



Proposal: ACQ-14791-COL-As-Sold

**Power Island Proposal
Boiler, Steam Turbine,
Auxiliaries and Engineering**

Offered To:



Columbia
— P U L P —

Lyons Ferry Straw Pulp Plant

1403 Highway 261
Starbuck, WA 99359

Contact: Larry Tantalo
Phone: 253-926-0884
Email: larryt@columbiapulp.com

Date: August 24, 2015

*4725 W. Marginal Way SW
Seattle, WA 98106
P: 206.860.4930
F: 206.860.4982
www.aircleantech.com*



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Your AirClean Representative:

Dave Salem

Brad Thompson Company

Phone: (206) 619-3920

daves@bradtco.com

December 1, 2014 (Revised August 24, 2015)

Columbia Pulp
1403 Highway 261
Starbuck, WA 99359

Attention: Larry Tantalo
Subject: Power Island Proposal

Dear Larry,

AirClean Energy is a Seattle based industrial process and energy system provider, and custom equipment fabricator. We are pleased to present the following proposal for your power island.

AirClean is proud to note that all of our system engineering and design is performed in-house by AirClean engineers. Our equipment is designed using 3D modeling software, and is managed by a Washington State registered engineer from quotation development through commissioning.

The Columbia Pulp project is very exciting to us as it is our chance to support a local project that brings advancement to the pulp and paper industry.

If you have any questions or require additional information please contact the undersigned at AirClean. We look forward to working with you.

Best regards,

Blake Johnson, P.E.

AirClean Energy

bjohnson@aircleantech.com | P: 206.860.4930 | F: 206.860.4982 | C: 206.799.9464

Shop: 4725 W. Marginal Way SW | Office: 4229 W. Marginal Way SW Seattle, WA 98106

PO Box 46017 Seattle, WA 98126 | WA State Contractor's #AIRCLT1899J2

www.aircleanenergy.com

cc: Dave Salem – Brad Thompson Company



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Proposal Summary

The following proposal outlines AirClean's scope for the Owner, Columbia Pulp, who is designing a Straw Pulp Facility that is to be built in Columbia County located in eastern Washington.

This proposal is presented as an *alternate solution* to specification **13-043-1 Turbogenerator M015**, for the supply of a Power Island.

It also covers the work to furnish the unit(s) consisting of major equipment necessary to provide a complete steam and power supply system to produce the required steam at the specified conditions.

AirClean has included project management for the process design/ integration of the boiler, steam turbine and auxiliaries outlined on AirClean drawing 14791-PFD Rev. A.

The packaged system will include the following equipment:

- One (1) O-Type Package Boiler
 - 9 PPM NOx and 30 PPM CO
 - 4:1 Turndown ratio
 - Boiler Economizer
- One (1) lot of interconnecting ducting, expansion joints and stack
- One (1) Condensing extraction turbine rated for 5.5 MWe
- One (1) Surface condenser with booster pumps
- One (1) Condensate receiver tank with booster pumps
- One (1) DA tank with duplex pumps each rated for 100% of the system load
- One (1) desuperheater water pump
- One (1) pressure reducing station and desuperheater
- One (1) RO make-up water treatment system
- One (1) 1.4 MW Natural Gas Reciprocating Engine Generator



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Overview:

Upon reviewing Columbia Pulp's specification AirClean is offering an alternate system design intended to meet the following requirements:

- Utilize industry standard gas fired package boiler and steam turbine
- Maximize steam generation flexibility with minimal emissions
- Maximize process efficiency through use of hot water/low pressure steam
- Maximize cost effectiveness of the system through use of modular equipment

AirClean will provide engineering design support with a Letter of Intent (LOI) and will be ready to mobilize the project upon Columbia Pulp's full release to proceed.

A detailed scope listing of items to be provided by AirClean is summarized in the attached "As-Sold Proposal Scope Definition." A process flow block diagram of AirClean's proposed system is summarized in AirClean Drawing No. 14791-PFD Rev. A.

Engineering and Design:

AirClean will provide the design and engineering required to design, specify, and fabricate items included in AirClean's scope of supply. AirClean will also provide project management and on-site technical assistance for equipment installation, on-site operator training, start-up and commissioning. Start-up and commissioning service by AirClean personnel is included in this proposal. Construction assistance, operator training, and OEM start-up and commissioning work is not included in this proposal and will be determined by mutual agreement between AirClean and Columbia Pulp during the detailed design phase and added to the base contract.

The engineering and design services to be provided by AirClean include:

- Equipment interface design and design review meetings (location TBD)
- Specifications for equipment to be purchased by AirClean (boilers, steam turbine generator, controls, surface condenser, condensate return tank, deaerator, and make-up water treatment).
- Equipment general arrangement drawings and installation sections and details.
- Instrument specification sheets for the instrumentation supplied by AirClean.
- Electrical wiring prints and specifications required to install the proposed electrical equipment.
- Boiler island layout drawings for locating equipment.



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- All drawings listed above shall be provided in hard copy and electronic (AutoCAD 14 or earlier) formats.
- Code boiler documentation
- Two (2) sets of operating and maintenance manuals, in English including one electronic copy in PDF format.
- Four (4) weeks of on-site technical assistance
- One (1) week of on-site start-up and commissioning

Equipment Supplied:

Natural Gas Fired Package Boiler:

- Quantity: One (1)
 - Model: O-Type Package Boiler
 - Emissions: 9 PPM NOx, 30 ppm CO corrected to 3% O₂.
 - Estimated weight: TBD
 - Design Flow Rate: 90,000 lb/hr
 - Designed temperature: 860°F
 - Design pressure: 800 PSIG
 - Auxiliaries: Economizer

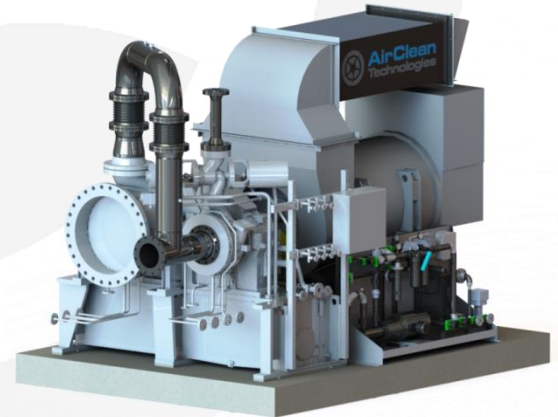


Stack:

- Quantity: One (1)
 - Overall Height: 50 Feet
 - Material: A36

Condensing Extraction Turbine:

- Quantity: One (1)
 - Model: Siemens SST-110
 - Power Generation:
 - Max: 5.25 MWe
 - Design: 4.0 MWe
 - Max. turndown: 3.15 MWe
 - Designed temperature: 860°F
 - Design pressure: 800 PSIG
 - Process Extraction Pressure: 40 PSIG
 - Max Process Extraction: 70,000 lb/hr
 - Design Process Extraction: 50,000 lb/hr





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Surface Condenser:

- Quantity: One (1)
 - Model: TBD
 - Load: 28.5 MMBtu/hr
 - Cooling Water Flow: 4,372 GPM
 - Inlet Temp: 85°F
 - Outlet Temp: 97°F

Cooling Tower Provided By Client:

Condensate Receiver tank:

- Quantity: One (1)
 - Pumps: Duplex - 100% capacity
 - Design Capacity: TBD
 - Design Pressure: Ambient
 - Condensate Return: 95% (temp 150-180°F)

Deaerator:

- Quantity: One (1)
 - Model: Newterra
 - Design: Tray Type deaerator
 - Pumps: Duplex - 100% capacity pumps
 - Estimated size: TBD
 - Design Capacity: 100,000 PPH
 - Design Pressure: 50 PSIG
 - Condensate Return: 95% (temp 150-180°F)

Natural Gas Reciprocating Engine Generator :

- Quantity: One (1)
 - Model: TBD
 - Design: Baseload Power Supply
 - Emissions: Per BACT requirements – thermal oxidizer cost to be added to final contract price.

System Controller

One PLC based system controller will be provided in a single cabinet to monitor the system and provide information access via a 10" minimum touchscreen HMI display. System controller will display key operating information from the boiler, steam turbine generator, and natural gas engine PLC systems.



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ITEMS NOT INCLUDED (Packaging Available Upon Request)

- Seismic analysis
- Taxes, fees, and permits
- Electrical and instrumentation design and installation, other than instruments and controls specifically included in AirClean's detailed scope worksheet.
- Receiving, unloading, and installation of the AirClean supplied equipment
- Supply and installation of field insulation and lagging, other than the boiler insulation and lagging specified.
- Thermal insulation of piping, ducting and feedwater tank
- Concrete/foundations
- Fuel piping up to boiler burner train
- Main steam header connecting piping
- Miscellaneous field routed piping (drains, vents, etc.)
- Continuous Emission Monitoring System (CEMS)
- Cooling Tower (By client – Cooling load to be provided by AirClean)

This is not an exhaustive list of items not included. Refer to the attached As-Sold Proposal Scope Definition worksheet for a detailed summary of AirClean supplied equipment.



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Price, Delivery and Payment Terms

Following is the price for the Power Island island engineering, and equipment, as outlined in the proposal.

Price..... \$6,295,262

Validity: 60 Days

Note: Prices do not include any sales/use or any other applicable taxes. Contract includes freight cost of AirClean supplied equipment to the point of free delivery at the mill site. Price is contingent upon a rail spur being available for boiler delivery.

Commercial Terms shall be governed by the AirClean and Columbia Pulp Combined Heat and Power Island Contract Terms.

Submittal and Delivery Schedules*:

Preliminary Release:**

6-8 Weeks ARO

- Process Flow Diagrams
- Piping and Instrumentation Diagrams
- Detailed Equipment Specifications – Materials ready for purchase
- Detailed Project Scope Definition

**\$25,000 release To be invoiced monthly in accordance with the project letter of intent dated Feb. 18, 2015.

Full Notice to Proceed:

Expected fabrication and delivery lead time from official Notice to Proceed is:

- Boiler: 44 weeks
- Steam turbine generator: 38 weeks
- Condenser: 32 weeks.
- Natural gas fired engine: 20 weeks.

Equipment purchasing and delivery will be coordinated with Columbia Pulp to optimize equipment delivery with the installation contractor’s construction schedule.



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*Schedules are based on a full notice to proceed on or before October 31, 2015. If notice to proceed is given after October, 2015, delivery schedule will be reviewed and confirmed at time of notice to proceed.

Payment Terms:

Progress payment invoices (Net 30) will be submitted per the schedule below:

Contract Percentage	Milestone	Weeks ARO	
20%	Upon receipt of PO	0	ARO
5%	Upon submittal of P&IDs	8	ARO
10%	Submittal of equipment arrangement and foundation information	14	ARO
15%	Receipt of Major Materials: Turbine (50% Schedule)	16	ARO
15%	Receipt of Major Materials: Boiler incl. furnace & outer-wall membrane tubes & drum drums	17	ARO
5%	Turbine ready to ship	38	ARO
5%	Deaerator ready to ship	38	ARO
10%	Natural gas engine ready to ship	38	ARO
5%	Boiler ready to ship	44	ARO
5%	Balance of major equipment ready to ship	44	ARO
5%	Commissioning - NTE 180 days after delivery of AirClean supplied materials	66	NTE



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AirClean Terms and Conditions

AGREEMENT: This Agreement is between customer (“Buyer”) and AirClean Technologies, Inc. (“Seller”).

TERMS: Buyer will make full payment thirty (30) days from date of invoice, unless otherwise specified in the quotation document. The terms listed are general terms for the sale of goods only. (See *FREIGHT* for payment of freight invoices).

LATE PAYMENT CHARGES: A 1-1/2 % monthly service charge will be added to Buyer’s account on invoices not paid within net thirty (30) day terms.

PRICES: All prices are F.O.B. Seller’s plant and do not include any applicable Federal, State, Local Sales or Excise Taxes or other surcharges unless specifically indicated.

PAYMENTS: remittances must be made to:

AIRCLEAN TECHNOLOGIES, Incorporated / PO Box 46017 / Seattle WA 98126 USA

If the financial condition or credit of the Buyer at any time shall, in the judgment of the Seller, not warrant shipment of products ordered, the Seller may at its option require full payment prior to shipment or refuse to ship.

DESIGN: The Seller reserves the right to make design improvements without notice.

CANCELLATION: The Buyer may cancel upon the written consent of the Seller, but the Seller is entitled to reasonable cancellation charges including but not limited to labor expended, materials obtained or expended, reasonable overhead and profit.

SPECIAL AND CONSEQUENTIAL DAMAGES: In no event shall the Seller be liable for any consequential or special damages arising from any breach of these terms.

SHIPMENT AND DELIVERY: Shipment dates are based upon the Seller’s best estimate only. The Seller will exercise its best efforts to ship on schedule, but shall not be liable for any damages or loss caused by any delay in delivery, including but not limited to delay caused by strikes, floods, fires, accidents, inability to obtain sufficient materials or products from suppliers, inability to obtain sufficient labor, or any legislative, administrative or exclusive law, order, or requisition of the Federal Government or any State or Municipal Government or any subdivision, department or office thereof. All shipments are F.O.B. Seller’s plant. The responsibility of goods lost or damaged in transit rests with the Buyer and any recourse you may have rests with the carrier. Seller will make reasonable efforts to use reputable carriers with adequate insurance, but is not responsible for any loss incurred in transit. The Buyer must file any claims with the carrier. Damage to the equipment in transit is not just cause for delayed or partial payment of Seller’s invoice. Buyer may contract with **AIRCLEAN TECHNOLOGIES, INC. Service Department** which can provide qualified supervisory personnel to assist installation of the products supplied.

MODIFICATION OR ADDITION OF TERMS AND CONDITIONS: No modification, addition to, or waiver, of any of the terms and conditions stated herein shall be binding upon the Seller except by written consent of an authorized officer of the Seller.

ACCEPTANCE: Any order by the Buyer placed pursuant to a quotation is subject to written acceptance and acknowledgement by Seller in Seattle, WA. By placing an order, Buyer will be deemed to have assented to the terms & conditions stated herein.

CLAIMS: All claims for corrections or deductions must be made in writing within ten (10) days after delivery of goods. If no claim is made within ten (10) days, Buyer will be deemed to have accepted all goods.

FREIGHT: Charges will be collect or prepaid third party billing.

WARRANTY: Seller warrants the equipment of its manufacture against defects in workmanship (excluding corrosion and/or erosion related problems) and against defects in structural design for a period of one (1) year from the date of installation or eighteen (18) months from date of shipment whichever comes first. This warranty covers the product except for the turbines, generators, gearboxes, actuators, etc, which are not manufactured by Seller. Seller will pass on to Buyer the manufacturer’s guarantee on such component equipment, if any. Seller will repair or replace (at Seller’s option) F.O.B. point of original shipment, or refund the purchase price of any parts proven to be faulty material or workmanship. The maximum liability under this warranty is the purchase price of the defective part. This warranty does not cover trucking, handling, storage, or installation damage at the jobsite or problems created through improper or incorrect installation/operation.

WARRANTY CONDITIONS: This warranty is effective only if the following conditions are satisfied: (1) System conditions do not exceed the maximum System operating conditions; (2) The unit has never been subject to conditions or used other than those for which it has been designed; (3) The unit has not been in contact with abrasive or corrosive media or subjected to electrolytic action; (4) The unit has not been modified or remodeled by others after shipment.

WARRANTY DISCLAIMER: EXCEPT FOR THE LIMITED WARRANTY PROVIDED HEREIN, SELLER MAKES NO WARRANTIES (EXPRESS OR IMPLIED) WITH RESPECT TO THE PRODUCTS AND DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING FOR MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. This warranty is expressly in lieu of all other warranties, either expressed or implied unless agreed to in writing by an authorized officer of the Seller.

GOVERNING LAW; VENUE AND JURISDICTION: This Agreement will be governed by the laws of the State of Washington, without reference to its rules governing choice of law. The parties hereby irrevocably consent to the exclusive jurisdiction and venue of the federal and state courts located at King County, Washington with respect to any claims, suits or proceedings arising out of or in connection with this Agreement.