

1 Q. Please file a copy of Hydro's evaluation and selection report relating to the  
2 submissions received in response to its public tender for the 100 MW combustion  
3 turbine.

4  
5  
6 A. The evaluation criterion for the project was to identify the least cost, compliant bid  
7 with respect to the tender document, "Engineering Procurement and Construction  
8 for a Turnkey 100MW (Nominal) Combustion Turbine Generator at the Holyrood  
9 Thermal Generating Station, 2014-57952-TB". The evaluation process consisted of  
10 the following activities:

- 11
- 12 • The tender submissions were evaluated by the Hydro due diligence group,  
13 which has representatives from the applicable functional departments  
14 within Hydro (e.g., Project Execution and Technical Services, Finance,  
15 Commercial, Treasury, Risk, Procurement and Legal).
  - 16 • A technical evaluation was completed by a team of engineering discipline  
17 leads to ensure compliance with the technical specifications. A copy of the  
18 technical evaluation form is attached as GT-CA-NLH-005 Attachment 1.
  - 19 • An independent engineering firm was engaged by Hydro to inspect the unit  
20 proposed by the least cost, compliant bidder. A copy of the report is  
21 attached as GT-CA-NLH-005 Attachment 2.
  - 22 • Reference checks from previous clients of the least cost, compliant bidder  
23 were completed. A summary report of the diligence checks is attached as  
24 GT-CA-NLH-005 Attachment 3.
  - 25 • A summary of the bid results is provided in Hydro's response to GT-CA-NLH-  
26 004.

Tender Technical Evaluation										
2014-57952-TB - Engineering, Procurement, and Construction for 100 MW CTG at Holyrood Generating Station										
			ProEnergy		Wood Group		PW Power Systems		GE Power & Water	
		Weighting	Score	Comment	Score	Comment	Score	Comment	Score	
SP 2	Tender Submission	12.0	12.0		12.0		11.0		10.0	
1	A general arrangement of the plant to scale on the site layout drawing provided in Appendix A. Plant layout shall be limited to the indicated site boundary.	1.0	1	Fuel System is outside boundary, but in available space.	1		1	Layout does not house much of the auxiliary equipment indoors.	0	Typical layout provided. Not overlaid on site plan.
2	A manufacturer's list of the major components of equipment being provided along with specifications.	1.0	1	Little detail provided with respect to specifications	1	Little detail provided with respect to specifications	1		1	Little detail provided with respect to specifications
3	Performance specifications of the gas turbine plant at standard ISO conditions and also at minus 10 degrees C.	1.0	1		1		1		1	
4	Information on CTG starting technology.	1.0	1		1		1		1	
5	Plant start-up time.	1.0	1	21 minutes	1	10 minutes	0	Couldn't find reference to start time	1	
6	A project execution schedule.	1.0	1		1		1	Level 1 schedule provided	1	Schedule extends to Oct. 2015
7	Emissions and heat rate guarantee.	1.0	1		1		1		1	
8	Warranty details and terms.	1.0	1	24 months with qualifications	1	12 months only	1	24 months with qualifications	0	18 Months
9	Information on gas generator and turbine cooling systems.	1.0	1		1		1		1	
10	Information on air pre-heat requirements.	1.0	1		1		1		1	
11	A list of recommended spare parts.	1.0	1		1		1		1	
12	Noise rating for start-up and operation.	1.0	1		1		1		1	
SP 4	Schedule	2.0	2.0		1.0		1.0		0.0	
1	CTG Commercial Operation Date (Dec. 7, Required)	1.0	1		1		1		0	Emergency power generation capability only. Several pieces of scope to be completed in 2015
2	Building Enclosure Complete (ASAP After Dec. 7 Required)	1.0	1	Building also complete by Dec. 7	0	Building excluded	0	Building not included in the execution plan.	0	Building not installed until late 2015
SP 5	Warranty	1.0	1.0		0.0		1.0		0.0	
1	Two (2) Year Warranty	1.0	1	24 months with qualifications	0	12 months only	1	24 months with qualifications	0	18 Months
SP 7	100 MW Combustion Turbine Plant	9.0	8.0		9.0		8.0		8.0	
1	100MW of combustion turbine generation fuelled by No 2 distillate fuel oil. Plant shall consist of not more than four (4) combustion turbine generators;	1.0	1	1 unit - 123 MW	1	2 units - 92MW	1	4 units - 100MW	1	2 units - 95MW
2	CTG shall be winterized and capable of operation at ambient temperature -25-C;	1.0	1		1		1		1	
3	13.8kV, 60Hz, 90/120/150 MVA synchronous generator, PF 0.9, winding configuration wye, ground through neutral ground resistor;	1.0	1		1		1		1	
4	Liquid NOx emission control;	1.0	1		1		1		1	
5	Exhaust Stack (minimum 50' high) complete with weather/snow doors;	1.0	1		1		0	Shorter stack height and no snow doors.	1	
6	Air Inlet complete with filters, (air preheat to be provided if required);	1.0	1		1		1		1	
8	Fully functional plant with the ability of remote dispatch;	1.0	1		1		1		1	
9	All balance of plant materials, equipment, and civil works as described herein; and	1.0	1		1		1		1	
10	Synchronous condense capability – Optional.	1.0	0	Not included	1	Option provided but not priced	1	Option provided	0	Not included
SP 8	Mechanical Balance of Plant	10.0	10.0		9.0		9.0		9.0	
1	1. Liquid fuel system including: a. 2,500,000L fuel storage tank complete with spill containment; b. Fuel forwarding skid complete with at a minimum: i. Redundant AC pumps; ii. Back up DC pump; iii. Fuel heater; iv. Fuel filter; v. Mass flow meter; c. Liquid fuel pipeline with flanged connection to equipment. Fuel pipelines shall be above ground and winter operable; d. Fuel truck offloading system with spill containment at a minimum; i. Off loading pumps (redundant AC and back-up DC); ii. Fuel filters; iii. Mass flow meter;	1.0	1	Little detail provided in bid document. Technical clarification confirmed that all items included.	0.5	Backup DC Pump excluded	0.5	Piping between fuel forwarding and filtering skid by NLH	1	
2	1. Lube oil system including at a minimum; a. Lube oil sump; b. Redundant AC pumps; c. Back up DC pumps; d. Redundant oil filter; e. Oil cooling.	1.0	1	Little detail provided in bid document. Technical clarification confirmed that all items included.	0.5	Backup DC Pump excluded	0.5	Redundant AC pumps and filters not provided, but DC backup is provided.	1	Minimal detail provided
3	Demineralized water system. System and storage tank(s) suitable for 2 X four hour operations (between 7:00 AM and 11:00 AM / 4:00 PM to 8:00 PM). Size of the storage tank to be optimized to suit demineralized water system;	1.0	1		1		1		1	
4	FM Global approved fire suppression system for CTG and balance of	1.0	1	FM global approval not noted	1	FM global approval not noted	1	FM global approval not noted	1	FM global approval not noted
5	Redundant compressed air/instrument air;	1.0	1		1		1		1	
6	CTG effluent sump;	1.0	1		1		1		1	
7	Supply of specialty tools and equipment for maintenance of CTG and auxiliaries;	1.0	1	Little detail provided in bid document. Technical clarification confirmed that some specialty tools are included.	1		1		0	Pricing for tools is included.
8	Means of lifting, dismantling and removal of CTG and auxiliaries for maintenance;	1.0	1		1		1		1	
9	Pipe interconnections (i.e., fuel, lube, air, and water systems). Fuel and lube piping to be above ground;	1.0	1		1		1		1	
10	Black start capability;	1.0	1		1		1		1	
SP 9	Electrical Balance of Plant	20.0	19.5		20.0		18.0		19.0	
1	13.8 kV to 230kV, 90/120/150 MVA GSU transformer(s). A dedicated GSU shall be provided for each generating unit. 1050 BIL bushings and surge arrestors;	1.0	0.5	Only 900 BIL bushings are available.	1	No detail provided	1		1	
2	New Transformer Oil for GSU transformer(s);	1.0	1		1		1		1	
3	Transformer spill containment w/drainage directed to oil/water separator.	1.0	1		1		0	Containment not noted	1	
4	Transformer blast wall as required to protect any adjacent infrastructure/equipment.	1.0	1	Confirmed in Technical Clarification meeting that this is included.	1		1	Blast walls excluded. Protection provided by spacing equipment > 50'	0	Non noted
5	13.8 kV Generator Circuit Breakers;	1.0	1		1		1		1	
6	Aux feeder breakers;	1.0	1		1		1		1	
7	Unit Auxiliary Transformer (13.8 kV / 4160 V);	1.0	1		1		1		1	
8	4160 V MCC;	1.0	1		1		1		1	
9	4160 V Switchboard;	1.0	1		1		1		1	
10	Unit Auxiliary Transformer (4160 V / 480 V or 600 V);	1.0	1		1		1		1	
11	New Transformer Oil for Aux Transformers;	1.0	1		1		1		1	
12	480/600 V MCC ;	1.0	1		1		1		1	
13	480/600 V Switchboard;	1.0	1		1		1		1	
14	Balance of plant (BOP) 480 V/600 V / 120 V/ 208 V Transformer, Distribution	1.0	1		1		1		1	
15	Panels, Lighting Panels;	1.0	1		1		1		1	
16	Isophase Bus from CTG to Generator Breaker;	1.0	1		1		1		1	
17	15 kV Cabling from Generator Breaker to GSU transformer;	1.0	1		1		1		1	
18	Cabling within site boundary. Exterior cabling to be ran in underground buried conduit or all traffic rated cable trench;	1.0	1		1		1		1	
19	Batteries and Chargers; and	1.0	1		1		1		1	
20	Site grounding system and generator ground connection	1.0	1		1		0	Site grounding by NLH	1	
SP 10	Protection, Instrumentation, Controls and Communications (PICC)	7.0	7.0		7.0		7.0		7.0	
1	1. Plant Instrumentation including: a. MW, MVAR, Unit KV, and bus KV metering with synchroscope; b. All applicable pressure, temperature, level monitoring and protection for combustion turbine and generator; c. Vibration monitoring and protection for the combustion turbine and generator;	1.0	1	No detail provided	1	No detail provided	1		1	No detail provided

2	2. Control System (Governor and sequencing): a. Microprocessor based; b. PLC or DCS platform preferred; c. Sufficient I/O modules for hardwired remote operation; d. I/O modules shall be suitable for 125VDC operation; e. Computer based graphical HMI for local operator preferred, having the following functionality as a minimum; i. Control screens; ii. Real time operating data and trending; iii. Historical trending; iv. Alarm screens; f. If hardwired operator interface provision must include sufficient lamp, switches and annunciator for local operation; g. Manual and automatic synchronizing control circuits;	1.0	1	No detail provided	1	No detail provided	1		1	No detail provided	0-No / 1-yes
3	CTG protective relaying including all necessary auxiliaries and lockout switches. Microprocessor based relaying preferred;	1.0	1	No detail provided	1	No detail provided	1		1	No detail provided	0-No / 1-yes
4	Fuel control valve: DC powered; position feedback to control system;	1.0	1	No detail provided	1	No detail provided	1		1	No detail provided	0-No / 1-yes
5	Control room/module for local operation of the CTG and auxiliaries;	1.0	1	No detail provided	1	No detail provided	1		1	No detail provided	0-No / 1-yes
6	Wiring termination interface to be provided for remote operations and monitoring capability by Owner at existing thermal generating station control room and at Nalcor's provincial energy control center (ECC) via SCADA in St. John's;	1.0	1	Additional detail is required	1	No detail provided	1		1	No detail provided	0-No / 1-yes
7	Telephone and Ethernet wiring terminal interface for Owner's connection to existing services.	1.0	1		1	No detail provided	1		1	No detail provided	0-No / 1-yes
SP 11	Civil/Structural Works	10.0	10.0		10.0		8.0		10.0		
1	Site layout and traffic flow modifications;	1.0	1		1		1		1		0-No / 1-yes
2	Concrete foundations and slabs for CTG and building;	1.0	1		1	Building excluded	1		1		0-No / 1-yes
3	Concrete foundations and slabs for all Contractor furnished ancillary equipment including piping, tanks, and electrical services;	1.0	1		1		1		1		0-No / 1-yes
4	Site water supply and drainage including piping to Owner furnished hook-ups located at boundary of CTG site;	1.0	1		1		1		1		0-No / 1-yes
5	Provision of all stairs, platforms, ladders for access and maintenance of equipment;	1.0	1		1		1		1		0-No / 1-yes
6	All exterior steel shall be hot dipped galvanized;	1.0	1		1		0	Exception to Galvanized	1		0-No / 1-yes
7	Fencing surrounding GSU(s);	1.0	1		1	Site fencing also provided	0	Fencing not noted	1		0-No / 1-yes
8	Final grading and site remediation;	1.0	1		1		1		1		0-No / 1-yes
9	All traffic rated cable trench; and	1.0	1		1		1		1		0-No / 1-yes
10	Dyking and environmental protection for fuel oil storage and handling equipment.	1.0	1		1	Only 1 tank, therefore dyked area is large.	1	Containment area appears to be small on the plot plan.	1	No detail provide	0-No / 1-yes
SP 12	Building	1.0	1.0		0.0		0.0		1.0		
1	Contractor shall carry an \$8,000,000 allowance to provide a weather tight, winter suitable building envelope to house the CTG set and balance of plant. The building shall be of sufficient size to allow the safe and ergonomic operation and maintenance of the CTG and auxiliary equipment. The building shall be designed in accordance with:  1. National Building Code of Canada; 2. National Fire Code of Canada; 3. National Plumbing Code of Canada; 4. National (Canadian) and provincial (Newfoundland and Labrador) occupational health and safety regulations.  Building design will take into account ambient and energy efficient lighting.	1.0	1		0	Building excluded from scope and schedule	0	Building has been excluded from the execution plan, but the allowance was carried.	1		0-No / 1-yes

Total score72.070.568.063.064.0

Rationalized (%) -97.9%94.4%87.5%88.9%



30 May 2014

Mr. Stephen Parsons, P. Eng.  
Project Manager  
NALCOR Energy  
Hydro Place, 500 Columbus Drive  
PO Box 12800  
St John's, NL, Canada  
A1B 0C9

Dear Stephen,

Newfoundland and Labrador Hydro – GT Inspection Assessment

As per our Agreement, we have completed the final report of the Newfoundland and Labrador Hydro GT Inspection Assessment. I trust that the report satisfies your needs.

Overall it seems that the Siemens D5A GT has been reasonably stored and the storage requirements of specific systems such as dehumidifying the GT and electrical skid, internal heating of generator, and heating/turning of various motors have been regularly undertaken and monitored. Pipes and openings have been sealed to minimize exposure to vermin. Based on the inventory of parts, the stored materials appear to be complete (at least major elements). Overall the condition of the parts of the units appear to be in good condition, consistent with preserving the life of the major parts of the unit.

Thank you for the opportunity to work on this very interesting project.

Yours truly,

A handwritten signature in cursive script that reads "Blair Seckington".

Blair Seckington  
Director, Power Technology  
Direct Tel.:  
Direct Fax:  
E-mail:

905-403-5004  
905-829-1707  
blair.seckington@amec.com

BRS/brs

c: G. Forbes C. Woodall





## Newfoundland and Labrador Hydro GT Inspection Assessment

May 30, 2014

### Newfoundland and Labrador Hydro GT Inspection Assessment

Prepared by: Blair Seckington  
Blair Seckington  
30 May 2014  
Date

Checked by: Benjamin J. Garren  
Joe Garren  
30 May 2014  
Date

Approved by: Blair Seckington  
Blair Seckington  
30 May 2014  
Date

Rev.	Description	Prepared By:	Checked:	Approved	Date
A	Draft Report	Blair Seckington	Joe Garren	Blair Seckington	5 May 2014
0	Final Report	Blair Seckington	Joe Garren	Blair Seckington	30 May 2014

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Newfoundland and Labrador Hydro GT Inspection Assessment



PROVINCE OF NEWFOUNDLAND AND LABRADOR	
<b>PEG</b> Newfoundland and Labrador <small>PROFESSIONAL ENGINEERS AND GEODETISTS</small>	<b>PERMIT HOLDER</b> <b>This Permit Allows</b>
<b>AMEC AMERICAS LIMITED</b>	
To practice Professional Engineering in Newfoundland and Labrador. Permit No. as issued by PEG <u>00018</u> which is valid for the year <u>2014</u>	

Newfoundland and Labrador Hydro a NALCOR Energy Co.  
Newfoundland and Labrador Hydro GT Inspection Assessment



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Newfoundland and Labrador Hydro GT Inspection Assessment



## NEWFOUNDLAND AND LABRADOR HYDRO FACILITIES GT INSPECTION ASSESSMENT

### 1 INTRODUCTION/BACKGROUND

Newfoundland and Labrador Hydro (NL Hydro) has an interest in procuring and installing a previously owned/not used gas turbine (GT) unit for service at the Holyrood Thermal Generating Station (Holyrood). A suitable Siemens 501D5A/SGT6-3000E GT (originally designed for natural gas) is available from ProEnergy/Energy Parts as a component of a recently submitted EPC proposal. The unit is currently stored at the Barnhart Crane & Rigging facility located at 1701 Dunn, Memphis, Tennessee.

AMEC was contracted to undertake a third party visual inspection/assessment of the unit to determine if it has been stored properly and its storage managed in such a way as to maintain its viability for service in Newfoundland, and to provide an opinion on its suitability for service at the Holyrood site.

The ProEnergy/Energy Parts contact for the site review was Bob Dodson (660-281-5433) while Barnhart's site contact was Jeff Smith.

The major component information is:

#### Combustion Turbine:

Combustion Turbine Model	SGT6-3000E
Manufacturer	Siemens (Westinghouse)
Serial Number	37A7750
Year of manufacture	2007

#### Generator:

Generator Model	SGEN6-100A-2P
Manufacturer	Siemens
Serial Number	12009742
Rating	120 MVA, .90pf (@40 degrees C
Year of manufacture	2009

#### Expected Performance:

Net GT Power 102.9 MW  
Net GT Heat Rate 10,289 BTU/kwh

For 14.271 psia, Inlet air temperature 95F, Relative Humidity 60% and evaporative cooler ON, and fuel lower heating value 20,981 BTU/lb LHV

The equipment has been in storage since approximately October 2009. The storage and preservation activities have been provided by Barnhart in accordance with the guidelines specified in the manufacturers "Storage, Preservation and Rehabilitation Manual for Econopac Systems" (SPM-2000 v5).

### 2 SCOPE AND FACILITIES AND METHODOLOGY

The key AMEC work tasks included:

- i) A pre-visit review of ProEnergy/Hydro provided information;
- ii) A visual assessment of GT at the storage site; and
- iii) The preparation of a letter report summarizing site observations and providing an opinion of suitability of the unit for use at Holyrood.



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The specific work tasks included:

- A review of the original PO/specifications for the GT, if available;
- A review of vendor documentation with the GT such as drawings and manuals to confirm whether or not the proper documentation had been shipped with the GT and to identify any data gaps;
- A review of storage maintenance records;
- A review of GT storage procedures and how it was laid-up;
- A general inspection of the storage facility and storage conditions;
- A visual inspection of all GT components, obtaining nameplate information, etc;
- Identification of any visually obvious defects in the GT;
- A review of ProEnergy's proposal to assess the suitability of the GT to operate in the Holyrood climate;
- Completion of a photographic log at the storage facility;
- A meeting with Nalcor and ProEnergy representatives on-site; and
- The preparation of a stamped letter report that includes:
  - A summary of findings and observations;
  - Consolidation of vendor and storage information;
  - Identification of potential climate and/or code issues associated with the operation of the gas turbine generator at Holyrood as compared to the location for which it was originally designed to be operated in; and
  - An opinion of suitability of the GT.

### 3 REVIEW OF DOCUMENTATION

#### 3.1 Design Information and Pre-Site Visit Data

There was limited data available to review prior to the site visit. After the site visit, a brief review of documentation provided by Nalcor and ProEnergy included:

- A review of the original PO/specifications for the GT, if available. – None were available for review during the period; and
- A review of vendor documentation with the GT including a Siemens List of documents, drawings, specifications, commissioning manual, instruction manuals, O&M manuals, installation manuals, and equipment lists- equipment description.

It appeared that fairly extensive information had been shipped with the GT and can be provided to Nalcor upon procurement of the machine. No specific gaps were identified within the time available during the site visit. Additional data on the fuel oil firing systems will be required when that is engineered and installed by ProEnergy.

#### 3.2 Storage Procedures and Lay-up and Maintenance Records

The equipment has been in storage since October of 2009. The storage and preservation activities have been provided by Barnhart' in accordance with the guidelines specified in the manufacturers "Storage, Preservation and Rehabilitation Manual for Econopac Systems" (SPM-2000 v5). A copy of an extract from SGT6-3000E COMBUSTION TURBINE AND GENERATOR PRESERVATION AND STORAGE I.L. 1700-0007-SGT6-3000E-STD Rev 1 is attached. Barnhart had an equipment storage procedure developed by Sargent & Lundy for the storage of this unit which has been followed since October of 2009.

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ProEnergy provided data from Barnhart on the maintenance and monitoring records. These included the following documents:

Code	System/Equipment	Frequency	Type	Scope
22100	Maintenance Tools	3 Monthly	Walk Down	Rust, Vermin, General
22200	Service Lifts Assembly	3 Monthly	Walk Down	Rust, Vermin, General
33000	Starting Package	Monthly	Inspect/Test	Rotate motors, check amps
50000	Lube Pump, compressor	3 Monthly	Inspect/Test	Humidity, temp, Other
81050	Inlet Duct materials	Monthly	Walk Down	Rust, cribbing, supports, vermin, etc
83050	Covered area Piping	Monthly	Walk Down	Rust, cribbing, supports, vermin, etc
Area 924 Outside	Lube oil & gen fans, elect package	Monthly	Inspect/Test	Motor turn, Amps, inspect
Area 972 Inside	GT Enclosure Fans (& gas system)	Monthly	Inspect/Test	Motor turn, Amps, inspect
Turbine & Generator	Gen & GT	Monthly	Inspect/Test	Humidity, Rust, vermin, heaters, etc.
500000 Meggering	Mechanical package	3 Monthly	Meggering	Meggering motors
5000000 Weekly	Mechanical package	Weekly	Inspect/Test	Humidity, temperature

Based on these records, it appears that the equipment is being monitored on a regular basis and that conditions are maintained appropriately.

## 4 SITE INSPECTION

### 4.1 Storage Facility

There are five areas where five areas of storage at the Barnhart 1701 Dunn Street facility and one off-site at its Port Barge Unloading facility.

- Indoor enclosed – (i.e. insulation, IPB equipment, burner assembly materials, exhaust transition)
- Indoor – roof but not enclosed – (i.e. oils/greases/misc, bulk piping and large inlet/outlet ductworks)
- Climate controlled – enclosed and heated/humidity controlled – (i.e. controls, computer hardware, printers, DCS)
- Outdoor – exposed outdoors - fin fan coolers for generator and lube oil; lube oil skid, electrical skid
- Outdoor – exposed – bulk structural items, duct materials
- Off-site port storage building for gas turbine and generator storage – enclosed

The equipment inventory is well maintained. The locations of the stored equipment were consistent with the facility inventory logs. The ability to store materials in suitable environments (climate controlled, heavy lift, enclosed, open/covered, outdoor) is evident and appears to have been reasonably employed.

### 4.2 Visual Inspection of GT Components

An indicative walk-down and visual inspection of the GT components was undertaken, tracking major items against the summary inventory list for the AECI Essex II Siemens list provided by ProEnergy. The following was noted:

- Major pieces of equipment per the inventory list were accounted for using identifiers on packing slips or other equipment documentation. (NOTE: Upon project activation, a detailed inventory and sequence plan would be done by ProEnergy as part of their EPC implementation process.)
- Loose items were stored appropriately.
- Pipes and other openings were sealed where practical



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Newfoundland and Labrador Hydro GT Inspection Assessment



- No areas of free standing water or appearances indicating that there no leaks on equipment and parts, particularly in covered areas
- No significant rusting or corrosion of various parts
- Undisturbed dust coating in some areas indicate that equipment has not been disturbed or moved
- No evidence evident of vermin or birds nesting in equipment
- Major pieces of equipment requiring special provisions (requiring heating, dehumidification, turning) appear to have been effectively addressed:
  - GT is dehumidified and records monitored/maintained
  - Generator has power to its heating coil circuits
  - Fin fan coolers are periodically turned
  - Heaters are in service on various equipment
  - Computer and sensitive control equipment kept in a climate controlled room
  - GT and generator management is consistent with Siemens instructions
- The GT seems in good condition in terms of its visible external elements. The humidification system was operational during the visit
- The generator was completed boxed up, but with power to its heating elements – likely more desirable than opening for a visual check
- The GT and generator rotors are not turned, which appears consistent with Siemens lay-up practice document attached as a pdf file in Appendix 2:
  - Would require extensive support systems to be in-place and operating (i.e. lube oil, motor)
  - Would likely expose equipment to elements (vs boxed up)
  - Any issues with rotor bowing would be minimal and worked out during initial start-up/commissioning
- Impressed with apparent capabilities and experience of ProEnergy/Energy Parts and its site representative:
  - Client focus, implementation of more complex/worse condition systems
  - Internal capabilities re fabrication, spares, engineering
  - Focus on building it as though they are owners/operators

The ability to obtain nameplate information was limited due to the packaging associated with most of the equipment (including the generator). The gas turbine nameplate was photographed and included in a photographic record in Appendix 1.

#### 4.3 Photographic Record

A summary level photographic record was undertaken during the review. Given the scope and layout and timing, it is not intended as an exhaustive record. It is indicative of the manner in which equipment is being stored and its condition. It is included in Appendix 1. (Other photographs were taken and could be made available if desired.

### 5 SUITABILITY OF EQUIPMENT FOR HOLYROOD SITE APPLICATION

ProEnergy identified that Nalcor plans to use No.2 diesel as the fuel oil for this GT equipment at Holyrood. This will require a new fuel handling system and burner system to be provided by ProEnergy since the existing GT was designed and stored as a natural gas unit. The fuel oil is not a significant issue for the rest of the GT or balance of plant but will result in more frequent GT maintenance.

ProEnergy/Energy Parts are also looking at air intake and filter materials that would be more consistent with the salt water ambient air environment at Holyrood versus the original design of the stored equipment/materials. Provided this addresses the issue appropriately, this issue is not a showstopper, but also may require additional monitoring and maintenance over the longer term.



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Newfoundland and Labrador Hydro GT Inspection Assessment



The ProEnergy/Energy Parts site representative also indicated that they are providing a black start capability for the unit that is not a part of the current system. This would provide additional flexibility for emergency conditions.

One question that remained after the site visit was what are the NOx emissions requirements and how are they addressed. The original equipment had a water injection system for NOx control on natural gas (may also have been useful for power augmentation). Given NOx increases with fuel oil use, it may be necessary to increase the water injection rate. This could result in a modest equipment change for the water injection system. The suitability of the existing water injection system is an issue that is outside of scope of this assessment, but should be considered.

## 6 CONCLUSIONS

Overall, the existing Siemens 501D5A/SGT6-3000E gas turbine visited seems in good condition and to be a suitable candidate for an application at Holyrood.

1. The storage and condition monitoring of the existing GT equipment has been and is being well managed, including equipment requiring special provisions and testing.
2. The walk down indicated that the equipment stored appears to be consistent with the inventory list supplied by ProEnergy.
3. No significant equipment damage was identified during the walk downs.
4. Computer equipment in the climate controlled room appears well preserved, but may be obsolete and require replacement by newer systems.
5. The equipment should be suitable for application at Holyrood provided:
  - a. The liquid fuel system to be provided by ProEnergy is suitable (For which they do have experience and capability based on discussions with their site representative.)
  - b. The air intake system and air filter materials are modified so that they will be suitable for a salt water ambient air environment
  - c. The black start proposed to be added to the existing equipment is integrated into the overall scheme.
  - d. The NOx emissions capability requirements can be met by the existing water injection system or require a modification to the system.

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## APPENDIX 1

### Site Photograph Journal



Isophase Bus Du  
Enclosed Warehouse



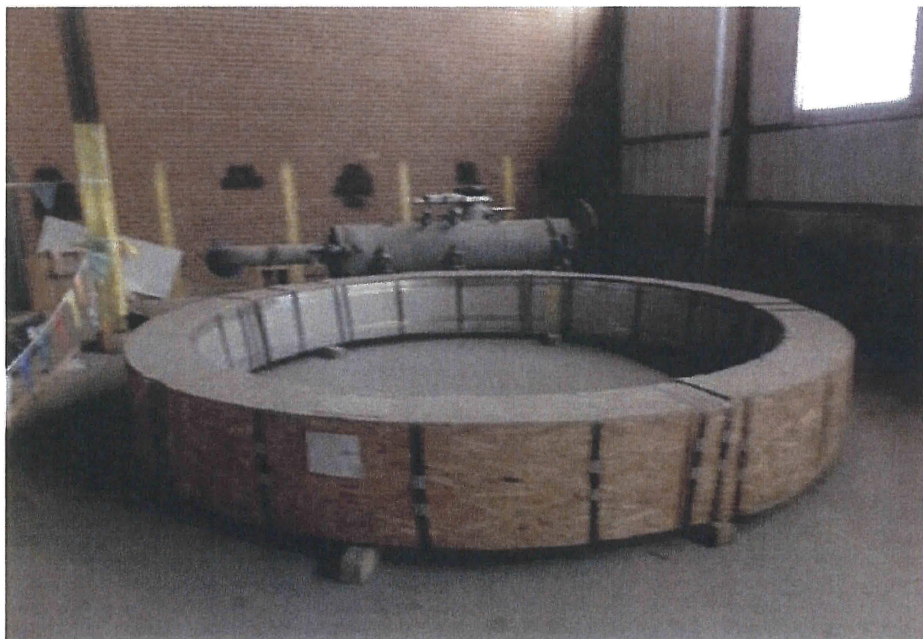
Insulation  
Enclosed Warehouse



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Newfoundland and Labrador Hydro GT Inspection Assessment



Inlet Air Filters  
Enclosed Warehouse



GT Expansion Ring  
Enclosed Warehouse

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Newfoundland and Labrador Hydro GT Inspection Assessment



Misc Piping and GT Parts  
Covered, Open Warehouse

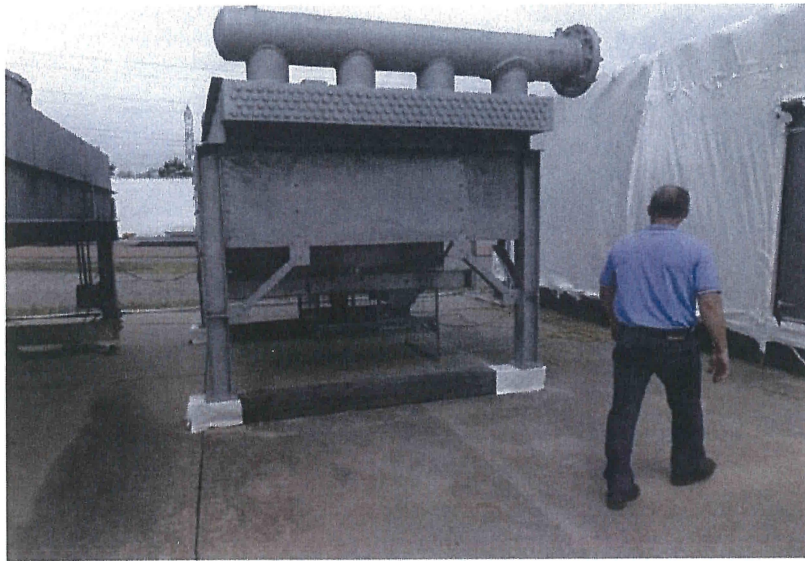
Piping Ends Covered; No pests



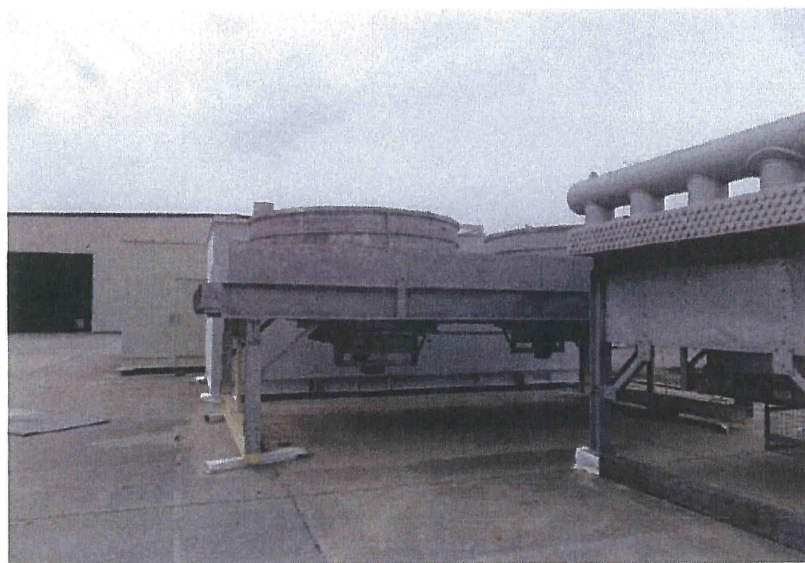
Misc Piping and GT Parts  
Covered, Open Warehouse



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Newfoundland and Labrador Hydro GT Inspection Assessment

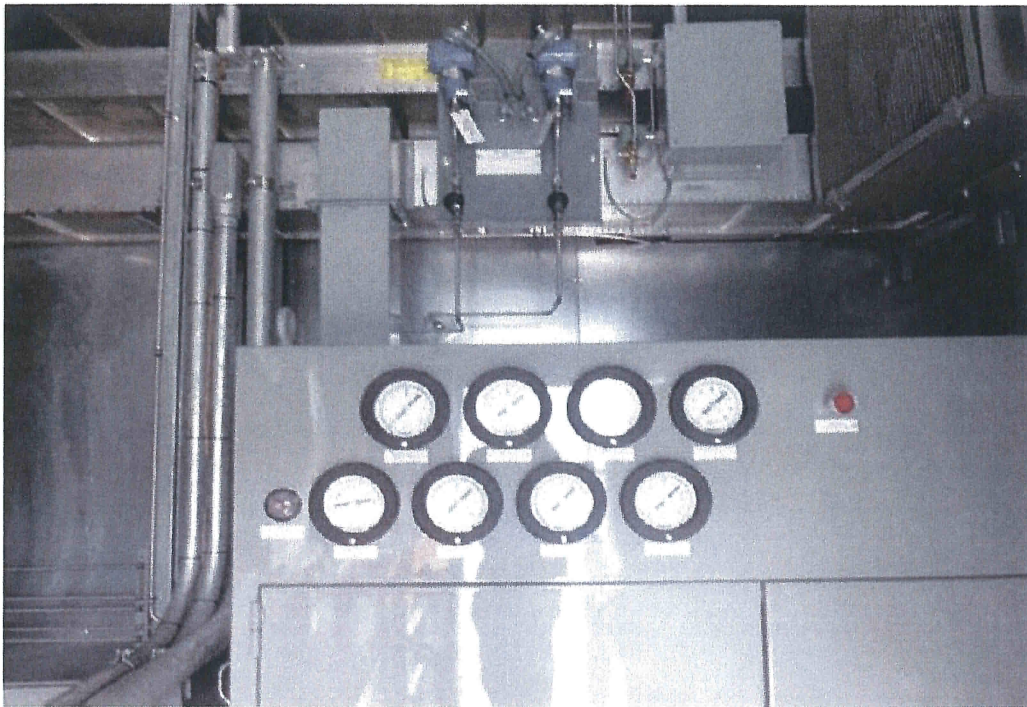


Fin-Fan Lube Oil Cooler  
Outdoor Storage



Fin-Fan Cooler; Lube Oil Cooler  
Outdoor Storage

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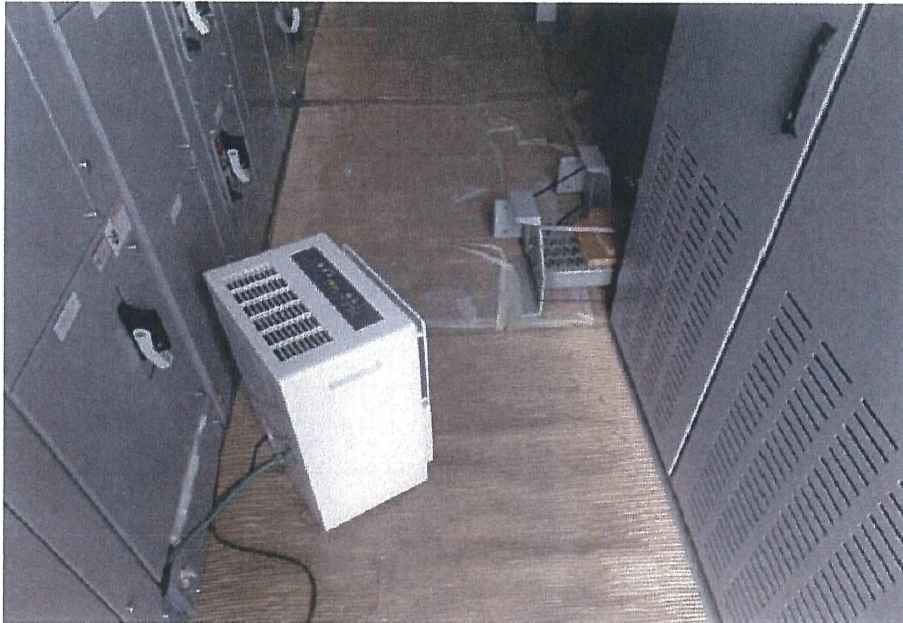
Lube Oil Skid  
Outdoor Storage



Lube Oil Skid  
Outdoor Storage



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Electric Skid  
Outdoor Storage  
Dehumidifier



Structural Framing  
Outdoor Storage  
Painted/Galvanized/Stainless



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Siemens 501D5 Gas Turbine  
Heavy Lift Port Warehouse

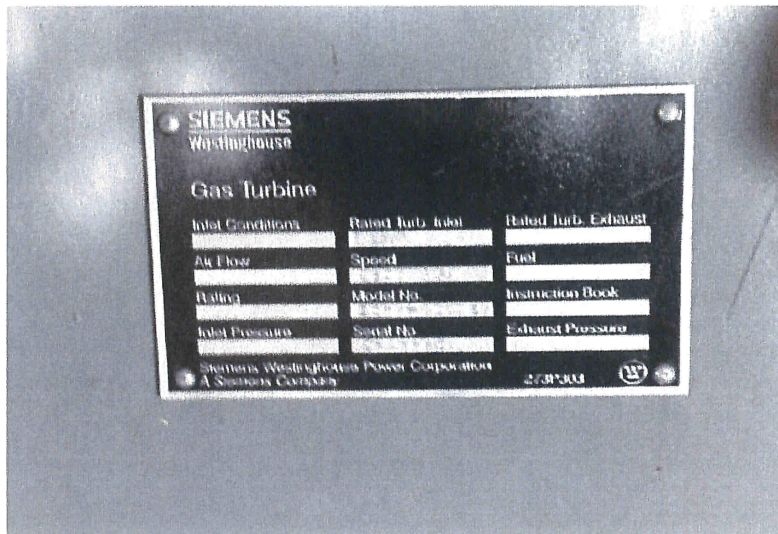
Closed ports, inlet, outlet



Siemens 501D5 Gas Turbine  
Heavy Lift Port Warehouse

Dehumidifier

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Siemens 501D5 Gas Turbine  
Heavy Lift Port Warehouse

Nameplate



Generator  
Heavy Lift Port Warehouse



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Generator  
Heavy Lift Port Warehouse  
Heater connection, lower left



Controlsd, Computers, Oils  
Climate Controlled Storage  
Enclosed Warehouse

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Combustion Cans, Other  
Enclosed Warehouse



Start-Up Package Skid  
Covered, Open Warehouse



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Electrical Skid  
Outdoor Storage

Grounded



Electrical Skid Cubicle  
Outdoor Storage

De-humidified

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Isolated Phase Bus Fans  
Enclosed Warehouse



Inlet Air Filters  
Enclosed Warehouse

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## APPENDIX 2

### Site Siemens Long term lay-Up Guide



## Turbine and Generator Preservati



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 Newfoundland and Labrador Hydro GT Inspection Assessment



## APPENDIX 3

### Document Reference

#### General Information

Packing Lists.pdf  
 PES Inventory List AMEC.pdf  
 ESSEX II RBOM.xls  
 Inventory for Shipping.xls  
 Original BOM - AECL- .pdf

#### Pictures Provided

Nalcor  
 Siemens Generator AECL  
 Fuel Yard  
 Electric Room and Batteries  
 501D5A Photos

#### Maintenance Records

22100 and 22200 Monthly.pdf	S8arnhart C13110609221.pdf
33000 Monthly.pdf	S8arnhart C13110609230.pdf
50000 monthly maint.pdf	S8arnhart C13110609231.pdf
81050 Monthly.pdf	S8arnhart C13110609240.pdf
83050 monthly.pdf	S8arnhart C13110609241.pdf
Area 924 Outside.pdf	Seq 500000 meggering.pdf
Building 972 Inside.pdf	Seq 500000 weeklies.pdf

#### Vendor Data

11721.pdf  
 466460332.pdf  
 466460349.pdf  
 1445950500.pdf

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Newfoundland and Labrador Hydro GT Inspection Assessment



## Drawings

_Siemens List of Documents.pdf	US1020-UE00-UMB-010500.pdf
501D5A-Model.pdf	US1020-XB00-MB-200560.pdf
785J429.pdf	US1020-XB00-MBP-202250.pdf
835A342.pdf	US1020-XB00-MBU-202260.pdf
1868J13.pdf	US1020-XB00-MKA-200550.pdf
2012J20.pdf	US1020-XG02-MB-011200.pdf
2012J59.pdf	US1020-YD00-MB-010541.pdf
2198T72.pdf	US1020-YD00-UBA-400501.pdf
2262J98.pdf	US1020-VS18-MKY-013801.pdf
2275J77.pdf	US1020-YU02-MB-013701.pdf
2302J75.pdf	US1020-YU02-MKY-013601.pdf
4660A37.pdf	ZDX558-XB00-MB-000001.pdf
8154D50.pdf	ZDX558-XB00-MB-000002.pdf
816RD64.pdf	ZDX558-XB00-MBA-000001.pdf
Fdn Load.pdf	ZDX558-XB00-MBH-000001.pdf
SPM2000.pdf	ZDX558-XB00-MBH-000002.pdf
	ZDX558-XB00-MBJ-000001.pdf
	ZDX558-XB00-MBX-000001.pdf
	ZDX558-XB00-UMX-000002.pdf
	ZDX559-XB00-SGN-0000030101.pdf

## Specifications

Z1T0050.pdf	US1020-DC01-CJT-310601.pdf
Z1T4150.pdf	US1020-DS00-000-6010-01.pdf
Z1T4300.pdf	US1020-XK01-MB-013000.pdf
Z1T6275.pdf	US1020-XK01-MB-013100.pdf
Z1T7353.pdf	US1020-XL00-MB-200500.pdf
Z1T7631.pdf	US1020-XL00-MB-201000.pdf
Z2T0770.pdf	US1020-XL00-MB-201300.pdf
Z2T0917.pdf	US1020-YL19-MB-010901.pdf
Z2T2599.pdf	US1020-YT01-MKY-013611.pdf
Z2T3387.pdf	ZDX555-DC01-GC-4421-01.pdf
Z2T3935.pdf	ZDX555-DC01-MBP-2500-01.pdf
5374021.PDF	ZDX555-DP00-MBA-000001.pdf
55125Z3.pdf	ZDX555-YL01-CJA-370010.pdf
DG21T-004020.pdf	ZDX559-YL01-CJA-370110.pdf
DC10T-000501.pdf	
DS30T-000966.pdf	

**Contract:** 2014-57952-TB – Engineering, Procurement, and Construction for a Turnkey 100MW (Nominal) Combustion Turbine Generator at the Holyrood Generating Station.

### Reference Check Summary:

The following reference contacts provided by ProEnergy. Randal Orr (NLH Sr. Project Consultant) contacted each of the references and provide a summary of each discussion, which is summarized in the enclosed emails.

#### Corporate References

##### Ameren UE

Ozzie Lomax  
Manager, Renewables and CTG Operations  
Ameren Missouri  
Phone: (314) 554-3006  
Email: [OLomax@ameren.com](mailto:OLomax@ameren.com)

##### Derwick Associates

Alejandro Betancourt  
Principal  
DERWICK Associates  
Phone: 58 (212) 2068411  
Email: [abetancourt@derwickassociates.com](mailto:abetancourt@derwickassociates.com)

##### Symbion Power

JD Robinson  
Project Manager  
Symbion Power  
Phone: 255 (77) 4026850  
Email: [jd.robinson@symbion-power.com](mailto:jd.robinson@symbion-power.com)

##### Pakistan Power Resources

Iqbal Z. Ahmed  
Chairman  
Associated Group  
Phone: 92 (300) 8462776  
Email: [chairman@ag.com.pk](mailto:chairman@ag.com.pk)

Hess Corporation  
Eric Corneliusen  
10340 68th  
Tioga,, ND 58852  
United States

**Contract:** 2014-57952-TB – Engineering, Procurement, and Construction for a Turnkey 100MW (Nominal) Combustion Turbine Generator at the Holyrood Generating Station.

From: Randal Orr/NLHydro  
To: Stephen Parsons/NLHydro@NLHYDRO  
Cc: John MacIsaac/NLHydro@NLHYDRO  
Date: 04/01/2014 08:00 PM  
Subject: ProEnergy Reference Check

Steve,

As discussed this morning and as a follow up to my emails to Mr Ozzie Lomax, Manager of Renewables & CTG Operations for Ameren Missouri, one of the references given by ProEnergy, I had a telephone discussion with Mr Lomax today. Below are the salient points emerging from the discussion :-

#### Overview

- I provided an overview of the proposed Nalcor Turbine Generator project presently underway and a brief description of the Nalcor Energy business.
- Mr Lomax then briefly described the Ameren Missouri operations, consisting of 15 distributed generating units in the St Louis region and city all part of the larger Ameren Corporation, energy providers mainly in the states of Missouri and Illinois.

#### ProEnergy Engagement

- ProEnergy have not installed any of Ameren Missouri's generating turbine units, these were purchased and installed by OEMs.
- ProEnergy are contracted on an O&M contract to operate and maintain 5 of the 15 generating units.
- The O&M contract was initially for a 2 year period, but was extended for another 2 years and recently was further extended for another 3 years based on a very satisfactory performance by ProEnergy.
- ProEnergy also carry out major overhauls on the Ameren units, which can last between 1 and 6 weeks. These O/Hs are lump sum fixed price (excluding unforeseen damaged components) and are completed within strict schedule / outage parameters.
- Mr Lomax was complimentary on ProEnergy's ability to manage their major overhaul schedules, putting particular emphasis on ProEnergy's progress tracking, which he identified as critical to their success.
- Ameren have not experienced any budgetary problems with ProEnergy i.e. making claims for unapproved additional extra costs in their O&M contracts and their lump sum overhaul contracts.

#### ProEnergy Management and Resources

- Mr Lomax felt that ProEnergy had very good technical personnel, giving the example of the ProEnergy Project Manager recently assigned to their sites who was not only experienced but had good professional training and qualifications.
- In their O&M relationship Mr Lomax expressed his satisfaction with ProEnergy's serious approach to continuous improvement and has further challenged this group to be more

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proactive, more ownership orientated, in areas like initiating risk management studies within their O&M remit.

- Confidence was expressed that ProEnergy had very adequate resources to undertake the type of project being considered by Nalcor.
- Mr Lomax holds a high opinion of Mr Jeff Canon, the CEO and founder of ProEnergy whom he considers to be both reliable and professionally competent and felt it important that Nalcor would develop a direct relationship with Mr Canon to deal with any potential problems on such a tight schedule driven project.
- It also emerged that ProEnergy have relationships and useful contacts with other international engineering companies in the energy sector, where they can call on support if needed. An example was quoted of ProEnergy being able to call on the German company MTU to provide some specialist support to Ameren in a previous project.

In summary, although Ameren have not been engaged with ProEnergy in a similar project to that being undertaken by Nalcor, there is a high degree of confidence in the ProEnergy company, both in their project management and their technical abilities in the turbine generating field.

NOTE:- Mr Lomax would have been willing to meet face to face next week in St Louis except that he was already committed to attending an exhibition in Florida. However he expressed an interest in having some sort of continued contact with Nalcor and was interested in advice on 'winterization' of some of their units, an area I suggested where Nalcor have extensive experience. No doubt this follows from some of the recent freak winter storms experienced in that part of the USA.

Steve - I will leave it to you to distribute my notes to others involved in the project.

Regards,  
Randal

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From: Randal Orr/NLHydro  
 To: Stephen Parsons/NLHydro@NLHYDRO  
 Cc: John MacIsaac/NLHydro@NLHYDRO  
 Date: 04/24/2014 09:12 AM  
 Subject: ProEnergy Reference

Steve,

As a follow up to my emails to Mr J. D. Robinson, Project Manager with Symbion Power, Tanzania, one of the references given by ProEnergy, I had a telephone discussion with Mr Robinson this morning to discuss his direct experiences with ProEnergy. Below are the salient points emerging from the discussion with some comments from myself :-

#### Overview.

I provided an overview of the NLH CG project and the wider activities of Nalcor Energy and referred to making contact with Mr Robinson (JD) as recommended by ProEnergy in their proposal to us. I also explained my function as a consultant advisor to NLH.

JD defined his role as a Project Manager with Symbion Power in Tanzania and provided an overview of his extensive experience installing CT generators around the world. JD is American, from Louisiana, and trained with GE as a gas turbine installation and overhaul engineer and is very experienced on installations similar to the one proposed by NLH in Holyrood. He has worked on contract in many different countries installing CTG units, including units supplied by ProEnergy in the USA, Venezuela, Ghana, Argentina etc and now Tanzania and starting to get involved in a 1000 MG CTG project in Nigeria He is therefore in a good position to relate his experiences.

#### ProEnergy Experience

- As a consultant to energy companies he has experience of shopping around and has worked with most of the large CTG suppliers in various projects - Wood Group, GE, etc., and considers ProEnergy a mid sized company compared to the large players, but capable and able to react quickly.
- Considers our schedule tight, but can be done - must get off to a very quick start, was unsure about the Newfoundland weather restrictions but felt a 6 months window could achieve the installation (I would guess this depends on how much work is required on the unit in storage, prior to shipping).
- Suggested 'flooding' the job initially, getting all the ancillary work under way asap, to have a clear work window from July onwards for the main equipment placing and fitting out.
- States that ProEnergy are good at sticking to a schedule, the schedule can be tight but must be realistic. Suggested there is quite a bit of work to be done in developing a detailed integrated schedule. JD suggested ProEnergy can work to a level 2 schedule but after discussion agreed a level 3 is better. Indicated that ProEnergy are good at managing the schedule.
- Execution - Important to concentrate on getting equipment foundations installed as early as possible (including building footings) - suggested the curing time of the foundations could



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be 30 days - (seems excessive?). Felt that if the foundations were completed in mid June, main equipment units could be placed by mid July.

- Agrees the building can be installed around the unit when the component parts, including the stack are installed, has done exactly this on other projects - has had experience of fires at the roof sheeting trim around the stack - this element has to be very carefully designed and installed to avoid this hazard.
- A large (450 ton) crane is essential and a full lifting plan needs to be developed.
- Reckons the main unit assembly can be done in 3 - 4 weeks, followed by fit out.
- For the CTG unit installation usually employs teams of approx 8-10 skilled mechanicals and 12 - 14 electricals, a mix of cable pullers and electrical terminators and technicians. (This is an area in ProEnergy's submission which needs querying, their resource loading looks extremely heavy)
- Extremely important to have total segregation and shielding of control systems from power cabling. Has experience of numerous and difficult to trace trip problems when this has not been executed properly.
- JD uses ProEnergy almost exclusively for emergency repairs and for spares, claims they can respond quickly, have a good backup service and are the most competitive on cost.
- Agrees that the key personnel need to be the 'right' people.
- 

In summary, JD recommends ProEnergy as being professional, reliable and competitive having worked with them over a period of years in a range of projects. The 'competitive' reference we of course have yet to establish for ourselves on the Holyrood project.

JD was very open and helpful and is a good reference point with a lot of hands on experience on our type of project and was very cooperative in providing information on ProEnergy and when requested had no difficulty in making himself available for further discussion if needed.

I believe we could benefit from JD's experiences with ProEnergy on selection of the 'right' key personnel and on some of the technical detail in the design and execution phases and to this end we should establish a list of further queries and arrange a follow-up telecon to Tanzania.

Regards,  
Randal



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From: Randal Orr/NLHydro  
 To: Stephen Parsons/NLHydro@NLHYDRO  
 Cc: John MacIsaac/NLHydro@NLHYDRO  
 Date: 04/25/2014 11:43 AM  
 Subject: ProEnergy Reference - Associated Group, Pakistan

Steve,

I followed up my email to Mr Iqbal Ahmed, one of the references given by ProEnergy, I had a telephone discussion with Mr Ahmed when he called me back this morning to discuss his direct experiences with ProEnergy. Below are the main points emerging from the discussion :-

#### Overview.

I provided an overview of the NLH CG project and the wider activities of Nalcor Energy and referred to making contact with Mr Ahmed as recommended by ProEnergy in their proposal to us. I also explained my function as a consultant advisor to NLH.

Mr Ahmed is a cofounder and chairman of a company in Pakistan, Associated Group, which is a major LPG manufacturer and importer and has, among other things, invested in CTG projects in Pakistan. This group has employed ProEnergy for most if not all of their generating projects. The discussion was relatively short since he was calling me from Pakistan and we had to switch telephone lines on a number of occasions.

#### Comments from Mr Iqbal Ahmed.(IA)

- IA expressed his admiration for the ProEnergy company and in particular singled out Mr Jeff Canon the ProEnergy CEO for recommendation - he considers Jeff Canon to be a very 'hands on' leader, capable of directly sorting out technical problems on site.
- Associated Group installed their generating units in response to serious power shortages being experienced in Pakistan and had the support of the government.
- He found ProEnergy teams to be very responsive and 'hands on'.
- More than once he stated his preference to work with a smaller 'hands on' type of contractor as opposed to the large conglomerates.
- Has a preference to work directly with the contractor owner and found this to be an advantage with ProEnergy and a strong incentive for them to work together in the future.
- Has a high regard for the technical capabilities of the ProEnergy personnel.
- When I mentioned the possible risks of buying an older (unused) grey market unit he felt the risks were low because of the capabilities of ProEnergy - 'they will ensure everything is correct'.
- IA is intent on expanding his generation business, in Pakistan and/or outside of Pakistan and says he looks forward to working with ProEnergy in these future projects.
- His praise for ProEnergy and in particular Jeff Canon, could not have been greater. (This of course is an owner to owner relationship - this admiration would have to be checked lower down the contact levels.)

This was a very positive reference discussion at the owner level, but it provides a balance against the previous technical reference from Symbion Power.

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NOTE:- Mr Ahmed suggested further developing a relationship with Nalcor Energy for possible collaboration in the future, possibly in other parts of the world. I promised to pass this on to Mr John MacIsaac, VP Nalcor Energy.

Regards,  
Randal

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From: Randal Orr/NLHydro  
 To: Stephen Parsons/NLHydro@NLHYDRO  
 Cc: John MacIsaac/NLHydro@NLHYDRO  
 Date: 04/25/2014 01:42 PM  
 Subject: ProEnergy Reference - Mr Eric Corneliusen - Hess Corp.

Steve,

As a follow up to your email I contacted Mr Eric Corneliusen, of Hess Corp in North Dakota, the last reference given by ProEnergy, I had a telephone discussion with Eric Corneliusen today to discuss his experiences with ProEnergy. Below are the main points emerging from the discussion :-

#### Overview.

I provided an overview of the NLH CG project and the wider activities of Nalcor Energy and referred to making contact with Mr Corneliusen on the recommendation of ProEnergy. I also explained my function as a consultant advisor to NLH.

The work in North Dakota by Hess Corp centres around the extraction and processing of natural gas from the Bakken shale fields, they have no direct experience in power generation with ProEnergy. However they are doing a considerable amount of work with ProEnergy in other areas of their business, somewhere in the region of \$10 m per year to date.

#### Relevant Points

- ProEnergy provide skilled labour to Hess for overhaul work, plant operations, new installations (compressor modules) and commissioning of some of their systems.
- Eric finds ProEnergy supplied contract labour is to a higher standard than any of the other companies involved in their gas field operations - in fact he said the quality of their personnel was 'outstanding'..
- ProEnergy works include site fabrication of various gas handling modules and the associated pipe work, instrumentation etc..
- One of the projects active on site by ProEnergy is a \$5 m rental compressor installation.
- ProEnergy are also actively involved in commissioning the new Hess \$250 m gas plant in North Dakota and the ProEnergy main point of contact is Mr Jerry Jennings - very satisfied with their personnel, has yet to meet their CEO Jeff Canon..
- Eric considers ProEnergy to be very strong in start-up and commissioning work.
- ProEnergy also provide quite substantial regular maintenance services to Hess.
- Hess are looking to expand all aspects of their engagement with ProEnergy because of their satisfaction with the company to date.
- The ProEnergy facilities in Missouri also provide substantial fabrication works to the site. Eric expressed his interest in getting to Missouri to view their facilities when the main challenge of commissioning the new gas facility is completed, as some of his colleagues reported very positive impressions of the work undertaken there.
- On a discussion on schedule management Eric again commented favourably on ProEnergy's capabilities to develop and adhere to agreed schedules.

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- Eric places ProEnergy in the upper quartile of contractors he has worked with on his projects.

Again a positive response, but maybe it raises the question of their capability to maintain these high standards on a fast track \$100 m project.

Regards,  
Randal

**Contract:** 2014-57952-TB – Engineering, Procurement, and Construction for a Turnkey 100MW (Nominal) Combustion Turbine Generator at the Holyrood Generating Station.

From: Randal Orr/NLHydro  
 To: Stephen Parsons/NLHydro@NLHYDRO  
 Cc: John MacIsaac/NLHydro@NLHYDRO  
 Date: 05/08/2014 10:20 AM  
 Subject: ProEnergy Reference - Derwick Associates, Venezuela.

Steve,

I followed up my email to Mr Alejandro Betancourt, one of the references given by ProEnergy, I had a telephone discussion with Mr Betancourt who is the Principal of Derwick Associates in Venezuela to discuss his direct experiences with ProEnergy. Below are the main points emerging from the discussion :-

#### Overview.

I provided an overview of the NLH CG project and the wider activities of Nalcor Energy and referred to making contact with Mr Betancourt as recommended by ProEnergy in their proposal to us. I also explained my function as a consultant advisor to NLH.

Mr Betancourt is a cofounder and Director of Derwick Associates in Venezuela who have invested in numerous CTG projects in their country. This group has employed ProEnergy for many of their generating projects. The discussion was relatively short, but he was very helpful and offered to make himself available for further discussions if required.

#### Comments from Mr Alejandro Betancourt.

- commented on the high level of technical expertise within the ProEnergy company.
- has experienced working on 'fast track' projects with ProEnergy, but says they need to be 'pushed' and to be held to the schedule.
- referred to ProEnergy's very good backup facilities in Sedalia for repairs, replacements, fabrication of spares etc.
- importance of selecting the 'A Team' was mentioned, knowing who the best people are and getting them on the team.
- in some instances Derwick experienced periods where ProEnergy were overloaded with work, multiple CTG projects which was problematic for them.
- the integrated schedule was mentioned in the context of ProEnergy's engineering design work, their workshop jobs, their procurement, shipping schedules - requires careful examination and reviews to ensure a complete understanding and adherence to their schedule. (Our intention would be to incorporate into the complete integrated schedule).
- discussed the need to have a clear definition of the interfaces between the ProEnergy scope and works provided by others.
- expressed a high opinion of both Bill Mars and Jeff Canon.
- Mr Betancourt summarised his opinion of ProEnergy as 'a good company to work with'.
- 

Another positive response with some indicators of where we need to pay attention.

Randal