

Clean Country Renewable Energy
F10, 2932 Surridge Way NE
Calgary, Alberta, T1Y 7M9

Ethanol Production Plant
Hartney, Manitoba, Canada
(150 Million Liters Year or 50 Million Gallons per Year)

Steam Generating Facility
Removal, Reconditioning, & Reinstallation of a
Coal-Fired Steam Boiler – 150,000 lb/hr at 150 psig
w/ Pollution Abatement System

January, 2007
Revised on March 30, 2007

Icon / Datel Engineering and Construction Services
Icon Project No. P06-230

PRELIMINARY & CONFIDENTIAL

Prepared By

Datel / Icon and Associates

Airborne Clean Energy
#205, 6223 – 2nd Street SE
Calgary, Alberta, Canada T2H 1J5
Ph: (403) 253-7887 / Fax: (403) 253-1484

Icon Construction, Inc.
10501 Success Lane
Dayton, Ohio 45458
Ph: 937-885-2299 / Fax: 937-885-2111
npatel@iconconstructioninc.com

**Clean Country Renewable Energy
Calgary, Alberta, T1Y 7M9**

**Ethanol Production Plant
Hartney, Manitoba, Canada**

Steam Generating Facility

SUBMITTAL

**JANUARY 2007
Revised March 30, 2007**

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Hartney, Manitoba, Canada
Ethanol Production Plant**

**Removal, Reconditioning, & Reinstallation of a
Coal-Fired Steam Boiler – 150,000 lb/hr at 150 psig**

**Datel / Icon Project No. 06-230
Coal-Fired Boiler Technical Submittal**

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11.2 Schmidt Associates, Inc. Submitted on October 30, 2006

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1.0 Definitions

Clean Country Renewable Energy (CCRE)	Owner or Developer	Clean Country Renewable Energy Hartney, Manitoba, Canada F10, 2932 Surridge Way NE Calgary, Alberta T1Y 7M9 Attn: Mr. Ernest Nycz - President & COO Phone: (403) 890-2866 Fax: (403) 250-1788 ernest.nycz@cleancountry-energy.com
CCRE	Consultant to CCRE	Phil Leege, P.E.
CCRE	Pollution Abatement “Permit Application Consultant” and Site Civil Engineering	Clifton Associates, LTD. Engineering Science Technology 340 Maxwell Crescent Regina, Saskatchewan, Canada S4N 5Y5 Attention: Mr. David Kent – Chief Engineer Ph: 306-721-7611 (Res: 545-2001) Fax: 306-721-8128 davekent@clifton.ca
Icon Team Members	- Engineering - Construction Management	Icon Construction, Inc. Datel Engineering Co. Inc. Schmidt & Associates, Inc Stoermer-Anderson, Inc. 10501 Success Lane Dayton, OH 45458 Attention: Mr. Naren Patel Phone: (937) 885-2299 Fax: (937) 885-2111 npatel@iconconstructioninc.com
Airborne Clean Energy	Pollution Abatement Consultant	Airborne Clean Energy #205, 6223 – 2 nd Street SE Calgary, Alberta, Canada T2H 1J5 Facsimile:(403) 253-1484 Attention: Mr. Murray Mortson Phone 403 253-7887 ext 317
	Equipment Supply	
	Existing Steam Generating Facility 150,000 lb/hr @ 150 psig	Icon / Consultant c/o Decatur, IL Caterpillar Plant Secure Energy, Inc. 7711 Carondelet Avenue, Suite 310 St. Louis, MO 63105
	Pollution Abatement	Airborne / Icon

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2. Introduction

2.1 Icon / Datel Companies' History

Icon Construction, Inc. and Datel Engineering were founded over 18 years ago. The principals have maintained their careers offering specialized services to heavy industrial companies. Icon/Datel 's primary mission is to provide Engineering, Procurement, and Construction Management Services (EPCM). Our performance is well known to our repeat clients in the heavy industrial sector. Mr. Naren Patel has been President of Icon and Technical Director of Datel since the formation of these two companies. Mr. Patel gained notable expertise through his experience at Armco Steel Company (AK Steel) in Middletown, Ohio and sought to apply that expertise on a national scale. Mr. Patel gained the reputation of being one of the top authorities in Mini Mills, Integrated Mills, Coke Batteries, Blast Furnaces, and associated equipment and processes. More recently Icon and Datel personnel have made a sustained effort to become knowledgeable on Clean Coal and Renewable Energy technologies such as Advanced Flue Gas Purification, Coal Gasification, Ethanol Production, and Bio-Fuel Production.

2.2 Services

Icon/Datel provides a broad range of engineering and construction services to industrial clients as diverse as steel mills, aluminum production, and power plant pollution abatement. Services range from construction feasibility and cost projection studies to turnkey construction contracts and industrial maintenance contracts. A particular strength of Icon/Datel involves engineering and construction management for "fast track" industrial projects.

2.3 Design Specifications and Feasibility Studies

Icon/Datel will develop budget estimates, develop milestone timetables, provide preliminary engineering, specify precise equipment requirements / specifications, and recommend construction strategies or assist contractor construction strategies. Long lead time materials and equipment procurement will be initiated. In addition, Icon/Datel will draw up contracting specifications and market them to the construction community for bidding as required.

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- 2.4 Airborne Clean Energy, LLC (Airborne) is a wholly owned subsidiary of Airborne Technologies which holds the patents for the Airborne Process including patents within the emissions control system, regeneration process, and fertilizer granulation. The Airborne Process had been under development for over eight years by Airborne with over \$40 million spent on the process development including the completion of the 5 MW facility with the critical team members (Babcock Wilcox, HPD, and Icon). Within that organization and by the partnerships that Airborne developed with industry leading organizations, Airborne is poised to deploy the process throughout the world.
- 2.5 Stormer-Anderson, Inc., the company, consist of 30 employees, located in 3 cities, representing over 25 top manufacturers of mechanical equipment, a full list may be viewed on our website at www.stoermer-anderson.com. We have 5 service men that provide start up and commissioning and serve as project managers during the commissioning phases of projects. Many of our major clients use our contract services to maintain the safety and efficiency of their systems.

Over the past 20 years we have been involve in hundreds of boiler projects, over 60 of these are large water tube projects with operating conditions from low pressure saturated to 1300 psi superheated plants (oil sands for BlackRock Orion in Alberta Canada).

Key clients with whom we have ongoing projects are:

- 1).Procter and gamble (12 steam plants).
- 2). Georgia Pacific (3 steam plants under contract and regional safety program training).
- 3). Mead Paper (boiler safety program and low emissions burners).
- 4). General Electric (6 low emissions burners on JP8).
- 5). American Electric Power (Mitchell, Amos, Mountaineer, etc.)
- 6). Duke Energy(many projects).
- 7). General Motors (new Lansing stamping plant),
- 8). Ohio State University (recently completed the central plant boiler installation of 4 boilers field erected inside the existing plant, 600,000 pph total).
- 9). Many major universities in the state of Ohio have our steam boilers installed including : Kent state university, University of Cincinnati, Ohio State, Ohio University, Bowling Green University, Miami University, Central State.
- 10). Dow chemical 99.98% reliability steam plant in S. Charleston West Virginia.
- 11). 15 regional hospitals have our boilers of various designs installed.
- 12) Washington DC convention Center Boiler Plant.

We have been, or are presently, involved in Cogeneration projects, heat recovery from industrial process for steam generation, industrial fuels, ultra low emissions,

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high temperature hot water plants. Our boilers have been installed in over 20 countries around the world.

Philosophy: We feel we bring product quality, expertise and competitive pricing to any project we are involved with. More importantly, we use our capabilities and experience to make sure our clients are successful. Most often this means managing the project in such a way that we are as much a project partner as we are an equipment supplier. This business strategy and has allowed us to grow and prosper with some of the best clients and equipment suppliers in the industry.

Mr. Ed Stormer's Personal Data:

BSME in mechanical engineering and a minor in business administration from /University of Cincinnati graduated 1981.

Business Masters Certificate from Xavier University 2007.

3 years as a sales engineer for Johnson Controls selling and project managing commercial and industrial controls projects in the Cincinnati area.

20 years as a manufacturers representative involved in the sale, commissioning and maintenance of central plant systems, steam, hot water, condenser and chilled water for industrials, utilities and commercial clients.

2.6 Schmidt Associates, Inc. (SAI) is a professional engineering design firm with a national reputation specializing in the production and distribution of energy. With over thirty years of experience in energy production and distribution, SAI has acquired valuable expertise in many areas. Those areas include maintenance and repair of energy production equipment, planning and design of systems to produce energy in the most economical manner, innovative alternate energy production, monitoring and control of energy production and use, and incineration and environmental control. Our client list includes many Fortune 100 companies, Federal Agencies, U.S. Armed Forces, and public utilities.

Schmidt and Associates was formed in 1965 as mechanical and electrical consulting engineers. During the years of 1996 to 1967, Schmidt and Associates merged with Noble W. Herzberg and Associates. After the death of Mr. Herzberg in 1968, Schmidt and Associate. After the death of Mr. Herzberg in 1968, Schmidt and Associates came into its own and emerged as the firm of Schmidt Associates, Inc., mechanical, electrical, and structural engineers.

Since that time, Schmidt Associates, Inc. has specialized in central utilities services, heating, ventilation, air conditioning and power for industrial, institutional, and

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governmental plants including studies, tests, application, and installation of new technologies in industry today.

Most of our clients return to Schmidt Associates, Inc. many times for additional projects and , in most other cases, referrals by satisfied previous clients become the groundwork for our new clients.

Each project, whether it be a study (feasibility, new technology), retrofitting of small or large installation, or ultimately an entire new installation from ground up, all are handled with the same care and consideration of the client in his needs for an economically, environmentally clean, and efficient end operation.

Project engineers are assigned as needed in their areas of expertise, with a backup of designers, draftsmen, computer personnel, etc. for a refined, successful end operation.

Schmidt Associates, Inc. are registered engineers in the following states:

ALABAMA	IOWA	NEW YORK	TENNESSEE
CALIFORNIA	KENTUCKY	NORTH CAROLINA	TEXAS
FLORIDA	MARYLAND	OHIO	VIRGINIA
GEORGIA	MICHIGAN	OKLAHOMA	WEST VIRGINIA
ILLINOIS	MISSOURI	PENNSYLVANIA	WYOMING
INDIANA	NEW JERSEY	SOUTH CAROLINA	

Members of:

American Society of Mechanical Engineers
National Society of Professional Engineers
Ohio Society of Professional Engineers
Illuminating Engineering Society
American Concrete Institute
Instrument Society of America
Construction Specifications Institute

2.7 Subcontractor – Qualifications will be supplied after non-circumvent agreement.

3. References

3.1 Airborne Clean Energy
Murray Mortson

3.2 Technical Email References From Airborne, KL Canada, Datel, etc.

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Date	Contents
July 27, 2006	1. KL Canada Central Energy.doc Subject: Hartney Central Energy System Write-up From: M. Mortson at 4:40 pm 2. KLC-Plant.pdf Energy Requirements (with site plan) Thermal Requirements – 1,610,581 btu/year
July 18, 2006	Requirements for Airborne to provide basic financial estimates for talking purposes (E. Nycz / M. Mortson)
July 21, 2006	1. Coal and ash analysis for Benfait Coal (Este-van) 2. Facility – 60 MGY Ethanol Plant – 8 MW cogeneration facility
July 27, 2006	Mortson to Patel – Ernest Nycz Contact No. 403-890-2866 Murray Mortson No. 403-253-7887 Ext 317 / Cell 403-710-6872
August 7, 2006	From Datel (J. Patel) – Existing boiler 150,000 lb/hr steam @ 150 psig, coal-fired, located at Caterpillar facility in USA
August 5, 2006	From Ernest Nycz – Request for quotation – Dismantling Supervision and upgrading to 250,000 lb/hr. Also request to provide coal handling system drawings
August 3, 2006	Submittal of Existing Boiler Drawings from Datel (N. Patel)
August 7, 2006	Coal analysis of July 18, 2006
August 9, 2006	From Victoria Xia to N. Patel – Hartney Energy Requirements; LSFO vs Airborne comparison
August 30, 2006	From Ernest Nycz to N. Patel – Annual energy requirements – Thermal Energy = 1,610,581 mmbtu (does not include co-gen) and electrical requirements of 48,077,050 kwh

3.2 Technical Email References From Airborne, KL Canada, Datel, etc.(continued)

(Email Reference Table Continued)

Date	Contents
August 31, 2006	From: Murray Mortson To: N. Patel and J. Gump Subject: Lunch meeting with Ernest Nycz and Friday call. KL's CFO is the former CFO of Trans Alta: Bill Beers KL expects to require 117,000 lb/hr steam for their process Would like to break ground on ethanol plant this fall – Production set for July of 2008. Plot plan if received is confidential
September 5, 2006	Reference Hartney Ethanol Project – Trip to Winnipeg Request for Boiler and Absorber Drawings / Phone list
January 27, 2007	Other References – See Attached Exhibit No. 1
March 29, 2007	Verbal Request to Finalize Price

3.3 Existing Major Equipment Information

BOILER

	Temperature	Volume (cu. ft. per lb. Of steam)	Btu per lb. steam

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At 150 psig (164.7 psia) – Data @ 160 psia	363.55	2.834	1195.1
At 200 psig (214.2 psia) – Data @ 200 psia	381.80	2.287	1198.3

E. Keeler Company, Williamsport, PA
Ser. No. 16479
Built 1979
Std. No. NB 5374
SWP 200
Btus 12,955
WWHS 2119
lb steam/hr 150,000
Illinois Number 009862

Boiler Accessories as listed previously

STOKER (4)

- May be Spreader or Vibrating – 650,000 Btu / sq. ft.

Detroit Stoker
Ser. No. R6941
Ash

SOOT BLOWERS

- Retractable Soot Blower – 2 ea – 1-1/2 HP
- Rotating Soot Blower – 4 ea. – 1/6 HP

Diamond Power
Model IK520
Travel 8-6
Contract 511577C
Speed 140
Serial No. 343714-01-0-0012019
3-phase, 60 Hz, 440 V
Date 12-79

POLLUTION CONTROL EQUIPMENT

- Existing Dust Collector (Baghouse) as Shown on Drawings
- Ash Collection System
- Ash Collection Silo and Bin Vent Filter

ELECTRICAL EQUIPMENT

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STEAM TURBINE

Model 2DYRT

Serial A802263

275 HP 4436 RPM Speed 4650

	Design	Max
Inlet pressure	150 psig	250
Temp	367	600
Express	5 psig	60

ID FAN

Clarage Fan

Serial No. 726CL2

Series 1250

Size 146

Type XLR

Des/CL 1035

Max safe speed 1035 rpm

50 Deg. F

ID MOTOR

Reliance

300 HP

Frame 3010Z

3-phase 60 Hz 460 V

Rpm 890

S.F. 1.15

FD FAN

Clarage

Serial No. 726CL1

Series 5350A

Size 80

Type AFM

Des/CL 1200

Max safe speed 1200 rpm

200 Deg. F

FD MOTOR

Reliance

75 HP, 1175 rpm, 460 V

Frame 405TS?

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REFERENCE DRAWINGS

P06-230-FD	Coal Fired Boiler with Pollution Abatement Process Flow Diagram
422-373-C	Existing Boiler Front Elevation 150,000 lb/hr C.C Boiler
422-373-D	Arrangement of Duct and Auxiliary Equipment for Boiler
422-374-D	Foundation and Loading Basement Floor
422-375-B	Foundation and Loading at Operating Floor
37539-1	Economizer
79-7025L-1	Coal Handling Graphic Flow Diagram

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4.0 Scope of Work

The basic scope of work includes the removal (or deconstruction) of the existing boiler, preparation for shipping, loading onto trucks (trucks provided by CCRE), supervision and match-marking of all equipment, reconditioning of some equipment as listed under Annex-1, construction supervision at Manitoba site, assisting with commissioning and re-certification of boiler, CCRE personnel training, boiler process and construction engineering, etc. The new material handling is by CCRE and the pollution abatement is by Airborne.

This scope of work shall be divided into the following:

4.1 Executive Overview:

In 1979, in Decatur, IL, a Keeler 150,000 pph Coal Fired Boiler was installed to burn coal. During boiler plant construction, the owner's plant heating strategy changed from a central steam fired plant to rooftop gas fired air handling systems. As a result, the coal fired plant was completed and commissioned then put into long term storage. Secure Energy LLC purchased the steam plant for the purpose of developing a coal gasification plant which does not require this boiler. Therefore, this unit is available for sale.

Formal inspections of this boiler indicate that the pressure vessel, tubes, casing structure, and fuel delivery systems have been well preserved. Testex inspection report is attached for your review. Pictures taken also illustrate the excellent condition of this boiler.

4.2 Opportunity:

This boiler was nameplate rated by its designer/manufacturer for 150,000 pph @ 150 psi saturated using Illinois coal and was commissioned with East Kentucky coal to provide 164,000 #/hr steam.

Through an in-depth review of the available documents, most significantly the commissioning reports and boiler design/construction documents, we believe that this unit was significantly under rated. The steam production capacity of this boiler, based on conservative industry standards, will exceed 135,000 #/hr using the Canadian Lignite as specified.

4.2 **Opportunity:** (continued--)

The assertion that this boiler's steam generation rate may be increased to 135,000 is based on this research. The rationale for increasing its capacity is presented in the following pages. Should a steam rate guarantee be required, the original manufacturer, Keeler-Mesto & Detroit Stoker, may be engaged to perform the necessary engineering study to provide such a guarantee.

While it is unusual to find such a close match for this boiler, we believe a close and detailed evaluation may result in a high quality boiler for your project and prove indirectly beneficial to the SEI.

Firm proposals for deconstruction and re-erection supervision at your Manitoba facility have been received and our partners are ready to proceed should you wish to move forward with the removal and re-use of this boiler.

4.3 The next phase of the work shall include the following:

- A. The proposed steam generating facility layout at the new site
- B. Tag, match-mark, disassemble the equipment to for shipping and installation according to the new layout.
- C. Transport to new site in installation sequence
- D. Preparation of installation (or construction) engineering drawings, civil, mechanical, control systems and electrical.
- E. Preparation of the re-erection cost on site including baghouse
- F. Preparation of material handling cost, receiving, storage, and feeding system silo.
- G. Furnishing and installation of new stack
- H. Commissioning cost of the steam generating facility and material handling

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- 4.4 The pollution abatement phase of work shall be performed for Airborne or under a consortium arrangement with Airborne
- A. SO_x control scrubber (absorber) design and supply
 - B. NaHCO₃ (sodium bicarbonate) dry injection storage and transfer system design and supply
 - C. Sorbent (NaHCO₃ solution) re-circulation system design and supply
 - D. NO_x control oxidant storage and transfer system including feeding
 - E. Oxidant recirculation system
 - F. Oxidant effluent discharge systems
 - G. Solution oxidation system to convert sulfide to sulfate, blower and storage
 - H. Solution evaporation and concentration discharge system, (Na₂SO₄ solution)
 - I. Particulate removal system
 - J. Effluent discharge system
 - K. Sludge disposal system
 - L. The installation cost of the pollution abatement phase.
- 4.5 Process Water System – Design
- A. Make-up Water – Feed System Design
 - B. Boiler Feed Water System Design
 - C. Evaporative Cooling Water Supply and Return – Design
 - D. Wastewater System – Abatement System Design

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4.6 **Risk & Risk Reduction:**

Since this boiler is to be removed, re-constructed and re-used, there is more inherent risk than purchase of a new unit. It is imperative then that the risk, associated with the boiler re-use option, is reduced to a minimum. As with all utility construction projects, risk management must be an integral part of the process from planning through completion. The following steps have been taken to further insure a successful project:

<i>Description</i>	<i>Done</i>	<i>Future</i>	<i>Cost or Commitment</i>
Preliminary technical evaluation of existing boiler and support equipment	✓		
Internal inspection of pressure vessel	✓		
Engineering study (by others) to guarantee output / performance by Keller and Smith		✓	
“Open Pass” modifications to increase maximum continuous capacity		✓	
Alternate pollution control strategies			
Auxiliary burner(s) (gas/oil) to handle peak steam production requirements	Preliminary ✓	✓	
Provide a stand-by or auxiliary boiler for start-up, backup and/or peak steam production (gas or oil fired)		✓	
Provide and install condensing economizers to achieve 93% boiler thermal efficiency		✓	

Risk reduction measures that have additional economic benefits may be carefully considered...i.e...condensing economizers increase boiler output and reduce operating costs.

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4.7 Moving Forward:

Letter of Intent / MOU : Required for further engineering

Engineering Contract :

Boiler Deposit : \$_____ for project engineering

Final Contract : \$_____

4.8 Not Included:

- Stack
- Coal Handling and Storage
- Feed Water Conditioning / Deaerating
- Ash Handling & Storage
- Infrastructure (outline of foundations and layout is included)
- Permits to Install or Operate
- Third Party Testing
- Taxes
- Premium time of delays due to events/conditions beyond our control will be charged or negotiated as extras
- Rigging at site of installation
- Equipment or services not specifically listed is excluded from our scope of work
- Owner/operator training is limited to 2 to 3 weeks on site
- Warranty parts/Labor
- Onsite Engineering beyond boiler scope
- Onsite Boiler Erection Labor/Materials (supervision of boiler erection is included)

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5.0 EPM (Engineering, Procurement and Management) Services will be provided by this team.

5.1 General

ICON /DATEL will provide the following service to meet the above requirements:

- A. Engineering Services including process engineering and construction installation engineering
- B. Project Coordination Services including estimate, construction coordination, procurement, scheduling, and start-up.
- C. The item six defines our team capability and qualification

5.2 Team Responsibility

Our team, is a combination of three separate companies, represented by Icon Construction, Inc. (Icon/Datel), Stormer-Anderson, Inc.(SA) and Schmidt Associates, Inc.(SAI). The Icon/Datel is leading entity with CCRE but we all work together. Most of the Icon/Datel experience is centered around the construction of the industrial plants. Icon/Datel provides complete construction engineering, project and construction management, construction coordination services, pollution abatement engineering etc. Stoermer-Anderson is manufacturer's representative for the small to medium sized steam generation equipment suppliers and maintenance service supplier. The Schmidt Associates, Inc. (SAI) is a professional engineering design firm with national reputation specializing in the production and distribution of energy.

As introduced, our business plan is simple. We help owner to procure pre-owned steam generating plants. We evaluate the existing process, we dismantle the facility, transport the facility to the new location, refurbish all plant equipment, procure all new required plant equipment, supervise, start-up the plant, assist in re-certification of facility and train the owner's employee on operation.

This strategy allows us to supply the required plant facility for about half the capital cost and in less than half the time of a new facility. We can do this because the pre-owned plants, refurbish and upgrade all of the equipment, and provide anew "state of the art" control system.

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The facility would be provided refurbished and upgraded, with world class engineering (as good as or better than the major industrial steam generating facility), and most of the same warranties and guarantees of a new facility. The Control Systems provided are always new, and “state of the art”, allowing the plant to operate at a higher efficiency than it was originally installed. We believe that our capabilities may be an excellent fit for your requirements. The following outline represents our plan in more detail:

Procurement – As an independent company, we can source plants and equipment from all of the major suppliers. In fact, we are proud to list most of the major clients and sources, these include: B&W, Detroit Stockers, Keller, Alfa, Alstom etc. In addition we also procure plants from the end users who have shutdown their facilities for a variety of reasons. Because of our extensive network of contacts, we are arguably the largest source for pre-owned plants and also, with very limited exclusion, have first choice of any plants that will come available for sale.

Engineering Evaluation – During the procurement process, the facility goes through an extensive engineering evaluation with respect to its installed process, condition of equipment, design capacity and efficiency, historic capacity and efficiency. From this evaluation, we determine how or if the process needs to be modified for the new owner’s application, what equipment needs to be added for the needs of the new owner, and a preliminary budget for dismantlement and transportation. The engineers performing this operation as well as the rest of the project are all senior level experts in their respective fields and have at least 20 years experience in our industry.

As the project progresses, we write specifications for the refurbishment of existing equipment and specifications for new equipment required. Once we select our vendors, we manage the refurbishment and supply of all plant equipment. Once again, we have preferred groups of vendors known through our industry that we have successfully worked with over the years.

Plant Dismantlement – One of the keys to a successful project is the correct and extensive documented dismantlement of the facility. The expertise required for this segment, excludes most of the normal industrial construction companies. Many years of experience (both good and bad) have led us to develop the proper and most efficient way to take down a plant. Our methods insure that the original facility configuration is adequately documented via, original drawing checks, photography and video taping (used for three dimensional installation confirmation). We also utilize an equipment survey to verify the plant had been installed consistent with the engineering drawings. All equipment and piping is

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match-marked, with cut points being established that maximize transportation loading efficiency and minimize re-installation man-hour requirements.

Transportation – This is the process, of course, of moving the equipment from the initial installation location to its new location. Some equipment is moved to refurbishment shops in between. Although fairly self explanatory, there are some aspects in this process that can save an appreciable amount of project cost and time. The area in which careful coordination greatly pays off is with the use of the cranes required for both dismantling the larger plant pieces (especially the steam drums) and installing the same pieces. Transportation of these pieces will be permitted and restricted loads that require specialized equipment. Our project planning is such that the use of both the cranes and specialized haling equipment is utilized at the absolute maximum efficiency. We only use transportation companies that are familiar with the shipping of steam generating facility.

Refurbishment (as required) – Another key to the project is the timely and proper refurbishment of the plant equipment. All equipment noted in the attachment is transported to a specialized shop for complete dismantlement, thorough inspection, refurbishment and or upgrading.

Project Engineering – Our Project Engineering Team continues after the Evaluation process to confirm design, re-design, and specify all the requirements need to install the plant in the exact configuration required by the new owner. The project engineering team is divided into the following disciplines: Project Director, Project Engineering, electrical Engineering, Process Engineering, Mechanical Engineering, Structural / Piping Design and Drafting, Instrumentation Engineering, Plant Controls / Automation Engineering, Construction Supervision, Start-Up Engineering / Training, and logistics. Our customers can perform any of these disciplines on if they want or combine their personnel with our expertise as desired.

Our engineers also provide installation packages that are used internally or for outside contractors to successfully construct the facility. These packages includes: Geotechnical Survey, Foundations, Civil, Underground electrical / Piping, Mechanical Installation, Electrical Equipment, Conduit / Wiring (high voltage, medium voltage, low voltage and control), Instrumentation installation, Plant controls, Structural and boiler re-erection.

One of the major advantages of utilizing a pre-owned plant is that most of the engineering (90% has been completed, and drawings available from the initial installation. The plant is installed in the same configuration (plot plan) as it was originally. There is a tremendous savings in Engineering Cost and Time that is saved.

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Ethanol Plant
Steam Generating Facility with
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Construction / Installation – As typical with Industrial Plant construction and installation, we can act as a consortium co-coordinator or manager / sub contractors for this step, only the general contractor, or simply construction supervision if the owner wants to use it's own contractor. It is an advantage (but not absolutely necessary) that the contractors used have experience with steam generating plants, due to the specialty piping material and boiler setting / installation / insulation.

Commissioning / Start-up / Training – Once the plant is mechanically complete, we have engineering specialists that commission and start-up the plant. This is a highly specialized talent that requires many years of plant operation experience. We have someone that both specialize in Construction Supervision and Process Start-Up. The Start-Up engineers also provide the required training of the owners personnel.

In addition to Start-up and training, we offer on-going audit services, where a team of Engineers visits the site periodically to examine plant operating parameters and suggest ways to improve production and efficiency. This is a very popular service used by non-industrial owner of steam generating facility.

6.0 Expert Opinion of Existing boiler (see attachment Annex-2)

7.0 List of Equipments – To be Upgraded

The following equipments will be upgraded or added to the relocated steam generating facility to achieve 135,000 lb/hr steam production.

- 7.1 Design and furnish combustion air heater to dry and preheat high moisture coal
- 7.2 Upgrade soot blowers to increase ash/soot removal
- 7.3 Economizer heating surface modification design and specification for field work during installation
- 7.4 Design and provide combustion and feed water control with boiler management, HMI and interface to remove DCS including commissioning.
- 7.5 Coal feeder / stocker upgrades to increase fuel delivery. Design and furnish equipment upgrades for increased coal input @ coal feeders.
- 7.6 Provide new convection bank tubes and design.

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8.0 Optional Equipments

The following equipments are not included into the present cost estimates

- 8.1 Natural gas burners for swing load / partial / full load steam production and emission reduction. The final capacity for existing boiler shall be determined during design phase.
- 8.2 Alternate fuel firing capability:
 - Bio fuel
 - Oil
 - Gas
 - Alternate coal or coal blending will be reviewed during design phase if required by CCRE and their impact on supply and installation cost.
- 8.3 Alternate pollution control strategies
- 8.4 Condensing economizer for improved plant efficiency, emission reduction and water recovery.
- 8.5 Other optional equipment are listed under Annex-1