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## **I. INTRODUCTION AND BACKGROUND**

Pacific Klamath Energy, Inc., on behalf of the City of Klamath Falls (City), has requested an amendment to the City's Site Certificate for the Klamath Cogeneration Project. This request is made in accordance with ORS 469.405, OAR 345-21-000(1), OAR 345-27-050 and 060.

### **The Approved Facility**

The Oregon Energy Facility Siting Council (Council) approved a Final Order granting a Site Certificate to the City of Klamath Falls for the Klamath Cogeneration Project (Project or KCP) on August 15, 1997. Construction of the approved facility has not begun.

The approved facility is a single, combined-cycle combustion turbine cogeneration facility. It has a capacity to produce 318 net megawatts (MW) of electricity when providing no steam to off-site industrial uses. The facility is approved to burn primarily natural gas, but, it may burn low-sulfur oil as a backup fuel.

### **The Request for Amendment**

The City's Request for Amendment (Request or RFA) is dated October 6, 1997. In summary, the RFA asks that the Site Certificate be amended to allow the following changes.

1. KCP asks for flexibility to construct either a single combustion turbine configuration, as authorized in the Site Certificate, or a two combustion turbine configuration; and to allow an increase in the electrical generating capacity of the KCP up to 500 MW (net) while providing no steam to off-site industrial use. KCP proposes to meet the carbon dioxide standard adopted by the 1997 Oregon Legislative Assembly (HB 3283) for the increase in capacity above 318 MW.
2. KCP asks to eliminate the use of oil as a backup fuel for the generation of electricity. This would reduce on-site oil storage by over 90 percent and would reduce CO<sub>2</sub> emissions. KCP could still use low-sulfur oil as a backup fuel for the auxiliary boiler, to make steam for off-site industrial uses, and as fuel for the on-site emergency diesel generator.
3. KCP asks to revise Site Certificate Condition IV.B.1. The condition requires KCP to make available to off-site industrial use at least 200,000 pounds per hour of steam, on an annual average basis, at an average steam pressure of not less than 375 pounds per square inch gauge, and an average temperature of not greater than 455 degrees F. KCP asks that the condition be revised to require that it continue to meet the same steam energy content requirement as specified in the condition (which is 242.8 million Btu per hour), but allow it flexibility to provide steam to off-site use at the temperatures and pressures that the off-site use(s) require.

The Request does not change the location or size of the energy facility site, nor does it change the location or size of any of the related or supporting facilities.

## **The Need for the Request**

Site Certificate Condition III.A.(2) requires that the facility be designed, constructed, operated and retired substantially as described in the Site Certificate. In addition, OAR 345-27-050(1) requires that a Site Certificate holder must submit a request to amend its Site Certificate "...if the certificate holder proposes to change the site boundary or otherwise to design, construct, operate or retire the facility in a manner different from the description in the Site Certificate, ..." The RFA includes proposed changes that are significant changes in the construction or operation of the approved KCP.

OAR 345-27-070(6) sets forth the Council's general standard for review of a request by a Site Certificate holder to amend its Site Certificate:

"In evaluating a request for an amendment under this rule, the Council shall limit its consideration to the effects which may be produced by the proposed change or addition to the site or facility described in the request for amendment. In considering those effects, the Council shall apply state statutes, administrative rules, and local government ordinances in effect on the date the amended Site Certificate is executed."

## **II. PROCEDURAL HISTORY**

On June 26, 1997 the governor of Oregon signed Oregon House Bill 3283 into law. It went into effect on that date.

On August 15, 1997 the Council approved a final order (August 1997 Final Order or Final Order) granting the City of Klamath Falls a Site Certificate for the Klamath Cogeneration Project.

On October 7, 1997, the Office of Energy (Office) received a "Request for Amendment to the Site Certificate for the Klamath Cogeneration Project." The Request was submitted by Pacific Klamath Energy, Inc., on behalf of the City of Klamath Falls.

Between October 8 and 10, 1997 the Office issued a public notice regarding the Request as required by OAR 345-27-070(1). The notice was dated October 7, 1997 and was sent to persons on the Council's general mailing list, the Council's specific mailing list for the KCP, and to property owners listed in Exhibit E of the RFA. The notice requested comments by November 7, 1997.

On October 8, 1997, the Office issued a notice regarding the Request to affected state agencies, local governments and Tribes as required by OAR 345-27-070(1). The notice requested comments and recommendations by November 7, 1997.

The Request was an "Information Item" on the agenda of the Council's regular meeting on November 14, 1997. At the meeting the Office described the Request and responded to Council questions. Representatives of the KCP also responded to Council questions about the Request.

On December 8, 1997, the Office issued a Proposed Order addressing the Request as required by OAR 345-27-070(2). The Proposed Order presented the Office's proposed findings of fact, reasoning and conclusions of law. Based on these, the Proposed Order recommended that the Council approve the Request, subject to the conditions stated in the Proposed Order.

On December 8, 1997, the Office issued a public notice as required by OAR 345-27-070(3) stating that the Office had issued a Proposed Order, that any person could request a contested case hearing, and that the deadline for requesting a contested case was 5:00 p.m., January 7, 1998.

### **Contested Case Procedural History**

On January 7, 1998, Lloyd K. Marbet, the Utility Reform Project and Don't Waste Oregon (Requestors) collectively submitted a request for a contested case proceeding on KCP's Request to amend the Site Certificate. The request raised eight issues, A. through H., related to the Office's Proposed Order.

On January 23, 1998, the Council, at a regular, scheduled public meeting, directed that a contested case proceeding be held on issues B. through H. raised by Requestors. ORS 469.405 and OAR 345-27-070(4). The Council appointed John W. Burgess as hearing officer for the proceeding.

On January 27, 1998, the hearing officer requested that KCP and the Office submit a preliminary response to issues B. through H. by February 9, 1998, in advance of the scheduled prehearing conference. The reason for the hearing officer's request was to promote an understanding of the issues and possibly resolve some issues early in the proceeding. KCP and the Office timely submitted their preliminary responses.

On January 30, 1998, the Office provided notice of the contested case proceeding to interested persons. The Umatilla Generating Company, L.P., (UGC) submitted a petition to participate in the proceeding as a limited party. The Requestors also petitioned for party status.

On February 17, 1998, the hearing officer issued an order which allowed UGC to participate as a limited party, and an order which denied Requestors' petition because they already had party status based upon the Council's direction to hold a contested case proceeding on their request. On February 24, 1998, Requestors submitted their opening brief. In their brief, Requestors stated that they accepted the explanations and suggested wording in the Office's preliminary response. On March 2, 1998, KCP submitted its responding brief in which it either accepted or did not

object to the explanations and suggested wording in the Office's preliminary response. UGC and the Office did not submit responding briefs.

On March 16, 1998, the hearing officer issued his proposed order. The hearing officer's order provided that exceptions to his order were due March 26, 1998, and that responses to the exceptions were due April 2. The order also provided for oral argument on the exceptions and responses before the Council on April 17.

On April 17, 1998, the Council considered the hearing officer's proposed order, and the parties' exceptions and responses to exceptions. The Council's findings, reasoning and conclusions as they relate to the issues considered in the contested case proceeding (issues B. through H.) are in Section V. C. of this order. At the meeting, the Council also considered a Recommended Final Order and a Recommended Amended Site Certificate. The Council adopted the Recommended Final Order and approved the issuance of an Amended Site Certificate for the KCP. The Council directed the Office to prepare a Final Order and Site Certificate, consistent with its decision, for the chair's signature.

### **III. AMENDMENT REQUESTED**

#### **III. A. Summary and Description of the Changes Requested**

The following summarizes the substantive modifications to the Site Certificate sought under the Request for Amendment.<sup>1</sup> The subsection headings in this section are based on the RFA (Part III). To clearly distinguish this subsection from the main body of the order, the subheadings are indented and the text is smaller.

In addition to those modifications discussed below, the KCP requests that throughout the Site Certificate, the word "Amended" be inserted before the words "Site Certificate" to reflect that the Council has issued an Amended Site Certificate.

#### **SECTION II.A - DESCRIPTION OF THE FACILITY AND SITE**

##### **Section II.A.1 - Major Structures and Equipment**

The RFA requests that Section II.A.1 of the Site Certificate (RFA Pages SC-3 and SC-4 under the heading "Major Structures and Equipment") be revised to provide the KCP with authorization to construct either a single combustion turbine combined-cycle or a two combustion turbine combined-cycle cogeneration facility.

The requested modifications to Section II.A.1 include a description of the major structures and equipment that are necessary for the two combustion turbine combined-cycle cogeneration facility.

The requested modifications to Section II.A.1 also eliminate the allowance that the combustion turbine(s) may burn

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<sup>1</sup>References to sections, conditions, pages, and lines in this summary relate to the marked version of the Site Certificate included with the Request for Amendment.

low sulfur oil as a backup fuel for power production, and instead provide that the energy facility's use of fuel oil will be limited to backup fuel for the auxiliary boiler and as fuel for the emergency diesel generator.

#### **Section II.A.1 - Capacity and Output**

The RFA requests that Section II.A.1 of the Site Certificate (RFA Pages SC-4 and SC-5 under the heading "Capacity and Output") be revised to authorize a generating capacity for the energy facility of up to 500 MW (net) at zero steam to off-site industrial use, based on a two combustion turbine combined-cycle cogeneration facility.

As discussed in Part II, Exhibit B to the RFA, the KCP is maintaining the option of using any one of four commercially available combustion turbine machines. A generating capacity of up to 500 MW provides the KCP with the flexibility to competitively bid the major equipment and take maximum advantage of potential improvements in technology.

To illustrate the capacity and output of a representative two combustion turbine combined-cycle cogeneration facility, the requested modifications to Section II.A.1 include expected ratings based on current manufacturer's information for the Westinghouse 501F combustion turbine. The use of two of these combustion turbines results in the highest nominal generating capacity and fuel consumption of the four commercially available combustion turbine suppliers. The expected ratings of the energy facility using the two Westinghouse 501F machines are based on average site conditions adjusted to the site elevation.

#### **Section II.A.1 - Water Use**

The RFA requests that Section II.A.1 of the Site Certificate (RFA Page SC-5 under the heading "Water Use") be revised to reflect the maximum amount of water use for a two combustion turbine combined-cycle cogeneration facility with a nominal generating capacity of up to 500 MW.

To evaluate the water use for operation of a representative two combustion turbine combined-cycle cogeneration facility, KCP used as a starting point current manufacturer's information for two Westinghouse 501F combustion turbines. These combustion turbines result in the highest water use of the four commercially available combustion turbine suppliers. The KCP then estimated and evaluated the additional water use that would be needed for operation of an energy facility with a maximum nominal generating capacity of 500 MW. The requested modifications to Section II.A.1 are based on the resulting maximum estimated water use (annual average basis) for operation of a nominal 500 MW facility.

### **SECTION III - CONDITIONS REQUIRED BY COUNCIL RULES**

The RFA requests that Condition III.A.9 of the Site Certificate (RFA Page SC-10) be revised to state that the Amended Site Certificate include as conditions KCP's representations from its Request for Amendment, in addition to representations from the Application for Site Certificate.

The RFA requests that Condition III.B.1 of the Site Certificate (RFA Page SC-10) be revised to require notification to the appropriate agencies if site conditions are found to be significantly different from those described in both its Request for Amendment as well as the Application for Site Certificate.

### **SECTION IV.A. -- GENERAL CONDITIONS**

#### **Section IV.A.1**

The RFA requests that the introduction to the Conditions in Section IV.A.1 of the Site Certificate (RFA Page SC-15) be revised to state that the Conditions in Section IV.A.1 are based on the Request for Amendment in addition to the Application for Site Certificate.

#### **Condition IV.A.1(1)**

The RFA requests that Condition IV.A.1(1) of the Site Certificate (RFA Page SC-15) be revised to state that the KCP energy facility shall be substantially similar to that shown in Figure B-3 to the Application for Site Certificate or shown in Figure B-3 to the Request for Amendment. The purpose for this modification is to provide the KCP with the flexibility to select and construct either the single combustion turbine combined-cycle cogeneration facility authorized under the Site Certificate or the two combustion turbine combined-cycle cogeneration facility as requested in the RFA.

#### **Conditions IV.A.1(7) and (8)**

The RFA requests that Conditions IV.A.1(7) and (8) of the Site Certificate (RFA Page SC-15) be revised to reference two combustion turbines and two heat recovery steam generators (HRSG). The purpose for these modifications is ensure that this Condition is applicable to both the single and the two combustion turbine combined-cycle cogeneration facility alternatives.

#### **Condition IV.A.1(35)**

The RFA requests that Condition IV.A.1(35) of the Site Certificate (RFA Page SC-18) be revised to state that ground disturbance from construction be substantially as shown in Figure X-2 to the Application for Site Certificate or as shown in Figure X-1 to the RFA. There are some differences in the perimeter of the energy facility site between the single and the two combustion turbine combined-cycle facility cogeneration alternatives. This Requested modification is to ensure that this Condition is applicable to both the single and the two combustion turbine combined-cycle cogeneration facility alternatives.

#### **Section IV.A.2**

##### **Condition IV.A.2(37)**

The RFA requests that Condition IV.A.2(37) of the Site Certificate (RFA Pages SC-18 and SC-19) be revised to eliminate the use of fuel oil for power production. As indicated, the KCP has determined to take feasible steps to reduce the use of fuel oil firing in order to further minimize total energy facility air emissions. Low-sulfur oil remains as backup fuel for the auxiliary boiler and as fuel for the emergency diesel generator.

#### **SECTION IV.B - 500 MW EXEMPTION**

The RFA requests that the introduction to the Conditions in Section IV.B of the Site Certificate (RFA Page SC-19) be revised to include the Council's Final Order granted with respect to the Request for Amendment as one of the documents to be used in clarifying any ambiguity to the Conditions in Section IV.B. The RFA requests that Condition IV.B.1 be revised to provide that the KCP shall provide to off-site industrial use the *steam energy equivalent* of at least 200,000 pounds of steam per hour at 375 pounds per square inch gauge and 455EF (which is equal to 242.8 million Btu per hour) on an annual average basis. The Council's Final Order on the Request for Amendment will address this issue and it should be used to clarify any ambiguity in the amended language to Condition IV.B.1.

##### **Condition IV.B.1**

Site Certificate Condition IV.B.1 (RFA Page SC-20) currently requires the KCP to make available to its steam host at least 200,000 pounds of steam per hour on an annual average basis. The Condition further requires that the average steam pressure be not less than 375 pounds per square inch gauge and the average temperature be not greater than 455EF. In specifying the steam pressure and temperature, the Council intended to ensure that the energy

content of the steam the KCP makes available to its steam host would displace the same quantity of the steam host's air emissions as calculated during the 500 MW Exemption contested case proceeding.

The RFA proposes to revise Condition IV.B.1 to require that the KCP shall make available to off-site industrial use the *steam energy equivalent* of at least 200,000 pounds of steam per hour at 375 pounds per square inch gauge and 455°F (which is equal to 242.8 million Btu per hour) on an annual average basis. Because the quantity of air emissions displaced is based on the amount of energy contained in the steam, the proposed modification would not change the quantity of emissions that would be displaced by the steam the KCP makes available to off-site industrial use. The RFA also proposes that the term "steam host" be changed to "off-site industrial user." The purpose for the proposed modification is to provide the KCP with the flexibility to meet the specific steam delivery pressure and temperature requirements of Collins Products and other potential industrial uses.

#### **Condition IV.B.21**

Site Certificate Condition IV.B.21 (RFA Page SC-24) requires that prior to beginning construction the KCP provide the plant performance guarantee from executed contracts for the design and construction of the facility showing a heat rate of no greater than 6,795 Btu per kWh.

The RFA requests that this Condition be revised to add the requirement that the KCP also provide prior to construction the estimated nominal electric generating capacity of the energy facility. This requested modification is needed because the RFA requests authorization to construct and operate an energy facility with capacity of up to 500 MW as an alternative to the 318 MW currently authorized under the Site Certificate. The requested modification does not change the intent of this Condition because the modification does not change the requirement for the KCP to demonstrate a net full power heat rate of no greater than 6,795 Btu per kWh.

#### **Condition IV.B.22**

Site Certificate Condition IV.B.22 (RFA Page SC-24 and SC-25) is a Condition developed to ensure that the KCP implements a CO<sub>2</sub> offset program designed to achieve the offsets calculated in the 500 MW Exemption proceeding for a nominal 318 MW energy facility. Under this Condition the KCP is required to perform within the first year of commercial operation a 100-hour test to certify the net full power heat rate of the energy facility. If the net full power new and clean heat rate is greater than the "Target Heat Rate" of 6,795 Btu per kWh with no steam supplied to off-site industrial use, then the KCP is required to perform a second 100-hour test. If the KCP does not meet the Target Heat Rate, the KCP is obligated to implement an approved program to offset the incremental CO<sub>2</sub> emissions resulting from the higher heat rate.

Except to the extent Condition IV.B.22 establishes the Year One Heat Rate for purposes of the monetary path payment, this Condition is applicable only to the nominal 318 MW capacity that was awarded in the 500 MW Exemption. Therefore, the RFA requests that this Condition be modified to state that the obligation to implement an approved program to offset the incremental CO<sub>2</sub> emissions resulting from the higher heat rate is applicable to only the first 318 MW of nominal electric generating capacity.

#### **Condition IV.B.23**

Site Certificate Condition IV.B.23 (RFA Page SC-25) also relates to the Target Heat Rate and the requirements for implementing a CO<sub>2</sub> offset program designed to achieve the offsets calculated in the 500 MW Exemption proceeding for a nominal 318 MW energy facility. This Condition is applicable only to the first 318 MW of nominal electric generating capacity which was the subject of the 500 MW Exemption.

Therefore, the RFA requests that this Condition be modified to state that the requirements for implementing a program to offset the incremental CO<sub>2</sub> emissions resulting from a higher heat rate (exceeding 3 percent of the Target Heat Rate) apply to only the first 318 MW of nominal electric generating capacity.

#### **Condition IV.B.24 (New)**

The RFA requests a new Condition IV.B.24 (RFA Pages SC-26 and SC-27) be added to the Amended Site Certificate. The proposed new Condition IV.B.24 implements the carbon dioxide standard required under HB 3283 as applied to the KCP energy facility.

Under Section 8(1)(b) of HB 3283, the KCP is required to meet the applicable carbon dioxide standard in ORS 469.503(2) for the increase in capacity beyond that authorized in the 500 MW Exemption. The carbon dioxide standard applicable to the KCP's increased capacity is provided in ORS 469.503(2)(a). To meet the carbon dioxide standard through offset projects, the KCP has elected to use the "monetary path."

The RFA requests an amendment to the Site Certificate authorizing the KCP to construct a facility which has a maximum nominal generating capacity of up to 500 MW. The KCP has not selected the specific combustion turbine configuration and has not established the actual installed capacity of the energy facility. The monetary path allows the KCP to meet the CO<sub>2</sub> standard based upon payment of \$.57 per ton of CO<sub>2</sub> for each ton of CO<sub>2</sub> emissions that exceed the statutory net carbon dioxide emission standard. The RFA proposes that Condition IV.B.24 provide the method for determining, prior to the commencement of construction, the required monetary path offset payment based upon the capacity of the specific combustion turbine which the KCP selects for the energy facility.

Because the final capacity of the energy facility has not been determined, the RFA proposes that Condition IV.B.24 establish that the monetary path offset payment be determined using a formula that is based solely upon the installed capacity of the KCP, when it is known. Two formulas are applicable and are proposed within the Condition. The first is a formula to calculate the offset payment for carbon dioxide emissions required under the monetary path (Offset Payment Funds). The second is a formula to calculate the amount that the KCP must pay the qualified organization for the qualified organization's costs of selecting offset projects and contracting for their implementation (Selection and Contracting Funds).

The RFA also requests that Condition IV.B.24 specify the method to calculate the final amount of the monetary path offset payment (Offset Payment Funds) based upon the 100-hour test conducted during the first year of commercial operation. This test is required under Condition IV.B.22. The Office does not agree with the methodology KCP proposed and, therefore, provides an alternate methodology in Section V.B.2 of this order.

#### **Condition IV.B.25 (New)**

The RFA requests a new Condition IV.B.25 (RFA Page SC-27) be added to the Amended Site Certificate. The proposed new Condition IV.B.25 states the nature and extent of the KCP's obligations under HB 3283.

Under the monetary path, the requirements to satisfy the HB 3283 carbon dioxide standard are limited to paying the Offset Payment Funds and the Selection and Contracting Funds discussed above for Condition IV.B.24. As a result, the RFA requests that Condition IV.B.25 expressly state that the KCP has no other obligation with regard to offsets for the nominal incremental generating capacity of the KCP energy facility in excess of the 318 MW capacity, and to expressly state that KCP is not responsible for the performance or nonperformance of the Oregon Climate Trust or other qualified organization.

#### **Condition IV.B.26 (Currently IV.B.24)**

The RFA requests that Site Certificate Condition IV.B.24 (RFA Page SC-27) be revised to eliminate the use of fuel oil for power production. The Condition continues to allow the use of low-sulfur oil as backup fuel for the auxiliary boiler and as fuel for the emergency diesel generator.

#### **SECTION IV.D - FINANCIAL ASSURANCE**

### **Conditions IV.D.3, IV.D.4 and IV.D.5**

The RFA requests that the Council issue an Amended Site Certificate providing the KCP with the flexibility to construct and operate a two combustion turbine combined-cycle cogeneration facility, as an alternative to the single combustion turbine combined-cycle cogeneration facility authorized under the Site Certificate.

Site Certificate Condition IV.D.3 (RFA Page SC-28) requires the KCP to establish and maintain a fund to provide for termination or decommissioning costs. Currently, the amount of the fund is based solely on the single combustion turbine combined-cycle cogeneration facility alternative. To ensure that Condition IV.D.3 is applicable to both the single and the two combustion turbine combined-cycle cogeneration facility alternatives, the RFA requests that the Condition be revised to provide a different fund *amount* for both the one and the two combustion turbine energy facility alternatives. The fund amount for each alternative is defined as the ATermination Fund Amount. @

Site Certificate Condition IV.D.4 (RFA Pages SC-28 and SC-29) and Condition IV.D.5 (RFA Page SC-29) also concern maintenance of the funds necessary for termination or decommissioning costs. The RFA requests that these Conditions be modified to ensure their applicability to the different fund *amounts* for both the single and the two combustion turbine combined-cycle cogeneration facility alternatives. Thus, the KCP requests that the defined term "Termination Fund Amount" be used in place of the dollar amount specific to the single combustion turbine energy facility alternative.

### **SECTION IV.E - LAND USE**

#### **Conditions IV.E.1, IV.E.2, and IV.E.3**

Site Certificate Conditions IV.E.1, IV.E.2 and IV.E.3 (RFA Page SC-29) each relate to the Conditional Use Permit that Klamath County has issued for the Energy Facility Site. The RFA requests that the words "as amended" be added after references to the Conditional Use Permit. The purpose for this revision is to ensure that these Conditions reference and acknowledge any changes which Klamath County may deem appropriate to its Conditional Use Permit for the KCP authorizing both the single and the two combustion turbine alternatives.

### **SECTION IV.K - THREATENED AND ENDANGERED SPECIES**

#### **Condition IV.K.1**

The KCP requests that Site Certificate Condition IV.K.1 (RFA Pages SC-33 and SC-34) be revised to reflect the maximum net consumption of treated effluent from the City's Spring Street Wastewater Treatment Plant for a two combustion turbine combined-cycle cogeneration facility with a nominal generating capacity of up to 500 MW.

As discussed in Part II, Exhibit B, to the RFA, the KCP wishes to maintain the option of using any one of four commercially available combustion turbine machines. A generating capacity of up to 500 MW provides the KCP with the flexibility to competitively bid the major equipment and take maximum advantage of potential improvements in technology.

To evaluate the net consumption of effluent for operation of a representative two combustion turbine combined-cycle cogeneration facility, the KCP used as a starting point current manufacturer's information for two Westinghouse 501F combustion turbines. These combustion turbines result in the highest net effluent consumption of the four commercially available combustion turbines. The KCP then estimated and evaluated the additional net consumption of effluent that would be needed for operation of an energy facility with a maximum nominal generating capacity of 500 MW. The requested modifications to Condition IV.K.1 are based on the resulting maximum estimated net consumption of effluent (annual average basis) for operation of a nominal 500 MW facility.

### **SECTION IV.O - SOCIO-ECONOMIC IMPACTS**

### Condition IV.O.3

The RFA requests that Site Certificate Condition IV.O.3 (RFA Page SC-35) be revised to reference both Figure X-2 of the Application for Site Certificate and Figure X-1 of the RFA. There are no changes to the construction parking area based on the RFA. This requested modification is to ensure that this Condition is applicable to both the single and the two combustion turbine combined-cycle cogeneration energy facility alternatives.

### SECTION IV.Q - NOISE

#### Conditions IV.Q.2 and 4

The RFA requests that Site Certificate Conditions IV.Q.2 and 4 (RFA Page SC-37) be revised to reflect that there will be two combustion turbines, two heat recovery steam generators (HRSGs) and two HRSG stacks if the KCP selects and constructs the two combustion turbine combined-cycle cogeneration energy facility alternative.

### SECTION IV.T - PUBLIC HEALTH AND SAFETY

#### Condition IV.T.1

The RFA requests that Site Certificate Condition IV.T.1 (RFA Page SC-40) be revised to reference both Table M-1 of the Application for Site Certificate and Table M-1 of the RFA. This requested modification is to ensure that this condition is applicable to the cooling tower parameters for both the single and two combustion turbine combined cycle cogeneration energy facility alternatives.

## III. B. Specific Changes to the Site Certificate Requested

The following presents the specific language changes to the Site Certificate that the RFA requests. The changes are shown in redline and strikeout. The subheadings in this section are the same as those in the Site Certificate. They are indented and the text is smaller to clearly distinguish this subsection from the main body of the order.

### II. DESCRIPTION OF THE FACILITY AND SITE

In the event of a conflict between the descriptions of the Facility in this Amended Site Certificate and the Council's Final Order, this Amended Site Certificate shall control.

#### A. DESCRIPTION OF THE PROPOSED FACILITY

##### A.1. The Energy Facility

#### Major Structures and Equipment

The energy facility is a single or two combustion turbine (CT) single- ~~single-~~ combined-cycle ~~combustion turbine~~ cogeneration facility. Unless otherwise indicated, the approximate sizes and capacities are for the two combustion turbine facility. It is capable of producing up to 300-500 megawatts (net) of electricity at site conditions while providing about 200,000 zero lbs. per hour of steam to off-site industrial use. The ~~energy facility~~ combustion turbines will burn primarily only natural gas, ~~but may~~ The auxiliary boiler will burn

primarily natural gas, but may burn low-sulfur oil as a backup fuel. The emergency diesel generator will burn low-sulfur oil. The estimated life of the energy facility is at least 30 years. The energy facility is shown in the ASC, Fig. B-3 which is included in this Amended Site Certificate as appendix A.

The single CT 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 two CT energy facility consists of five major pieces of equipment: two CTs, two HRSGs, and one steam turbine generator.

The energy facility includes a turbine generator building about 70 feet tall and related structures; ~~an heat recovery steam generators~~ approximately 110-foot-high heat recovery steam generator building; a HRSG emission stack(s), approximately 150-foot-high emission stack; a mechanical evaporation cooling tower about 50 feet tall; an auxiliary boiler with an approximately 75 ~~125~~-foot-high stack; an approximately ~~60~~30-foot-high, above-ground ~~2,500,000~~200,000 gallon fuel oil storage tank; an electrical substation with outdoor transformers and switches; an approximately ~~290-foot by 290~~ 125,000 square-foot stormwater retention/evaporation pond; on-site parking; and a variety of storage tanks and other structures.

The 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 includes three primary components: the combustion turbine generator(s), the HRSG(s), and the steam turbine generator.

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

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

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

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

### **Capacity and Output**

The energy facility is authorized to have a nominal electric generating capacity of no more than 500 MW (net) and a heat rate no more than 6,795 Btu per kWh (HHV) with no steam load and using natural gas as the fuel. Authorization for a generating capacity of no more than 500 MW provides the Project with the flexibility to competitively bid the major equipment and take the maximum advantage of potential improvements in technology.

~~The energy facility has 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 will 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 for the single CT configuration (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 expected ratings of the energy facility at annual average conditions adjusted to site elevation are for the two CT configuration (See RFA, Exhibit B, p. B-6, Footnotes 1 and 2):

Gross output is estimated as approximately 474 MW at zero steam to off-site industrial use, and 453 MW at 200,000 pounds per hour of steam to off-site industrial use.

Net power output is estimated as approximately 464 MW at zero steam to off-site industrial use, and 443 MW at 200,000 pounds per hour steam to off-site industrial use.

The expected capacity and output of the two CT configuration are based on current manufacturer's information using two Westinghouse 501F CTs. These units result in the highest energy facility electrical output and fuel consumption of the four commercially available CT suppliers.

The energy facility will 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 energy facility will 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 Use

The energy facility will reuse treated effluent from the City of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP) for its major source of water. This water will be used in the cooling tower system for evaporative cooling. The energy facility is estimated to use up to about 1,211-2,325 gallons per minute (gpm) (about 1.74-3.35 million gallons per day) of treated effluent on an annual average basis. (See January 2, 1997 letter from RMI to OE, page 2 and Figures B-1 and F-1, which are in appendix D to this Site Certificate) RFA, Table O-1.

The energy facility will obtain good quality water from the City of Klamath Falls' existing municipal water supply system. The 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 energy facility will dispose of its wastewater (both process wastewater and sanitary wastewater) to the SSWTP. The energy facility is estimated to produce up to about 444-695 gpm (about ~~0.64~~1.0 million gallons per day) of wastewater on an annual average basis.

#### IV. CONDITIONS ISSUED PURSUANT TO COUNCIL STATUTORY AUTHORITY

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.

##### IV.A. GENERAL CONDITIONS

**IV.A.1.** The conditions in section IV.A.1. are based on statements that the applicant made in its ASC (November 6, 1996), the Request for Amendment (RFA) (October 6, 1997) 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 or in the RFA, Figure B-3, which ~~is~~are attached as appendix A to this Amended Site Certificate.
7. The combustion turbine(s) shall be surrounded with an acoustically insulated enclosure(s) 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(s) in the event a steam turbine trip occurs. (ASC, B-6)
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, and in the Request for Amendment, Fig. X-1 (which ~~is~~are in appendix C to this Amended Site Certificate); 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)
37. The KCP may burn ~~only~~ low-sulfur oil as a backup fuel, for the auxiliary boiler and as fuel in the emergency diesel generator. ~~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)

##### IV.B. 500 MW EXEMPTION

In interpreting the conditions in section IV.B. of this Amended Site Certificate any ambiguity will be clarified by reference to, and in the following priority, this Amended Site Certificate, the Final Order granted on August 15, 1997, the Final Order granted on XX for the Amended Site Certificate, 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~~ off-site industrial use the energy equivalent of at least 200,000 pounds of steam per hour at 375 psig and 455EF (which is equal to 242.8 MMBtu/hr) on an annual average

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 ~~its~~ the steam host-off-site industrial use. KCP shall report this information to the Council on an annual basis.

KCP's ~~steam host-off-site industrial user~~ shall use at least the energy equivalent of 200,000 pounds of steam per hour at 375 psig and 455E F 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 volume, pressure and temperature delivered to ~~its steam host-off-site industrial use~~ for the applicable five year period. Should the hourly average steam used by KCP's ~~steam host-off-site industrial use~~ be less than the energy equivalent of 200,000 pounds per hour, at 375 psig and 455EF, 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-off-site industrial use~~ at the same or similar cost incentive as provided to KCP's existing ~~off-site industrial use 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, off-site industrial use~~ then KCP shall develop, present to the Council for approval, and implement a program to offset an amount of CO<sub>2</sub>, NO<sub>x</sub> or PM-10, or any combination thereof, equivalent to the monetized incremental emissions resulting from the ~~existing steam host's off-site industrial use~~ of less than the energy equivalent of an average of 200,000 pounds of steam per hour, at 375 psig and 455EF. In any event, KCP shall offset an amount equivalent to the monetized incremental emissions resulting from the ~~existing steam host's off-site industrial use~~ of less than the energy equivalent of an average of 200,000 pounds of steam per hour, at 375 psig and 455EF, 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.

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 at this time also provide the estimated nominal electric generating capacity of the facility. 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 ~~348-500~~ 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 (Year One Test). Based on such test KCP shall certify the nominal electric generating capacity (Year One Capacity) and the net full power heat rate (Year One Heat Rate) of the energy facility on a new and clean basis, as defined in ORS 469.503(2)(e)(G). 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-off-site industrial use~~ 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 the energy equivalent of 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's off-site industrial use), 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 CO<sub>2</sub> emissions resulting from the higher heat rate- from the first 318 MW of nominal electric generating capacity. The higher heat rate demonstrated by the second 100 hour test shall then become the Target Heat Rate. However, no additional offset fund payment shall be required pursuant to Condition IV.B.24.

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 Target 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 CO<sub>2</sub> emissions resulting from the first 318 MW of nominal electric generating capacity and calculated at the new, higher heat rate in which case the new, higher heat rate shall become the Target Heat Rate.

24. Before commencing construction, KCP shall establish an interest bearing escrow account and shall deposit into the escrow account the offset funds payment and selection and contracting fund payment calculated by the following formulas:

OFFSET FUND FORMULA

$$OF = \$7.12 \times IC$$

Where:

OF = the KCP offset fund payment required in dollars; and

IC = the incremental capacity of the Project in kilowatts. The incremental capacity is the amount by which the nominal electric generating capacity estimated by KCP prior to construction pursuant to Condition IV.B.21, exceeds the nominal electric generating capacity of 318 MW.

SELECTION AND CONTRACTING FUND FORMULA

$$SC = \$50,000 + 0.04286 [(\$7.12)(IC) - \$500,000]$$

Where:

SC = the amount paid to the qualified organization to compensate the qualified organization for the costs of selecting offsets and contracting for implementation of offsets. SC cannot be less than \$50,000; and

IC = the incremental capacity of the Project in kilowatts. The incremental capacity is the amount by which the nominal electric generating capacity estimated prior to construction by KCP pursuant to Condition IV.B.21, exceeds the nominal electric generating capacity of 318 MW.

After KCP submits the Year One Test report required by Condition IV.B.22., KCP shall, as appropriate, make additional payment to, or receive a refund from, the offset escrow account and the selection and contracting escrow account based upon the results of the Year One Test. The amount of the additional payment or refund shall be determined by using the Year One Capacity instead of the estimated nominal electric generating capacity in the Offset Fund Formula and the Selection and Contracting Formula, and by adjusting the payment calculated by each formula by the ratio of the Year One Heat Rate divided by 6,795 Btu per kWh (HHV).

Any interest accruing on the escrow accounts before disbursed, shall be for the benefit of KCP and shall be disbursed to KCP upon request. The offset funds in the escrow account shall be for the benefit of the Oregon Climate Trust for use as specified in ORS 469.503(2)(d)(A).

25. Other than depositing the offset payment funds and selecting and contracting funds provided in Condition IV.B.24, KCP shall have no obligation with regards to offsets for the nominal incremental generating capacity of the Project in excess of 318 MW, nor shall any nonperformance, negligence or misconduct on the part of the Oregon Climate Trust be a basis for revocation of the Amended Site Certificate or any other enforcement action by the Council with respect with the City.

246. The combustion turbine 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 fuel 360 hour limitation~~ does not apply to the use of oil in the auxiliary boiler.

#### **IV.D. FINANCIAL ASSURANCE**

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~~ the Termination Fund Amount to be available to pay costs of termination or decommissioning, including site restoration, of the project. ~~("Termination Funds"). For the single CT energy facility, the Termination Fund Amount shall be \$5 million in 1996 dollars. For the two CT energy facility, the Termination Fund Amount shall be \$6.85 million in 1996 dollars. Amounts in the two funds may vary, but their combined value shall be \$5 million in 1996 dollars.~~ the Termination Fund Amount. 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 IV.D.3. may be drawn upon by the Project for only termination or decommissioning costs, including site restoration. ~~The Termination Funds~~ total of the Reserve and Contingency Fund and the separate fund may not be drawn below ~~\$5 million in 1996 dollars~~ the Termination Fund Amount 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~~ the Termination Fund Amount. 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, the Termination Fund Amount,~~ 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.

#### **IV.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), as amended)
2. Noise levels from the KCP shall not exceed those currently generated by neighboring Collins' facilities. (Klamath County Conditional Use Permit 29-95), as amended)
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~~ the County Land Use Planning Hearings Officer on the limited issue of access only. (Klamath County Conditional Use Permit 29-95), as amended). Such review by the Hearings Officer does not eliminate the need for Council review, if otherwise required.

#### **IV.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 ~~2-3.65~~ cubic feet per second (~~900-1,640~~ 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.

#### **IV.O. SOCIO-ECONOMIC IMPACTS**

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, or in the Request for Amendment, Fig. X-1, which is-are in appendix C to this Amended Site Certificate.

#### **IV.Q. NOISE**

2. The KCP shall place its combustion turbine(s) and its associated electrical generator(s), and the steam turbine and its associated electrical generator inside an acoustically insulated building.
4. The KCP shall design the HRSG(s) and stack(s) with resonant frequency above the lowest natural frequency of the exhaust from the combustion turbine(s).

#### **IV.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 or in the Request for Amendment, Table M-1, which is-are in appendix C to this Amended Site Certificate.

### **IV. GENERAL FINDINGS OF FACT**

#### **IV. A. Description of the Approved Facility**

The approved facility is a single, combined-cycle combustion turbine cogeneration facility. It has a capacity to produce about 300 megawatts (MW) of electricity while providing about 200,000 pounds of steam per hour to off-site industrial uses (i.e. cogeneration). The facility is approved to burn primarily natural gas, but, it may burn low-sulfur oil as a backup fuel.

The approved energy facility (power plant) site is within Klamath County, just outside the City of Klamath Falls' urban growth boundary. The site is about one-half mile west of the U.S. Highway 97 bridge over the Klamath River, about three miles southwest of the City of Klamath Falls. The site is on about 15 acres of land owned by Collins Products (formerly owned by Weyerhaeuser Company). Access to the site during both construction and operation will be from U.S. Highway 97.

The approved facility includes several related or supporting facilities:

A new 230 kilovolt (kV) electric transmission line that will connect the power plant to PacificCorp's existing Klamath Falls substation. The line will be about four miles long.

A new underground pipeline to supply cooling water from the City's Spring Street Wastewater Treatment Plant to the power plant. This line will be about six miles long.

A new underground pipeline to return waste water from the power plant to the City's existing sewer system for delivery to the wastewater treatment plant. This line would be about two miles long.

A new underground water line to supply good quality water to the power plant from the City's existing municipal water system. This line would be about two miles long.

#### **IV. B. Description of the Amended Facility**

##### **IV. B. 1. The Energy Facility**

The energy facility is a combined-cycle, combustion turbine (CT) cogeneration facility, which may be based on one (single CT) or two (two CT) combustion turbines. Unless otherwise

indicated, the approximate sizes and capacities discussed in this order are for the two combustion turbine alternative.

##### **Major Structures and Equipment**

The single CT energy facility will be capable of producing 318 megawatts (net) of electricity at site conditions when providing zero pounds per hour of steam to off-site industrial use. The two CT energy facility will be capable of producing up to 500 megawatts (net) of electricity at site

conditions when providing zero pounds per hour of steam to off-site industrial use. The combustion turbines will burn only natural gas. The auxiliary boiler will burn primarily natural gas, but may burn low-sulfur oil as a backup fuel. The emergency diesel generator will burn low-sulfur oil. The estimated life of the energy facility is at least 30 years. The single CT energy facility is shown in the ASC, Fig. B-3 and the two CT energy facility is shown in the Request for Amendment, Fig., B-3, both of which are included in this Order as appendix A.

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

The energy facility (either the single CT or the two CT alternative) includes a turbine generator building about 70 feet high and related structures; one or two heat recovery steam generators that are approximately 110 feet high; one or two HRSG emission stack(s) that are approximately 150 feet high; a mechanical evaporation cooling tower about 50 feet tall; an auxiliary boiler with an exhaust stack that is about 125 feet high; an approximately 30-foot-high, above-ground 200,000 gallon fuel oil storage tank; an electrical substation with outdoor transformers and switches; an approximately 125,000 square-foot stormwater retention/evaporation pond; on-site parking; and a variety of storage tanks and other structures.

The energy facility (either the single CT or the two CT alternative) 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 includes three primary components: the combustion turbine generator(s), the HRSG(s), and the steam turbine generator.

The cycle cooling system includes a water-cooled steam surface condenser, an evaporative mechanical induced draft cooling tower consisting of four cells for the single CT alternative and six or seven cells for the two CT alternative, boiler and cooling tower water chemical treatment systems, and a component cooling system.

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

The electric and transmission system includes an electric power system and a 230 kV electric transmission line to the Pacific Power & Light Klamath Falls substation.

The energy facility also includes NO<sub>x</sub> control systems, a continuous emissions monitoring system, a fire protection system, water treatment systems and a stormwater drainage system.

## **Capacity and Output**

The energy facility will have a nominal electric generating capacity of up to 500 MW (net) with no steam load and using natural gas as the fuel. Authorization for a generating capacity of up to 500 MW provides the KCP with the flexibility to competitively bid the major equipment and take the maximum advantage of potential improvements in technology.

The expected ratings for the single CT 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 of steam to off-site industrial use, and 310 MW at 200,000 pounds per hour of 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 of steam to off-site industrial use, and 300 MW at 200,000 pounds per hour of steam to off-site industrial use.

The expected ratings for the two CT energy facility at annual average conditions (48 degrees F) adjusted to site elevation are (See RFA, Exhibit B, p. B-6, Footnotes 1 and 2):

Gross power output is estimated as approximately 474 MW at zero steam to off-site industrial use, and 453 MW at 200,000 pounds per hour of steam to off-site industrial use.

Net power output is estimated as approximately 464 MW at zero steam to off-site industrial use, and 443 MW at 200,000 pounds per hour of steam to off-site industrial use.

The expected capacity and output of the two CT configuration are based on current manufacturer's information using two Westinghouse 501F CTs. These units result in the highest energy facility electrical output and fuel consumption of the four commercially available CT suppliers.

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

The energy facility will 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 Use**

The energy facility will reuse treated effluent from the City of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP) for its major source of water. This water will be used in the cooling tower system for evaporative cooling. The single CT 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 two CT energy facility is estimated to use up to about 2,325 gallons per minute (gpm) (about 3.35 million gallons per day) of treated effluent on an annual average basis. (See RFA, Table O-1.)

The energy facility will obtain good quality water from the City of Klamath Falls' existing municipal water supply system. The energy facility (either the single CT or the two CT alternative) is estimated to use about 160 gpm (about 0.23 million gallons per day) of this water on an annual average basis.

The energy facility will obtain good quality water from Collins to make steam for Collins. The energy facility (either the single CT or the two CT alternative) 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, about 200 gpm would be condensed steam and about 200 gpm would be from a Collins' groundwater well.

The energy facility will dispose of its wastewater (both process wastewater and sanitary wastewater) to the SSWTP. The single CT energy facility is estimated to produce about 444 gpm (about 0.64 million gallons per day) of wastewater on an annual average basis. The two CT energy facility is estimated to produce up to about 695 gpm (about 1.0 million gallons per day) of wastewater on an annual average basis.

#### **IV. B. 2. Related or Supporting Facilities**

The related or supporting facilities are the same as described in Section II.A.2 of the Site Certificate as originally granted in August 1997.

#### **IV. C. Location of the Amended Facility**

The location of the energy facility site and the related or supporting facilities are the same as described in Section II.B. of the Site Certificate as originally granted in August 1997.

#### **IV. D. Amended General Conditions**

The RFA requests that the following general conditions in Section IV. A. of the Site Certificate be amended as shown in redline and strikeout below:

**IV.A.1.** The conditions in section IV.A.1. are based on statements that the applicant made in its ASC (November 6, 1996), the Request for Amendment (RFA), dated October 6, 1997, 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 or in the RFA, Figure B-3, which ~~is~~are attached as appendix A to this Amended Site Certificate.
7. The combustion turbine(s) shall be surrounded with an acoustically insulated enclosure(s) 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(s) in the event a steam turbine trip occurs. (ASC, B-6)
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, and in the Request for Amendment, Fig. X-1 (which ~~is~~are in appendix C to this Amended Site Certificate); 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)
37. The KCP may burn ~~only~~ low-sulfur oil as a backup fuel: for the auxiliary boiler and as fuel in the emergency diesel generator. ~~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)

The Council finds that the requested changes in General Conditions IV.A. 1, 7, 8 and 35 are appropriate and adopts these changes in this Final Order. However, as a result of the contested proceeding, the Council finds that it is appropriate to modify the language of General Condition IV.A. 37 as discussed in Section V. C. of this order.

The RFA also changes General Conditions IV.A.2 (38 and 39) that specify the deadlines for the commencement and completion of construction by proposing to insert "Amended" before "Site

Certificate" in each condition, as shown below:

38. Construction of the facility shall commence on or before 30 months from the date the Amended Site Certificate is executed.
39. Construction of the facility shall be completed on or before five years from the date the Amended Site Certificate is executed. Construction completion of the facility shall be the commercial operation date of the facility.

The Office confirmed with the KCP that these changes were not intended. Therefore, the Office recommends that the conditions be revised as follows:

38. Construction of the facility shall commence on or before March 5, 2000 (which is 30 months from the date the Site Certificate is ~~was~~ executed).
39. Construction of the facility shall be completed on or before September 5, 2002 (which is five years from the date the Site Certificate is ~~was~~ executed). Construction completion of the facility shall be the commercial operation date of the facility.

These revisions restore the deadlines for commencement and completion of construction to those in the Site Certificate as originally granted in August 1997, and make them explicit by stating the actual dates. The Council adopts these conditions as revised by the Office.

## **V. COMPLIANCE WITH HB 3283 (ORS 469.407 and ORS 469.503(2)): FINDINGS AND CONCLUSIONS**

### **V. A. Applicable Regulations for the Carbon Dioxide Emissions Standard**

Oregon HB 3283 became effective on June 26, 1997. HB 3283 amended ORS 469.501(1)(L) to eliminate the need standard for generating facilities. HB 3283 also amended ORS 469.503(2) to add a carbon dioxide emissions standard for fossil-fueled power plants. The amended statute now provides:

"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 (ORS 469.407) provides:

A(1) A recipient may by amendment of its application for a site certificate or by amendment of its site certificate increase the capacity of the facility if the Energy Facility Siting Council finds that:

A(a) The facility will satisfy the conditions of the 500-megawatt exemption, unless modified by the council;

A(b) The enlarged facility does not exceed 500 megawatts and meets the applicable carbon dioxide standard provided for in ORS 469.503 (2) for any increase in capacity beyond the capacity of the 500-megawatt exemption; and

A(c) The enlarged facility meets all other applicable council standards.

A(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 for the 500-megawatt exemption, unless the council modifies the exemption.

"(3) As used in this section:

A(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 app

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

1997 Or Laws, Ch. 428, Sec. 8. (ORS 469.407)

The Council has previously determined that KCP is a recipient as defined in Section 8 of HB 3283. (August 1997 Final Order, Page 12.) To allow KCP to increase the capacity of the facility for which it received the Site Certificate, the Council must find that KCP satisfies the requirements of Section 8(1)(a)-(c) of HB 3283 (ORS 469.407(1)).

## **V. B. Findings of Facts**

### **V. B. 1. 500-Megawatt Exemption Conditions (HB 3283, Section 8(1)(a))**

Section 8(1)(a) of HB 3283 (ORS 469.407(1)(a)) provides that, to approve an amendment of the Site Certificate to increase the capacity of KCP, the Council must find that:

"The facility will satisfy the conditions of the 500 megawatt exemption unless modified by the council."

The 500 MW Exemption Order dated August 1, 1996 established conditions from the 500 MW Exemption contested case proceeding. As a result of the contested case process for issuance of the Site Certificate, the Council modified some of the conditions from the 500 MW Exemption Order. The conditions as modified by the Council are included in the Final Order and in the Site Certificate. The RFA requests that the Council modify certain of these conditions. The Council has evaluated each of the requested changes. As discussed below, the Council finds that the requested changes, as modified by the Council in this Final Order, will continue to satisfy the conditions of the 500-megawatt exemption as modified by the Council in this Final Order. Therefore, Council finds that the amended KCP satisfies Section 8(1)(a) of HB 3283.

**V. B. 2. 500 Megawatt Capacity Limitation and Carbon Dioxide Standard (HB 3283, Section 8(1)(b))**

Section 8(1)(b) (ORS 469.407(1)(b)) provides that, to approve an amendment of the Site Certificate to increase the capacity of KCP, the Council must find that:

"The enlarged facility does not exceed 500 megawatts and meets the applicable carbon dioxide standard provided for in ORS 469.503(2) for any increase in capacity beyond the capacity of the 500-megawatt exemption ..."

KCP requests Council approval to select one of five alternate combustion turbine configurations. None of the proposed configurations exceeds 500 MW. KCP may not build a two-unit combustion-turbine configuration that exceeds 500 MW. However, the capacity of the units KCP proposes to build may change from the information presented in the RFA prior to the commencement of construction, for example, as a result of the manufacturer's increases in equipment efficiency ratings. For the reasons stated below, the Council finds that the amended KCP satisfies Section 8(1)(b) of HB 3283 and imposes the conditions discussed below in the Amended Site Certificate.

**The Carbon Dioxide Standard**

Section 8(1)(b) of HB 3283 requires KCP to meet the applicable carbon dioxide standard in ORS 469.503(2) for the increase in capacity beyond that authorized in the 500 MW Exemption. ORS 469.503(2)(a) sets the carbon dioxide standard applicable to KCP's increased capacity: AThe net carbon dioxide emission rate for the proposed base load gas plant shall not exceed 0.70 pounds of carbon dioxide emission per kilowatt hour of net electric power output, with carbon dioxide and net electric output measured on a new and clean basis@

ORS 469.503(2)(e)(B) defines a "base load gas plant" as:

"...[A] generating facility that is fueled by natural gas, except for periods during

which an alternative fuel may be used and when such alternative fuel use shall not exceed 10 percent of expected fuel use in Btu, higher heating value, on an average annual basis, and where the applicant requests and the council adopts no condition in the site certificate for the generating facility that would limit hours of operation other than restrictions on the use of alternative fuel. The council shall assume a 100-percent capacity factor for such plants and a 30-year life for the plants for purposes of determining gross carbon dioxide emissions."

KCP's Site Certificate allows it to use distillate fuel as an alternate fuel for power production, but it is requesting in its RFA to drop that allowance from its Site Certificate. Therefore, KCP's power production will be fueled exclusively with natural gas under the Amended Site Certificate. In addition, the Council adopted no condition in the Site Certificate, and KCP now requests no condition, that would limit the hours of operation of the generating facility. Therefore, the Council finds that the facility as amended by the RFA, meets the definition of a base load gas plant.

### **Paths to Meet the Carbon Dioxide Standard**

In order to determine whether a base load gas plant meets the carbon dioxide standard, the Council must determine the gross carbon dioxide emissions of the proposed facility. If the gross carbon dioxide emissions of the facility exceed 0.70 lbs of carbon dioxide per kWh of net electric power output, an applicant for a Site Certificate or amendment must demonstrate sufficient reductions in carbon dioxide emissions, through cogeneration or carbon dioxide emission offset projects, to meet the standard.

An applicant for a Site Certificate or amendment has two alternatives for meeting the standard through offset projects: (1) it may implement projects directly or through a third party pursuant to ORS 469.503(2)(c)(B); or, (2) it may use the "monetary path" pursuant to ORS 469.503(2)(c)(C).

ORS 469.503(2)(e)(I) defines an offset as an action that will be implemented by the applicant, a third party or a qualified organization (in the case of the monetary path) to avoid, sequester or displace carbon dioxide emissions. In its RFA, KCP chose the monetary path in order to meet the carbon dioxide emissions standard.

### **Gross Carbon Dioxide Emissions**

To determine whether KCP meets the net carbon dioxide emission rate standard under ORS 469.503(2)(a), ORS 469.503(2)(c) requires that the Council must first determine the gross carbon dioxide emissions for the incremental capacity of the enlarged facility. ORS 469.503(2)(e)(E) defines the term "gross carbon dioxide emissions" as the "predicted carbon dioxide emissions of the proposed energy facility measured on a new and clean basis."

ORS 469.503(2)(e)(G) defines "new and clean basis" as:

"...[T]he average carbon dioxide emissions rate per hour and net electric power

output of the energy facility, without degradation, as determined by a 100-hour test at full power completed during the first 12 months of commercial operation of the energy facility, with the results adjusted for the average annual site condition for temperature, barometric pressure and relative humidity and use of alternative fuels, and using a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel and a rate of 161 pounds of carbon dioxide per million Btu of distillate fuel, if such fuel use is proposed by the applicant. . ."

To determine the gross carbon dioxide emissions for a base load gas plant, the Council must assume a 100 percent capacity factor and a 30-year project life. ORS 469.503(2)(e)(B).

### **Fuel for Power Production**

KCP requests in its RFA that the Council authorize it to construct a facility that has a maximum nominal generating capacity of up to 500 MW using natural gas as the only fuel for power production.

The original Site Certificate Condition IV.B.24 allows KCP to use distillate fuel as a back-up for steam and power production on a rolling five-year average of 360 hours per year. KCP requests that the Council delete that allowance for power production. Neither the proposed or the original limitation in the condition applies to KCP=s use of distillate fuel in the auxiliary boiler. KCP=s proposed changes for the condition, which it re-numbered to IV.B.26, follow:

#### Condition IV. B. 26

246. The combustion turbine 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 fuel 360-hour limitation does not apply to the use of oil in the auxiliary boiler.

This condition will result in the further reduction of carbon dioxide emissions from the KCP. The Council adopts this conditions with the inclusion of the phrase "or the emergency diesel generator" at the end of the last sentence.

### **Flexibility in Final Turbine Selection**

KCP has not selected the specific combustion turbine configuration and, therefore, has not established the final estimated installed capacity of the facility. However, the Council must determine whether the applicable carbon dioxide standard is met before it may make its decision on the Request to increase the capacity of the facility. In order to allow KCP flexibility in selecting the final performance criteria of a specific combustion turbine, and also allow the Council to determine that the applicable carbon dioxide standard is met, the Office recommends a two-step process. Step one develops a method by which the Council can determine the

appropriate amounts of the monetary path payments based on the specific combustion turbine that KCP selects. This method is then specified as a condition (new Condition IV. B. 24) in the Amended Site Certificate. Step two uses the method to calculate the required amounts of the monetary path payments (the monetary path payment requirement) KCP must make available in escrow funds to the qualified organization prior to beginning construction of the facility. These amounts will be based on the final contracted capacity of the facility, which KCP must submit to the Council before it begins construction pursuant to a modification to Condition IV.B.21 requested by KCP in its RFA.

KCP requests the following changes to Condition IV.B.21 in order to facilitate this two step evaluation:

Condition IV. B. 21

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 at this time also provide the estimated nominal electric generating capacity of the facility (with no steam load and using natural gas as fuel). 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 ~~348~~500 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.

The Council adopts the condition, but rewords the first sentence to incorporate the proposed new sentence to make clear that the "estimated nominal electric generating capacity of the facility" is based on the "plant performance guarantee from the executed contracts for the design and construction of the facility". Further, the Council replaces "estimated" with "expected" because the nominal electric generating capacity will be based on the plant performance guarantee, and is thus no longer an estimate.

The revised Condition VI.B.21 as adopted by the Council reads as follows:

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) and showing the expected nominal electric generating capacity of the facility 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 500 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.

In its RFA, KCP performed the calculations for the two-step process in a manner that allowed it to derive a method for calculating its required monetary path payments (offset funds and selection and contracting funds), based on conditions specific to KCP's RFA. (See the AOffset Fund Formula@and the ASelection and Contracting Fund Formula@in KCP's proposed new Condition IV.B.24, RFA Page SC-26; or see Section III. B. of this order.) While KCP's method accurately calculates the amount of estimated monetary path payments for its facility, the Council chooses to use a method that makes explicit all calculations and that is applicable to estimated payments and additional payments, if any, due after the Year One Test. The illustration in the next subsection "Determining The Monetary Path Payment Requirement" details this approach.

The Office recommends that the Council use this two-step process to ensure that the monetary path payments that KCP must provide before beginning construction closely match the actual monetary path payments required after it has tested the operating facility. The Office also recommends below that KCP receive no refund if it overpays the estimated monetary path payments. Therefore, it is important the amounts KCP puts in escrow be the most accurate estimates at the time.

### **Determining The Monetary Path Payment Requirement (Offset Funds and Selection and Contracting Funds)**

The following discussion illustrates the method the Office recommends to determine the monetary path payments that KCP must make for any increased capacity above that approved in the Site Certificate for the facility. (This methodology is also shown for Offset Funds in Table 1.) For the purposes of determining gross carbon dioxide emissions in this example, the Office uses a nominal generating capacity of the two-unit combustion turbine configuration of 464 MW (net, with no steam to off-site use), based on KCP's RFA. The Site Certificate gives approval to KCP to build a plant with nominal electric generating capacity of 318 MW (net, with no steam to off-site use)(see Section IV. B. 1. "Capacity and Output" of this order).

#### Step One: The Method of Calculation

First, the Council must determine the incremental capacity of the two-unit plant. In this example, the incremental capacity is 146 MW (464 MW minus 318 MW equals 146 MW, or 146,000 kW).

To calculate estimated offset fund payments, the Office uses the proposed incremental capacity (146,000 kW) and heat rate (6,795 Btu/kWh). In the Site Certificate, KCP committed to a heat rate using natural gas of not greater than 6,795 Btu/kWh. The RFA does not change that

commitment.

HB 3283 requires the use of a carbon dioxide factor of 117 pounds of carbon dioxide per million Btu of natural gas fuel use. ORS 469.503(2)(e)(G). The Office multiplies the heat rate (6,795 Btu/kWh) by the carbon dioxide emission factor for natural gas (0.000117 lbs. CO<sub>2</sub>/Btu) to calculate the proposed emissions rate ( 0.795015 lbs. CO<sub>2</sub>/kWh). From that rate, the Office subtracts the carbon dioxide standard of 0.7 lbs. CO<sub>2</sub>/kWh to calculate the excess carbon dioxide emissions rate (0.095015 lbs/CO<sub>2</sub> kWh).

The Office then multiplies the incremental capacity (146,000 kW) by 8,760 hours (365 days) to determine the annual nominal energy for the plant (1,278,960,000 kWh). It then multiplies the annual nominal energy by the excess CO<sub>2</sub> emissions rate and by 30 years. Then it divides that product by 2,000 pounds per ton to calculate total tons of excess CO<sub>2</sub> emissions for the deemed life of the plant (1,822,806 tons).

KCP has selected the "monetary path" provided in ORS 469.503(2)(c)(C) to meet the net carbon dioxide standard. Under the monetary path the payment of \$0.57 is deemed to result in a reduction of one ton of carbon dioxide emissions. Therefore, the Office multiplies the tons of excess carbon dioxide emissions by the unit mitigation rate of \$0.57 per ton of CO<sub>2</sub> to calculate the sub-total for the offset fund (\$1,038,999).

In addition to paying offset funds, KCP must pay the qualified organization to compensate the qualified organization for its costs of selecting and contracting for implementation of offsets. The rate of this payment is specified in ORS 469.503(2)(d)(A)(ii). To calculate the appropriate selection and contracting fund amount, the Office subtracts \$500,000 from the offset fund subtotal, then multiplies the remaining amount (\$538,999) by 4.286 percent, then adds \$50,000 to that product to calculate the selection and contracting fund sub-total (\$73,102).

The Office then adds the sub-totals of the offset fund and the selection and contracting fund to calculate the total funds required to meet the monetary path payment requirement for the amended facility. In this example that amount is \$1,112,101.

#### Step Two: Calculating the Required Payments

For step two of the process, the Office repeats the calculations using the net full power heat rate and capacity performance guarantees from the executed contracts for the design and construction of the facility, as required in the proposed amended Condition IV. B. 21, above.

Based on the above, the Office proposes the following new condition to determine the amount of the monetary path payment requirement that KCP shall make to the escrow accounts for the offset funds and selection and contracting funds.

New Condition IV. B. 24.

24. KCP shall use the following methodology for calculating the offset funds and the

selection and contracting funds (monetary path payment requirement) it must make available to the qualified organization under ORS 469.503(2)(d)(A). KCP shall use the contracted design parameters reported under Condition IV.B.21 to calculate the estimated monetary path payment requirement. KCP shall use the Year One Capacity and the Year One Heat Rate reported under Condition IV.B.22 to calculate whether it owes additional monetary path payments.

- (1) KCP shall first determine the incremental capacity by subtracting 318 MW from the nominal electric generating capacity of the facility with no steam load (using the capacity calculated from the contracted design parameters reported under Condition IV.B.21 or the Year One Capacity reported under Condition IV.B.22);
- (2) KCP shall multiply the heat rate calculated from the contracted design parameters reported under Condition IV.B.21 or the Year One Heat Rate reported under Condition IV.B.22 by the carbon dioxide emission factor for natural gas (0.000117 lbs. CO<sub>2</sub>/Btu) to calculate the carbon dioxide emission rate (lbs. CO<sub>2</sub>/kWh);
- (3) KCP shall subtract the carbon dioxide standard of 0.7 lbs. CO<sub>2</sub>/kWh from the carbon dioxide emission rate to calculate the excess carbon dioxide emission rate (lbs CO<sub>2</sub>/ kWh);
- (4) KCP shall multiply the incremental capacity by 8,760 hours to determine the annual nominal energy for the plant (kWh). KCP shall then multiply the annual nominal energy by the excess CO<sub>2</sub> emission rate, then multiply that product by 30 years. It shall then divide that product by 2,000 pounds per ton to calculate total tons of excess CO<sub>2</sub> emissions resulting from the incremental capacity for the deemed life of the plant;
- (5) KCP shall multiply the total tons of excess carbon dioxide emissions by \$0.57 per ton of CO<sub>2</sub> to determine the sub-total for the estimated or actual offset funds;
- (6) KCP shall subtract \$500,000 from the offset funds subtotal; then multiply the remaining amount by 4.286 percent; then add \$50,000 to that product to determine the estimated or actual selection and contracting funds subtotal;
- (7) When KCP submits the Year One Test report required in Condition IV.B.22, KCP shall increase its payments to the respective escrow accounts for offset funds and selection and contracting funds if the

calculation of the actual amounts of offset funds and selection and contracting funds due exceeds the amounts of those funds that KCP had deposited to the respective escrow accounts prior to commencing construction.

KCP shall make the appropriate calculations and increase its payments if necessary within 45 days of filing its Year One Test report with the Council.

In no case shall KCP receive a refund from the escrow accounts or from the Oregon Climate Trust based on the calculations made using the Year One Capacity to determine the actual incremental capacity and using the Year One Heat Rate.

The Council adopts new Condition IV.B.24 as recommended by the Office.

### **Identification of Qualified Organization**

An applicant that elects to meet the carbon dioxide emission standard by means of the monetary path must identify the qualified organization to whom the monetary offset payment is to be made. The criteria that an entity must meet to be a qualified organization are set out in ORS 469.503(2)(e)(K). Under that section, a "qualified organization" means an entity that:

"(i) Is exempt from federal taxation under section 501(c)(3) of the Internal Revenue Code as amended and in effect on December 31, 1996;

"(ii) Either is incorporated in the State of Oregon or is a foreign corporation authorized to do business in the State of Oregon;

"(iii) Has in effect articles of incorporation that require that offset funds receive pursuant to this section are used for offsets that will result in the direct reduction, elimination, sequestration or avoidance of carbon dioxide emissions, that require that decisions on the use of funds are made by a body composed of seven voting members of which three are appointed by the council, three are Oregon residents appointed by the Bullitt Foundation or an alternative environmental nonprofit organization named by the body, and one is appointed by the applicants for site certificates that are subject to paragraph (d) of this subsection and the holders of such site certificates, and that require nonvoting membership on the decision-making body for holders of site certificates that have provided funds not yet disbursed under paragraph (d)(A) of this subsection;

"(iv) Has made available on an annual basis, beginning after the first year of operation, a signed opinion of an independent certified public accountant stating that the qualified organization's use of funds pursuant to this statute conforms

with generally accepted accounting procedures except that the qualified organization shall have one year to conform with generally accepted accounting principles in the event of a nonconforming audit;

"(v) Has to the extent applicable, except for good cause, entered into contracts obligating at least 60 percent of the offset funds to implement offsets within two years after the commencement of construction of the facility; and

"(vi) Has to the extent applicable, except for good cause, complied with paragraph (d)(A)(I) of this subsection."

KCP identifies the Oregon Climate Trust as the qualified organization to which KCP will provide the offset funds payment. For the following reasons, the Council finds the Oregon Climate Trust is a qualified organization as defined in the statute.

- < Pursuant to HB 3283, KCP identified the Oregon Climate Trust, which has received an exemption from federal income taxation under section 501(c)(3) of the Internal Revenue Code (IRS letter dated November 19, 1997).
- < The Oregon Climate Trust is incorporated in the State of Oregon.
- < The Articles of Incorporation of the Oregon Climate Trust require that offset funds received pursuant to ORS 469.503(2) are to be used for offsets projects that will result in direct reduction, elimination, sequestration or avoidance of carbon dioxide emissions. The Articles of Incorporation of the Oregon Climate Trust require that decisions on the use of such funds be made by a body composed of seven voting members of which three are appointed by the Council, three are Oregon residents appointed by the Bullitt Foundation and one member is appointed by applicants for site certificates that are subject to ORS 469.503(2)(d) and holders of such site certificates.
- < The requirement of ORS 469.503(2)(e)(K)(iv) is not applicable because the Oregon Climate Trust has not yet completed its first year of operation.
- < The requirement of ORS 469.503(2)(e)(K)(v) is not applicable because no facility has yet qualified under the monetary path or provided statutory offset funds to the Oregon Climate Trust. Therefore, the Oregon Climate Trust is not required to demonstrate that it has entered into contracts obligating at least 60 percent of the offset funds to implement offsets within two years after commencement of construction of a facility.
- < The requirement of ORS 469.503(2)(e)(K)(vi) is not applicable because KCP is the first applicant to use the monetary path and no other facility has yet provided offset funds under ORS 469.503(2)(d)(A)(I).

The Council finds that the Oregon Climate Trust meets all of the requirements of a qualified organization as defined in HB 3283.

### **Security for Payment of Offset Funds and Selection and Contracting Funds**

ORS 469.503(2)(d) provides a Site Certificate holder that uses the monetary path shall provide a bond or comparable security in a form reasonably acceptable to the Council to ensure payment of the offset funds. The Site Certificate holder must provide such security by the date specified in the Site Certificate, which shall be no later than the commencement of construction of the facility. KCP proposed in its RFA to establish separate escrow accounts for the offset funds and the selection and contracting funds prior to commencing construction.

The Office recommends that KCP deposit the offset funds (ORS 469.503(2)(d)(A)(i)) and selection and contracting funds (ORS 469.503(2)(d)(A)(ii)) in 1998 dollars, calculated as demonstrated above in new Condition IV.B.24 (as adopted by the Council in this order), in escrow accounts prior to the commencement of construction of the facility. KCP or its agent shall pay funds in these accounts to the Oregon Climate Trust upon the Trust's request pursuant to ORS 469.503(2)(d)(A).

At the end of its proposed new Condition IV. B. 24, KCP requests that any interest accruing on the funds in the escrow accounts accrue to and be payable to KCP. The Council finds that the value of the funds in the escrow accounts should be indexed to 1998 dollars (1998 dollar index adjustment) until the funds are withdrawn by the Oregon Climate Trust. Therefore, the Council finds that that part of the interest that allows the escrow accounts to maintain their 1998 dollar value should accrue to and be payable to the Oregon Climate Trust. The Council finds that any interest accruing on the funds that is above that needed to maintain their 1998 dollar value should accrue to and be payable to the KCP.

Therefore, the Council adopts the following new Condition IV.B.25:

25. KCP shall establish and maintain separate escrow accounts for the offset funds and the selection and contracting funds.
  - (1) KCP shall deposit the estimated offset funds and estimated selection and contracting funds in 1998 dollars, calculated pursuant to Condition IV.B.24, into the escrow accounts prior to commencing construction. KCP or its agent shall disburse the funds to the Oregon Climate Trust for use as specified in ORS 469.503(2)(d)(A).
  - (2) KCP shall deposit any additional funds, in 1998 dollars, into the appropriate escrow accounts, if required under Condition IV.B.24 (7), within 45 days of filing its Year One Test report with the Council.

- (3) The portion of any interest accruing in either escrow account up to the time of disbursement of funds to the Oregon Climate Trust that is equivalent to the 1998 dollar index adjustment (as described in the introduction to Section IV.B. of the Amended Site Certificate) shall be for the benefit of the Oregon Climate Trust and shall be disbursed to the Oregon Climate Trust for use as specified in ORS 469.503(2)(d)(A). Any remaining interest that exceeds the 1998 dollar adjustment at the time of disbursement of funds to the Oregon Climate Trust shall be disbursed to the KCP upon its request.

### **Changes to Related Conditions in Section IV. B. of the Site Certificate**

Section IV.B of the original Site Certificate contains the conditions relating to the 500 MW exemption.

#### **Condition IV.B.1 Relating to Steam**

Site Certificate Condition IV.B.1 currently requires that KCP make available to its steam host at least 200,000 pounds of steam per hour on an annual average basis. The condition further requires that the average steam pressure be not less than 375 pounds per square inch gauge and the average temperature be not greater than 455EF. In specifying the steam pressure and temperature, the Council intended to ensure that the energy content of the steam KCP makes available to its steam host would displace the same quantity of the steam host's air emissions as calculated during the 500 MW Exemption contested case proceeding.

KCP's RFA (RFA Page SC-20) proposes to revise Condition IV.B.1 to require KCP to make available to off-site industrial use steam with the *steam energy equivalent* of at least 200,000 pounds of steam per hour at 375 pounds per square inch gauge and 455EF (which is equal to 242.8 million Btu per hour) on an annual average basis. Because the quantity of air emissions displaced is based on the amount of energy contained in the steam, the proposed modification would not change the quantity of emissions that would be displaced by the steam the KCP makes available to off-site industrial use. KCP requests this modification to provide it with the flexibility to provide steam at the specific steam delivery pressure and temperature requirements of Collins Products and other potential industrial uses of steam. KCP also proposes that the term "steam host" be revised to "off-site industrial use."

The proposed amended Condition IV.B.1, including several clarifications agreed to by the Office and the KCP, follows:

1. KCP shall make available to ~~its steam host~~ off-site industrial use the steam energy equivalent of at least 200,000 pounds of steam per hour at 375 psig and 455EF (which is equal to 242.8 MMBtu/hr) on an annual average 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 its the steam host-off-site industrial use. KCP shall report this information to the Council on an annual basis.~~

KCP's ~~steam host-off-site industrial use~~ shall ~~use~~ be at least the steam energy equivalent of 200,000 pounds of steam per hour at 375 psig and 455E F 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 volume, pressure and temperature delivered to ~~its steam host-off-site industrial use~~ for the applicable five year period. Should the hourly average steam used by KCP's ~~steam host-off-site industrial use~~ be less than the steam energy equivalent of 200,000 pounds per hour, at 375 psig and 455EF, KCP shall develop, present to the Council for approval, and implement a plan to make available and sell to another steam use the ~~amount of~~ steam energy equivalent not used by KCP's existing ~~steam host-off-site industrial use~~ at the same or similar cost incentive as provided to KCP's existing off-site industrial use 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 energy equivalent not used by KCP's existing ~~steam host-off-site industrial use~~ then KCP shall develop, present to the Council for approval, and implement a program to offset an amount of CO<sub>2</sub>, NO<sub>x</sub> or PM-10, or any combination thereof, equivalent to the monetized incremental emissions resulting from the existing steam host's-off-site industrial use of less than the steam energy equivalent of an average of 200,000 pounds of steam per hour, ~~at 375 psig and 455EF~~. In any event, KCP shall offset an amount equivalent to the monetized incremental emissions resulting from the existing steam host's off-site industrial use of less than the steam energy equivalent of an average of 200,000 pounds of steam per hour, ~~at 375 psig and 455EF~~, 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.

The Office recommended that the Council adopt Condition IV.B.1 as amended. However, as a result of the contested case proceeding, the Council finds that it is appropriate to modify the language of this condition as discussed in Section V.C. of this order.

### **Minor Changes to Other Conditions**

In addition to the new and changed conditions the Council adopts above, it also adopts the

following minor changes to the introductory paragraph and other 500 MW exemption conditions in Section IV.B. These changes ensure that all conditions in Section IV.B. conform to the bifurcated requirements of the original 318 MW capacity (which is subject to the requirements of the 500 MW exemption) and any incremental capacity above 318 MW (which is not subject to the requirements of the 500 MW exemption, but is subject to the requirements of HB 3283). These changes are also to ensure that all conditions in Section IV.B are consistent with the changes in Condition IV.B.1. that relate to the energy equivalence of steam.

Site Certificate Section IV.B, Introductory paragraph:

In interpreting the conditions in section IV.B. of this Amended Site Certificate any ambiguity will be clarified by reference to, and in the following priority, this Amended Site Certificate, the Final Order granted on April 17, 1998 for the Amended Site Certificate, the Final Order granted on August 15, 1997, the 500 ~~m~~ Megawatt Exemption 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".

The changes to the Introductory paragraph reflect the amended status of the Site Certificate. The Council adopts the amended language.

Condition IV.B. 22

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 (Year One Test). Based on such test KCP shall certify the nominal electric generating capacity (Year One Capacity) and the net full power heat rate (Year One Heat Rate) of the energy facility on a new and clean basis, as defined in ORS 469.503(2)(e)(G). 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~~ off-site industrial use 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 the steam energy equivalent of 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's off-site industrial use), 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 CO<sub>2</sub> emissions resulting from the higher heat rate. This requirement to offset the incremental CO<sub>2</sub> emissions resulting from the higher heat rate determined from the second 100 hour test shall only apply to the first 318 MW of nominal electric generating capacity. The higher heat rate demonstrated by the second 100 hour test shall then become the Target Heat Rate.

The proposed changes to Condition IV.B.22 are two-fold. One, the language distinguishes between the first 100-hour test (Year One Test; Year One Heat Rate; and Year One Capacity) required both by the original Condition IV.B.22 and by ORS 469.503(2)(a), as amended by HB 3283, and subsequent tests required by Condition IV.B.23 relating only to the first 318 MW. Two, text changes reflect the adoption of the "energy equivalent of steam" substitution made in Condition IV.B.1, as discussed above.

KCP also proposed a sentence to be added to the end of Condition IV.B.22 (see RFA Page SC-25; or see Section III.B. of this order) to clarify that the requirements for monetary path payments do not apply to tests after the Year One Test. However, the Council finds that KCP's proposed language would preclude the possibility that the Council and KCP might agree at their discretion to allow payment at the monetary path rate for inability of KCP to meet the performance requirements of subsequent tests that apply to the first 318 MW. Moreover, the Council believes that the language in HB 3283 is clear that the monetary path requires only one payment, based on the Year One Test. Therefore, the Council adopts Condition IV.B.22 as stated above without the sentence proposed by KCP.

#### Condition IV.B. 23

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 Target 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

IV.B. 22); or.

- (2) develop, present to the Council for approval, and implement, a program to offset the incremental CO<sub>2</sub> emissions resulting from the new, higher heat rate in which case the new, higher heat rate shall become the Target Heat Rate. This requirement to offset the incremental CO<sub>2</sub> emissions resulting from the new, higher heat rate shall only apply to the first 318 MW of nominal electric generating capacity.

The original Site Certificate requires a series of 100-hour tests that are only applicable to the original 318 MW of capacity. The proposed changes to Condition IV.B.23 limit the application of that condition to the first 318 MW. The Council adopts Condition IV.B.23, as amended.

KCP proposed a new Condition IV.B.25 (RFA Page SC-27) that repeats language from HB 3283 regarding the limit on the obligations of a Site Certificate holder once it has made monetary path payments under ORS 469.503(2)(d).

Proposed New Condition IV.B.25

25. Other than depositing the offset payment funds and selection and contracting funds provided in Condition IV.B.24, KCP shall have no obligation with regards to offsets for the nominal incremental generating capacity of the Project in excess of 318 MW, nor shall any nonperformance, negligence or misconduct on the part of the Oregon Climate Trust be a basis for revocation of the Amended Site Certificate or any other enforcement action by the Council with respect with the City.

The Council adopts KCP's proposed new Condition IV.B.25, with two changes: the reference within Condition IV.B. 25 to "Condition IV.B.24" is changed to "Condition IV.B.25"; and the last instance of "with", in the condition, is deleted and is replaced by "to". Further, Condition IV.B. 25 is renumbered to Condition IV.B.27.

### **V. B. 3. Other Council Standards (HB 3283, Section 8(1)(c))**

Section 8(1)(c) of HB 3283 (ORS 469.407(1)(c)) provides that a recipient of the 500 MW exemption may amend its Site Certificate to enlarge its facility if the Council finds that the enlarged facility meets all other applicable Council standards. The Council finds that the findings in Sections IV, VI and VII of this order demonstrate that either the single combustion turbine or the two combustion turbine alternative meets all other applicable Council standards and requirements.

### **V. C. Contested Issues (B. through H.)**

#### **V. C. 1. Findings of Fact**

On August 15, 1997, the Council issued a final order which authorized issuance of a site certificate to KCP. On October 7, 1997, KCP submitted a request to amend the site certificate. OAR 345-27-050. The request sought to make changes in the construction and operation of the facility, as well as to revise a condition of the site certificate. The Office=s Proposed Order, issued on December 8, 1997, recommended approval of an amendment to the site certificate as described in its order.

In their request for a contested case proceeding, Requestors raised eight issues, A. through H., related to the Office=s Proposed Order. The Council considered their request on January 23, 1998. OAR 345-27-070. The Council determined that a contested case proceeding should be held on issues B. through H.

The resolution of issues B. through H. did not require a trial-type hearing. In their preliminary responses, the Office and KCP explained provisions recommended in the Proposed Order and suggested additional wording to certain of the conditions recommended in the Proposed Order. In their opening brief, Requestors stated that they Appreciate[d] the consideration of the issues@ by the Office and KCP in their preliminary responses. Requestors accepted the explanations and suggested wording in the Office=s preliminary response. KCP and UGC either accepted or did not object to the Office=s explanations and wording.

As a means of ensuring that the Office=s explanations and suggested wording in its preliminary response were followed, Requestors Ask[ed] only that the Council expressly recognize that these explanations [and wording] should guide the implementation of the requirements of the site certificate.@(Op. Br. 1).

## **V. C. 2. Ultimate Findings of Fact, Reasoning and Conclusions of Law**

### **Introduction**

In issues B. through H., Requestors essentially sought clarification of certain provisions recommended by the Office in its Proposed Order on KCP's request for an amendment. The preliminary responses of KCP and the Office, in particular, provided the clarification by explaining certain of the provisions and by suggesting new wording to three conditions recommended in the Proposed Order.

Based upon the explanation of the provisions and the suggested new wording, the following clarifies the provisions in the Proposed Order related to issues B. through H.

### **Issue B: Requirement to Provide Steam for Off-site Industrial Use**

In their request for a contested case proceeding, Requestors expressed their understanding that the revision to Condition IV. B. 1. recommended in the Proposed Order, changed the

A requirement to provide 200,000 pounds of steam per hour for industrial use to 'zero pounds'.@ (Req. 4).

The revision recommended in the Proposed Order (shown in italics) changed the wording of the requirement: "KCP shall make available to *off-site industrial use the steam energy equivalent of* at least 200,000 pounds of steam per hour *at 375 psig and 455 degrees F (which is equal to 242.8 MMBtu/hr)* on an annual *average* basis."

This recommended revision did not change the meaning of the requirement in the condition.

Requestors correctly pointed out that the A calculation [of the energy equivalent of the steam provided] is not explained.@ (Req. 4). KCP and the Office intended that standard A steam tables@ prepared by organizations such as the American Society of Mechanical Engineers be used. In its preliminary response, the Office explained that:

A\*\*\* KCP used these tables to calculate the energy in (that is, the energy equivalent of) 200,000 pounds per hour of steam at 375 psig and 455 degrees F, which equals 242.8 million Btu per hours (MMBtu/hr).\*\*\*[T]he Office reviewed KCP=s calculations and agreed with their results.@ (Prelim. Resp. 2).

To clarify that standard steam tables were intended to be used in calculating the energy equivalent of the steam, the Office suggested adding the following sentence at the end of the first paragraph of Condition IV. B. 1:

A\*\*\*KCP shall calculate the steam energy equivalent of the steam it makes available to off-site industrial use using accepted values for the energy content of the steam, such as those found in steam tables published by the American Society of Mechanical Engineers.@ (Prelim. Resp. 2).

The additional sentence clarifies the method of calculation. The Council adopts this language.

In addition, Requestors pointed out that the revision recommended in the Proposed Order was A not entirely clear \*\*\* that the energy equivalent in steam must be \*\*\* produced by the KCP itself.@ (Req. 4). To clarify that KCP is to be the provider, the Office in its preliminary response suggested adding the wording A from the Energy Facility@ to the first sentence of the revision to Condition IV. B. 1. recommended in the Proposed Order. The Office=s suggested wording (in italics) when added to the revised first sentence clarifies that KCP is to be the provider of the steam:

AKCP shall make available *from the Energy Facility* to off-site industrial use the steam energy equivalent of at least 200,000 pounds of steam per hour at 375 psig and 455 degrees F (which is equal to 242.8 MMBtu/hr) on an annual average

basis. \*\*\*.

The Council adopts this additional wording.

**Issue C: Mitigation of Emissions because of Failure to Reach the Target Heat Rate**

In their request for a contested case proceeding, Requestors stated that the Proposed Order Appears to allow [KCP] to fail to meet any heat rate requirement on the capacity above 318 MW. (Req. 5).

In its preliminary response, the Office explained how the conditions recommended in the Proposed Order required KCP to meet the heat rate requirement on the capacity above 318 MW. The Office's clarification was based upon the relationship among:

- (1) the A100-hour test requirement in HB 3283 (ORS 469.503(2)(e)(G));
- (2) Condition IV. B. 22 which requires KCP to conduct the A100-hour test within one year of commercial operation of the facility (Year One Test); and
- (3) Condition IV. B. 24 which provides the method of calculation of the amount of monetary path payments which KCP may be required to make.

Condition IV. B. 24 requires that KCP use the heat rate which is determined by the A100-hour test (Year One Test) in the calculation of the amount of monetary path payments for KCP's carbon dioxide emissions for the capacity above 318 MW. If the calculation using the heat rate determined by the A100-hour test (Year One Test) shows that the amounts of the funds which KCP had deposited in the escrow accounts before commencing construction were insufficient, Condition IV. B. 24 (7) also requires KCP to increase the amounts on deposit to the appropriate levels. The Council agrees that the Office's explanation expresses its intent.

**Issue D: KCP's Calculation of Offset Funds**

In their request for a contested case proceeding, Requestors expressed concern whether the formulas which KCP proposed in its revision to Condition IV. B. 24 will produce the contributions required by law. (Req. 5). The formulas were to be used for calculating the amount of the deposits into the escrow accounts. The Office agree[d] that it is not immediately clear that the new formulas \*\*\* would produce the monetary contributions required by HB 3283. (Prelim. Resp. 4). As a result, the Office recommended in its Proposed Order that the Council adopt a method that makes explicit all calculations and that is applicable to estimated payments and additional payments, if any, due after the Year One Test. (Prop. Or. 33).

The Office recommended its own version of Condition IV. B. 24 in the Proposed Order (at 35-36). The Office's recommended condition sets out each of the steps that must be used to calculate the monetary path payments required by HB 3283. ORS 469.503.

The Office's recommended Condition IV. B. 24 is an acceptable replacement for KCP's version of the condition. The Council adopts the Office's recommended condition.

### **Issue E: Interest on Funds in Escrow Accounts**

In their request for a contested case proceeding, Requestors argued that A[n]one of the interest [accrued in the escrow accounts] should be rebated to KCP@because Requestors considered that Athe value of money at any given time is its corpus plus earnings.@(Req. 6).

HB 3283 contains no provision regarding interest on the security given to ensure payment of the funds required by the statute. ORS 469.503(2)(d). HB 3283 requires that the site certificate holder Aprovide a bond or comparable security.@ORS 469.503(2)(d). The statute does not require the funds to be placed in an escrow account or any other kind of interest-accruing account. Therefore, the Council has no statutory authority for requiring that *all* of the interest accrued be retained to ensure payment of the funds.

But the Council does have a responsibility that the security which KCP provides is sufficient Ato ensure payment of the offset funds@and to compensate the Aqualified organization@for its selection and contracting services. ORS 469.503(2)(d). Because the funds are to be deposited in the escrow accounts in 1998 dollars, before KCP commences construction, but may not be withdrawn for use until a later date, the purchase value of the funds when deposited should equal the purchase value of the funds when used. The purchase value of the deposited funds may be maintained by requiring that a sufficient amount of the accrued interest be added to the funds which would enable the funds to have same purchase value as deposited in 1998 dollars. In its Proposed Order, the Office recommended that the Council adopt Condition IV. B. 25 which contained a provision on maintenance of the 1998 dollar value of the funds deposited in the escrow accounts. KCP did not object to the condition, although it did not agree with the requirement that the funds should be indexed to 1998 dollars. All the parties accepted the provision in the Office=s condition that A[a]ny remaining interest that exceeds the 1998 dollar adjustment at the time of disbursements of funds to the Oregon Climate Trust shall be disbursed to KCP upon its request.@(Prop. Or. 39).

Requestors also stated that they were unclear as to how the 1998 dollar Aequivalents are to be calculated.@(Req. 5-6). The method for calculation proposed by the Office was the same method contained in the introductory paragraph in the section on the 500 MW Exemption Conditions in the Council=s August 15, 1997 Final Order: AFor 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.@

The Council finds that the Office=s recommendations on maintenance of the 1998 dollar value of the funds deposited in the escrow accounts and on the method of calculation of the 1998 dollar value are acceptable and adopts them.

### **Issue F: Emissions Occurring After 30 Years of Operation**

In their request for a contested case proceeding, Requestors argued that KCP Ashould be required to maintain responsibility for offsetting@emissions which would occur if the life of the facility

exceeds 30 years. (Req. 6). In their preliminary responses, the Office and KCP pointed out that the provision in HB 3283 for determining gross carbon dioxide emissions is based upon a 30-year life of the facility.

The Council concludes it has no statutory authority for requiring KCP to maintain responsibility for offsetting emissions beyond 30 years.

### **Issue G: Emergency Diesel Generator**

In their request for a contested case proceeding, Requestors stated that the Office's Proposed Order did not contain an Analysis of the emissions resulting from the new proposed diesel generator. (Req. 6). In their preliminary responses, the Office and KCP explained that an emergency diesel generator was included in KCP's present Site Certificate. The emergency diesel generator was not Anew. @

Requestors were apparently confused because KCP more clearly referred to the emergency diesel generator in its requested amendment. (Prop. Or. 6).

Moreover, the emergency diesel generator would have a small capacity (no greater than 500 net kilowatts), and would operate only under emergency conditions when the facility was not operating and during brief periods of testing and maintenance. Therefore, the CO2 emissions from operation of the emergency diesel generator would be insignificant. In making the calculation on the monetary path payments the facility is assumed to be operating at 100-percent capacity. Any CO2 emissions from operation of the emergency diesel generator during periods when the facility is not operating are necessarily encompassed in the calculation, even though the emissions from the emergency diesel generator would be significantly lower than the emissions when the facility is operating.

In its preliminary response, the Office suggested some additional wording to General Condition IV. A. 14 of the Site Certificate for clarification. When the Office's suggested wording (in italics) is added to the condition, General Condition IV. A. 14 more clearly describes the nature and use of the emergency diesel generator:

*AThe energy facility control system shall include an uninterruptible power supply to provide emergency power to critical equipment in the event of a power outage. The KCP shall include an on-site emergency diesel generator. Except for brief periods for testing or maintenance, the emergency diesel generator may operate only to provide on-site power during conditions when the Energy Facility is not operating and power is not otherwise available. The emergency diesel generator shall have a capacity no greater than 500 net kilowatts. @*

The Council adopts the Office's suggested wording.

### **Issue H: Permission to Burn Low-sulfur Oil**

KCP Amendment 1, Final Order, April 1998, page 46

In their request for a contested case proceeding, Requestors argued that KCP=s requested amendment A could be interpreted to allow the burning of high-sulfur oil. (Req. 6). To remove any ambiguity, KCP and the Office recommended that the following wording be substituted for recommended General Condition IV. A. 37:

AKCP may burn only natural gas, as primary fuel, and low-sulfur oil as backup fuel for the auxiliary boiler. KCP may burn only low-sulfur fuel in the emergency diesel generator.

The above wording was acceptable to the Requestors.

The above wording is an acceptable replacement for recommended General Condition IV. A. 37, and the Council adopts this wording.

Based upon the above findings of fact, ultimate findings of fact, reasoning and conclusions of law, we adopt the the following additional language which shall be placed on page one of the Amended Site Certificate:

"In interpreting this Amended Site Certificate, any ambiguity will be clarified by reference to, and in the following priority, this Amended Site Certificate, the Final Order granting amendment number 1 to this Amended Site Certificate, the Final Order granted on August 15, 1997 for the ASC, the 500 Megawatt Exemption Final Order, and if necessary the record of the proceedings which led to those Orders."

#### **V. D. Conclusions of Law**

The Council concludes that the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, satisfies the requirements of HB 3283 (ORS 469.407).

**Table 1**  
**Klamath Cogeneration Project - Two-CT Configuration**  
**Gross Carbon Dioxide Emissions and**  
**Monetary Path Offset Funds Payment**  
**(Example Calculation)**

<b>Performance Parameters</b>	
Nominal Power Output Enlarged Unit (kW) <sup>1</sup>	464,000
Nominal Power Output Base Unit (kW)	318,000
Incremental Capacity (kW)	146,000
Load Factor (%)	100%
Fuel	gas
Time on Primary Fuel (hr/yr)	8,760
Annual Nominal Incremental Energy (kWh/yr)	1,278,960,000
Heat Rate (Btu/kWh)	6,795
Natural Gas Carbon Dioxide Rate (lb/MMBtu)	117
Incremental lbs CO <sub>2</sub> /kWh	0.795
HB 3283 Standard lbs CO <sub>2</sub> /kWh	0.70
Net Incremental lbs CO <sub>2</sub> /kWh	0.095
Incremental Increase Over 30 Years (tons)	1,822,806
CO <sub>2</sub> Offset Rate \$/ton	0.57
Illustrative Offset Funds Payment \$	1,038,999
<sup>1</sup> Net output at site conditions with zero steam to off-site industrial use.	

## **VI. COMPLIANCE WITH COUNCIL STANDARDS: FINDINGS AND CONCLUSIONS**

### **VI. A. General Standard of Review**

Under ORS 469.503, as amended by HB 3283, 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 facility complies with the standards adopted by the Council pursuant to ORS 469.503;
- (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;
- (3) 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 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
- (4) The 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 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 VII. B. of this order. 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.

### **VI. B. Organizational, Managerial and Technical Expertise**

The Council's standard, OAR 345-22-010, has not changed since the Council approved the KCP in August 1997.

The RFA does not require any change to the findings in Section IV.C.1. of the Final Order, because it does not change the applicant's organization or expertise and because it does not require any new expertise as it does not involve new or different technology from the approved KCP.

However, certain of the findings regarding the applicant's organization and expertise have changed as a result of other activities that are independent of the RFA.

The City of Klamath Falls holds the Site Certificate for the KCP. The City contracted with Pacific Generation Company (PGC) for necessary services to develop, finance, construct and operate the KCP. PGC provided those services through its wholly-owned subsidiary Pacific Klamath Energy, Inc. (PKE). At that time, PGC was a subsidiary of PacificCorp Holdings, Inc. (PHI), which is a wholly-owned subsidiary 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.

PHI has sold PGC. The sale included PGC's 12 operating power plants and the operating staff at those plants. The sale did not include Pacific Klamath Energy, Inc., or the Klamath Cogeneration Project, both of which were kept by PHI. The sale also did not include PGC's professional and management staff in the Portland office, including power generation project development, engineering, finance, O&M, and asset management personnel. Therefore, the expertise that was used to permit, develop, finance, and manage the construction and O&M for each of PGC's 12 operating plants has been retained by PHI and will continue to be applied to the KCP. In addition, PacifiCorp currently owns or operates 16 cogeneration and thermal power plants. New plants, such as the KCP, that PHI brings into commercial operation will be managed along with PacifiCorp's existing portfolio of more than 10,000 megawatts of generation capacity. The project development agreement between the City and PGC has been superseded by a new agreement between the City and Pacific Klamath Energy, Inc.

In response to these changes, and as part of this Final Order, the Council amends Condition IV. C. 2. as follows: "The City of Klamath Falls shall promptly notify the Council if for any reason ~~Pacific Generation Company (PGC)~~ Klamath Energy, Inc. (PKE), or its affiliates, do not provide the services to develop, construct and operate the KCP described in this order."

Conclusions of Law. The Council concludes that the City of Klamath Falls, subject to the conditions in this order and stated in the Amended Site Certificate, has demonstrated through its agreement with Pacific Klamath Energy, Inc., that it has the organizational, managerial and technical expertise to construct and operate the amended 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.

## VI. C. Financial Assurance

The Council's standard, OAR 345-22-050, has not changed since the Council approved the KCP in August 1997.

The estimated cost to retire the approved KCP and restore the site is \$5 million in 1996 dollars. The estimated cost to retire the two CT alternative, if the Request is approved, is \$6.85 million in 1997 dollars. These estimates are consistent with estimates the Council has received and accepted for other similar energy facilities.

The conditions of the Site Certificate for the approved KCP require that the KCP must maintain either in the Reserve and Contingency Fund or in a separate fund a balance of cash and investment securities equal to \$5 million in 1996 dollars to be available to pay cost of termination or decommissioning the KCP, including site restoration. These two funds are called the Termination Funds. The conditions also require that the combined monies in the Termination Funds may not be drawn below \$5 million in 1996 dollars unless, prior to such draw, the City provides to the Council a performance and payment bond, surety bond or letter of credit in the amount necessary to provide that the balance in the Termination Funds equals \$5 million in 1996 dollars. The conditions further provide that the City may provide a performance and payment bond, surety bond or letter of credit to the Council in lieu of funding part of all of the \$5 million in 1996 dollars with cash or investment securities.

The RFA asks to modify three of these conditions. Condition IV.D.3 requires the KCP to establish and maintain a fund to provide for termination or decommissioning costs. Currently, the amount of the fund is based solely on the single combustion turbine combined-cycle cogeneration facility alternative approved by the Council. To ensure that Condition IV.D.3 is applicable to both the single and the two combustion turbine combined-cycle cogeneration facility alternatives, the KCP is requesting that the Condition be revised to provide a separate fund amount for both the one and the two combustion turbine energy facility alternatives. The fund amount for each alternative is defined as the A Termination Fund Amount. @

The amended language that the KCP proposes for Condition IV.D.3 is:

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~~ the Termination Fund Amount to be available to pay costs of termination or decommissioning, including site restoration, of the project. ~~("Termination Funds")~~. For the single CT energy facility, the Termination Fund Amount shall be \$5 million in 1996 dollars. For the two CT energy facility, the Termination Fund Amount shall be \$6.85 million in 1997 dollars. Amounts in the two funds may vary, but their combined value shall be \$5 million in 1996 dollars. the Termination Fund Amount. 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.

Condition IV.D.4 and Condition IV.D.5 also concern maintenance of the fund necessary for termination or decommissioning costs. The KCP requests that these Conditions be modified to ensure their applicability to the separate fund amounts for both the single and the two combustion turbine combined-cycle cogeneration facility alternatives. Thus, the KCP requests that the defined term "Termination Fund Amount" be used in place of the dollar amount specific to the single combustion turbine energy facility alternative.

The amended language proposed in the RFA for Conditions IV.D. 4 and IV.D.5 is:

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 IV.D.3. may be drawn upon by the Project for only termination or decommissioning costs, including site restoration. The Termination Funds total of the Reserve and Contingency Fund and the separate fund may not be drawn below \$5 million in 1996 dollars the Termination Fund Amount 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. the Termination Fund Amount. 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, the Termination Fund Amount~~ 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.

The Council finds these requested changes to conditions IV.D. 3, 4 and 5 acceptable because they do not change the fundamental obligations of the City to provide adequate financial resources to restore the site. The Council adopts these conditions in this Final Order.

The Site Certificate contains an introductory paragraph regarding the conditions related to the Council's Financial Assurance standard (section IV.D., page 30). It specifies the index by which the future value of money shall be converted to 1996 dollars. The Council's estimate for the restoration of the two CT alternative is in 1997 dollars, not 1996 dollars. Therefore, the Council amends this paragraph to apply the same index to convert future dollars to 1997 dollars by inserting, in the Site Certificate on page 30, line 10, "or 1997" after "1996" and before "dollars".

Conclusions of Law. The Council concludes that \$6.85 million in 1997 dollars is a reasonable estimate of the cost to restore the site for the two CT energy facility to a useful, non-hazardous condition. The Council further concludes that the City of Klamath Falls, subject to the conditions in this order and stated in the Amended Site Certificate, 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.

#### **VI.D. Land Use**

The Council's standard, OAR 345-22-030, has not changed since the Council approved the KCP in August 1997.

The RFA does not affect any of the land use approvals the KCP has obtained for related or supporting facilities located outside the boundary of the Energy Facility Site. However, the requested amendments require an amendment to Klamath County Conditional Use Permit (CUP) 29-95 for the Energy Facility Site.

The KCP requested that the county amend CUP 29-95 to allow the changes to the Energy Facility requested in the RFA. On December 19, 1997 a City Hearings Officer heard the request to amend CUP 29-95 at a public hearing. On December 30, 1997, the Hearings Officer issued an order approving the KCP's request to amend CUP 29-95. The order did not include any new conditions, and deleted Condition B (Condition VI.E. 2 in the Site Certificate) , which addressed noise, from amended CUP 29-95. The order was not appealed and is final.

The RFA asks to modify Conditions IV.E.1, IV.E.2, and IV.E.3 in the Site Certificate to add "as amended" after reference to the county Conditional Use Permit to ensure that the conditions in the Site Certificate reference any changes to the county Conditional Use Permit as a result of the county's decision regarding the amendment. The RFA and the Office also propose several scrivener changes to reflect the amended CUP 29-95 which are shown below:

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), as amended in December 1997)
- ~~2. Noise levels from the KCP shall not exceed those currently generated by neighboring Collins' facilities. (Klamath County Conditional Use Permit 29-95), as amended in December 1997)~~
- 3~~2~~. 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~~ the County Land Use Planning Hearings Officer on the limited issue of access only. (Klamath County Conditional Use Permit 29-95), as amended in December 1997). Such review by the Hearings Officer does not

eliminate the need for Council review, if otherwise required.

- | 43. Any performed work or construction on Oregon Department of Transportation (ODOT) 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)
- | 54. 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)
- | 65. 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 City Hearings Officer does not eliminate the need for Council review, if otherwise required.

The Council finds that these requested changes are appropriate because the KCP elected to satisfy the Council's Land Use Standard by obtaining all local land use approvals from affected local governments as provided in ORS 469.504(1)(a) [Section 5 of HB 3283 (formerly ORS 469.503(2)(a))] and OAR 345-22-030(2)(a). The Council adopts these changes in this Final Order.

Conclusions of Law. The Council concludes that the KCP as modified by the RFA, has obtained all local land use approvals required under the acknowledged comprehensive land use regulations of the affected local governments, and complies with the statewide planning goals adopted by the Land Conservation and Development Commission.

#### **VI.E. Structural Standard**

The Council's standard, OAR 345-22-020, has not changed since the Council approved the KCP in August 1997.

The RFA does not change the location or acreage required for the KCP. Therefore, the findings of fact (Section IV.D.2) regarding geologic and seismic conditions of the Council's August 1997 Final Order remain the same. All of the information relating to site characterization, seismic zone and anticipated seismic events remains the same. Similarly, the changes in facility design (an additional combustion turbine and heat recovery steam generator, and a smaller fuel oil storage tank) do not require any change to the findings of fact as they relate to potential impacts (ground motion amplification, mass movement, differential settlement, liquefaction, surface fault displacement). The amended KCP would be designed using standard geotechnical engineering practices, which would ensure that potential impacts remain insignificant.

Therefore, the Conclusions of Law in Section IV.D.2 of the August 1997 Final Order are not affected by the RFA and the applicable standard, OAR 345-22-020, is satisfied.

**Conclusions of Law.** The Council concludes that the KCP, 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 has shown, subject to the conditions in this order and stated in the Amended Site Certificate, that the KCP, as modified by the RFA, can be designed, engineered, and constructed adequately to avoid potential dangers to human safety presented by seismic hazards affecting the site, including amplification, that are expected to result from all reasonably probable seismic events.

#### **VI.F. Retirement**

The Council's standard, OAR 345-22-130, has not changed since the Council approved the KCP in August 1997.

The RFA does not require any change to the findings of fact regarding facility retirement (Section IV.D.3) in the Council's Final Order for the KCP. The RFA does not change land uses or zoning of lands at and surrounding the site. It does not involve disturbance to additional lands or to lands that were not already evaluated in the Final Order. It does not involve new types of structures, equipment or materials that were not evaluated in the Final Order. It does not change the manner in which the KCP would manage hazardous or non-hazardous solid wastes, or protect against accidental spills or releases from the site.

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

#### **VI.G. Soil Protection**

The Council's standard, OAR 345-22-022, has not changed since the Council approved the KCP in August 1997.

The RFA does not require any change to the findings of fact regarding soil protection (Section IV.E.1) in the Council's Final Order for the KCP. Construction and operation of the amended KCP would not disturb or affect any lands that were not evaluated in the Council's Final Order.

**Conclusions of Law.** The Council concludes that the design, construction and operation of the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, is not likely to result in a significant adverse impact to soils.

#### **VI.H. Protected Areas**

The Council's standard, OAR 345-22-040, has not changed since the Council approved the KCP in August 1997.

The RFA does not require any change to the findings of fact in the Council's Final Order (Section IV.E.2) regarding the protected areas within a 20-mile radius of the energy facility site or their purposes, or the kinds of possible impacts the KCP could have on these protected areas: noise, traffic, air emissions, cooling tower operation, water consumption and wastewater discharge. The RFA does require changing certain of the findings of fact with regard to the specific nature of some of these potential impacts as discussed below.

**Noise.** The RFA would not result in increased noise levels over those evaluated in the noise section of the Council's Final Order (Section V.A.1) at any protected area, including the Klamath Wildlife Refuge which is directly across the Klamath River (see Section VII. A.1 of this order).

**Traffic.** The RFA would not result in increased traffic or a longer construction period and does not require any change to the findings of fact in the Council's Final Order regarding traffic impacts on protected areas, including the Klamath Wildlife Refuge.

**Air Emissions.** The greatest possible impacts to protected areas from air emissions (visibility degradation and acid rain) would occur when the KCP burns oil. The RFA reduces that amount of oil that the KCP would be allowed to burn. Thus, the RFA would reduce the likelihood of these adverse impacts from air emissions. Moreover, the amended KCP must obtain an Air Contaminant Discharge Permit (ACDP) from the Oregon Department of Environmental Quality (DEQ) before it may be built or operate. The authority to issue this permit in Oregon has been delegated to the DEQ by the federal government. DEQ has reviewed the KCP as approved by the Council and as proposed to be amended by the RFA. DEQ has determined that the KCP has demonstrated that the proposed amendments would not violate Oregon or federal air quality standards or adversely impact air quality in the Klamath Basin (Brewer, DEQ, letter dated October 31, 1997). Compliance with the federal standards can reasonably be expected to prevent any significant adverse impact to protected areas from KCP air emissions.

**Cooling Tower Operation.** The RFA would result in minor changes in the frequency of occurrence and the dimensions of the visible plume from cooling tower operation (See section VI. K. of this order for more detail). These changes would be too small to cause any adverse impact on protected areas. Moreover, the presence of the plume would not result in a significant adverse impact to the closest protected areas, the Klamath Wildlife Refuge and the OSU Klamath Experiment Station, because their primary purposes are not related to visual characteristics. Other protected areas would be unaffected because of their distance from the site.

The RFA would increase the estimated salt drift from cooling tower operation. Salt drift and deposition at the closest protected area, the Klamath Wildlife Refuge (about 700 meters (about

2300 feet) from the energy facility site) is projected to increase from about 0.35 kilograms per square kilometer per month for the approved KCP to about 0.52 kilograms per square kilometer per month for the amended KCP. The Council finds this level of salt deposition to be insignificant.

**Water Consumption.** The approved KCP will consume more water from the City's Spring Street Wastewater Treatment Plant (SSWTP) than it returns to the treatment plant. Thus, the approved KCP will reduce the amount of effluent the treatment plant discharges to the river (by a maximum of about 2 cubic feet per second on an annual average basis). The amended KCP would require more water from the treatment plant than the approved KCP and would further reduce the amount of effluent the treatment plant would discharge to the river up to a maximum of about 4 cubic feet per second, on an annual average basis. The Oregon Departments of Parks and Recreation, and Fish and Wildlife, have indicated this reduction in effluent discharge to the river would not pose an adverse impact to protected areas, including the wild and scenic section of the Klamath River about 13 miles downstream from the treatment plant outfall (Brutscher, ODFW, pers. comm., Oct. 24, 1997; Anglin, ODFW, letter dated Nov. 4, 1997). The Council finds this reduction in effluent discharge would not pose as adverse impact to protected areas.

**Wastewater Discharge.** The RFA does not require any change to the findings of fact regarding wastewater discharge and protected areas (Section IV.E.2) in the Council's Final Order for the KCP. The amended KCP would discharge its wastewater to the City of Klamath Falls sanitary sewer system for delivery to the City's Spring Street Wastewater Treatment Plant. The treatment plant discharges its effluent to the Klamath River in compliance with its National Pollution Discharge Elimination System (NPDES) permit issued by DEQ. The authority to issue this permit in Oregon has been delegated to the DEQ by the federal government. The DEQ has reviewed the amended KCP and in October 1997 issued an amendment to the City's NPDES permit that allows for the operation of the KCP as modified by the RFA. (DEQ NPDES Permit Evaluation Report for NPDES Permit No. 100701 Modification, dated October 21, 1997). Compliance with the conditions of the amended NPDES can reasonably be expected to prevent any significant adverse impact to protected areas from the KCP as it is requested to be amended in the RFA.

**Conclusions of Law.** The Council concludes that the KCP, as modified by the RFA, is not located in a protected area as defined in OAR 345-22-040(1) and that the design, construction and operation of the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, is not likely to result in significant adverse impact to a protected area.

## **VI.I. Fish and Wildlife Habitat**

The Council's standard, OAR 345-22-060, has not changed since the Council approved the KCP in August 1997.

The RFA does not require any change to the findings of fact (Section IV.E.3) in the Council's Final Order regarding the study area, habitat categories or the potential impacts of construction or retirement. The duration of construction, the peak and average size of the construction workforce, construction traffic and noise levels, and the lands affected during construction would not change from that evaluated in the Council's Final Order.

The RFA also does not change the kinds of possible impacts that operation of the amended KCP could have fish and wildlife habitat: noise, traffic, spills, cooling tower operation, the presence of a new transmission line, water consumption and wastewater discharge.

The RFA does require changing certain of the findings of fact with regard to the specific nature of some of these impacts as discussed below.

**Noise.** The RFA would not result in increased noise levels over those evaluated for the approved KCP (see Section VII.A.1 of this order).

**Traffic.** The RFA does not require any change to the findings of fact regarding traffic in Section IV.E.3 of the Council's August 1997 Final Order. The estimated daily and monthly levels of traffic for the amended KCP would not increase above those evaluated in the approved KCP, and the travel routes would remain the same as those evaluated in the approved KCP.

**Spills.** The RFA does not change the likelihood of accidental spills, or the design and management measures the amended KCP would take to prevent or respond to spills.

**Cooling Tower Operation.** The RFA would result in somewhat higher rates of salt drift and deposition. However, these would still be very low, would be largely confined to Collins' property, and would be below levels that could cause concern. The larger capacity project would require more water for project cooling and would release more water as drift from cooling tower operation (32.6 grams per second for the amended KCP compared to 16.2 grams per second for the approved KCP).

The maximum salt deposition rate is estimated to be about 16 kilograms per square kilometer per month for the amended KCP compared to about 14 kilograms per square kilometer per month for the approved KCP. This maximum is projected to occur 100 meters to the north northeast of the cooling tower within the Collins property boundary on land zoned Heavy Industry (IH) that is of low habitat value to wildlife.

The highest deposition rate beyond land zoned IH (on land zoned Suburban Residential (RS) which is about 400 meters (about 1320 feet) west to west northwest of the proposed cooling tower location) is projected to increase from about 1.28 kilograms per square kilometer per month for the approved KCP to about 1.64 kilograms per square kilometer per month for the amended KCP. The deposition rate at the nearest point on the Klamath River (about 450 meters (about 1500 feet) south of the proposed cooling tower location) is projected to remain almost the same at about 1 kilogram per square kilometer per month.

DEQ has adopted a standard for particulate deposition of 10,000 kilograms per square kilometer per month for industrial sites and 5,000 kilograms per square kilometer per month for residential sites. The ASC for the proposed Umatilla Generating Project (Exhibit BB-3, p. 4, submitted to the Office in July 1995 and resubmitted March 1996) estimated a threshold for crop damage of about 1,000 kilograms per square kilometer per month.

The highest projected deposition rates from the amended KCP cooling tower would be well below these levels.

The RFA would result in an increase in predicted ground-level fogging from one or two hours per year for the approved KCP to less than six hours per year for the amended KCP. This minor amount of ground-level fogging would not adversely affect wildlife habitat.

Transmission Line. The RFA does not change the location or design of the transmission line that has been approved as part of the Final Order. Therefore, the findings of fact regarding the line would not change.

Water Consumption. The amended KCP would require water from the same three sources as the approved KCP. These are: potable water from the City of Klamath Falls' municipal water system; groundwater and steam condensate from Collins Products; and treated effluent from the City's Spring Street Wastewater Treatment Plant (SSWTP). The amended KCP would not require any increase in either potable water from the City or water from Collins.

The approved KCP will consume more water from the City's SSWTP than it returns to the treatment plant. Thus, the approved KCP will reduce the amount of effluent the treatment plant discharges to the Klamath River (by a maximum of about 2 cubic feet per second on an annual average basis). The amended KCP would require more water from the treatment plant than the approved KCP. It would further reduce the amount of effluent the treatment plant would discharge to the Klamath River, up to a maximum of about 4 cubic feet per second, on an annual average basis. This is about a 0.2 percent reduction in the annual average flow of the river (based on 1705 cubic feet per second at Keno; see Final Order, p. 48). The Oregon Department of Fish and Wildlife (ODFW) considers this area of the Klamath River to be Habitat Category 1. The ODFW has indicated that this small reduction in river flow would not pose an adverse impact (Anglin, ODFW, letter dated Nov. 4, 1997). The Council concurs and finds that a 4 cubic feet per second reduction in flow would avoid adverse impact to the river.

Wastewater Discharge. The RFA does not require any fundamental change to the findings of fact regarding wastewater discharge and fish and wildlife habitat (Section IV.E.3) in the Council's Final Order for the KCP. The amended KCP would continue to discharge its wastewater to the City of Klamath Falls sanitary sewer system for delivery to the City's Spring Street Wastewater Treatment Plant. The treatment plant discharges its effluent to the Klamath River in compliance

with its NPDES permit issued by DEQ. The authority to issue this permit in Oregon has been delegated to the DEQ by the federal government. The DEQ has reviewed the KCP as it is proposed to be amended, and determined that the effluent from the treatment plant would continue to comply with DEQ's water temperature and other standards. In October 1997 DEQ issued an amendment to the NPDES permit for the treatment plant that allows construction and operation of the amended KCP (Brewer, DEQ, letter dated October 31, 1997; DEQ NPDES Permit Evaluation Report for NPDES Permit No. 100701 Modification, dated October 21, 1997).

Based upon the forgoing, the amended KCP is consistent with ODFW's Fish and Wildlife Mitigation Policy rules (OAR chapter 635, division 415) and its Fish and Wildlife Habitat Mitigation Goals and Standards (OAR 635-415-030). The RFA does not require additional mitigation beyond that required in the Site Certificate.

Conclusions of Law. The Council concludes that the design, construction, operation and retirement of the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, is consistent with the fish and wildlife habitat mitigation goals and standards of OAR 635-415-030.

#### **VI.J. Threatened and Endangered Species**

The Council's standard, OAR 345-22-070, has not changed since the Council approved the KCP in August 1997.

No new plant or animal species that occur in the Klamath Basin have been designated as threatened or endangered by the State of Oregon since the Final Order (Meinke, ODA, pers. comm., October 20, 1997; McEwen, ODFW, pers. comm., October and November 1997).

The RFA does not require any change to the findings of fact (Section IV.E.4.) in the Final Order regarding the identification and location of threatened and endangered plant species, or the discussions of potential impacts to these species and the KCP's consistency with applicable conservation programs.

The RFA does not require any change to the findings of fact (Section IV.E.4) regarding the identification and location of threatened and endangered animal species, or the discussions of potential impacts to the bald eagle (state-listed threatened) or peregrine falcon (state-listed endangered). The discussion of consistency with applicable conservation programs for threatened and endangered animal species also does not require any change.

The RFA does require one change to the findings of fact (Section IV.E.4) regarding the discussion of potential impacts to the Shortnose Sucker and Lost River Sucker, both of which are state-listed as endangered. As discussed under the Protected Areas and Fish and Wildlife Habitat sections (Sections VI. H and IV. I) of this order, the amended KCP would result in a net decrease in effluent discharge from the Spring Street Wastewater Treatment Plant to the Klamath

River of approximately 4 cubic feet per second (rather than 1.7 cfs in the August 1997 Final Order). However, this small change would not result in an adverse impact to either endangered fish species (Anglin, ODFW, letter dated November 4, 1997).

Therefore, the Conclusions of Law in Section IV.E.4 of the August 1997 Final Order are not affected by the RFA, and the applicable standard, OAR 345-22-070, is satisfied.

The RFA requests the following change to Condition IV.K.1 of the Site Certificate:

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 ~~2-3.65~~ cubic feet per second (~~900-1,640~~ 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.

The Council finds the requested change is necessary and appropriate. The Council adopts this condition in this Final Order on the Request for Amendment.

Conclusions of Law. The Council concludes that no conservation program applies and concludes that the design, construction, operation and retirement of the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, 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.

#### **VI. K. Scenic and Aesthetic Values**

The Council's standard, OAR 345-22-080, has not changed since the Council approved the KCP in August 1997.

The RFA does not change the location or acreage of the KCP, the zoning designations or uses of the lands on or surrounding the site, or the scenic and aesthetic values identified in applicable federal land management plans or local land use plans for the site or vicinity.

The RFA does change certain of the features of the KCP that might affect scenic or aesthetic values. These are the size and occurrence of the visible water vapor plume from the operation of the cooling tower, the number of tall structures on the energy facility site, and the dimensions of certain structures on the energy facility site. However, none of these changes are anticipated to adversely affect scenic or aesthetic values.

The visual plume from the operation of the larger cooling tower required for the amended KCP would be very similar to that for the approved KCP. The largest visible cooling tower plumes are still expected to occur most frequently in winter months. In winter, the length of the plume is

expected to be between 100 meters and 500 meters about 53 percent of the time (46 percent of the time for the approved KCP). The length is expected to be greater than 500 meters about 17 percent of the time (28 percent for the approved KCP). The plume height is expected to be between 50 meters and 100 meters about 33 percent of the time (45 percent for the approved KCP). The annual average plume length is expected to be between 100 meters and 500 meters about 32 percent (31 percent for the approved KCP) of the time and its height between 50 meters and 100 meters about 20 percent (25 percent for the approved KCP) of the time.

The heights of the tallest structures for the approved KCP are the 150-foot high (approximate) emission stack, the 110-foot high (approximate) heat recovery steam generator structure, and the 75-foot high stack for the auxiliary boiler. The amended KCP would have a second 150-foot high emission stack and a second 110-foot high heat recovery steam generator. In addition the height of the emission stack for the auxiliary boiler would be increased to 125 feet. These changes would not cause a significant change in the visual impact of the energy facility.

Other changes in equipment or structures on the energy facility site would include a larger (but not taller) turbine-generator building, a larger (but not taller) cooling tower structure, a smaller above-ground fuel oil storage tank (from about 85 feet diameter and about 60 feet high for the approved KCP, to about 35 feet diameter and about 30 feet high), a larger substation area and a larger evaporation pond.

None of these changes would change the findings of fact regarding "Potential Impacts on Significant or Important Values" (Section IV.E.5) in the Council's Final Order. The energy facility site is not clearly visible from Moore Mountain or the other vantage points identified in the City of Klamath Falls' comprehensive land use plan, and the amended KCP would not interfere with views from these vantage points. Under certain conditions a portion of the KCP cooling tower plume likely would be visible from the upper southern facing slopes of Moore Mountain. However, the plume would appear similar to plumes from exiting industrial operations near the energy facility site, and would not present a significant adverse impact given its distance (about three and one-half miles) from the mountain. The energy facility site is about 10 to 30 miles from the areas identified in federal land management plans and is not clearly visible from these areas.

Conclusions of Law. The Council concludes that the design, construction, operation and retirement of the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, 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.

## **VI.L. Historic, Cultural and Archaeological Resources**

The Council's standard, OAR 345-22-090, has not changed since the Council approved the KCP in August 1997.

The RFA does not require construction activity or other ground disturbance of any land that was not considered in the Council's review of the approved KCP. The RFA does not require any change to the findings of fact regarding historic, cultural and archaeological resources (Section IV.E.6) in the Council's Final Order for the KCP. Therefore, the Conclusions of Law in Section IV.E.6. of the Council's Final Order are not affected by the RFA.

Conclusions of Law. The Council concludes that construction, operation and retirement of the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, 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).

#### **VI.M. Recreation**

The Council's standard, OAR 345-22-100, has not changed since the Council approved the KCP in August 1997.

The RFA does not change the recreation opportunities in the impact area, and does not require any change to the findings of fact regarding recreation (Section IV.E.7) in the Final Order. The RFA does not change the type or magnitude of potential impacts to recreation that were addressed in the Final Order. The estimated duration of construction (27 months) would not change from that evaluated in the Final Order. The work force (average and maximum for both construction and operation) and associated traffic would not change from that evaluated in the Final Order. Project related noise beyond Collins' property would not change. The predicted frequency and size of the cooling tower plume would change only slightly from that evaluated in the Final Order, and would not cause a significant adverse impact to any important recreation area.

Conclusions of Law. The Council concludes that the design, construction and operation of the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, is not likely to result in significant adverse impact to important recreational opportunities in the impact area.

#### **VI.N. Socio-Economic Impacts**

The Council's standard, OAR 345-22-110, has not changed since the Council approved the KCP in August 1997.

The RFA does not require any change to the findings of fact (Section IV.E.8) in the Council's Final Order regarding the study area, communities within the study area, construction duration, construction workforce levels and related employment, operation workforce levels and related

employment, or population increases and their impacts. The KCP has confirmed that the average and maximum workforce levels, for both construction and operation, would be the same for the amended KCP as those evaluated in the Final Order for the approved KCP. The Final Order evaluated a 27-month construction period which remains the same for the amended KCP. The RFA does require changes to certain findings of fact in Section IV.E.8 of the Final Order as discussed below.

**Sewer and Sewage Treatment.** During operation, the amended KCP's wastewater discharge to the Spring Street Wastewater Treatment Plant (SSWTP) is estimated to increase to about 1.0 million gallons per day (MGD) (this is equal to 695 gallons per minute(gpm)) compared to about 0.64 MGD (444 gpm) for the approved KCP. The SSWTP has the capacity to process up to 10 MGD of influent (RFA, Exhibit U, page 2). If the RFA were approved, the SSWTP would process about 3.8 to 7.0 MGD of wastewater, including that from the amended KCP. Therefore, the SSWTP would have the capacity to process the wastewater from the amended KCP.

**Water.** During operation, the amended KCP would obtain water from the same three sources (the City's municipal water system, Collins' and the City's SSWTP) as the approved KCP. It would require the same amount of potable water from the City and the same amount of water from Collins to make steam for Collins. However, the amended KCP would require more treated effluent from the SSWTP for use in the cooling tower (about 2,325 gpm on an annual average basis compared to about 1,211 gpm for the approved KCP). The SSWTP would have the capacity to provide from about 3.8 MGD to 7.0 MGD (2,640 to 4,860 gpm) of effluent. Therefore, the SSWTP would have the capacity to meet the amended KCP's cooling water requirements.

**Stormwater Management.** The RFA does not involve any changes in the management of stormwater runoff from the energy facility site. During operation of either the approved KCP or the amended KCP, no stormwater would leave the energy facility site.

**Solid Waste Management.** The amended KCP is expected to result in more non-hazardous solid waste during both construction and operation (about 3,590 to 17,940 compacted cubic yards compared to about 3,500 to 17,000 compacted cubic yards for the approved KCP). The City of Klamath Falls Landfill has a remaining capacity about 880,000 compacted cubic yards (Final Order, p. 66). Therefore, the City's landfill would have capacity to accept all of the amended KCP's non-hazardous solid waste.

**Housing.** The RFA does not require any change to the findings of fact (Section IV.E.8) in the Final Order regarding housing because the RFA would not change project workforce numbers or estimated direct or indirect employment.

**Traffic Safety.** The amended KCP would result in an estimated 90 percent reduction in fuel oil delivery truck trips compared to the approved KCP. This is because the amended KCP would not burn oil as a backup fuel in the combustion turbines and thus would reduce on-site fuel oil

storage by more than 90 percent from that approved in the Final Order. The amended KCP would require an estimated increase in ammonia delivery truck trips from about 28 per year for the approved KCP to about 40 per year. This increase of about 12 deliveries per year would be more than offset by the reduction in annual fuel oil deliveries. The likely travel routes for worker and delivery truck traffic would not change as a result of the RFA. Neither would the access route to the energy facility site, which would still be directly from U.S. Highway 97. Therefore the amended KCP is not likely to pose an adverse impact on traffic safety.

Police and Fire Protection. The RFA does not require any change to the findings of fact in the Final Order regarding police and fire protection because it would require no changes in the size of the workforce, and no change in the types of equipment or materials that would be used or stored at the energy facility site from those evaluated in the Final Order.

Health Care. The RFA does not require any change to the findings of fact in the Final Order regarding health care because it would require no change in the size of the workforce or expected local population growth, and would present no new types of health risks or hazards than those already evaluated in the Final Order.

Schools. The RFA does not require any change to the findings of fact in the Final Order regarding schools because it would require no change in the size of the workforce or expected local population growth from that evaluated in the Final Order.

The RFA requests the following change to Condition IV.O.3 of the Site Certificate:

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, or in the Request for Amendment, Fig. X-1, which ~~is~~ are in appendix C to this Amended Site Certificate.

The RFA does not change the construction parking area and it is the same in both Figure X-2 of the Site Certificate and Figure X-1 in the RFA. The requested change in the condition is to ensure that the condition is applicable to both the KCP as approved and as amended. The Council finds this change is appropriate and adopts this condition in this Final Order.

Conclusions of Law. The Council concludes that construction and operation of the KCP, as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, 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.

## **VI. O. Waste Minimization**

The Council's standard, OAR 345-22-120, has not changed since the Council approved the KCP

in August 1997.

The RFA does not require any change to the findings of fact in Section IV.E.9 regarding waste minimization in the Council's Final Order. All of the information presented in the findings of fact regarding solid waste and wastewater during construction, operation and retirement remains valid, as does the discussion on impacts on surrounding and adjacent areas.

Therefore, the Conclusions of Law in Section IV.E.9 of the Council's Final Order are not affected by the RFA.

Conclusions of Law. The Council concludes that the KCP as modified by the RFA, taking into account mitigation and subject to the conditions in this order and stated in the Amended Site Certificate, will to the extent reasonably practicable, minimize the generation of solid waste and wastewater in the construction, operation and retirement of the 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 KCP, as modified by the RFA, will have minimal adverse impact on surrounding and adjacent areas.

## **VII. COMPLIANCE WITH OTHER APPLICABLE REQUIREMENTS: FINDINGS AND CONCLUSIONS**

### **VII. A. Requirements Under Council Jurisdiction**

#### **VII. A. 1. Noise**

The applicable noise requirements (OAR 340-35-035(1)(b)) have not changed. These are: daytime (L50) = 55 dBA; nighttime (L50) = 50 dBA.

The RFA does not change the nearest noise sensitive property, the types of facility-related noise sources or the ambient noise levels in the area.

The amended KCP would require a larger cooling tower. It could potentially result in a perceptible increase in project noise. Additional noise from the second heat recovery steam generator (HRSG) would be insignificant as would noise from a second combustion turbine which would be within a building designed to reduce outside noise levels.

In order to remain within applicable noise limits, the amended KCP would, if necessary, specify a cooling tower that generates no more noise than the cooling tower for the approved KCP (which has a smaller cooling tower). This would result in a project related noise profile at the energy facility site for the amended KCP that maintains a noise level of 45 dBA or less in West Klamath and the Klamath Wildlife Refuge across the river, and is virtually identical to the noise

profile for the approved KCP.

The amended KCP would generate up to 500 megawatts of electricity. Thus, the KCP transmission line may carry more current than was evaluated during the Site Certificate review. This increased current could result in an increase in transmission line noise. A re-analysis of the amended KCP electric transmission line's noise indicates that the L50 value at a distance of 200 feet would be the same as for the approved KCP (about 20 dBA). During rainy or foggy conditions, the estimated levels for the amended KCP are 48 dBA at 100 feet (compared to 45 dBA at 100 feet for the approved KCP). The nearest residence to the transmission line is about 75 feet from the centerline. The estimated noise at this distance, under rainy or foggy conditions, is about 49 dBA (Hibbeler, pers. comm., October 31, 1997). This is within the nighttime limit of 50 dBA.

The RFA requests the following changes to Conditions IV.Q.2 and 4 of the Site Certificate:

2. The KCP shall place its combustion turbine(s) and its associated electrical generator(s), and the steam turbine and its associated electrical generator inside an acoustically insulated building.
4. The KCP shall design the HRSG(s) and stack(s) with resonant frequency above the lowest natural frequency of the exhaust from the combustion turbine(s).

These changes are needed to reflect that the amended KCP could have two combustion turbines, each with an electrical generator, and two HRSGs and associated stacks. The Council finds these changes are appropriate and adopts them in this Final Order. The Council also deletes the second instance of "its" in the first line, and "its" in the second line of Condition IV.Q. 2.

In addition the Council adopts the following new condition:

New Condition. "The amended KCP shall specify a cooling tower such that the actual noise levels associated with operation of the KCP comply with the applicable noise regulations in OAR 340-035-035(1)(b)."

This condition is consistent with the noise assessment for the amended KCP (see RFA, p. BB-1). The Council believes this new condition is appropriate to ensure compliance with the applicable noise regulations.

Conclusions of Law. The Council concludes that noise likely to be produced by the KCP, as modified by the RFA, taking mitigation into account and subject to the conditions in this order and stated in the Amended Site Certificate, will not exceed the applicable DEQ noise control standards.

## **VII. A. 2. Wetlands**

The applicable state requirements regarding impacts to wetlands have not changed since the Final Order.

The RFA does not change the location or amount of land required for the energy facility site, or any of the related or supporting facilities. Thus, it does not require any change to the findings in Section V.A.2. of the Final Order.

Conclusions of Law. The Council concludes that the KCP, as modified by the RFA, does not require a state Removal-Fill Permit.

### **VII. A. 3. Water Rights**

The applicable state requirements regarding water rights have not changed since the Final Order.

The RFA does not require any change to the findings of fact regarding water rights in Section V.A.3 of the Final Order. The RFA does not change the amount of steam that the KCP must provide to off-site industrial use, the location at which the KCP would make the steam, the source of the water to make steam, the amount of water that would be required, or the amount of condensate return and condensate make-up water that Collins would provide to the KCP to make the steam.

The Office asked the Oregon Water Resources Department (WRD) to review and comment on the RFA. The WRD raised no issues or concerns and indicated it had no additional conditions to include in the Site Certificate (WRD Review Response Form, dated October 10, 1997).

Conclusions of Law. The Council concludes that the KCP as modified by the RFA, taking mitigation into account and subject to the conditions in this order and stated in the Amended Site Certificate, complies with the Ground Water Act of 1955 and the rules of the Water Resources Department.

### **VII. A. 4. Public Health and Safety**

The Council's authorities and responsibilities regarding public health and safety have not changed since the Final Order.

The Final Order addresses three areas regarding public health and safety: 1) potential for cooling tower fogging and icing; 2) potential health hazards from the reuse of wastewater; and 3) electric and magnetic fields.

Cooling Tower. Based on a re-analysis of cooling tower operation for the amended KCP (using a 500 megawatt capacity), the amended KCP would result in ground-level fogging, during winter months, for less than six hours per year. The majority of this is predicted to occur to the north of the power plant in uninhabited areas. A small amount, about 15 to 30 minutes per year, is

predicted to occur to the northeast in the vicinity of U.S. Highway 97. The Council finds that this limited amount of possible fogging does not pose an adverse impact on driving conditions.

The RFA requests that Condition IV.T.1 of the Site Certificate be changed as follows:

1. The KCP shall design and operate its cooling tower substantially as described in the ASC, Table M-1 on page M-4 or in the Request for Amendment, Table M-1, which is-are in appendix C to this Amended Site Certificate.

The information in these two tables is the basis for the predictions of cooling tower fogging and icing for the KCP as approved or as amended, respectively. It is appropriate that the KCP operate its cooling tower consistently with the information in whichever table is applicable. The Council finds that this change is appropriate and adopts it in this Final Order.

Wastewater Reuse. The RFA does not require any change to the findings of fact (Section V.A.4) regarding reuse of wastewater in the Final Order. The amended KCP's reuse of secondary treated wastewater from the City of Klamath Falls' Spring Street Wastewater Treatment Plant (SSWTP) is not expected to result in a public health hazard. The DEQ has reviewed the amended KCP's proposed reuse of treated wastewater as cooling water for its cooling tower operation. The DEQ has determined that the use would meet the requirements in DEQ's rules regarding the use of reclaimed water. The DEQ has also determined that the amended KCP has demonstrated that aerosols from cooling tower operation would not present a hazard to public health (Brewer, DEQ, letter dated October 31, 1997; DEQ NPDES Permit Evaluation Report for NPDES Permit No. 100701 Modification, dated October 21, 1997). Therefore, the Council finds that the amended 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 RFA asks to increase the electrical generating capacity of the KCP from about 318 megawatts (net) to up to 500 megawatts (net). This would result in an increase in the electrical current flowing over the KCP's 230 kV transmission line from the KCP to the PP&L substation (from about 800 amps to about 1255 amps). Because of this, the KCP re-evaluated the expected electric and magnetic fields that would result from the KCP's 230 kV line.

The Council's standard for electric fields, 9 kV per meter (OAR 345-24-090(2)), has not changed since the Final Order.

The RFA does not change the predicted electric fields from the line. They remain a maximum of about 2 kV per meter within the right-of-way and about 0.9 kV per meter at the edge of the right-of-way (62.5 feet from the centerline)(RFA, Exhibit U, Appendix U-1). These levels are within the limits set by the Council.

The Council has not adopted a standard for magnetic field levels associated with electric transmission lines under its jurisdiction. However, the Council has adopted a policy that

transmission lines under its jurisdiction should use appropriate measures to reduce or manage public exposure to magnetic fields from such lines (see Final Order, p. 81). The National Research Council (NRC) recently concluded 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 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 route. The 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 regarding magnetic fields.

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

Conclusions of Law. The Council concludes that the siting, construction and operation of the KCP as modified by the RFA, subject to the conditions in this order and stated in the Amended Site Certificate, is consistent with protecting of the public health and safety.

## **VII. B. Requirements Which Are Not Under Council Jurisdiction**

Under ORS 469.503(3), the Council 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.

In its Final Order, the Council concluded that certain programs are not within its jurisdiction because they are federally-delegated programs. The RFA does not require any change to this conclusion. Each of these programs is still a federally delegated program.

(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, directly or indirectly through discharge to a local sanitary sewer;

(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; and the program relating to the generation, treatment, storage and disposal of hazardous wastes, administered by DEQ, under ORS Chapter 466; OAR Chapter 340, Divisions 100 through 113.

Under ORS 469.401(4), the Council 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.

In its Final Order, the Council concluded that, for the KCP, certain 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. The RFA does not require any change to this conclusion. The programs are:

(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;

1 (8) permits required from the Oregon Department of Transportation (ODOT) to "interconnect"  
2 the construction and operation access road for the KCP into a state highway;

3  
4 (9) permits required from ODOT to place a structure within, or to cross, a state highway  
5 right-of-way;

6  
7 (10) an Industrial Wastewater Discharge Permit from the City of Klamath Falls to discharge KCP  
8 wastewater to the City's Spring Street Wastewater Treatment Plant; and

9  
10 (11) building permits required and administered by Klamath County.

11  
12 **VIII. GENERAL CONCLUSION**

13  
14 In order to issue or amend a Site Certificate, the Council must determine that the preponderance  
15 of the evidence on the record supports the following conclusions (ORS 469.503):

16  
17 "(1) The facility complies with the standards adopted by the council pursuant to ORS  
18 469.501..."

19  
20 "(2) If the energy facility is a fossil-fueled power plant, the energy facility complies with any  
21 applicable carbon dioxide emissions standard adopted by the council or enacted by statute..."

22  
23 "(3) ... the facility complies with all other Oregon statutes and administrative rules identified  
24 in the project order, as amended, as applicable to the issuance of a site certificate for the  
25 proposed facility..."

26  
27 "(4) The facility complies with the statewide planning goals adopted by the Land  
28 Conservation and Development Commission."

29  
30 Based on the findings of fact, reasoning and conclusions of law in this order, the Council  
31 concludes that these requirements are met, and that the Council should amend the Site Certificate  
32 for the Klamath Cogeneration Project, as described in this order.

33  
34 **IX. FINAL ORDER**

35  
36 The Council therefore approves an amendment as described in this order and directs its  
37 chairperson to execute an "Amended Site Certificate for the Klamath Cogeneration Project"  
38 which is attached to this order.

39  
40 Issued this 27<sup>th</sup> day of April, 1998.

41  
42 By   
43 Chair, Energy Facility Siting Council

1 NOTICE OF RIGHT TO APPEAL

2  
3 Any party to the contested case proceeding on this site certificate amendment request, may  
4 appeal the Council's decision on this matter. Judicial review may be obtained by filling a  
5 petition for review with the Oregon Supreme Court within 60 days after the date of service of  
6 this order. Judicial review shall be as provided in ORS 469.403.

7  
8 NOTICE OF SERVICE

9  
10 Served on May 15, 1998 by regular mail  
11 (date) (method)

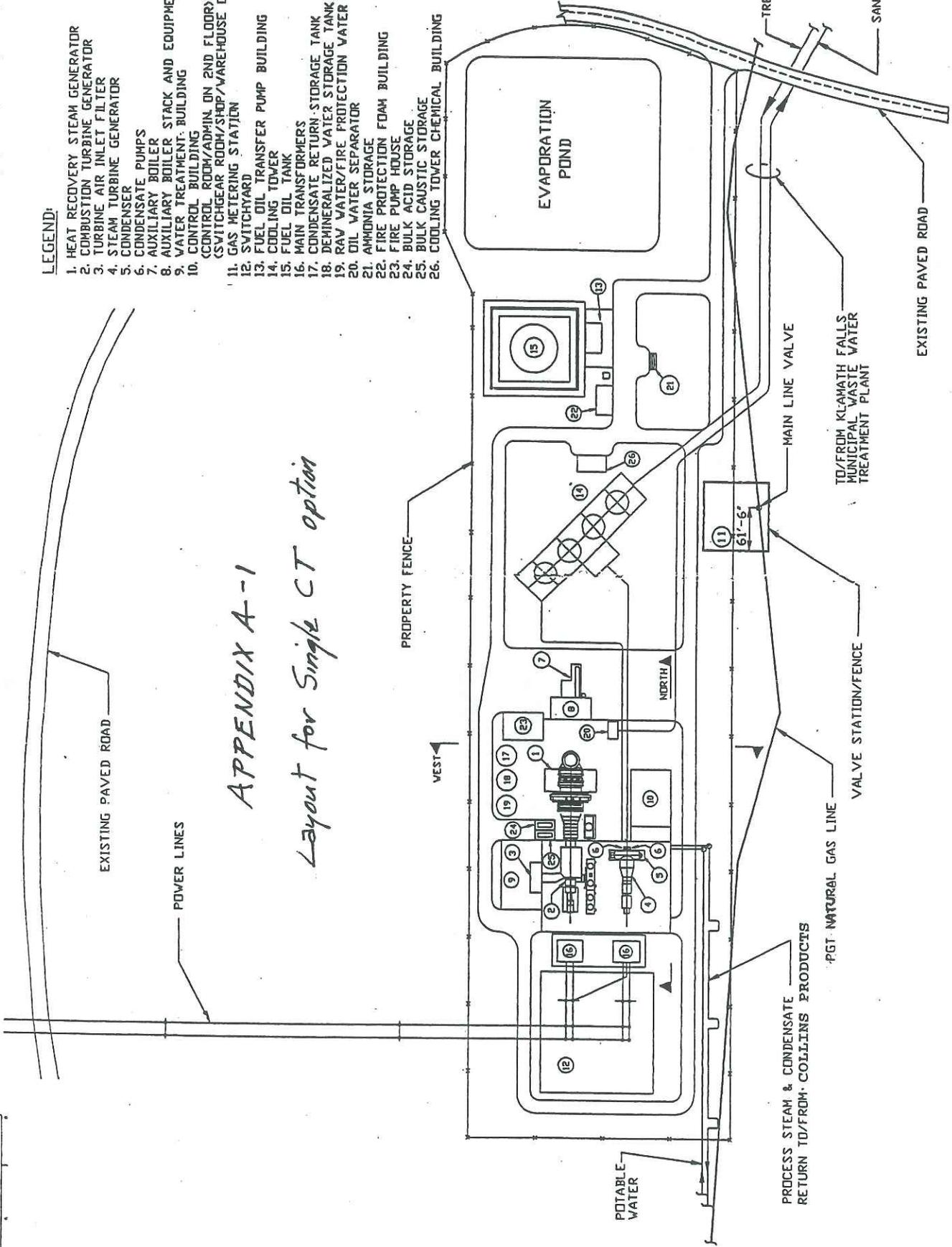
12  
13 Served by Thomas M. Schow  
14



LEGEND:

- 1. HEAT RECOVERY STEAM GENERATOR
- 2. COMBUSTION TURBINE GENERATOR
- 3. TURBINE AIR INLET FILTER
- 4. STEAM TURBINE GENERATOR
- 5. CONDENSER PUMPS
- 6. CONDENSATE PUMPS
- 7. AUXILIARY BOILER
- 8. AUXILIARY BOILER STACK AND EQUIPMENT ENCLOSURE
- 9. WATER TREATMENT BUILDING
- 10. CONTROL BUILDING
- 11. GAS METERING STATION (CONTROL ROOM/ADMIN ON 2ND FLOOR) (SWITCHGEAR ROOM/SHOP/WAREHOUSE ON 1ST FLOOR)
- 12. FUEL OIL TRANSFER PUMP BUILDING
- 13. SWITCHYARD
- 14. COOLING TOWER
- 15. FUEL OIL TANK
- 16. MAIN TRANSFORMERS
- 17. CONDENSATE RETURN STORAGE TANK
- 18. DEMINERALIZED WATER STORAGE TANK
- 19. RAW WATER/FIRE PROTECTION WATER STORAGE TANK
- 20. OIL WATER SEPARATOR
- 21. AMMONIA STORAGE
- 22. FIRE PROTECTION FOAM BUILDING
- 23. FIRE PUMP HOUSE
- 24. BULK ACID STORAGE
- 25. BULK CAUSTIC STORAGE
- 26. COOLING TOWER CHEMICAL BUILDING

*APPENDIX A-1*  
*Layout for Single CT option*



STATION ARRANGEMENT  
 FIGURE B-3

KLAMATH  
 CONDENSATION PROJECT  
 ENGINE & ARCHITECT CONSULTING CORPORATION  
 05777.01 FB-3-D  
 DATE: 11/11/00  
 DRAWN BY: R.A.P.

NO.	DESCRIPTION	DATE	BY	CHECKED
1	DESIGN	11/11/00	R.A.P.	
2	DRAWING	11/11/00	R.A.P.	
3	REVISION			
4	REVISION			
5	REVISION			
6	REVISION			
7	REVISION			
8	REVISION			
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26	REVISION			



CERTIFICATE OF SERVICE

I hereby certify that I served a true copy of the FINAL ORDER (April 1998) and AMENDED SITE CERTIFICATE (April 1998) FOR AMENDMENT NO. 1 TO THE KLAMATH COGENERATION PROJECT on the 15<sup>th</sup> day of May, 1998, by mailing via first-class mail to the following:

Richard H. Allan  
Ball Janik LLP  
101 SW Main, Suite 1100  
Portland, OR 97204-3219  
FAX 295-1058

Jim Benedict  
Attorney at Law  
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Dan Meek  
10949 SW 4th Avenue  
Portland, OR 97219  
FAX 293-9099

And by E-mail to the following:

Dan Meek  
E-mail: danmeek@teleport.com

Dated this 14<sup>th</sup> day of May, 1998.

  
\_\_\_\_\_  
Tom Meehan  
Project Officer  
Energy Resources Division  
Oregon Office of Energy