would be located inside an acoustically insulated steel-sided building.

In addition, the proposed 230 kV transmission line is expected to produce some corona noise, especially during rainy or foggy conditions, along the transmission line route.

Noise levels associated with the proposed energy facility are steady-state in nature. Thus, the average hourly noise levels (L-eq) would be identical to the L-50 values. Therefore, the L-50 descriptor is appropriate for describing noise impacts associated with operation of the proposed energy facility.

Table 8 criteria. The predicted noise levels at the nearest residential site that would be caused by operation of the proposed energy facility are less than 45 dBA, L-50. This level is below the levels set in Table 8 of the DEQ rules. These levels are: daytime L-50 = 55 dBA and nighttime L-50 = 50 dBA. Therefore, the noise levels due to the proposed energy facility operation are expected to comply with the Table 8 criteria.

After the proposed energy facility is in operation, the energy facility noise levels are predicted to increase existing ambient noise levels (during the quietest ambient conditions) at the nearest residential site by about 3 dBA, L-50.

An increase in noise levels of at least 3 dBA is required before most people will perceive a change in noise levels, and that an increase of 5 dBA is required before the change will be clearly noticeable. The predicted changes in ambient noise levels due to the proposed energy facility would be barely perceptible at the residential site.

The predicted L-50 noise levels resulting from the proposed 230 kV transmission line are about 20 dBA at 200 feet from the line. Audible noise levels generally decrease by about 3 to 4 dBA for every doubling of distance from a transmission line. Thus, the predicted L-50 noise levels for the proposed 230 kV transmission line are about 24 dBA at 100 feet from the line and about 28 dBA at 50 feet from the line. During rainy or foggy conditions, the L-50 value at a distance of 50 feet is predicted to be about 49 dBA and at 100 feet is predicted to be about 45 dBA. These levels are below the noise levels specified in Table 8 for residential areas.

Ambient degradation rule. The ambient noise levels at the nearby residential area are not more than 10 dBA below the criteria in Table 8. Therefore, this rule does not apply.

Conclusions of Law

The Council concludes that noise likely to be produced by the proposed facility, taking mitigation into account and subject to the conditions stated in this order, will not exceed the applicable DEQ noise control standards.

Conditions related to noise regulations are listed in section VII.Q. of this order.

V. A. 2. Wetlands

The Requirement.

Under Oregon Removal-Fill Law (ORS 196.800 through 196.990) and the Division of State Lands' Removal-Fill rules (OAR 141-85-005 through 141-85-090) a Removal-Fill Permit is needed if 50 cubic yards or more of material is removed, filled or altered within any "waters of the state". Under the Removal-Fill Law, "waters of the state" include wetlands.

Findings of Fact.

The applicant consulted relevant information and conducted field surveys in July 1995 of the proposed site to delineate and map wetlands.

The Oregon Division of State Lands (DSL) reviewed the ASC and talked directly to the individuals who performed the wetlands evaluation. DSL concluded that the proposed facility would not affect wetlands or waterways under state jurisdiction. (DSL 9/4/96 letter to RMI)

No wetlands occur on or near the proposed energy facility site. The nearest wetland to the proposed energy facility site is about one-quarter mile to the southeast near the Klamath River. Construction and operation of the energy facility should not result in direct impact to wetlands. Mitigation and design measures proposed by PKE in the ASC, Exhibit N should prevent any indirect adverse impacts to wetlands.

The proposed access road for construction and operation does not affect any wetland. The proposed locations for construction parking and equipment staging and laydown would not affect any wetland.

None of the related or supporting facilities are proposed to be located near any wetland.

Construction and operation of the related or supporting facilities should not result in any direct impact to wetlands. Mitigation measures proposed by PKE in the ASC, Exhibit N should prevent any indirect adverse impacts to wetlands.

Conclusions of Law.

The Council concludes that a Removal-Fill Permit is not required.

Conditions related to wetlands are listed in section VII.R. of this order.

V. A. 3. Water Rights

The Requirement

Through the provisions of the Ground Water Act of 1955, ORS 537.505 to 537.796, the Oregon Water Resources Commission (WRC) has been charged with the administration of the rights of appropriation and use of the ground water resources of the state and the prevention of waste and contamination of ground water. Under Oregon water law (ORS 537.505 through 537.796) and the Oregon Water Resources Department's (WRD) rules (OAR 690-300 through 310) the proposed KCP needs a permit to appropriate ground water.

"Any person or public agency intending to acquire a wholly new right to appropriate groundwater or to enlarge upon any existing right to appropriate groundwater, ... shall apply to the Water Resources Department for and be issued a permit before withdrawing or using the groundwater." ORS 537.615(1).

A groundwater permit must be granted if, "the proposed use will ensure the preservation of the public welfare, safety and health." ORS 537.621(2). This standard is presumed to have been met if: 1) the proposed use is allowed in the basin plan or given a preference under ORS 536.310(12), 2) if water is available, 3) if the proposed use will not injure other water rights and 4) if the proposed use complies with Rules of the Water Resources Commission. ORS 537.621(2); OAR 690-310-130. As set out below, the application meets the requirements of the statutory presumption.

Findings of Fact

Collins Products uses water from a well located on its property to make steam it needs for manufacturing at its wood products plants. Collins has a water right from the WRD (certificate 48602) for 1.34 cubic feet per second from this well for this use.

The proposed KCP would use water from the same well to make steam for Collins' use at its wood products plants which are located near the proposed KCP site. The steam that the proposed KCP would make and provide to Collins would reduce the amount of steam that Collins would otherwise need to make for itself. Thus, the production of steam for Collins by the proposed KCP would not result in an increase in water consumption.

However, the proposed KCP would make steam at a new location: the proposed site of the KCP power plant. This location is different from the locations where Collins now makes its steam. Collins' water right (certificate 48602) to use water for manufacturing is specific as to where and how the water may be used. It does not provide for the use of the water at the proposed site of the KCP power plant nor the use of the steam for power generation. Thus, the proposed KCP

must obtain a new water right to use Collins' water to make steam and to generate power at a new location: the proposed energy facility site for the KCP power plant.

On October 23, 1996 the city of Klamath Falls submitted an application to the WRD for a permit to appropriate groundwater (Number G-14400). The application requests an amount of water not to exceed 1.34 cubic feet per second (cfs) taken in conjunction with Collins' water right certificate 48602. That is, the maximum rate of water use from the well under both Collins' existing right and the amount requested by KCP would be 1.34 cfs. The request is for municipal use.

The WRD has reviewed the application for compliance with applicable state statutes and administrative rules and has recommended that a permit be issued with conditions. The WRD has also recommended conditions in a revised Draft Permit which it believes are necessary to insure that the proposed water use complies with applicable state statutes and the WRD's rules. The WRD recommends that these conditions be included in the Site Certificate, if granted. After its review, WRD issued a Proposed Order and Draft Permit. The Proposed Order included the findings of fact and conclusions of law required by ORS 537.621(3). No protest has been filed to date. The WRD submitted its Proposed Final Order and revised Draft Permit to the Council as its recommendation to the Council on the proposed use of water (WRD Agency Report, December 17, 1996, revised on February 6, 1997 to include the revised Draft Permit).

The proposal meets the requirements of the Ground Water Law and WRD rules for the following reasons:

- 1) The Klamath Basin Compact is a state and federal law which guides the WRD in issuing permits within the Klamath Basin. ORS 542.610. The Compact allows the use of water for municipal purposes. ORS 542.620. The WRC has not adopted a basin plan for the Klamath Basin.
- 2) Water is available for appropriation. A portion of the water currently used by Collins will be used by the city; no additional water will be needed. Therefore there is water available for this purpose.
- 3) The proposed use is not within a designated critical ground water area. With proper conditions, the proposed use will not interfere with surface water and will not reduce the necessary flows in the State Scenic Waterway below the well. The total amount of water currently used by Collins and the city will remain 1.34 cfs; no additional water will be used. Therefore, there will be no injury to other water rights.
- 4) The permit application meets applicable rules of the Water Resources Commission. The proposed use is not within a designated critical ground water area. OAR 629-200-027. There will be no interference with surface water. OAR 690-090-050. The proposed use is above a State Scenic Waterway, but will not impair the necessary flows for the waterway. OAR

690-310-260. The proposed use complies with the State Agency Agreement for land use. OAR 690-05-035.

Conclusions of Law

The Council concludes that the proposed use of ground water complies with the Ground Water Act of 1955 and the rules of the Water Resources Department.

Conditions related to the granting of a water right are listed in section VII.S. of this order.

V. A. 4. Public Health and Safety ORS 469.401(2)

The Requirement

Under ORS 469.310 the Council is charged with ensuring that the "siting, construction and operation of energy facilities shall be accomplished in a manner consistent with protection of the public health and safety..." State law further provides that "the site certificate shall contain conditions for the protection of the public health and safety..." ORS 469.401(2).

Findings of Fact

Aspects of public health and safety are addressed throughout this order in respect to Council standards and other state and local requirements. However, three issues are specifically addressed here. They are: 1) the potential for cooling tower fogging and/or icing to affect driving conditions on public roads; 2) the potential for public health hazards from the proposed KCP's use of wastewater for project cooling; and 3) the potential health concerns regarding electric and magnetic fields (EMF).

Cooling Tower Fogging and Icing.

The proposed KCP would use a mechanical draft evaporative cooling tower to dissipate excess heat. Operation of the cooling tower would result in release of water vapor and small droplets of water into the air. Under certain weather conditions, the release of cooling tower of moisture can result in a visible plume or cloud of condensed water vapor. If this cloud reaches ground level, it is known as "fogging". During freezing conditions the deposition of moisture from the cooling tower on ground-level surfaces can also result in icing. A potential concern is the possibility of icing or reduced visibility caused by cooling tower fogging to adversely affect driving conditions on public roads.

The applicant analyzed the potential for these impacts using standard computer models and historical weather data for the general area. The analysis predicted that ground-level fogging would occur for only one or two hours per year, primarily during winter months. The location of the fogging is predicted to be to the north and northeast and within one-half mile of the proposed

energy facility site. No fogging is predicted in the vicinity of publicly-traveled roads, including Highway 97. The analysis predicted that no occurrence of icing would result from the cooling tower.

Therefore, the operation of the cooling tower would not adversely affect driving conditions on public roads.

Public Health Hazards from Reuse of Wastewater.

The proposed KCP intends to reuse secondary treated wastewater (effluent) from the city of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP) for its cooling tower. A potential concern is the possibility that mist (aerosols) from the cooling tower could present a hazard to public health.

Wastewater from the SSWTP is currently discharged into the Klamath River in accordance with a federally delegated DEQ-issued NPDES permit. Before the proposed KCP may reuse SSWTP wastewater, DEQ must amend the NPDES permit for the SSWTP. In order to do that, DEQ must first approve a Reclaimed Water Use Plan for the KCP.

In response to requests from DEQ and OE, the KCP contacted operating power plants which use treated wastewater to determine if these had caused any health concerns. The KCP contacted four facilities that use treated wastewater in their cooling towers and have been in operation for more than ten years. These include two in Florida, one in Texas and one in southern California. (RMI January 20, 1997 letter to DEQ)

Based on its survey, the KCP found that the use of secondary treated wastewater has not resulted in the presence of pathogens in the cooling tower water or mist at any of the four facilities. The KCP believes that this would also be true at the proposed KCP for the following reasons: the proposed KCP would also use secondary treated wastewater; the SSWTP chlorinates its wastewater to kill pathogens prior to discharging it; the proposed KCP's cooling tower would be similar to those surveyed; and the proposed KCP would add additional biocides to the cooling water basin at the energy facility.

As part of its review and analysis of the proposed KCP's Reclaimed Water Use Plan, DEQ is evaluating the potential for public health risks from the proposed reuse of the SSWTP wastewater. DEQ will impose conditions if necessary to ensure that public health is protected. (D. Nichols, DEQ, pers. comm. to OE 2/2/97)

For these reasons the proposed KCP's reuse of secondary treated wastewater from the SSWTP is not expected to result in a public health hazard.

Electric and Magnetic Fields.

The proposed KCP would include a 230 kV electric transmission line. Electrical appliances and facilities such the proposed transmission line create electric and magnetic fields.

Electric Fields. Strong electric fields can induce electric currents in nearby objects, such as fences. If proper precautions are not taken, these can result in the potential for electric shocks to those who contact them.

The Council has adopted a limit for electric fields to address this concern. The limit is 9 kV per meter at one meter above the ground surface in areas that are accessible to the public (OAR 345-24-090(2)). The BPA guidelines for electric fields for its transmission lines are also a maximum of 9 kV per meter within the right-of-way, 5 kV per meter at the edge of the right-of-way, and 5 kV per meter at highway crossings (BPA "Red Book", revised 1993, Table 9, p. 58).

OE asked the applicant to calculate, using accepted industry methods, the electric fields at ground level that the proposed 230 kV line would produce. The predicted electric field levels range from a maximum of about 2 kV per meter directly under the conductors (the wires that carry the electrical current) to about 0.9 kV per meter at the edge of the right-of-way (62.5 feet from the centerline, or middle, of the proposed transmission line). (RMI 1/20/97 letter to OE, including PacifiCorp 1/10/97 letter)

These levels are within the limits set by the Council.

Magnetic Fields. In recent years there has been concern that exposure to magnetic fields, even at low levels, might cause health risks. This issue has been the subject of considerable scientific research and discussion.

The Council has previously considered this issue. (Final Order for the Hermiston Power Project, dated March 25, 1996; Report of the EMF Committee to the Energy Facility Siting Council, dated March 30, 1993; Final Report on Human Health Effects from Exposure to 60-Hz Electric and Magnetic Fields from High Voltage Power Lines to the Council, dated April 1990). Based on its review, the Council concluded that the credible evidence relating low levels of exposure to health risks was inconclusive, and that there was insufficient information upon which to set "health based" limits for exposure to magnetic fields. The Council recommended that, given the uncertainty as to health consequences, those who propose transmission lines under the Council's jurisdiction should use low-cost ways to reduce or manage public exposure to magnetic fields. This is sometimes referred to as "prudent avoidance."

Several other bodies have also considered this issue and have reached conclusions similar to those of the Council. In particular, the National Research Council (NRC) recently released the "prepublication copy" of its nearly three-year study of this issue. This study was requested by Congress in 1991. This report concludes that "the current body of evidence does not show that exposure to these fields presents a human-health hazard. Specifically, no conclusive and

consistent evidence shows that exposures to residential electric and magnetic fields produce cancer, adverse neurobehavioral effects, or reproductive and developmental effects." (NRC, 1996, p. 1).

The proposed route for the 230 kV line was selected to avoid as much as possible areas of high populations and areas of residential uses. Only two houses are within 140 feet (approximate) from the centerline of the proposed route. The proposed route also utilizes an existing, unoccupied transmission line right-of-way adjacent to an existing 230 kV line for about one-third of its length. Both of these measures are consistent with the Council's policy of "prudent avoidance".

For these reasons, the proposed KCP's 230 kV transmission line is consistent with the Council's policy of "prudent avoidance" and is consistent with protecting public health and safety.

Conclusions of Law.

The Council concludes that the siting, construction and operation of the proposed facility, subject to the conditions stated in this order, is consistent with protection of the public health and safety.

Conditions related to the Council's charge to protect public health and safety are listed in section VII.T. of this order.

V. B. Requirements Which Are Not Under EFSC Jurisdiction

V. B. 1. Federally-Delegated Programs ORS 469.503(3)

Under ORS 469.503(3), EFSC does not have jurisdiction for determining compliance for those statutes and rules for which the decision on compliance has been delegated by the Federal Government to a state agency other than the Council. However, the Council may rely on the determinations of compliance and the conditions in the federally-delegated permits issued by these state agencies in making its determinations as to whether the standards and requirements under the Council's jurisdiction are met.

The Council concludes that the following programs are not within its jurisdiction because they are federally delegated programs:

(1) the Air Contaminant Discharge Permit program administered by DEQ, which includes the federally delegated new source review requirements of the Clean Air Act and the Prevention of Significant Deterioration (PSD) program. This authority is in ORS Chapter 468A; OAR Chapter 340, Divisions 20, 21, 22, 25, and 31;

(2) the National Pollutant Discharge Elimination System (NPDES) permit program administered by DEQ - Water Quality Division, which regulates and permits stormwater runoff and discharges to public waters; and

(3) the program regulating the design, operation, monitoring and removal of underground storage tanks that contain certain toxic and hazardous materials, including petroleum products, administered by DEQ, under ORS Chapter 466,; OAR Chapter 340, Division 150.

**V. B. 2. Requirements Which Do Not Relate to Siting
ORS 469.401(4)**

Under ORS 469.401(4), EFSC does not have jurisdiction for determining compliance with state and local government programs that address design-specific construction or operating standards and practices that do not relate to siting. However, the Council may rely on the determinations of compliance and the conditions in the permits issued by these state agencies and local governments in making its determinations as to whether the standards and requirements under the Council's jurisdiction are met.

The Council concludes that, for the proposed KCP, the following state and local government programs are not within its jurisdiction because the programs address design-specific construction or operating standards and practices not related to siting:

(1) the Oil Spill Contingency and Prevention Plan program, administered by DEQ Water Quality Division under ORS 468B and OAR Chapter 340, Division 47, which regulates the transport, storage, handling and spill control and prevention of petroleum products;

(2) regulations of building, structure design and construction practices by the Oregon Building Codes Division under ORS Chapters 447, 455, 460, 476, 479, and 480; OAR Chapter 918, Divisions 225, 290, 301, 302, 400, 440, 460, 750, 770, and 780;

(3) various programs addressing fire protection and fire safety and the storage, use, handling, and emergency response for hazardous materials and community right to know laws for hazardous materials, administered by the Oregon State Fire Marshal's Office, under ORS Chapters 453, 476, and 480; OAR Chapter 837, Divisions 40 and 90;

(4) the program addressing design and safety standards for natural gas pipelines and electric transmission lines administered by the Oregon Public Utilities Commission, Safety Section under ORS Chapter 757; OAR Chapter 860, Division 24;

(5) regulations on the size and weight of truck loads on state and federal highways administered by the Oregon Department of Transportation under ORS Chapter 818; OAR Chapter 743, Division 82;

(6) the program regulating the possession, use and transfer of radioactive materials administered by the Oregon State Health Division (OSHD) under ORS Chapter 453; OAR Chapter 333, Divisions 100-119;

(7) regulations of domestic water supply systems regarding potability administered by OSHD under ORS Chapter 448;

(8) permits required from the Oregon Department of Transportation (ODOT) to "interconnect" the proposed construction and operation access road for the KCP into a state highway. ODOT has reviewed the proposed location of the access road interconnection with Interstate Highway 97 and has determined that it can grant a permit subject to certain conditions. Therefore, this is not a siting issue;

(9) permits required from ODOT to place a structure within, or to cross, a state highway right-of-way. The proposed routes of the transmission line and certain pipelines require crossing state highways and/or placement within state highway rights-of-way. ODOT has reviewed the proposed routes and each of the proposed crossings and locations within state highway rights-of-way. ODOT has indicated that, subject to certain conditions which would be specified after precise routing and detailed design are complete, each would be an acceptable location and that ODOT sees no reason why it could not grant approval for each of the proposed crossings and locations within state highway rights-of-way. Therefore, this is not a siting issue.

(10) an Industrial Wastewater Discharge Permit from the city of Klamath Falls to discharge KCP wastewater to the city's Spring Street Wastewater Treatment Plant;

(11) building permits required and administered by Klamath County.

VI. CONDITIONS REQUIRED BY COUNCIL RULES

The following conditions proposed for inclusion in the Site Certificate are specifically required by OAR 345-27-020 (Mandatory Conditions in Site Certificates), OAR 345-27-023 (Site Specific Conditions), OAR 345-27-028 (Monitoring Conditions), OAR 345-24-060 (Public Health and Safety Standards for Pipelines), OAR 345-24-090 (Design Standards for Transmission Lines) and in OAR 345, division 26 (Construction and Operation Rules for Facilities) to address project and site specific conditions and requirements. These conditions shall apply and should be read together with the additional specific conditions recommended in section VII of this order to ensure compliance with the siting standards of OAR 345 divisions 22, 23 and 24, and to protect the public health and safety.

In addition to all other conditions stated in this order, the Site Certificate holder is subject to all conditions and requirements contained in the rules of the Council and local ordinances and state law in effect on the date the Site Certificate is executed, except that upon a clear showing of a significant threat to the public health, safety or the environment that requires application of

later-adopted laws or rules, the Council may require compliance with such later-adopted laws or rules. ORS 469.401(2).

The Council recognizes that many specific tasks related to the design, construction, operation and retirement of the facility will be undertaken by the city of Klamath Falls' agents or contractors. However, the city, as the Site Certificate holder, shall be responsible for ensuring compliance with all provisions of the Site Certificate.

**VI. A. Mandatory Conditions in Site Certificates
OAR 345-27-020**

- (1) The Site Certificate holder shall submit to the Office a legal description of the site to be appended to the Site Certificate prior to construction.
- (2) The facility shall be designed, constructed, operated and retired:
 - (a) Substantially as described in the Site Certificate;
 - (b) In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the Site Certificate is issued; and
 - (c) In compliance with all applicable permit requirements of other state agencies.
- (3) Construction of the facility must begin and be completed by dates specified in the Site Certificate. These dates are specified in section VII.A. of this order.
- (4) No construction, including clearing of a right of way, except for the initial survey, may commence on any part of the facility until the certificate holder has adequate control, or has the statutory authority to gain control, of the lands on which clearing or construction will occur.
- (5) Prior to construction, the certificate holder shall submit to the State of Oregon, through the Council, a bond or comparable security, satisfactory to the Council, in an amount specified in the Site Certificate adequate to restore the site to a useful condition if the certificate holder:
 - (a) Begins but does not complete construction of the facility; or
 - (b) Permanently closes the facility before establishing a financial mechanism or instrument, satisfactory to the Council, that will assure funds will be available to adequately retire the facility and restore the site.

The comparable security which the Council determines to be satisfactory is provided in section VII.D. of this order.

Conditions (6) and (7) do not apply to the proposed facility.

- (8) If mitigation is required after an affirmative finding by the Council under any standards of division 22 or division 24 of this chapter, the certificate holder, in consultation with affected state

agencies and local governments designated by the Council, shall develop specific mitigation plans consistent with Council findings under the relevant standards. Such plans must be approved by the Office prior to the beginning of construction or, as appropriate, operation.

(9) The certificate holder shall prevent any condition over which the certificate holder has control from developing on the site that would preclude restoration of the site to a useful condition.

(10) Conditions related to facility retirement and site restoration:

(a) The certificate holder shall establish a financial mechanism or instrument, satisfactory to the Council, that will assure funds will be available to adequately retire the facility and restore the site. The financial mechanism which the Council determines to be satisfactory is provided in section VII.D. of this order;

(b) At least five years prior to planned retirement of the facility, the certificate holder shall submit a retirement plan to the Council for approval. The plan shall describe how the site will be restored adequately to a useful condition, including options for post-retirement land use, information on how impacts to fish, wildlife and the environment will be minimized during the retirement process and measures to protect the public against risk or danger resulting from post-retirement site conditions; and

(c) The facility shall be retired after its useful life in accordance with the approved final retirement plan, pursuant to OAR 345-27-110.

(11) The Site Certificate shall include as conditions all representations from the Application for Site Certificate and the supporting record deemed by the Council to be binding commitments on the part of the applicant. Sections of the Application and supporting record may be incorporated directly or by reference.

The conditions which the Council deems to be binding commitments on the part of the applicant and are to be included in the Site Certificate are listed in section VII. of this order.

(12) The certificate holder shall restore vegetation to the extent practicable and shall landscape portions of the site disturbed by construction in a manner compatible with its surroundings and/or proposed future use. Upon completion of construction, the certificate holder shall dispose of all temporary structures not required for future use and all timber, brush, refuse and flammable or combustible material resulting from the clearing of land or from construction of the facility.

(13) The facility shall be designed, engineered and constructed to avoid potential dangers to human safety presented by seismic hazards affecting the site as defined in ORS 455.447(1)(d), and including amplification, that are expected to result from the reasonably probable seismic event.

VI. B. Site Specific Conditions OAR 345-27-023

(1) The certificate holder shall notify the Office, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the Application for Site Certificate. The Council may, at such time, require the certificate holder to propose additional mitigating actions in consultation with the Department of Geology and Mineral Industries and the Building Codes Division.

(2) The certificate holder shall notify the Office, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site.

Conditions (3) and (4) do not apply to the proposed facility.

(5) The certificate holder shall restore the reception of radio and television at residences and commercial establishments in the primary reception area to the level present prior to operations of the transmission line, at no cost to residents experiencing interference resulting from the transmission line.

Condition (6) does not apply to the proposed facility.

VI. C. Monitoring Conditions OAR 345-27-028

(1) The certificate holder shall establish, in consultation with affected state agencies and local governments, monitoring programs as provided in section VII of this order for impact on resources protected by the standards of chapter 345, division 22 and 24 and to ensure compliance with the Site Certificate. The programs shall be subject to the review and approval of the Council.

(2) For each monitoring program that it establishes, the certificate holder shall have quality assurance measures that are reviewed and approved by the Office of Energy prior to commencement of construction or commencement of commercial operation, as provided in section VII of this order.

(3) If the certificate holder becomes aware of a significant environmental change or impact attributable to the facility, the certificate holder shall submit to the Office of Energy as soon as possible a written report identifying the issue and assessing the impact on the facility and any affected Site Certificate conditions.

VI. D. Requirements for Gas Pipelines and Transmission Lines

For the purposes of conditions VI.D. OAR 345-24-060(2)-(5), "pipelines" means the KCP 300 foot (approximately) natural gas interconnection between the proposed energy facility and the PGT Medford lateral pipeline.

345-24-060 (2) Pipelines shall be constructed in accordance with the requirements of the U.S. Department of Transportation as set forth in Title 49, Code of Federal Regulations, Part 192.

(3) Pipelines shall be designed so that noise resulting from operation of compressor stations and other related or supporting facilities shall not violate standards specified in OAR chapter 340, division 35.

(4) Pipelines shall have mechanical structures that allow the pipeline to be sealed off, in the event of leakage, in a manner that will minimize the release of flammable materials. This is rebuttably presumed to be satisfied by the requirements of Title 49, Code of Federal Regulations, Part 192.

(5) The certificate holder shall develop a program using the best available practicable technology to monitor pipelines to ensure protection of public health and safety.

For the purposes of conditions VI.D. OAR 345-24-090(2)-(4), "transmission line" means the KCP 4.5 mile (approximately) 230 kV transmission line from the energy facility to the PP&L Klamath Falls substation.

345-24-090 (2) The transmission line shall be designed so that alternating current electric fields shall not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public.

(3) The transmission line shall be designed so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable. The applicant must develop and implement a program which shall provide reasonable assurance that all fences, gates, cattleguards, trailers, or other objects or structures of a permanent nature that could become inadvertently charged with electricity shall be grounded through the life of the line.

(4) The transmission line shall be designed, constructed, and operated in a manner consistent with the 1993 edition of National Electrical Safety Code (American National Standards Institute, Section C2, 1993 Edition).

VI. E. Construction and Operation Rules for Facilities OAR 345-26

Compliance Plans

345-26-040 Following receipt of the Site Certificate or an amendment of the Site Certificate, the Site Certificate holder shall implement a plan which verifies compliance with all Site Certificate terms and conditions and applicable statutes and rules. This shall be documented and maintained for Office or Council inspection.

Annual Status Report for Non-nuclear Facilities

345-26-080(1) General Reporting Obligation for non-nuclear facilities:

(a) Each certificate holder shall, within 120 days of the end of each calendar year, submit an annual report to the Council addressing the subjects listed in this rule. The reporting date may be changed by mutual agreement of the Council Secretary and the certificate holder.

(b) To the extent that information required by this rule is contained in reports the certificate holder submits to other state, federal or local agencies, excerpts from such other reports may be submitted to satisfy this rule. The Council reserves the right to request full copies of such excerpted reports.

(2) Contents of Annual Report:

(a) Facility Status: An overview of site conditions, the status of facilities under construction, and a summary of the operating experience of facilities which are in operation. This section of the annual report shall describe any unusual events, such as earthquakes, extraordinary windstorms, major accidents, or the like, which occurred during the year and which had a significant adverse impact on the facility.

(b) Reliability and Efficiency of Power Production: For electric power plants,

(A) The plant availability and capacity factors for the reporting year. If equipment failures or plant breakdowns had a significant impact on those factors, describe them and plans to minimize or eliminate their recurrence.

(B) The efficiency with which the power plant converts fuel into electric energy. If fuel chargeable to power heat rate was evaluated when the facility was sited, efficiency shall be calculated using the same formula and assumptions, but using actual data.

(c) Status of Surety Information: The annual report shall provide documentation demonstrating that the bond or other security provided under OAR 345-27-020(5) is in full force and effect and will remain in full force and effect for the term of the next reporting period.

(d) Industry Trends: The annual report shall discuss any significant industry trends that may affect the operations of the facility.

(e) Monitoring Report: A list and description of all significant monitoring and mitigation activities performed during the previous year in accordance with Site Certificate terms and conditions, a summary of the results of those activities, and a discussion of any significant changes to any monitoring or mitigation program, including the reason for any such changes.

(f) Compliance Report: The certificate holder shall report all instances where it has not complied with a Site Certificate condition. For ease of review, this section of the report shall use numbered subparagraphs corresponding to the applicable sections of the Site Certificate.

(g) Facility Modification Report: The report shall summarize changes to the facility which the certificate holder has determined do not require a Site Certificate amendment in accordance with OAR 345-27-050.

Schedule Modification

345-26-100 The certificate holder shall promptly notify the Office of any changes in major milestones for construction, decommissioning, operation, or retirement schedules. Major milestones shall be as identified by the certificate holder in its construction, retirement or decommissioning plan.

Correspondence With Other State or Federal Agencies

345-26-105 The Site Certificate holder and the Office shall exchange copies of all correspondence related to compliance with statutes, rules and local ordinances on which the Council determined compliance, except for material withheld from public disclosure under state or federal law or under Council rules. Abstracts of reports may be submitted in place of full reports; however, full copies of abstracted reports must be provided at the request of the Office.

Construction Report

345-26-125 During construction of the energy facility and related or supporting facilities, the certificate holder shall submit semiannual Construction Progress Reports to the Council. Any significant changes to major milestones for construction shall be highlighted in the report. The report shall contain such information related to construction as specified in the Site Certificate.

Notification of Incidents

345-26-170(1) The Site Certificate holder shall notify the Office within 72 hours of any occurrence involving the facility if:

- (a) There is an attempt by anyone to interfere with its safe operation;
- (b) A natural event such as an earthquake, flood, tsunami or tornado, or a human-caused event such as a fire or explosion affects or threatens to affect the public health and safety or the environment;
- (c) There is any fatal injury at the facility.

VII. CONDITIONS REQUIRED FOR THIS FACILITY

The following conditions are presented by subject area only as an aide to their use and shall apply and should be read together. Where appropriate, citations in parentheses show the basis of the condition.

VII. A. General Conditions

VII. A. 1. The conditions in section VII.A.1. are based on statements that PKE made in its ASC (November 6, 1996) or in other correspondence with OE.

1. The general arrangement of the KCP energy facility shall be substantially similar to that shown in the ASC, Figure B-3 which is attached as appendix A to this order.
2. The energy facility and its related or supporting facilities shall be located as shown in the ASC, Figure C-1 which is attached as appendix B to this order.
3. The KCP fuel oil storage tank shall be surrounded by a secondary containment structure with a barrier of sufficient non- permeability and sufficient volume to contain the full contents of the tank and precipitation and comply with the applicable provisions of 40 CFR Part 112 and OAR chapter 340, division 47. The tank secondary containment area shall have a fire protection system that complies with applicable NFPA standards for fuel oil storage. (ASC, B-2, F-6)
4. The energy facility shall include a fire protection pump house and a fire suppression system. (ASC, B-2)
5. KCP tanks which store hazardous substances as defined in ORS chapter 465 shall have secondary containment with a barrier of sufficient non-permeability and sufficient volume to comply with applicable federal and Oregon laws pertaining to the storage of such hazardous substances. (ASC, B-2)
6. The energy facility structures shall be architecturally designed to be visually compatible with the surrounding area and the energy facility site shall including landscaping. (ASC, B-3)
7. The combustion turbine shall be surrounded with an acoustically insulated enclosure to reduce noise levels to acceptable occupational exposure levels and to provide containment for automatic fire suppression equipment. (ASC, B-5)
8. The steam turbine condenser system shall include a non- condensable gas removal system and shall be designed to condense all steam from the HRSG in the event a steam turbine trip occurs. (ASC, B-6)
9. The condenser system shall include redundant condensate pumping capability substantially similar to that described in the ASC, page B-6.
10. The cooling tower shall include a fire protection system in accordance with applicable NFPA standards pertaining to the specific materials selected for the cooling tower. (ASC, B-6)
11. The cooling tower makeup water pumping station shall include redundant pumping capability substantially similar to that described in the ASC, page B-7.

12. The boiler and cooling tower chemical treatment storage areas shall include secondary containment with a barrier of sufficient non-permeability and sufficient volume to contain any chemical from spills or tank failures. (ASC, B-7, F-4)
13. The energy facility shall have a state-of-the-art, integrated microprocessor-based control system substantially similar to that described in the ASC, page B-7.
14. The energy facility control system shall include an uninterruptible power supply to provide emergency power to critical equipment in the event of a power outage. (ASC, B-8)
15. The proposed 230 kV transmission line shall incorporate design features to prevent electrocution of raptors. The line shall use H-frame wood pole structures except where the KCP determines that single pole structures are necessary. Wood pole H-frame structures shall be about 75 feet in height above the ground surface. Single pole structures may be of wood or steel and shall be about 95 feet in height above the ground surface. Taller structures may be used under special conditions such as highway crossings, angle points and where necessary to address property owner concerns. Steel pole structures shall be a brownish color with a non-reflective surface. (ASC, B-8; H. Ferris, PPL, pers. comm. to OE 1/23/97, 3/4/97)
16. The energy facility shall include a fire protection system substantially similar to that described in the ASC, page B-9.
17. Regenerant wastewater from mixed bed demineralizers shall be neutralized and combined with cooling tower blowdown and discharged to the city's municipal wastewater system substantially as described in the ASC, page B-9.
18. The energy facility shall include a stormwater drainage system substantially as described in the ASC, pages B-10 and V-3.
19. KCP hazardous solid wastes shall be managed in accordance with applicable local and state regulatory standards and requirements and substantially as described in the ASC, page B-10.
20. KCP non-hazardous solid wastes shall be managed substantially as described in the ASC, page B-10.
21. Stormwater collected at the energy facility site, but away from equipment locations, shall be discharged to an on-site stormwater retention/evaporation pond. (ASC, F-3)
22. The wastewater pumping station at the energy facility site shall include redundant pumping capability substantially as described in the ASC, page B-10.

23. The facility shall comply with the list of applicable federal, state and local safety codes and standards, as described in the ASC, pages B-13 and 14, as modified by the comments of the Building Codes Division Agency Report, dated December 9, 1996, Interoffice Memo dated December 13, 1996 from R. Tamerhoulet to M. Long.
24. KCP construction-related waste materials shall be managed and disposed substantially as described in the ASC, pages F-1 and 2.
25. The KCP shall recycle to the extent reasonably practicable spent lube oil and hydraulic fluids from major equipment. (ASC, F-4)
26. All energy facility site area drains which are reasonably likely to contain oil contamination shall be routed to the oil/water separator. Skimmed oil from the separator shall be provided to a licensed oil recycler. (ASC, F-4)
27. The KCP shall provide a concrete basin at each large electrical transformer to capture any oil that might spill during a transformer failure or maintenance operation. Spilled oil and replaced oil shall be recycled to the extent reasonably practicable. (ASC, F-4)
28. The energy facility site natural gas fuel system shall be designed, constructed and operated substantially as described in the ASC, page F-6.
29. The KCP shall manage non-fuel hazardous substances and shall include facilities substantially as described in the ASC, pages F-6 and F-7.
30. The KCP shall meet or exceed the safety and health requirements listed in the ASC, page F-7.
31. Before commencing construction, the city shall obtain an NPDES General Permit 1200-C for construction of the facility. (ASC, M-1)
32. Before commencing construction, the city shall obtain an amendment to its NPDES permit for the Spring Street Wastewater Treatment Plant to allow the reuse of effluent for the KCP. (ASC, M-1)
33. Before commencing construction, the city shall obtain an Air Contaminant Discharge Permit for the facility.
34. The proposed 230 kV electric transmission line shall be designed to operate within the acceptable signal to noise ratios associated with clear signal reception for radio and television. (ASC, W-1)

35. Ground disturbance from construction of the KCP shall be limited to: the proposed energy facility site; a temporary construction parking and laydown area near the proposed energy facility site substantially as shown in the ASC, Fig. X-2; transmission line pole/structures and associated access roads, pulling areas, and construction areas; and a 40-foot width (approximate) for pipeline burial and construction equipment access which shall be located within construction rights-of-way. (ASC, N-27 and X-1)

36. The facility shall not construct or use an underground storage tank. (RMI 12/20/96 letter to OE)

VII. A. 2. The conditions in section VII.A.2. are not based on representations that PKE made in its ASC or in other correspondence with OE.

37. The KCP may burn only low-sulfur oil as a backup fuel. Notwithstanding condition VII.B.24 of this order, the use of backup fuel shall not exceed 10 percent of the expected fuel use in British thermal units, higher heating value on an annual basis, assuming a combustion turbine capacity factor of 93 percent and annual average conditions (48 degrees F) adjusted for site elevation. (ASC, B-11)

38. Construction of the facility shall commence on or before 30 months from the date the Site Certificate is executed.

39. Construction of the facility shall be completed on or before five years from the date the Site Certificate is executed. Construction completion of the facility shall be the commercial operation date of the facility.

40. The Council may grant an extension of the construction commencement date and the construction completion date in accordance with OAR 345-27-030, or any successor rule, in effect at the time the request for extension is requested.

41. The city shall provide to OE as part of any request to amend the Site Certificate a list of the names and mailing addresses of all owners of record, as shown on the most recent property tax assessment roll, of property located within the site, and within 100 feet of the site where the site is within an urban growth boundary, and within 250 feet of the site where the site is outside an urban growth boundary and not within a farm or forest zone, and within 500 feet of the site where the site is within a farm or forest zone. "Site" as used herein means all land upon which the facility is located and includes the energy facility site and all land upon which related or supporting facilities are located.

42. The city or its authorized representative shall report to OE within 72 hours of discovery any material violation of any condition of the Site Certificate by the city or any of its contractors, subcontractors or agents. The city or its authorized representative shall report to OE within 24

hours of discovery if the city or any of its contractors, subcontractors or agents creates any condition by construction or operation of the facility that endangers the public health and safety.

VII. B. 500 MW Exemption

In interpreting the conditions in section VII.B. of this order, any ambiguity will be clarified by reference to, and in the following priority, this order, the 500 megawatt final Order and, if necessary, the record of the proceedings which led to those Orders. For these conditions, the index by which the future value of money shall be converted to 1996 or 1998 dollars shall be the Implicit Price Deflator for the Gross Domestic Product as published by the U.S. Bureau of Economic Analysis of the Department of Commerce or a successor agency. These values are published annually each February in the "Economic Report of the President".

1. KCP shall make available to its steam host at least 200,000 pounds of steam per hour on an annual basis. The average steam pressure shall be not less than 375 pounds per square inch gauge. The average steam temperature shall be not greater than 455 degrees F. The amount, temperature and pressure of steam supplied shall be measured at the point of interconnection of the energy facility with the steam host. KCP shall report this information to the Council on an annual basis.

KCP's steam host shall use at least 200,000 pounds of steam per hour on a five year basis, measured in discrete, successive five-year periods. "Use" of the steam means that the steam is used to displace another source of carbon dioxide emissions from fossil fuels that would have otherwise occurred or continued to occur. At the end of each five year period following commercial operation, KCP shall determine and report to the Council the hourly average steam delivered to its steam host for the applicable five year period. Should the hourly average steam used by KCP's steam host be less than 200,000 pounds per hour, KCP shall develop, present to the Council for approval, and implement a plan to make available and sell to another steam user the amount of steam not used by KCP's existing steam host at the same or similar cost incentive as provided to KCP's existing steam host. If within twelve months after Council approval, KCP has not contracted to make available and sell to another steam user the amount of steam not used by KCP's existing steam host, then KCP shall develop, present to the Council for approval, and implement a program to offset an amount of CO₂, NO_x or PM-10, or any combination thereof, equivalent to the monetized incremental emissions resulting from the steam host's use of less than an average of 200,000 pounds of steam per hour. In any event, KCP shall offset an amount equivalent to the monetized incremental emissions resulting from the steam host's use of less than an average of 200,000 pounds of steam per hour, measured on a five year basis, for 30 years. Calculations of monetized emissions shall use the same methodology and monetary values of emissions employed in the 500 megawatt exemption final order.

2. KCP shall provide to the Council an executed steam sales contract with its steam host before beginning construction.

3. Before commencing construction, KCP shall establish an interest bearing escrow account in the amount of \$3.1 million, in 1998 dollars, for implementation of the offset portfolio described in its Request for Exemption. Any interest accrued in the account shall be used to implement the offset portfolio.
4. Before commencing construction, KCP shall commence good faith implementation of its offset portfolio described in its Request for Exemption.
5. If the facility does not achieve the milestone of commercial operation, KCP's obligation to further fund and implement the offset portfolio shall end and any remaining funds shall revert to KCP. The facility will be deemed to achieve the milestone of commercial operation when KCP accepts the facility as available for commercial operation from the facility's constructor.
6. Before commencing construction, KCP shall make available a contingency account in the amount of \$300,000 in 1996 dollars. The funds shall be placed in an interest bearing account, and accrued interest shall be available to address contingencies as provided in this condition. The contingency account may be drawn upon in years 10, 20 and 30 to provide additional funding in the event the mitigation portfolio is not meeting projections, within 10 percent. In the event actual CO₂ mitigation is less than 90 percent of projected CO₂ offsets after 10, 20 and 30 years, and if cogeneration or other offsets do not compensate for this shortfall (including offsets resulting from reduced methane emissions based on the then-prevailing IPCC CH₄-CO₂ equivalency factor), KCP shall use the contingency fund to implement additional CO₂ offsets. The amount used shall be sufficient to make up the deficiencies in meeting projected CO₂ offsets to the extent possible with the available contingency funds. The contingency fund available in years 20 and 30 shall comprise the fund less funding draws in years 10 and 20, respectively. Any unused portion of the fund shall revert to the project after year 30.
7. Any financial returns, including the return of capital investment along with accrued interest, associated with implementation of KCP's carbon offset portfolio during the first 30 years shall be reinvested in carbon offset portfolio activities as proposed in the request for exemption. At year 30, KCP shall consult with the Council regarding the disposition of any financial returns after year 30. At the Council's discretion, these returns may either be invested in additional CO₂ mitigation activities or may be redirected to other environmental purposes.
8. On implementation of its offset portfolio, KCP shall undertake the offset monitoring and verification programs described in its Request for Exemption. KCP will make available up to \$50,000 per year, in 1998 dollars, for this monitoring and verification program. KCP shall use the monitoring and verification funds to provide monitoring and verification adequate to meet the requirements of the Site Certificate conditions.
9. KCP shall make its offset portfolio financial records available for auditing by the Council or a designated party for the life of the facility, provided that the cost of such auditing shall be paid by the Council.

10. Based on the monitoring and verification programs in Condition 8, KCP shall report as follows. KCP shall annually report offset performance to the Council and the U.S. Department of Energy Section 1605(b) greenhouse gas registry, for 30 years. Every five years for 30 years KCP shall report to the Council offset portfolio performance, associated CO₂ and methane benefits, and explain changes from the offset benefits projected in the Council's analysis of KCP's request for exemption. KCP shall report, among other things, actual or estimated carbon dioxide offsets achieved, the quantity and type of each offset measure, and the expenditure of funds for each type of measure in the offset portfolio.

11. KCP shall consult with the Council on an ongoing basis regarding portfolio emphasis and performance. As requested by the Council, and to the extent made possible by in-place agreements, KCP shall reallocate available funds among its portfolio or other projects requested by the Council.

12. Subject to potential reallocation of funds described in Condition #11, of the \$3.1 million in the escrow fund, \$0.5 million shall fund the Solar Electric Light Fund (SELF), \$1.5 million shall fund the Oregon Forest Resources Trust (FRT), \$1.0 million shall fund new projects to generate electricity with otherwise waste methane, and \$0.1 million shall fund geothermal heating projects in Klamath Falls, Oregon, as described in the Request for Exemption.

13. KCP shall commit \$1.0 million of the \$3.1 million escrow fund to fund new projects to generate electricity with otherwise waste methane from sewage treatment plants and coal mines. The projects shall be administered by Northwest Fuel Development, Inc., or an equivalent contractor, at KCP's discretion. Net revenues, which are total revenues less operating costs, from the operation of each electrical generation facility shall, for a period of ten years, be returned to a Revolving Investment Fund (RIF) established by KCP. KCP shall structure the RIF so that net revenues from each installation financed by KCP's original capital investment will be used to finance installation of additional sewage treatment plant and coal mine methane generating facilities for a period of ten years as described in the Request for Exemption. The RIF shall be structured so that KCP (or the RIF manager) will monitor performance of the contractor and the installations, track revenues and offsets attributable to RIF-financed systems, and ensure revenues will, for a period of thirty years, be used to finance installation of additional generating equipment. KCP (or the RIF manager) shall track the number of installations attributable to the RIF and report regularly to the Council on the performance of the RIF. KCP shall establish management or contractual controls of the contractor to provide long-term control of the Fund and the methane project.

14. KCP shall commit \$0.5 million of the \$3.1 million escrow fund into a Revolving Investment Fund for photovoltaics as described in the Request for Exemption. The Fund shall be structured to provide capital to PV companies identified by the SELF. The solar projects shall be in India, Sri Lanka or China unless KCP demonstrates to the Council a better location for the PV projects. KCP shall structure the Fund so that, as revenues from the systems financed by KCP's

working capital come into the companies, those revenues will be used to finance installation of additional PV systems. The Fund shall be structured so that SELF (or the Fund manager) shall monitor performance of the companies, track the revenues attributable to Fund-financed systems, and ensure those revenues will be used to finance installation of additional PV systems. SELF (or the Fund manager) shall track the number of PV systems financed by the RIF and report regularly to KCP on the performance of the RIF. KCP shall establish management or contractual controls of the Fund and the PV firms to provide long-term control of the Fund and the PV project.

15. KCP shall commit \$0.1 million of the \$3.1 million escrow fund to fund geothermal heating projects in Klamath Falls, Oregon. KCP shall establish a revolving credit fund that will loan money to assist in the hookup of buildings in downtown Klamath Falls to the geothermal heating system. The loans shall be structured for repayment to the fund within three years. Repaid loan amounts shall be used to fund hook up of additional buildings to the geothermal heating system. The fund shall be structured so that KCP or the city of Klamath Falls will track revenues and offsets attributable to the fund and ensure that repaid loan amounts are used to hook up additional buildings to the geothermal heating systems.

16. KCP shall commit \$1.5 million of the \$3.1 million to the FRT. KCP shall pursue new funding to match these funds on a 3:1 basis.

17. KCP shall report as "matching funds" under the FRT proposal only those funds for which the funding entity does not claim, and certifies that it will not claim, offset credit.

18. FRT funds attributed to KCP's offset proposal shall be used to plant Site Class II lands for the first 6,250 acres.

19. The Council shall hold in trust for KCP all CO₂ credits, including CO₂ credits submitted for inclusion in the Section 1605(b) database, that KCP receives from Project offsets. The credits shall be available for use by KCP. The credits shall not be sold.

20. The annual water use by the facility shall meet the following requirements:

- a. The facility shall not use more than 160 gallons per minute (gpm) on an annual average basis (8,760 hours) from sources other than Spring Street Wastewater Treatment Plant (SSWTP) effluent during all times when the SSWTP is permitted to deliver effluent to the facility. This limit shall not include water supplied as steam to the steam host.
- b. All other water used by the facility shall be effluent from the SSWTP, except when the SSWTP is not allowed to deliver effluent to the facility. During such times the facility shall use only storm water collected on site, or in the event storm water is not available, another temporary source of backup water approved by the Council.

c. Facility wastewater flows shall all be delivered to a sanitary sewer for delivery to the SSWTP. Should the city modify its SSWTP NPDES permit to allow alternative wastewater treatment, disposal, and/or reuse, the wastewater will be returned to the city in compliance with the then prevailing conditions of the city NPDES permit in effect at the time.

21. Before beginning construction, KCP shall provide to the Council the plant performance guarantee from the executed contracts for the design and construction of the facility showing a net full power heat rate of no greater than 6795 Btu per kWh (HHV) at average annual conditions with no steam load and using natural gas as the fuel, which shall include liquidated damages provisions adequate to enforce the guarantee. KCP shall, as part of the post-construction completion compliance status certification report, provide capacity and heat rate performance test data showing that the nominal electric generating capacity of the energy facility is no more than 318 MW and that the heat rate is no more than 6795 Btu per kWh (HHV) with no steam load and using natural gas as the fuel.

22. Within two months after the completion of the first full year of commercial operation of the energy facility, KCP shall report to the Council the energy facility's net full power heat rate as determined by a 100 hour test. Such test will be completed within one year of commercial operation of the energy facility. Based on such test KCP shall certify the net full power heat rate of the energy facility. The net full power heat rate shall be measured as the total fuel input divided by the net kWh production over the 100 hour test period, adjusted for difference between the actual ambient site conditions and average annual conditions. If the adjusted net full power new and clean heat rate is greater than the Target Heat Rate of 6,795 Btu (HHV) per kWh with no steam supplied to the steam host and natural gas as the fuel or 7,212 Btu (HHV) per kWh for 200,000 pounds of steam per hour exported and natural gas as the fuel, or a linear interpolation or extrapolation of these values (at average annual ambient conditions based on steam at a pressure of 375 pounds per square inch gauge and a temperature of 455 degrees fahrenheit, in each case measured at the point of interconnection of the energy facility with the steam host), KCP shall perform a second 100 hour test no later than one year following the completion of the first 100 hours test. If, following the second 100 hour test, the net full power heat rate exceeds the adjusted new full power heat rate just described, then KCP shall develop, present to the Council for approval, and implement, a program to offset the incremental CO₂ emissions resulting from the higher heat rate. The higher heat rate demonstrated by the second 100 hour test shall then become the Target Heat Rate.

23. KCP shall, for each calendar year following the year in which the 100 hour test described above is completed, certify to the Council, based on a 100 hour test conducted as described in condition number 22 that the net full power heat rate is no greater than three percent above the heat rate. In the event that KCP fails to make such certification, within sixty days following the end of each calendar year, KCP shall, at its option, either:

(1) within 17 months, implement corrective measures to achieve a net full power heat rate of not more than one and one-half percent greater than the heat rate (based upon a 100 hour heat rate test as described in condition number 22); or.

(2) develop, present to the Council for approval, and implement, a program to offset the incremental CO₂ emissions resulting from the new, higher heat rate in which case the new, higher heat rate shall become the Target Heat Rate.

24. The unit shall be fueled solely with natural gas or with synthetic gas with a carbon content per MMBtu no greater than natural gas except that oil may be used for steam and power production for no more than an average of 360 hours per year calculated on a rolling average of the previous five years. This 360-hour limit does not apply to the use of oil in the auxiliary boiler.

VII. C. Organizational, Managerial and Technical Expertise

1. The city of Klamath Falls shall retain a qualified firm or firms to assist it in developing, constructing and operating the KCP as described in this order.

2. The city of Klamath Falls shall promptly notify the Council if for any reason PGC, or its affiliates, does not provide the services to develop, construct and operate the KCP described in this order.

3. The city of Klamath Falls shall retain a fully-qualified engineering, construction and procurement (EPC) firm to construct the KCP.

4. Prior to construction, the city shall identify for the Council the EPC contractor chosen to construct the facility. Prior to commercial operation, the city shall identify for the Council the contractor chosen to operate the facility. The city shall report to the Council any change in EPC contractor or operator.

5. Any matter of non-compliance under the Site Certificate shall be the responsibility of the city. Any notices of violation issued will be issued to city. Any civil penalties levied shall be levied on the city.

6. The city shall contractually require the EPC contractor and all independent contractors and subcontractors involved in the construction and operation of the facility to comply with all applicable laws and regulations and with the terms and conditions of the Site Certificate. Such contractual provision shall not operate to relieve the city of responsibility under the Site Certificate.

VII. D. Financial Assurance

For conditions 3, 4 and 5 in section VII.D. of this order, the index by which the future value of money shall be converted to 1996 dollars shall be the Implicit Price Deflator for the Gross Domestic Product as published by the U.S. Bureau of Economic Analysis of the Department of Commerce or a successor agency. These values are published annually each February in the "Economic Report of the President".

1. The city will not, without the Council's prior written consent, amend the Bond Indenture in a manner that would prevent the Project from using the Construction Fund or the Reserve and Contingency Fund to pay for termination or decommissioning costs.

2. The city will not, without the Council's prior written consent, amend the Bond Indenture to authorize a Reserve and Contingency Fund Requirement of less than \$2.5 million.

3. The city agrees to cause the Project to maintain either in the Reserve and Contingency Fund, or in a separate fund established to provide for termination or decommissioning costs, a balance of cash and Investment Securities equal to \$5 million in 1996 dollars to be available to pay costs of termination or decommissioning, including site restoration, of the project ("Termination Funds"). Amounts in the two funds may vary, but their combined value shall be \$5 million in 1996 dollars. Funds in the separate fund established by this condition shall be only invested in Investment Securities authorized under the Bond Indenture. The city shall be responsible for managing the separate fund. The city may arrange for the Trustee to manage the separate fund or the city may manage the separate fund as it manages its other bond or capital project funds.

4. The Reserve and Contingency Fund may be drawn upon by the Project for the following purposes i) to make up deficiencies in the Bond Reserve Fund, ii) payment for costs of renewals, extraordinary repairs, replacements, modifications, additions, betterments for the Project, and the payment of the costs of any decommissioning or termination of the Project, or iii) the payment of the extraordinary operation and maintenance costs of the Project and the cost of preventing or correcting any unusual loss or damage (including major repairs) to the Project. The separate fund established under condition VII.D.3. may be drawn upon by the Project for only termination or decommissioning costs, including site restoration. The Termination Funds may not be drawn below \$5 million in 1996 dollars unless, prior to such draw, the city causes to be delivered to the Council a performance and payment bond, surety bond or letter of credit in the amount necessary to provide that the balance of cash, Investment Securities and such bond(s) or letter of credit equals \$5 million in 1996 dollars. In addition, such bond(s) or letter of credit must be reasonably satisfactory to the Office of Energy.

5. In lieu of funding part or all of the \$5 million, in 1996 dollars, requirement with cash or Investment Securities, the city may cause a performance and payment bond, surety bond or letter of credit to be delivered to the Council which bond(s) or letter of credit must be reasonably satisfactory to the Office of Energy.

VII. E. Land Use

1. The KCP shall mitigate visual impact of the facility as viewed from Highway 97 by using neutral color schemes and landscaping. (Klamath County Conditional Use Permit 29-95)
2. Noise levels from the KCP shall not exceed those currently generated by neighboring Collins' facilities. (Klamath County Conditional Use Permit 29-95)
3. Access to the energy facility site for construction and operation shall be from Highway 97 and shall be subject to Oregon Department of Transportation approval. In the event such approval is not obtained and the applicant proposes to access the site through West Klamath such access shall be subject to hearing and review by this Hearings Officer on the limited issue of access only. (Klamath County Conditional Use Permit 29-95) Such review by the Hearings Officer does not eliminate the need for Council review, if otherwise required.
4. Any performed work or construction on Oregon Department of Transportation right-of-way as a result of the KCP shall require application and permits from ODOT. (Klamath County Conditional Use Permit 54-97 and City of Klamath Falls' Conditional Use Permit 6-CUP-96)
5. The KCP shall obtain all necessary permits from the city of Klamath Falls and Klamath County prior to operation and shall comply with all applicable codes and regulations. (City of Klamath Falls' Conditional Use Permit 6-CUP-96)
6. Any changes in or alternations to the electric transmission line corridor or alignment on lands within the city of Klamath Falls' jurisdiction shall be approved by the Klamath Falls' Planning Division prior to construction. (City of Klamath Falls' Conditional Use Permit 6-CUP-96) Such review by the Hearings Officer does not eliminate the need for Council review, if otherwise required.

VII. F. Structural

1. The KCP shall maintain the stability of the existing fill slopes by ensuring that surface water runoff is controlled and directed away from the slopes and by locating heavy loads and foundations at least 20 feet from the crest of existing fill slopes. (ASC, page G-17, G.1)
2. The KCP shall locate transmission line structures away from rockfall areas or design the structures to withstand rockfalls. (ASC, page G-17, G.1)
3. The foundations of the KCP energy facility structures shall be supported on bedrock or, in areas which are susceptible to settlement, energy facility foundations and pipelines shall be placed on engineered fill. (ASC, page G-17, G.2)

4. Transmission line structure and pipeline locations that could be subject to settling, slumping or liquefaction shall be tested for soil properties prior to structure and pipeline installation.
5. If methane gas is encountered during construction of the KCP, the KCP shall construct a permeable layer of gravel beneath foundations or pavements to vent methane and prevent the build-up of hazardous quantities of methane. (ASC, page G-18, G.3)
6. As part of final design, the KCP shall complete the geotechnical work as set forth in the ASC, pages G-18 and 19, with consideration to the comments of DOGAMI in its May 16, 1996 and December 2, 1996 letters to OE.
7. The KCP shall conduct a "shake" analysis as part of its further geotechnical work if the proposed energy facility is not sited on bedrock. (DOGAMI May 16, 1996 letter to OE)
8. The KCP shall provide the completed site-specific geotechnical report, including seismic hazards, to OE and to DOGAMI as soon as it is available. (DOGAMI May 16, and December 2, 1996 letters to OE)
9. If the detailed geotechnical work reveals evidence that is not as described in the ASC, the facility design shall be revised as necessary to comply with applicable Oregon Building Code requirements. If pre-construction seismic analysis reveals features unique to the energy facility site that justify enhanced seismic design, safety structures critical to public health and safety shall be designed in consultation with the Building Codes Division of the Department of Consumer and Business Services (DCBS), subject to approval by OE. Critical structures include hazardous material storage areas and control rooms.
10. Except as provided above, the design and construction of the proposed facility shall be consistent with Seismic Zone 3 requirements, and in compliance with the applicable laws and regulations administered by the DCBS.
11. During construction and prior to operation of the facility, the city shall obtain all state and local building permits necessary for the construction and operation of the facility.

VII. G. Retirement and Site Restoration

1. The KCP shall not dispose of hazardous wastes on site, store hazardous wastes on site for more than 90 days, or dispose of non-hazardous wastes on site. Any on-site storage of non-hazardous wastes shall comply with applicable federal, state and local regulations. (RMI 12/20/96 letter to OE)

2. The KCP shall contain accidental spills at the energy facility site on-site by containment structures and procedures designed to minimize or prevent any off-site releases. (RMI 12/13/96 letter to OE)

3. In the event that construction of the facility is begun but not completed, or the facility is closed permanently before the end of its useful life, the site shall be restored to a useful condition.

VII. H. Soil Protection

1. During construction of the facility, the KCP shall manage stormwater runoff in compliance with a NPDES construction permit.

2. During construction of the facility the KCP shall minimize erosion by scheduling construction of the energy facility, transmission line and pipelines during drier periods to the extent practicable, by properly controlling surface water runoff and by revegetating disturbed areas during and following construction. (ASC, page G-18, G.4 and page N-13, N.5)

3. During construction of the facility the KCP shall avoid or control erosion hazards associated with Stukel-Capona loams and Lorella very stony loam by scheduling construction in these soils, to the extent practicable, in drier months, and by using erosion control techniques such as water bars, siltation fences and straw bales during construction. (ASC, page N-13, N.5; RMI 10/9/96 letter to OE)

4. During construction of the facility the KCP shall control the potential for wind erosion in Tweeters silt loam by the use of geotextile blankets and hydroseed mixtures with tackifying agents. The KCP shall control the potential for wind erosion in Tulana silt loam by using wood chips from the Collins facility or other appropriate means. (ASC, page N-12, N.6; RMI 10/9/96 letter to OE)

5. The KCP shall develop, in consultation with appropriate agencies, an erosion control plan for construction activities which incorporates Best Management Practices. The KCP shall also develop a post-construction re-vegetation plan. This plan shall address restoration, to the extent practicable, of natural vegetation affected by facility construction, and shall minimize erosion potential in affected areas over the life of the KCP. The KCP shall develop and implement these plans substantially as described in the ASC, page N-12, condition N.2 and in RMI's 10/9/96 letter to OE, page 1.

6. The KCP shall restore areas disturbed during construction but not required for facility structures so as to reduce potential for soil erosion from rain or wind.

7. The KCP shall locate its transmission line structures so as to avoid steeper slopes wherever practicable. (ASC, page G-9; RMI 12/13/96 letter to OE)

8. During operation of the facility, the KCP shall direct stormwater runoff at the energy facility site to an on-site retention-evaporation pond. During operation, the KCP shall not discharge or otherwise release runoff from the energy facility site. If stormwater runoff is used for on-site cooling tower makeup, cooling tower blowdown shall be discharged as wastewater to a sanitary sewer for delivery to the SSWTP.

9. Access for transmission line and pipelines construction and maintenance shall utilize existing roads wherever practicable and temporary access roads shall only be constructed where there is no existing access road.

VII. I. Protected Areas

There are no conditions specifically related to protected areas.

VII. J. Fish and Wildlife Habitat

1. The KCP shall operate its cooling tower system so as to comply with applicable limits for total dissolved solids (TDS) in KCP's industrial wastewater discharge permit, and in no event shall the TDS level in KCP's cooling tower system exceed 3,360 parts per million in the cooling water on an annual average basis.

2. The KCP shall locate facilities to maximize the use of existing utility corridors and previously disturbed and currently developed areas, whenever feasible. (ASC, page N-12, N.1)

3. The KCP shall restore areas of native plant communities that are temporarily disturbed during construction to pre-disturbance conditions. (ASC, page N-12, N.2)

4. The KCP shall mitigate for the permanent loss of Category 3 habitat by creating habitat or restoring lost habitat at a 1:1 ratio to that lost, substantially as described in the ASC, page N-12, condition N.3. The KCP shall coordinate these efforts with the ODFW as requested in their December 12, 1996 Agency Report to OE, page 5.

5. The KCP shall, as soon as practicable after Project financing, and before the completion of construction, provide the funds necessary, not to exceed \$15,000 in 1998 dollars, to repair the Haymaker Dike located in the ODFW Klamath Wildlife Area. The KCP shall coordinate this funding with the ODFW.

6. The KCP shall manage its discharge of wastewater to a sanitary sewer for delivery to the Spring Street Wastewater Treatment Plant (SSWTP) so as to comply with applicable limitations for temperature in the industrial wastewater discharge permit for the KCP, and any related provisions in the Reclaimed Water Use Plan for the KCP as required under the city's SSWTP NPDES permit. (ODFW Agency Report, December 12, 1996; RMI 1/20/97 letter to DEQ)

7. The KCP shall not disturb the bed or banks of the Klamath River during construction, operation or retirement. No direct water withdrawals from the Klamath River shall occur. The energy facility shall not directly discharge wastewater into the Klamath River.

VII. K. Threatened and Endangered Species

1. The KCP shall manage its consumption of effluent from the SSWTP and its wastewater discharge to a sanitary sewer for delivery to the SSWTP such that the facility's net consumption of effluent is no more than 2 cubic feet per second (900 gallons per minute) on an annual average basis (8,760 hours). Net consumption means the difference between the amount of effluent provided by the SSWTP to the KCP and the amount of wastewater discharged to a sanitary sewer for delivery to the SSWTP from the KCP.

VII. L. Scenic and Aesthetic Values

1. The KCP shall paint the energy facility in a neutral color to help it blend naturally into the hill to the north. (ASC, page S-6, S.1)

2. The KCP shall plant low-maintenance trees such as ponderosa pine, juniper and black cottonwood around the perimeter of the energy facility to aid in visually screening the energy facility. (ASC, page S-6, S.1)

3. The KCP shall locate its transmission line structures so as to reduce their visual impacts. (ASC, page S-6, S.2)

4. The KCP shall utilize H-frame wood pole structures for its transmission line to the greatest extent practicable. (ASC, page S-6, S.2)

5. The KCP shall limit and direct outdoor nighttime lighting to the extent necessary to maintain safe conditions so as to minimize disturbance to the nearby residential area.

VII. M. Historic, Cultural and Archaeological Resources

1. The KCP shall design, construct and operate its facilities located on Collins property so as to avoid adverse impact to those qualities of the Weyerhaeuser archaeological site (OR-KL-40) which make it eligible for listing on the National Register of Historic Places. (ASC, pages T-8, 10, T.3; RMI 10/2/96 letter to OE)

2. Prior to construction of the transmission line and cooling water supply pipeline a qualified individual shall flag the perimeter of each of the three archaeological sites, Cogen 1, Cogen 2 and Cogen 3. The KCP shall design, construct and maintain the transmission line and cooling water supply pipeline so as to avoid disturbance to any of these sites. If disturbance to

any of these sites is unavoidable, the city shall obtain the necessary permit from the State Historic Preservation Office prior to beginning any activity that would disturb the site. (RMI 10/2/96 letter to OE)

3. If archaeological sites or objects are found during construction of the KCP or related Project activities, the KCP shall halt earth-disturbing activities in the vicinity of the find. The KCP shall notify the SHPO, the OE and the Klamath Tribe and a qualified archaeologist shall evaluate the find and recommend appropriate action after consultation with the SHPO, the OE and the Klamath Tribe. (ASC, page T-10, T.2) The KCP shall not restart work in the affected area until it has complied with the applicable permit requirements administered by the SHPO currently set forth in OAR chapter 736, division 51.

4. Prior to construction, the KCP shall coordinate with the Klamath Tribes to arrange for Tribal monitors to be present during ground-disturbing activities associated with construction of the KCP. The KCP shall reasonably compensate Tribal monitors. (Klamath Tribes letter to OE, undated, received by OE June 1996)

VII. N. Recreation

There are no conditions specifically related to recreation.

VII. O. Socio-Economic Impacts

1. The KCP shall use water from the city's municipal water supply system to meet its service and potable water requirements. (ASC, pages B-4 and U-4; Fig F-1; Fig B-1)

2. The city shall coordinate working hours of construction crafts with other industries in the area, to the extent feasible, to minimize traffic congestion. (ASC, page U-6)

3. The KCP shall provide an adequate parking area for about 300 vehicles during construction. (ASC, page U-6) The location of this construction parking area shall be on Collins property as shown in the ASC, Fig. X-2.

4. Access to the energy facility site during construction and operation shall be from U.S. Highway 97 onto a private road on Collins property as described in the ASC, pages U-6 and 7.

5. Prior to construction of the energy facility, the city shall obtain an Approach Road Permit from the Oregon Department of Transportation (ODOT) to connect the proposed construction and operation access road for the energy facility site into U.S. Highway 97 at the location described in the ASC, pages U-6 and 7. The city shall be responsible for the costs of any highway improvements required by the ODOT to allow this connection.

6. The KCP energy facility shall include a fire protection system substantially as described in the ASC, page U-9.

VII. P. Waste Minimization

1. Prior to construction of the facility, the KCP shall develop a solid waste reduction and recycling program for hazardous and non-hazardous solid wastes for construction and operation substantially as described in the ASC, page V-1.

2. The KCP shall reuse or recycle hazardous and non-hazardous solid waste generated during construction to the extent reasonably practicable and substantially as described in the ASC, pages F-1, U-4, and V-1.

3. The KCP shall reuse or recycle hazardous and non-hazardous solid waste generated during operation to the extent reasonably practicable and substantially as described in the ASC, pages U-5, and V-2 and 3.

4. Prior to construction of the facility, the KCP shall develop a wastewater minimization and reuse plan for construction and operation substantially as described in the ASC, page V-1.

5. The KCP shall minimize and reuse wastewater generated during construction to the extent reasonably practicable.

6. The KCP shall minimize and reuse wastewater generated during operation to the extent reasonably practicable and substantially as described in the ASC, pages F-2 through 3, and V-3 and 4.

7. During operation, the KCP shall minimize the amount of sanitary wastewater by using water flow restricting devices on bathroom and locker room sinks and showers, and by using low water consumption water closets. (ASC, V-3)

8. KCP water treatment demineralizers shall use programmable logic controls set to maximize resin efficiency so as to reduce overall water consumption during resin regeneration and backwashing. (ASC, V-3)

9. KCP HRSG boiler blowdown shall be used as makeup water to the cooling tower. KCP cooling tower blowdown shall be reduced by automating the chemical treatment and blowdown system to allow the cooling tower to operate at the highest practical number of cycles of concentration. (ASC, F-3, V-3)

10. During operation of the KCP, waste materials shall be contained on the energy facility site within the site perimeter fence and screened from view from the nearby residential area.

VII. Q. Noise

1. The KCP shall restrict construction activities which produce loud noise levels to the hours between 7:00 a.m. and 10:00 p.m. to reduce the potential for annoyance of nearby residences and maintain compliance with applicable DEQ noise requirements. ASC, page BB-5, BB.2)
2. The KCP shall place its combustion turbine and its associated electrical generator, and the steam turbine and its associated electrical generator inside an acoustically insulated building.
3. The KCP shall, within six months of the beginning of commercial operation, retain a qualified noise specialist to measure actual noise levels associated with KCP energy facility operation, at the nearby residential area and at the nearest edge of the Klamath Wildlife Refuge across the Klamath River, to determine if actual noise levels comply with (are within the levels specified in) applicable noise regulations in OAR 340- 035(1)(b). If actual noise levels do not comply with applicable DEQ regulations, the KCP shall take those actions necessary to comply with the applicable regulations as soon as practicable.
4. The KCP shall design the HRSG and stack with resonant frequency above the lowest natural frequency of the exhaust from the combustion turbine.
5. The KCP shall consult with Klamath County to minimize impacts of construction noise.
6. The KCP shall design, construct and operate the 230 kv transmission line so as to comply with applicable noise regulations in OAR 340-35-035(1)(b).

VII. R. Wetlands

There are no conditions specifically related to wetlands.

VII. S. Water Rights

The conditions in section VII.S. relate to a new water permit which the city shall obtain from the Oregon Water Resources Department (Department) for operation of the facility.

1. The holder of the permit shall be the city of Klamath Falls.
2. The source of the water shall be a well in the Klamath River basin.
3. The purpose or use of the water shall be for municipal use.
4. The maximum rate of use shall not exceed 1.34 cubic feet per second taken together with Collins certificate 48602.

5. The period of use shall be year round.
6. The date of priority for the permit is October 28, 1996.
7. The point of diversion location is the NW 1/4 of the NE 1/4 of section 24 in Township 39S, Range 8E, W. M.; 700 feet south and 1970 feet west from the NE corner of section 24.
8. The place of use is located as follows:

NE 1/4 SW 1/4; SW 1/4 SW 1/4; SE 1/4 SW 1/4; NE 1/4 SE 1/4; NW 1/4 SE 1/4; SW 1/4 SE 1/4; SE 1/4 SE 1/4; SECTION 13 and NE 1/4 NE 1/4; NW 1/4 NE 1/4; NE 1/4 NW 1/4; SECTION 24; TOWNSHIP 39 SOUTH, RANGE 8 EAST, W.M.

NE 1/4 SW 1/4; NW 1/4 SW 1/4; SW 1/4 SW 1/4; SE 1/4 SW 1/4; SECTION 18; TOWNSHIP 39 SOUTH, RANGE 9 EAST, W.M.
9. The amount of water used under this right, together with the amount secured under any other right existing for the same lands is limited to a total diversion of 52.22 cubic feet per second - or - a lesser amount if delineated in the city's Water Management and Conservation Plan.
10. Measurement, recording and reporting conditions:
 - a. Before water use may begin under this permit, the permittee shall install a meter or other suitable measuring device as approved by the Water Resources Department Director (Director), to measure the amount of water used under this permit. The permittee shall maintain the meter or measuring device in good working order, shall keep a complete record of the amount of water used under this permit each month and shall submit a report which includes the recorded water use measurements to the Water Resources Department annually or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water use information, including the place and nature of use of water under the permit.
 - b. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.
11. Use of water under authority of this permit may be regulated by the Water Resources Department if analysis of data available after the permit is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be subsequently reduced.

12. The water user shall develop a plan to monitor and report the impact of water use under this permit on water levels within the aquifer that provides water to the permitted well(s). The plan shall be submitted to the Water Resources Department within one year of the date the permit is issued and shall be subject to the approval of the Department. At a minimum, the plan shall include a program to periodically measure static water levels within the permitted well(s) or an adequate substitute such as water levels in nearby wells. The plan shall also stipulate a reference water level against which any water-level declines will be compared. The water user shall in no instance allow excessive decline, as defined in the Oregon Water Resources Commission rules, to occur within the aquifer as a result of use under this permit.

13. If at any time the well or its use acts as a conduit for groundwater contamination or allows loss of artesian pressure, the Water Resources Department may require that the land owner repair the well in accordance with the current well construction standards.

14. Prior to receiving a certificate of water right, the permit holder shall submit the results of a pump test, performed within the last ten years, meeting the Water Resources Department's standards, to the Water Resources Department. The Director may require water level or pump test results every ten years thereafter.

15. Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

16. This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

17. By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

18. The use of water shall be limited when it interferes with any prior surface or ground water rights.

19. Actual construction of the well shall begin within one year from date the Water Resources Department issues the permit. Unless the Water Resources Department grants an extension, construction of the means of conveyance to the energy facility site shall be completed within five years of the date the Water Resources Department issues the permit. Unless the Water Resources Department grants an extension, complete application of the water to the use shall be made within five years of the date the Water Resources Department issues the permit.

VII. T. Public Health and Safety

1. The KCP shall design and operate its cooling tower substantially as described in the ASC, Table M-1 on page M-4.

2. The KCP shall monitor, in accordance with its Reclaimed Water Use Plan approved by DEQ, the effluent it receives from the SSWTP for the presence of pathogens. The KCP shall operate its cooling tower water system in accordance with the Reclaimed Water Use Plan and the industrial wastewater discharge permit for the facility so as to prevent public health hazards from cooling tower drift (aerosols).

VIII. GENERAL CONCLUSION

In order to issue a Site Certificate, the Council must determine that the preponderance of the evidence on the record supports the following conclusions (ORS 469.503):

"(1) The facility complies with the standards adopted by the council pursuant to ORS 469.501..."

"(3) ... the facility complies with all other Oregon statutes and administrative rules identified in the project order, as amended, as applicable to the issuance of a site certificate for the proposed facility..."

"(4) The facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission."

Based on the findings of fact, reasoning and conclusions of law in this order, the Council concludes that these requirements are met and that it should issue a Site Certificate for the Klamath Cogeneration Project.

IX. FINAL ORDER

The Council therefore orders that its chairperson execute a Site Certificate in the form of the "Site Certificate for the Klamath Cogeneration Project" which is attached to this order.

Issued this 29th day of August, 1997.

By 

Chair, Energy Facility Siting Council

1 NOTICE OF THE RIGHT TO APPEAL

2
3 Any party to the contested case proceeding on this site certificate application appeal the Council's
4 approval of this Site Certificate. Judicial review may be obtained by filling a petition for review
5 within 60 days after the date of service of this order. Judicial review is pursuant to the provisions
6 of ORS 469.403 to the Oregon Supreme Court.
7

8
9 NOTICE OF SERVICE

10
11 Served on Sept 8, 1997 by mail
12 (date) (method)

13
14 Served by Walter P. [Signature]
15

KLAMATH COGENERATION PROJECT

SITE CERTIFICATE

APPENDICES

- Appendix A. Application for Site Certificate: Figure B-3 "Station Arrangement"
- Appendix B. Application for Site Certificate: Figure C-1 "Transmission Line/Pipeline Routes"
- Appendix C. Application for Site Certificate: pages B-6, 7, 9, 10, 13 and 14; F-1, 2, 3, 6 and 7; M-4; N-12; U-4, 5, 6, 7 and 9; V-1, 2, 3 and 4; Figure X-2.
- Appendix D. Correspondence:
- RMI October 9, 1996 letter to OE, page 1.
 - RMI January 2, 1997 letter to OE, page 2, and Figure B-1 and Figure F-1.
 - Department of Geology and Mineral Industries (DOGAMI) December 2, 1996 and May 16, 1996 letters to OE, including ASC pages G-18 and 19.
 - Building Codes Division (BCD) December 13, 1996 Interoffice Memo to M. Long from R. Tamerhoulet.
- Appendix E. Oregon Revised Statutes, Chapter 469, 1995 edition.
- Appendix F. House Bill 3283, Enrolled, effective June 26, 1997.
- Appendix G. Oregon Administrative Rules, Chapter 345, Divisions 1, 22, 23, 24, 26, 27 and 29.