

CI# 38834

TRE5 – Turbine Upgrades – LP/IP/HP

REDACTED

April 30, 2010

UARB APPROVAL SHEET

Project Title: **TRE5 - Turbine Upgrades - LP/IP/HP**

CI Number: 38834

☒ Capital Project Authorization

Head Office Use:

☐ ATO

Project Number:

☐ Final Cost

Date: April 30, 2010

Location:

Division:

Expenditure Profile

Schedule

YEAR

Budget Estimate

Project Estimate

2010

4,621,909

5,202,549

Estimated Start Date

2010-05

Estimated In-Service Date

2010-09

Estimated Close Date

2010-11

Total

\$4,621,909

\$5,202,549

COMMENTS

Submitted on behalf of NOVA SCOTIA POWER INCORPORATED

Approved on behalf of NOVA SCOTIA UTILITY AND REVIEW BOARD

Mark Savory

April 27/2010

Authorized Signatory

DATE

DATE

Mark Savory

VP Technical and Construction

Project Number

- TRE5 - Turbine Upgrades - LP/IP/HP

CI Number : 38834

Parent CI Number :

Budget Version - 2010 03/09 Forecast

Cost Centre : 340 - 340-Trenton Unit 5 Capital

Forecast

Start :	05/01/2010
Operational :	09/30/2010
Final Cost :	11/30/2010
2010	\$5,202,549.37
Total :	\$5,202,549.37
Original Cost :	\$832,000.00

Trenton #5 turbine consists of high pressure (HP), intermediate pressure (IP) and low pressure (LP) cylinders which transmit the energy from the high pressure/high temperature steam received from #5 boiler to mechanical energy which rotates #5 generator resulting in the production of electrical energy. The HP and IP turbine sections are subjected to aggressive service conditions and are affected over time by solid particle erosion (due to contaminants in the steam) and creep damage (due to continuous operation at high temperature). Likewise, the LP turbine sections are subjected to water droplet erosion and over time, the turbine components require replacement to restore them to OEM (Original Equipment Manufacturer) specifications. These component replacements will ensure continued reliable operation of the Trenton #5 turbine/generator.

Summary of related CI's +/- 2 years.
2009 - 21096 IP Turbine Gland & Bolting - \$339,397
No other projects in 2008, 2009, 2010, 2011 and 2012

CI Number : 38834 - TRE5 - Turbine Upgrades - LP/IP/HP

Project Number

Parent CI Number :

Approved Date

Cost Centre : 340 - 340-Trenton Unit 5 Capital

Budget Version 2010 03/09 Forecast

Capital Item Accounts

Acct	Actv	Account	Activity	Forecast Amount	Amount	Variance
094		094 - Interest Capitalized		49,472	0	49,472
095		095-Thermal Term Labour AO		29,646	0	29,646
095		095-Thermal Regular Labour AO		44,215	0	44,215
095		095-Thermal & Hydro Contracts AO		174,754	0	174,754
001	010	001 - THERMAL Regular Labour	010 - SGP - Turbo Gen.Instal.	129,600	0	129,600
002	010	002 - THERMAL Overtime Labour	010 - SGP - Turbo Gen.Instal.	0	0	0
004	010	004 - THERMAL Term Labour	010 - SGP - Turbo Gen.Instal.	112,000	0	112,000
012	010	012 - Materials	010 - SGP - Turbo Gen.Instal.		0	
013	010	013 - POWER PRODUCTION Contracts	010 - SGP - Turbo Gen.Instal.		0	
041	010	041 - Meals & Entertainment	010 - SGP - Turbo Gen.Instal.	2,750	0	2,750
001	087	001 - THERMAL Regular Labour	087 Field Super.& Ops.	37,440	0	37,440
011	087	011 - Travel Expense	087 Field Super.& Ops.	17,000	0	17,000
021	087	021 - Telephones	087 Field Super.& Ops.	1,250	0	1,250
Total Cost:				5,202,549	0	5,202,549
Original Cost:				832,000		

CI Number : 38834	- TRES - Turbine Upgrades - LP/IP/HP	Project Number
Parent CI Number :	-	Approved Date
Cost Centre : 340	- 340-Trenton Unit 5 Capital	

Capital Item Justification

Justification Criteria : THERMAL
 Sub-Criteria : Maintenance
 Name of Report :
 Document Location :
 Person Responsible :

Why do this project?

During the 2009 Trenton #5 shutdown, the original equipment manufacturer (OEM) recommended replacement of the IP rotor impulse row of blades because of wear from solid particle erosion. The blades are configured in packets of five blades with each blade having a tenon at the end which is welded to a shroud that attaches to the five blades in the packet. Because of a delivery time of 28-30 weeks for replacement blades, a temporary weld repair was completed to allow a planned blading replacement in 2010. Because of the outage time required to complete this work, the opportunity will be used to complete other OEM recommended work (HP impulse blading replacement, HP cylinder seal replacement, HP Cylinder fastener replacement, HP Gland replacement, HP Coupling machining for patch plate, IP spring back seal replacements, IP patch plate manufacture and installation, IP Dummy Piston Seal replacements, IP Rotor Remnant Life assessment investigation, IP Row13 closing pocket replacement, IPRow21 Last Stage Blade erosion shield replacements, LP Row 7 LH&RH Last Stage Blade erosion shield replacements, LP Bearing modification and replacement, Reheat Steam Chest fastener replacement and Reheat valve component replacement).

Why do this project now?

Delaying the project beyond 2010 increases the risk of a shroud failure, which could result in an unplanned unit outage of significant duration. The OEM has confirmed that the weld repair carried out in 2009 should be considered a short term repair until replacement blades are received in 2010.

Why do this project this way?

The project should be completed in accordance with OEM recommendations on a planned basis in 2010. An additional year of run-time increases the risk of an in-service impulse blading shroud failure which would result in a lengthy unplanned unit outage. The recommendation is to conduct the work on a planned basis during the 2010 planned maintenance shutdown.

CI Number : 38834	- TRE5 - Turbine Upgrades - LP/IP/HP	Project Number
Parent CI Number :	-	Approved Date
Cost Centre : 340	- 340-Trenton Unit 5 Capital	

Reason for Variance / Over Expenditure / Final Costing

14814184

The reason for the variance to the original ACE amount is due to updated quotes from vendors after the project was submitted in ACE 2010. This has caused a decrease in materials. Contracts has increased over the original estimate due to details of the project scope not being finalized in time for ACE 2010.

TRENTON GENERATING STATION - PROJECT COST ESTIMATE (2010)

FP# :	38834						
Title :	TRE5 - Turbine Upgrades - LP/IP/HP						
Item	Description	Acct	Actv	Unit	Quantity	Unit Price	Total
1	Supply of Materials						
1.1	Materials (See attached breakdown for more detail)	012	010	Lot	1	\$ [REDACTED]	\$ [REDACTED]
1.2							\$ -
1.3							\$ -
1.4							\$ -
1.5							\$ -
1.6							\$ -
1.7							\$ -
1.8							\$ -
1.9							\$ -
1.10							\$ -
						Sub-Total	\$ [REDACTED]
2	Equipment Rental & Charges						
2.1							\$ -
2.2							\$ -
2.3							\$ -
						Sub-Total	\$ -
3	Plant Labour						
3.1	Regular Labour	001	010	Lot	1	\$ 129,600.00	\$ 129,600.00
3.2	Term Labour	004	010	Lot	1	\$ 112,000.00	\$ 112,000.00
3.3							\$ -
3.4							\$ -
3.5							\$ -
3.6							\$ -
3.7							\$ -
3.8							\$ -
						Sub-Total	\$ 241,600.00
4	Contractor Labour						
4.1	Contractor Labour (See attached breakdown for more detail)	013	010	Lot	1	\$ [REDACTED]	\$ [REDACTED]
4.2							\$ -
4.3							\$ -
4.4							\$ -
4.5							\$ -
4.6							\$ -
4.7							\$ -
						Sub-Total	\$ [REDACTED]
5	Engineering & Project Management						
5.1	Internal Supervision	001	087	Lot	1	\$ 37,440.00	\$ 37,440.00
5.2	Travel	011	085	Lot	1	\$ 17,000.00	\$ 17,000.00
5.3	Meals	041	087	Lot	1	\$ 2,750.00	\$ 2,750.00
5.4	Phone	021	087	Lot	1	\$ 1,250.00	\$ 1,250.00
5.5							\$ -
5.6							\$ -
5.7							\$ -
						Sub-Total	\$ 58,440.00
6	Indirect Costs						
6.1	Interest Capitalized	094	N/A	Lot	1	\$ 49,472.41	\$ 49,472.41
6.2	Thermal Regular Labour AO	095	005	Lot	1	\$ 44,215.49	\$ 44,215.49
6.3	Thermal & Hydro Contracts AO	095	005	Lot	1	\$ 174,754.07	\$ 174,754.07
6.4	Thermal Term Labour AO	095	005	Lot	1	\$ 29,646.40	\$ 29,646.40
6.5							\$ -
6.6							\$ -
						Sub-Total	\$ 298,088.37
Project Cost Estimate						Total	\$ 5,202,549.37
7	Retirement Costs						
7.1	Retirement Cost			Lot	1	\$ 832,000.00	\$ 832,000.00

Item	Quantity	Unit Cost	Total
IP Impulse Blade material	1	\$ [REDACTED]	\$ [REDACTED]
IP Impulse row axial and radial seals	1	\$ [REDACTED]	\$ [REDACTED]
axial spill strip	1	\$ [REDACTED]	\$ [REDACTED]
IP Spring Back Cylinder Seals(R1-10)	1	\$ [REDACTED]	\$ [REDACTED]
IP R21 Erosion Shield set	104	\$ [REDACTED]	\$ [REDACTED]
IP R21 Tip Struts	104	\$ [REDACTED]	\$ [REDACTED]
IP R21 Locking Wedges	104	\$ [REDACTED]	\$ [REDACTED]
LP R7 RH Tip Struts	114	\$ [REDACTED]	\$ [REDACTED]
LP R7 RH Locking Wedges	114	\$ [REDACTED]	\$ [REDACTED]
LP R7 RH Erosion Shield set	114	\$ [REDACTED]	\$ [REDACTED]
LP R7 LH Tip Struts	114	\$ [REDACTED]	\$ [REDACTED]
LP R7 LH Locking Wedges	114	\$ [REDACTED]	\$ [REDACTED]
LP R7 RH Erosion Shield set	114	\$ [REDACTED]	\$ [REDACTED]
HP Impulse Blade Row	1	\$ [REDACTED]	\$ [REDACTED]
IP Patch Plate	1	\$ [REDACTED]	\$ [REDACTED]
IP CYL Dummy ASM - HP section	1	\$ [REDACTED]	\$ [REDACTED]
IP CYL Dummy ASM - LP section	1	\$ [REDACTED]	\$ [REDACTED]
Reheat Valve and Spindle, 3902/S/M 15823 dwg 47A/S 1190, Ref 3	2	\$ [REDACTED]	\$ [REDACTED]
2" UNF studs Ref 10, 3902/S/M 15823, spec 221 A=8 7/16"	28	\$ [REDACTED]	\$ [REDACTED]
2" UNF capnuts Ref 11, 3902/S/M 15823, spec 11 for Ref 10	28	\$ [REDACTED]	\$ [REDACTED]
1" X 12 UNF studs Ref 66, 3902/S/L C64144, spec 221 A = 5 3/8"	12	\$ [REDACTED]	\$ [REDACTED]
1" X 12 UNF nuts Ref 67, 3902/S/L C64144, spec C-11	12	\$ [REDACTED]	\$ [REDACTED]
1 1/4" UN8 studs Ref 85, 3902/S/L C64150, spec 221 A= 4 3/16"	60	\$ [REDACTED]	\$ [REDACTED]
1 1/4" UN8 nuts Ref 86, 3902/S/L C64150, for Ref 85	60	\$ [REDACTED]	\$ [REDACTED]
3" dia.UN6 studs Ref 23, 3902A/20A/M 1569, dwg CTU45 12" S.O.	10	\$ [REDACTED]	\$ [REDACTED]
3" dia.UN6 capnuts Ref 24, 3902A/20A/M 1569	10	\$ [REDACTED]	\$ [REDACTED]
3 3/4" dia.UN6 studs Ref 32, 3902A/20A/M 1569, dwg 48, 15 3/4" S.O.	10	\$ [REDACTED]	\$ [REDACTED]
3 3/4" dia.UN6 capnuts Ref 35, 3902A/20A/M 1569 for Ref 32	10	\$ [REDACTED]	\$ [REDACTED]
3 3/4" dia.UN6 fitting studbolts Ref 34, 3902A/20A/M 1569, dwg 20A/U1619	4	\$ [REDACTED]	\$ [REDACTED]
3 3/4" dia.UN6 capnuts Ref 26, 3902A/20A/M 1569	8	\$ [REDACTED]	\$ [REDACTED]
3 3/4" dia.UN6 stud bolts Ref 33, 3902A/20A/M 1569, dwg 64	26	\$ [REDACTED]	\$ [REDACTED]
3 3/4" dia.UN6 capnuts Ref 35, 3902A/20A/M 1569	52	\$ [REDACTED]	\$ [REDACTED]
Consumables	1	\$ [REDACTED]	\$ [REDACTED]
HP Glands	1	\$ [REDACTED]	\$ [REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
HP Hobb Nail Seals	1	\$ [REDACTED]	\$ [REDACTED]
HP Cylinder Spring Back Seals R 1-13	1	\$ [REDACTED]	\$ [REDACTED]
HP Dummy Piston Spring Back Seals	1	\$ [REDACTED]	\$ [REDACTED]
Gland Springs	1	\$ [REDACTED]	\$ [REDACTED]
RH Oil Relay Fastners	36	\$ [REDACTED]	\$ [REDACTED]
Governor Worm and Wheel	1	\$ [REDACTED]	\$ [REDACTED]
Total Material Costs			[REDACTED]

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SIEMENS**POWER GENERATION SERVICES**

A Division of Siemens Canada LTD

STRIPDOWN INSPECTION REPORT**SDIR NO.****27S285101-25**

Machine No.	Unit No.	Assembly / Subassembly or Component	Submitted By	Date
3902	5	IP Spindle condition		13-Aug-09
Contract Number: 27S2851-01			Customer PO #:	
REPORT FROM SITE:				

A brief inspection was conducted on IP Spindle removed from Unit 5. The inspection was carried out when the spindle was in the grit blast clean area, with limited access to blade path. However some observations need to be made.

1. IP impulse blades - most of the tenons are showing a severe erosion with material lost of more than 60% from the original shape (see attached photos on page 3).
2. Rubbing on the rotor blades - heavy rubbing was observed on some of the rotor blades, with Row 11 showing heavy rubbing. Also, row 1 to 4, 12, 13, 17 and 19 are showing various degree of rubbing.
3. Row 13 - slight lifting of closing pocket.
4. Row 21 blades - medium erosion was observed on row 21 blade erosion shields.

Disposition Required By:**Priority:****SIEMENS DISPOSITION/RESPONSE:**

1. The impulse blades need to be replaced with new blades at the first opportunity. The process of replacing the blades should be based on the workscope followed for IP Spindle from Tufts Cove unit 3, which was refurbished in Fall 2008. It is a high probability that the disc steeples will need sklm machining using CNC equipment. Consideration should be given for ordering the spare blades and shroud bands as soon as possible.

2. The heavy rubbing was dressed during this outage, however the cause of rubbing was not addressed. The most possible cause is the axial position of the IP spindle. Without possibility of adjusting the axial lineup the rubbing could (the Disposition is continuing on page 2)

Signed By:**Date:**

13-Aug-09

CUSTOMER ENGINEERING/RESPONSE:**Signed By:****Date:**

		Total Hours
Labour Cost	\$0.00	0
Expense Cost	\$0.00	
Subcontract Cost	\$0.00	
Material Cost	\$0.00	
TOTAL	\$0.00	

Comments:

All supplied blades are to be tested, all blades not fit into the spindle will be sent back with the test documentation

Schedule Impact:**Signed By:****Date:**

4-Dec-07

CUSTOMER COMMERCIAL/APPROVAL:**Signed By:****Date:****Work Completed/Verified:****Site Supervisor Signature:****Date:**

*ADD ANY ADDITIONAL SHEETS IF REQUIRED, AND ANY OFFICIAL QUOTATIONS

SIEMENS**POWER GENERATION SERVICES**
*A Division of Siemens Canada LTD***STRIPDOWN INSPECTION REPORT****SDIR NO.****27S285101-25**

Machine No.	Unit No.	Assembly / Subassembly or Component	Submitted By	Date
3902	5	IP Spindle condition		13-Aug-09
Contract Number:		27S2851-01	Customer PO #:	
REPORT FROM SITE:				

occur during the run-up or rundown, or even in normal operation. It is recommended to modify the TE coupling to accommodate a patch plate installation. In this way the patch plate can be adjusted to obtain the optimal axial position for the IP Spindle (and also for the HP if required in the future).

A new patch plate will be manufactured and the IP spindle TE coupling will be machined during the impulse blade replacement. A detailed workscope for this upgrade will be provided if this recommendation is accepted by Nova Scotia Power. Engineering will review the possibility of modifying the TE coupling in such way to insert / remove the patch plate with both HP and LP Spindles in place.

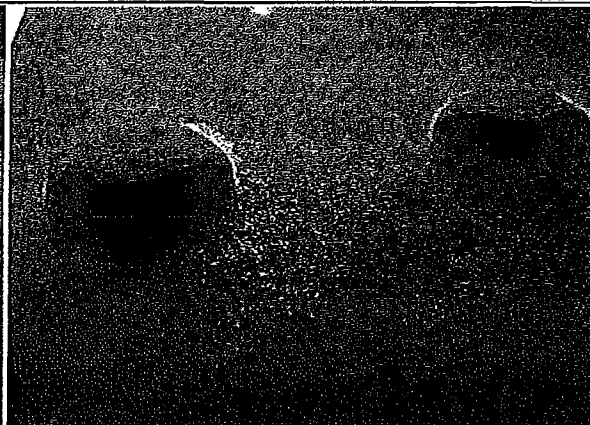
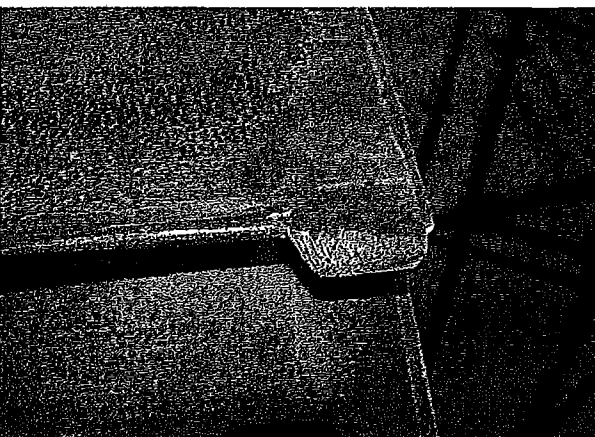
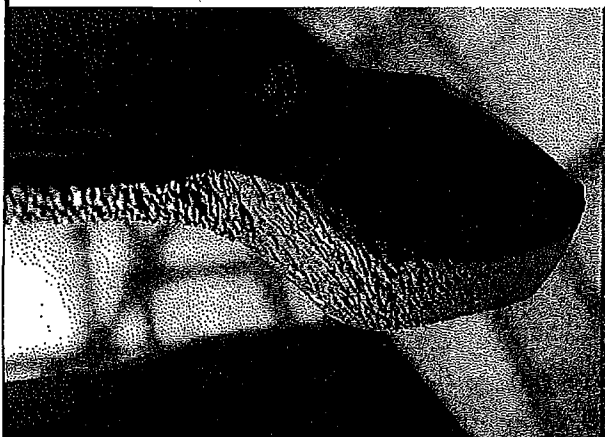
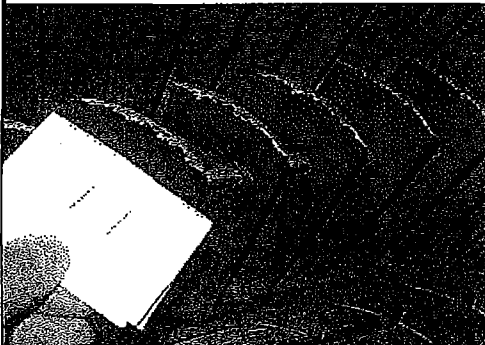
3. The closing pocket should be replaced during the replacement of impulse blades. The new tapered design should be implemented.

4. The erosion discovered on the Row 21 blades erosion shields, was not so extensive as the last stage blades on LP spindle. It is recommended however, to replace the erosion shields on Row 21 during the impulse blade replacement. In this way the spindle could be returned for service without concerns of erosion protruding into the blade material during the next period of operation.

Signed by:**Date:****13-Aug-09**

SIEMENS**POWER GENERATION SERVICES**
A Division of Siemens Canada LTD**STRIPDOWN INSPECTION REPORT****SDIR NO.****27S285101-25**

Machine No.	Unit No.	Assembly / Subassembly or Component	Submitted By	Date
3902	5	IP Spindle condition		13-Aug-09

Contract Number: 27S2851-01**Customer PO #:****REPORT FROM SITE:****IP Impulse blades tenons****Row 21 erosion shields****Row 11 radial rub****Signed by:****Date:****13-Aug-09**

SIEMENS

Ref: Our EH326302

Date: September 24, 2009

To: [REDACTED] – Nova Scotia Power

CC: [REDACTED] – Siemens Canada

Subject: TRENTON UNIT 5 – REPLACEMENT IP SPINDLE IMPULSE BLADING

With reference to our recent discussions and emails, we are now pleased to provide the following proposal for your consideration.

RFQ ITEM	DESCRIPTION	UNIT PRICE	Total Price	EST DELIVERY (ARO)
0001	IP Spindle Impulse Blading including fixings and fastenings For Trenton Unit 5 (MC # 3902) Qty: One Set	[REDACTED]	[REDACTED]	28 – 30 Weeks

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Prices: Prices shown are in Canadian funds, include any import duties that may be applicable, FOB Trenton GS, but do not include any taxes. Prices shown are also based on the quantity quoted. Should the order quantity differ from the quoted quantity, we reserve the right to amend the prices.

Location of Supply: Siemens Power Generation
Newcastle Upon Tyne, England

Validity: This offer is valid for a period of [REDACTED] days from date of this letter, unless extended, modified or withdrawn by Siemens Canada Limited and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer. Due to recent significant movements in material costs and availability, this offer is subject to review beyond the validity period.

Quality Program: This offer is based on a Quality Program in accordance with ISO 9001:2000.

Terms of Payment: [REDACTED] Overdue accounts will be charged a [REDACTED] per month carrying charge.

Conditions of Sale: As per Siemens Canada Contract Standard 1250C or as agreed.

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Reservation Clause: Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargos [or other sanctions].

Please feel free to contact us should you have any questions. We look forward to receive your instructions to proceed.

Regards,



Contracts Manager
Energy Service Division

SIEMENS

Ref: Our EH326301

Date: September 24, 2009

To: [REDACTED] – Nova Scotia Power

Cc: [REDACTED] – Siemens Canada

Subject: TRENTON UNIT 5 – REPLACEMENT HP SPINDLE IMPULSE BLADING

With reference to our recent discussions and emails, and as recommended in Engineering Report P11NC1-09-3230 "Creep Analysis of Trenton Unit 5 HP Turbine Impulse Stage, we are now pleased to provide the following proposal for your consideration.

RFQ ITEM	DESCRIPTION	UNIT PRICE	Total Price	EST DELIVERY (ARO)
0001	HP Spindle Impulse Blading including fixings For Trenton Unit 5 (MC # 3902) Qty: One Set	[REDACTED]	[REDACTED]	28 – 30 Weeks

5

Prices: Prices shown are in Canadian funds, include any import duties that may be applicable, FOB Trenton GS, but do not include any taxes. Prices shown are also based on the quantities quoted. Should the order quantity differ from the quoted quantity, we reserve the right to amend the prices.

Location of Supply: Siemens Power Generation
Newcastle Upon Tyne, England

Validity: This offer is valid for a period of [REDACTED] days from date of this letter, unless extended, modified or withdrawn by Siemens Canada Limited and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer.

Quality Program: This offer is based on a Quality Program in accordance with ISO 9001:2000.

Terms of Payment: [REDACTED]. Overdue accounts will be charged a [REDACTED] per month carrying charge.

Conditions of Sale: As per Siemens Canada Contract Standard 1250C or as agreed.

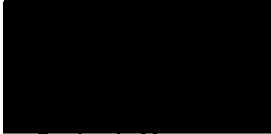
Reservation Clause: Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

International foreign trade and customs requirements or any embargos [or other sanctions].

Please feel free to contact us should you have any questions. We look forward to receive your instructions to proceed.

Regards,



Contracts Manager
Energy Service Division

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Page 2 of 2

SIEMENS

Ref: Our EH326304

Date: September 24, 2009

To: [REDACTED] - Nova Scotia Power

CC: [REDACTED] - Siemens Canada

Subject: TRENTON UNIT 5 - REPLACEMENT HP/IP SPACER PLATE

With reference to our recent discussions and emails, we are now pleased to provide the following proposal for your consideration.

RFQ ITEM	DESCRIPTION	UNIT PRICE	Total Price	EST DELIVERY (ARO)
0001	SPACER RING (HP to IP) For Trenton Unit 5 (MC # 3902) Parsons Part # SL15642 / Unit dwg. 30AA14058 Qty: One	[REDACTED]	[REDACTED]	15 Weeks

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NOTE: This spacer ring will be supplied "oversize" on the thickness and may require final machining/grinding at site to suit the final alignment.

Prices: Prices shown are in Canadian funds, include any import duties that may be applicable, FOB Trenton GS, but do not include any taxes. Prices shown are also based on the quantity quoted. Should the order quantity differ from the quoted quantity, we reserve the right to amend the prices.

Location of Supply: Siemens Power Generation
Newcastle Upon Tyne, England

Validity: This offer is valid for a period of [REDACTED] days from date of this letter, unless extended, modified or withdrawn by Siemens Canada Limited and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer.

Quality Program: This offer is based on a Quality Program in accordance with ISO 9001:2000.

Terms of Payment: [REDACTED]. Overdue accounts will be charged a [REDACTED] per month carrying charge.

Conditions of Sale: As per Siemens Canada Contract Standard 1250C or as agreed.

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Millon Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Reservation Clause: Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargos [or other sanctions].

Please feel free to contact us should you have any questions. We look forward to receive your instructions to proceed.

Regards,



Contracts Manager
Energy Service Division

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

SIEMENS

Ref: Our EH326305

Date: September 25, 2009

To: [REDACTED] - Nova Scotia Power

CC: [REDACTED] - Siemens Canada

Subject: TRENTON UNIT 5 - IP CYLINDER SPRING BACK DUMMY SEALS

With reference to our recent discussions and emails, we are now pleased to provide the following proposal for the supply of replacement IP Cylinder spring back dummy seals for your consideration.

RFQ ITEM	DESCRIPTION	UNIT PRICE	Total Price	EST DELIVERY (ARO)
0001	IP CYLINDER DUMMY ASSY (HP Section) Includes rings, retaining plates, capscrews, springs and set screws. For Trenton Unit 5 (MC # 3902) Parsons Part # 60428SA142355 Qty: One	[REDACTED]	[REDACTED]	28 Weeks
0002	IP CYLINDER DUMMY ASSY (LP Section) Includes rings, retaining plates, capscrews, springs and set screws. For Trenton Unit 5 (MC # 3902) Parsons Part # 60428SA142354 Qty: One	[REDACTED]	[REDACTED]	28 Weeks

Prices: Prices shown are in Canadian funds, include any import duties that may be applicable, FOB Trenton GS, but do not include any taxes. Prices shown are also based on the quantity quoted. Should the order quantity differ from the quoted quantity, we reserve the right to amend the prices.

Location of Supply: Siemens Power Generation
Newcastle Upon Tyne, England

Validity: This offer is valid for a period of [REDACTED] days from date of this letter, unless extended, modified or withdrawn by Siemens Canada Limited and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer.

Quality Program: This offer is based on a Quality Program in accordance with ISO 9001:2000.

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Terms of Payment: [REDACTED] Overdue accounts will be charged a [REDACTED] per month carrying charge.

Conditions of Sale: As per Siemens Canada Contract Standard 1250C or as agreed.

Reservation Clause: Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargos [or other sanctions].

Please feel free to contact us should you have any questions. We look forward to receive your instructions to proceed.

Regards,

[REDACTED]
[REDACTED]
Contracts Manager
Energy Service Division

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Page 2 of 2

**NOVA SCOTIA POWER INC.
TRENTON GS**

**REFURBISHMENT OF
TRENTON UNIT #5 HP & IP TURBINE SPINDLES**

The workscope outlined in this proposal is to inspect and refurbish the Trenton Unit #5 HP & IP turbine spindles.

This proposal is to undertake an inspection of the spindles, as well as replace the impulse blade row in each spindle and install new erosion shields on the Row 21 LP blades in the IP spindle. This work will be completed at a Siemens Canada subcontract machine shop facility utilizing the services of Siemens Technical Directors and specialized trades, Siemens nominated subcontractors and facility support labour.

This pricing submitted in this proposal is firm and fixed and assumes the proposed workscope will be completed in 2010.

The workscope and pricing may be subject to review and adjustment after approval by NSPI's Inspection Authority of the Inspection and Test Plans for the work. Pricing is also based on the proposed workscope for the both the HP turbine spindle and the IP turbine spindle being undertaken concurrently.

No work will commence until

- a. the final workscope has been agreed,
- b. the corresponding I & T Plans are reviewed and approved by Nova Scotia Power,
- c. a firm Purchase Order has been issued to Siemens.

1.0 Proposed Workscope -- IP Turbine Spindle;

- Transport IP turbine spindle from Trenton GS to Siemens subcontract machine shop facility on Siemens supplied transport.
- Receive, set in work area, complete incoming inspection.
- Complete replication and hardness test on impulse disc area.
- Remove impulse blades.
- Remove Row 21 LP blades.
- Clean and NDE disc pockets.
- Install new erosion shields on Row 21 LP blades. (Note: New erosion shields for Row 21 LP blades to be supplied "free issue" to Siemens by NSPI).
- Perform disc bore inspection on Row 21 disc.
- Machine recess on turbine end coupling face.
- Hone spindle bore. (Best effort due to bottle bore).
- Perform MPI on bore surface.
- Trial fit new patch plate. (Note: New patch plate to be supplied "free issue" to Siemens by NSPI).
- Remove and replace No. 13 closing pocket.
- Re-install Row 21 LP blades. (Note: New tip struts and blade wedges to be supplied "free issue" to Siemens by NSPI).
- Set tip struts to final position and lock.
- Set spindle in machine to cut impulse blade slots.
- Mill slots.
- Trial fit first New Impulse blade (Note: New Impulse Blades to be supplied "free issue" to Siemens by NSPI).
- Machine blade serrations to final size.

- Fit balance of new Impulse blades.
- Fit locking plates.
- Hot rivet cover bands.
- NDE rivet heads.
- Clean and final inspect IP spindle.
- Prepare spindles for transport.
- Ship to Trenton GS.

2.0 Proposed Workscope – HP Turbine Spindle;

- Transport HP turbine spindle from Trenton GS to Siemens subcontract machine shop facility on Siemens supplied transport.
- Receive, set in work area, complete incoming inspection.
- Cut filler strips from the Impulse blade shroud.
- Remove Impulse blades.
- Clean disc pockets and NDE.
- MPI radii on inlet and outlet of Impulse blade areas.
- Complete replication and hardness test on Impulse disc.
- Set spindle in machine to cut Impulse blade slots.
- Mill slots.
- Trial fit first New Impulse blade (*Note: New Impulse Blades to be supplied "free issue" to Siemens by NSPI*).
- Machine blade serrations to final size.
- Fit balance of Impulse blades.
- Perform truth check.
- Mill shroud profile and axial fins.
- Install new filler strip.
- Drill and ream rivet holes.
- Install rivets and form heads.
- Clean and final inspect HP spindle.
- Prepare spindle for transport.
- Ship to Trenton GS.

3.0 Labour Support:

Siemens will supply the following technical direction and labour and as part of this proposal.

- Siemens Project Management – Mechanical supervisor, QC support, Mechanical engineering (based on personnel working 1 shift / 10 hours per shift / 6 days per week / up to 7 weeks).
- 6 Bladers (Combination of Canadian, UK and US based Siemens personnel – based on personnel working 2 shifts / 10 hours per shift / 6 days per week / up to 6.5 weeks).
- Siemens machinists (based on personnel working 1 shift / 10 hours per shift / 6 days per week / up to 4 weeks).
- Siemens Millwrights (based on personnel working 1 shift / 10 hours per shift / 6 days per week / up to 3 weeks).
- Subcontract facility support personnel (as required - working the same shift schedule).

4.0 Subcontractors:

Siemens proposes to utilize the following subcontractors:

- Hodgson NDE Services
- Kinectrics Inc.
- Anderson Haulage

- Crosby Dewers
- Siemens UK
- Siemens USA
- Fundy Grinding
- Dipaolo support labour.

The above subcontractors will be working under the direction of Siemens Site Manager.

5.0 Pricing:

(25)

To complete the work scope and services as quoted above our all-inclusive *firm* price is outlined as follows. Prices quoted is inclusive all facility charges to support the refurbishment work, and is based on the project schedule outlined in this proposal.

Our price for transportation, inspection, preparation and reblade of the Trenton Unit 5 (MC # 3902) HP and IP turbine splindles as outlined in this proposal is [REDACTED].

The above price assumes the workscope is completed as quoted above and as per project schedule outlined in this proposal, and does not include for any extra work or discovery work. Above prices includes for the time and expenses (air fares, travel time, all local accommodations, local travel, shift premiums and overtime premiums) for the Siemens Project Management and specialized trades required to complete the work proposed.

Above prices are valid only for the release of the workscope as per this proposal. Should NSPI decide not to proceed with the workscope for all items as outlined in this proposal with the schedule as presented, Siemens reserves the right to review and modify the prices for each component.

Any additional costs incurred as a result of delays to the schedule or changes to the workscope proposed that are due to no fault of Siemens or its subcontractors will be considered extra to the contract and will be the responsibility of NSPI.

6.0 Terms of Payment:

Unless otherwise agreed or specified, Invoices will be issued by Siemens upon notification of readiness to ship the LP turbine splindles back to Pickering, however no invoicing will be undertaken in calendar year 2009. In any event, payment of each invoice is to be made within [REDACTED] days of its date.

7.0 Project:

Upon receiving Nova Scotia Power's formal approval to proceed, we will require approximately 7 weeks to complete this project. An indicative detailed project schedule is included with this proposal for your review.

Above project schedule are subject to change based on any additional work, discovery work or waiting time that may be identified during the completion of the project workscope.

8.0 Emergent Work, Project Extension Time:

Any emergent and discovery work required to the HP & IP splindles as identified during the contract workscope and does not form part of the contract workscope will be extra to the above workscope and price. The workscope and price for the emergent and discovery work will be presented to NSPI in the Strip Down Inspection document (SDIR). We will not proceed with any of the emergent and discovery work until the SDIR has been approved by NSPI and a firm Purchase Order has been issued for the

emergent and discovery work. In order to maintain and meet the agreed project schedule, SDIR's must be approved and returned within two working days. Any delays in the SDIR approval process will have an impact on the project schedule and subsequent delay costs will be due as outlined in this proposal.

Should it be necessary to extend the project window beyond the anticipated completion date for whatever reason, any additional costs incurred for the services of the Siemens PMT staff, Siemens bladers, subcontractors and CMS rental fees will be extra to the quoted amount and to the account of NSPI. Siemens will advise NSPI of any cost adders due to project extension as soon as potential project extension is identified. These price adders will be presented to NSPI in the SDIR format.

9.0 Quality Program:

This offer is based on a Quality Program in accordance with ISO 9001:2000, with Inspection and Test Plans

10.0 Validity:

This proposal is valid for order acceptance for a period of 30 days from date of issue, unless extended, modified or withdrawn by Siemens Power Generation Services and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer.

11.0 Reservation Clause:

Siemens' obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargoes [or other sanctions].

**Nova Scotia Power
Trenton Generating Station
Unit #5 –2010 IP & LP Turbine Repair Proposal**

This budget proposal outlines the general workscope and budget pricing to complete the on-site erosion shield replacement to the Trenton Unit #5 L-0 LP blades as discussed at our recent meetings and emails. Also included with this budget proposal is additional workscope to remove and replace the IP cylinder dummy and cylinder spring back seals.

This work will be completed at the Trenton Generating Station, utilizing the services of Siemens site personnel, specialized trades and Siemens nominated subcontractors. Siemens will also provide all the tools and specialized equipment to complete the work as identified in this proposal.

The final price for this workscope services proposed will be determined on a Time & Material basis, governed by the Siemens Terms & Conditions as described "Time and Material Rates for Siemens Energy Services Personnel" latest issue and associated project Schedule of Rates (*To be issued separately*). The estimated pricing in this proposal is based on utilizing the services of Siemens Canadian and UK-based staff and local subcontract trades. This proposal includes for all associated travel time, airfares and living expenses.

This pricing submitted in this proposal is an estimate only, and assumes the proposed workscope will be completed in 2010.

This workscope is subject to review and adjustment following further discussions with Nova Scotia Power.

1.0 Proposed Workscope:

This budget proposal is based on provided the necessary management and labour services to undertake the following proposed workscope:

- 1. LP Spindle Erosion Shield Replacement:**
 - Siemens bladers to remove existing L-0 blades LH & RH from LP turbine spindle. (*NOTE: This proposal does not include any labour to open the LP turbine cylinder and lift and set the LP spindle on to spindle stands. This workscope is the responsibility of others.*)
 - Clean disc pockets.
 - Siemens bladers to undertake erosion shield repairs to L-0 blades. (*Note: Replacement erosion shields to be provided "free issue" to Siemens by NSPI.*)
 - NDT new erosion shield fixing on L-0 blades.
 - Siemens bladers to refit L-0 blades (LH & RH) with new wedges and tip struts into LP turbine spindle. (*NOTE: New replacement blade wedges and tip struts to be provided "Free Issue" to Siemens by NSPI.*)
- 2. IP Cylinder Spring Back Seal Replacement:**
 - Remove existing IP dummy and cylinder seals. (*NOTE: This proposal does not include any labour to open the IP turbine cylinder, turn over and set the IP cylinder cover on stands, and lift and set the IP spindle on to spindle stands. This workscope is the responsibility of others.*)

- Clean out cylinder grooves.
- Fit new IP dummy and cylinder seals. (NOTE: New replacement Dummy and Cylinder seals to be provided "Free Issue" to Siemens by NSPI.)
- Set boring bar in top half cylinder, tip seals.
- Set boring bar in bottom half cylinder, tip seals.
- Fit IP spindle into cylinder, record clearances (X and Y).
- Install cover (temporary), record clearances (X and Y).
- Remove IP spindle.
- Reset boring bar into top cylinder, final tip seals.
- Reset boring bar into bottom cylinder, final tip seals.
- Knife edge cylinder and dummy seals.
- Release lock screws on seals and peen.

NOTE: For the purposes of this proposal, the two workscopes quoted above will be undertaken at the same time and not independently of each workscope. See preliminary project schedule included with this proposal.

2.0 Siemens On - Site Personnel

This budget proposal is based on utilizing the following Siemens Technical Direction staff, Siemens specialized labour and Sub Contract labour for the workscopes outlined in this proposal:

- Siemens Technical Director (TD) to provide technical assistance to Siemens labour and bladers, and maintain all work plan activities, including record sheets. This role shall also be responsible for ensuring work and records are carried out in conformity to Siemens Quality systems. The TD will be working 10 hours per day, 6 days per week for up to 4 weeks.
- Four Siemens bladers to support the workscope working 1 shift, for approximately 4 weeks, 6 days a week, 10 hr days.
- One Siemens sub-contract NDE technician for approximately 4 days on site, 10 hours per day, to inspect the LP blade spindle repairs.
- Up to 7 subcontract millwrights for approximately 4 weeks on site, 2 shifts per day, 10 hours per shift.

3.0 Subcontractors:

Siemens proposes to utilize the following subcontractors:

- Hodgson NDE Services
- Simore Transport
- Siemens UK
- Fundy Grinding

The above subcontractors will be working under the direction of Siemens Site Manager.

4.0 NSPI Scope of Supply/Responsibility:

- Temporary office space with desk and phone for Technical Directors.
- High speed internet support for Siemens staff.
- Appropriate lunch room and washroom facilities for Siemens and subcontractors personnel.
- NSPI to provide necessary personnel to support Siemens as agreed, including crane services.

- Plant power and service air.
- Provide adequate lay down areas.
- Provide scaffolding if necessary.
- Provide turbine spindle stands.
- Access to NSPI turbine tooling.
- Certified lifting slings and lifting beams as required.
- Any other equipment to support outage work - to be discussed and agreed.

5.0 Budget Pricing

Pricing in this proposal has been based on the scope of work as outlined in this document.

The prices presented below for the Siemens staff and services, trades, subcontractors and other services that may be utilized during the Trenton 2010 Turbine Outage is an estimate only and assumes the outage services will be completed on a time & material (T&M) basis. The final price for this workscope services proposed will be determined on a Time & Material basis, governed by the Siemens Terms & Conditions as described "Time and Material Rates for Siemens Energy Services Personnel" latest issue and associated project Schedule of Rates (*To be issued separately*).

The following budget prices assume the workscope is completed as quoted and does not include for any extra work or discovery work. The labour price includes the time and expenses (travel time, local accommodations, local travel, shift premiums and overtime premiums) for the Siemens personnel and trades as identified to complete the work proposed.

Any additional cost incurred as result of delays to the schedule or changes to the workscope proposed that are due to no fault of Siemens or its subcontractors will be considered extra to the contract and will be the responsibility of NSPI. Every attempt will be made to contain additional work within the project schedule.

6.0 Pricing for Siemens Support Staff (for work to be completed in 2010)

- | | | | |
|-----|--|------------------------------------|----|
| 6.1 | Siemens Technical Director (TD) to support the LP blade erosion shield work plus provide technical assistance to the IP cylinder seal replacement workscope. This cost is based on a total site commitment of 4 weeks. | (Estimate - to be completed T & M) | 28 |
| 6.2 | Four Siemens bladers (combination of Canadian and UK based personnel) for the removal of HT blades, undertake erosion shield repairs, and reinstall HT (L-0) blades, for a site commitment of approximately 4 weeks. | (Estimate - to be completed T & M) | 26 |
| 6.3 | Millwright subcontractor (Fundy Grinding) labour to undertake the replacement of the IP cylinder spring back dummy and cylinder seals, including tool rentals for a total site commitment of approximately 4 weeks. | (Estimate - to be completed T & M) | 27 |
| 6.4 | For the services of Non Destructive Testing services as outlined in this proposal. | (Estimate - to be completed T & M) | 29 |
| 6.5 | Miscellaneous estimates, including engineering support, transport, tool rentals, consumables, braze, etc | (Estimate - to be completed T & M) | 30 |

7.0 Site Access Training

Any waiting time incurred by Siemens personnel between site access training and Siemens initiation of work will be billed on a time and material basis in accordance with the extra work provision of this offer.

8.0 Extra Work, Repair and Refurbishment Work, Delays

Any emergent work or discovery refurbishment work that is not included in this proposal workscope and as identified during the performance of the work being completed, will be extra to the above workscope and prices quoted. Notification of emergent work or discovery refurbishment work will be identified and documented by the SDIR (Strip Down Inspection Report) process. We will not proceed with any of the identified emergent work or discovery refurbishment work until the SDIR has been approved by NSPI. Every attempt will be made to contain the additional workscope within the agreed project schedule.

9.0 Terms of Payment

All work is being performed on a Time & Material basis except as identified. Monthly invoices will be submitted with corresponding time sheets and support documentation for outage personnel.

10.0 Quality Program

This offer is based on a Quality Program in accordance with ISO 9001:2000 with Inspection and Test Plan submissions.

11.0 Reservation Clause

Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargos [or other sanctions].

SIEMENS

Ref: Our EH332701

Date: December 07, 2009

To: [REDACTED] - Nova Scotia Power

Subject: TRENTON UNIT 5 - REPLACEMENT HARDWARE

With reference to our recent discussion and your email dated November 20, 2009, we are now pleased to provide the following proposal for the supply of replacement turbine hardware for your consideration.

Item	Qty	Mrk	Dwg	Description	Unit Sell	Total Sell
1	28	10	SM15823	2" UNF STUD, SPEC 221, A=8-7/16"	[REDACTED]	[REDACTED]
2	28	11	SM15823	2" NUTS	[REDACTED]	[REDACTED]
3	12	66	SLC64144	1" - 12 UNF STUDS, A=5-3/8"	[REDACTED]	[REDACTED]
4	12	67	SLC64144	1" - 12 UNF CAPNUTS	[REDACTED]	[REDACTED]
5	60	85	SLC64150	1 1/4" UN8 STUDS A= 4 3/16"	[REDACTED]	[REDACTED]
6	60	86	SLC64150	1 1/4" UN8 NUTS	[REDACTED]	[REDACTED]
7	10	23	20AM1569	3" DIA STUD UN6. 12"	[REDACTED]	[REDACTED]
8	10	24	20AM1569	3" DIA NUTS	[REDACTED]	[REDACTED]
9	10	32	20AM1569	3 3/4" DIA UN6 STUDS, 15 3/4"	[REDACTED]	[REDACTED]
10	10	35	20AM1569	3 3/4" DIA CAPNUTS	[REDACTED]	[REDACTED]
11	4	34	20AM1569	3 3/4" DIA STUDBOLTS,	[REDACTED]	[REDACTED]
12	8	26	20AM1569	3 3/4" DIA CAPNUTS	[REDACTED]	[REDACTED]
13	26	33	20AM1569	3 3/4" UN6 STUD BOLTS	[REDACTED]	[REDACTED]
14	52	35	20AM1569	3 3/4" CAPNUTS	[REDACTED]	[REDACTED]
Total Price:						[REDACTED]

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Delivery: 12 Weeks after receipt of your instruction to proceed.

Prices: Prices shown are in Canadian funds, FOB Trenton GS, but do not include any taxes. Prices shown are also based on the quantity quoted. Should the order quantity differ from the quoted quantity, we reserve the right to amend the prices.

Siemens Canada Limited/Siemens Canada Limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Location of Supply: Siemens Canada Limited
c/o All Tool Manufacturing, Hamilton, Ontario

Validity: This offer is valid for a period of [REDACTED] days from date of this letter, unless extended, modified or withdrawn by Siemens Energy Services and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer.

Quality Program: This offer is based on a Quality Program in accordance with ISO 9001:2000.

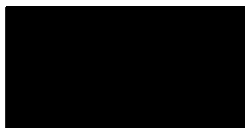
Terms of Payment: [REDACTED] Overdue accounts will be charged a [REDACTED] per month carrying charge.

Conditions of Sale: As per Siemens Canada Contract Standard 1250C or as agreed.

Reservation Clause: Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargos [or other sanctions].

Please feel free to contact us should you have any questions. We look forward to receive your instructions to proceed.

Regards,



Contracts Manager
Energy Service Division

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

SIEMENS

Ref: Our EH326309

Date: November 06, 2009

To: [REDACTED] – Nova Scotia Power

CC: [REDACTED] – Siemens Canada

Subject: TRENTON UNIT 5 – REPLACEMENT SPRING BACKED CYLINDER SEALS

With reference to our recent discussions and emails, we are now pleased to provide the following proposal for the supply of replacement IP Spring Backed Cylinder Seals for your consideration.

RFQ ITEM	DESCRIPTION	UNIT PRICE	TOTAL ITEM PRICE	EST DELIVERY (ARO)
0001	IP Spring Backed Cylinder Seals (Rows 1 to 10) Parsons Ref. Part #: SA142336 Qty: 1 Set (for Rows 1 to 10)	[REDACTED]	[REDACTED]	28 Weeks

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Prices: Prices shown are in Canadian funds, include any import duties that may be applicable, FOB Trenton GS, but do not include any taxes. Prices shown are also based on the quantity quoted. Should the order quantity differ from the quoted quantity, we reserve the right to amend the prices.

Location of Supply: Siemens Power Generation
Newcastle Upon Tyne, England

Validity: This offer is valid for a period of [REDACTED] days from date of this letter, unless extended, modified or withdrawn by Siemens Energy Services and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer.

Quality Program: This offer is based on a Quality Program in accordance with ISO 9001:2000.

Terms of Payment: [REDACTED]. Overdue accounts will be charged a [REDACTED] per month carrying charge.

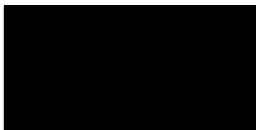
Conditions of Sale: As per Siemens Canada Contract Standard 1250C or as agreed.

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Reservation Clause: Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargos [or other sanctions].

Please feel free to contact us should you have any questions. We look forward to receive your instructions to proceed.

Regards,



Contracts Manager
Energy Service Division

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

SIEMENS

Ref: Our EH326306

Date: September 28, 2009

To: [REDACTED] in Nova Scotia Power

CC: [REDACTED] - Siemens Canada

Subject: TRENTON UNIT 5 - LP SPINDLE L-0 BLADE REPLACEMENT EROSION SHIELDS

With reference to our recent discussions and emails, we are now pleased to provide the following proposal for the supply of replacement L-0 LP blade erosion shields for your consideration.

RFQ ITEM	DESCRIPTION	UNIT PRICE/SET	TOTAL ITEM PRICE	EST DELIVERY (ARO)
0001	LP Turbine Spindle L-0 LH HT Blade Erosion Shield set (consisting of 1 st top, 2 nd , 3 rd , 4 th , and 5 th bottom pieces each). Qty: 104 sets (5 pieces per set)	[REDACTED]	[REDACTED]	18 Weeks
0002	LP Turbine Spindle L-0 RH HT Blade Erosion Shield set (consisting of 1 st top, 2 nd , 3 rd , 4 th , and 5 th bottom pieces each). Qty: 104 sets (5 pieces per set)	[REDACTED]	[REDACTED]	18 Weeks

Prices:

Prices shown are in Canadian funds, include any import duties that may be applicable, FOB Trenton GS, but do not include any taxes. Prices shown are also based on the quantity quoted. Should the order quantity differ from the quoted quantity, we reserve the right to amend the prices.

Note: Price quoted is for the supply of replacement erosion shields only, and does not include for labour or materials to install the new erosion shields.

Location of Supply: Siemens Power Generation
Newcastle Upon Tyne, England

Validity:

This offer is valid for a period of [REDACTED] days from date of this letter, unless extended, modified or withdrawn by Siemens Energy Services and limits acceptance to the terms set forth herein. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens during such validity period will be sufficient to form an agreement on the terms and conditions of this offer.

Quality Program: This offer is based on a Quality Program in accordance with ISO 9001:2000.

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Terms of Payment: [REDACTED]. Overdue accounts will be charged a [REDACTED] per month carrying charge.

Conditions of Sale: As per Siemens Canada Contract Standard 1250C or as agreed.

Reservation Clause: Siemens obligation to fulfill this agreement is subject to the proviso that the fulfillment is not prevented by any impediments arising out of national or international foreign trade and customs requirements or any embargos [or other sanctions].

Please feel free to contact us should you have any questions. We look forward to receive your instructions to proceed.

Regards,

[REDACTED]

Contracts Manager
Energy Service Division

Siemens Canada Limited/Siemens Canada limitée
Energy Sector/Secteur Énergie
Energy Service Division/Division Services énergétiques
30 Milton Avenue
P.O. Box 2510
Hamilton, Ontario, Canada
L8N 3K2

Page 2 of 2

TRE5 Turbine Upgrades- LP/IP/HP
Reference Notes

Budget Year	2010
Division	Power Production
Department	Trenton generating station

Date	Mar 29th 2010
CI number	38834

Notes 1-22	Materials	Notes 1-22 refer to the multiple estimates supplied by Siemens for materials associated with the turbine upgrades.
Note 23	Materials	#5 Bearing is an estimate based on NSPI engineering staff experience.
Note 24	Materials	These three items are estimates with cost support from vendors pending.
Note 25	Contracts	The total cost for transportation, inspection, preparation and relacing of both IP and HP turbine spindles was estimated to be [REDACTED] by Siemens.
Note 26-30	Contracts	Notes 26-30 refer to the multiple estimates supplied by Siemens for the contracts associated with the turbine upgrades

REDACTED

Generation Responses

Request IR-G12:

With respect to page 37, CI# 38834, TRE5 - Turbine Upgrades - LP/IP/HP,

a) Please provide copies of correspondence, studies and reports that require this work be done in 2010, including the Unit #5 Life Extension Study and recommendations.

b) Provide a breakdown of the estimated \$4,621,909 cost.

c) Please list all projects that are in the 2010 ACE Plan, associated with the TRE5 unit, that will be completed during the 2010 scheduled outage.

d) Please provide the Gantt chart for the TRE5 scheduled outage.

Response IR-G12:

a) Please refer to Confidential Attachment 1, an inspection report pertaining to the Trenton Unit 5 Turbine. This attachment is confidential because the information included is the intellectual property of the consultant and was provided for the Company's sole and confidential use. Third party consultants and suppliers have a reasonable expectation that their proprietary interests in the content or analysis will be protected from public disclosure.

Disclosure of their work product may impair their ability to obtain work from others at a reasonable price or in a manner acceptable to the consultant. Further, where such a report anticipates future action by NSPI, premature disclosure of such anticipated action could affect the approach of potential suppliers and cause increased costs to customers in a future competitive solicitation.

REDACTED

1 Response IR-G12: (cont'd)

2
3 b) The breakdown of the estimated project cost is as follows:

4
5 i) Regular Labour: \$184,000

6
7 ii) Term Labour: [REDACTED]

8
9 iii) Power Production Contracts: [REDACTED]

10
11 iv) Materials: [REDACTED]

12
13 v) Interest and A/O: \$179,019

14
15 To protect value for customers and mitigate the risk of prospective proponents having access
16 to project budget information, the estimated costs for materials and power production
17 contracts are confidential. All purchase orders and contracts for supply of materials and
18 installation have not yet been issued or finalized.

19
20 The more a supplier is aware of NSPI's specific requirements, the better their ability to
21 obtain the highest price, reduce competition and ultimately increase the cost for NSPI and its
22 customers. The cost of such transparency is not always immediately evident. Information
23 from regulatory proceedings can provide competitive advantages over other suppliers, and
24 that could be advantageous in bidding or negotiation. Higher prices, or avoidable contractual
25 constraints, will result in unnecessary higher costs to customers.

26
27 c) Please refer to Attachment 2.

NSPI - 2010 Annual Capital Expenditure Plan (2010-2014) - P-128.09
NSPI Responses to UARB Information Requests

REDACTED

1 Response IR-G12: (cont'd)

2
3 d) Please refer to Confidential Attachment 3 for a preliminary copy of the TRE5 scheduled
4 outage. The outage schedule is confidential to protect value for customers by mitigating the
5 risk of prospective proponents who may perform work during the scheduled outage having
6 access to the estimated durations for individual tasks or projects. The more a supplier is
7 aware of NSPI's specific requirements, the better their ability to obtain the highest price,
8 reduce competition and ultimately increase the cost for NSPI and its customers.

9
10 The cost of such transparency is not always immediately evident. Original Equipment
11 Manufacturers and independent contractors are sophisticated and commercially astute. They
12 will seek information from regulatory proceedings to anticipate the needs of the Company
13 and adapt commercial bids accordingly. This could provide them with a competitive
14 advantage over other suppliers, and that could be advantageous in bidding or negotiation.
15 Higher prices, or avoidable contractual constraints, will result in unnecessary higher costs to
16 customers.

<i>Location</i>	<i>CI #</i>	<i>CI Name</i>
TRE5	38834	Turbine Upgrades - LP/IP/HP
TRE5	34062	Condenser Upgrades
TRE5	38724	Superheater, Reheater and Boiler Upgrades
TRE5	27571	Waterwall Replacement
TRE5	38728	Hot End Air Heater Basket & Seal Replacement
TRE5	38843	FD Fan Refurbishments
TRE5	38835	Air Register upgrades
TRE5	38729	Replace Demin and Reserve Feedwater Tanks
TRE5	37643	Reclaim Feeder upgrades
TRE5	38828	Seal Oil Piping Upgrades
TRE5	22954	Bottom Ash/ Boiler Seal Rep
TRE5	38881	Pulverizer Refurbishment
TRE5	38883	DCMS Upgrade Phase 2
TRE5	38830	4kV Motor upgrade
TRE5	38731	High Pressure Piping Upgrades
TRE5	38836	5-1 CW Screen Upgrade
TRE5	37544	Coal MCC Transformer Replacement
TRE5	34507	5D Belt Replacement
TRE5	38725	Refurbish Light Oil Tanks and Lines
TRE5	22426	5-2 Air Heater Outlet Expansion Joint Replacement
TRE5	28685	Actuator Upgrade
TRE5	28694	Pulverizer PA Damper Drive Upgrades
TRE5	28818	Pulverizer Reject System Improvements