

July 29, 2014

MEMORANDUM TO THE TRUSTEES

FROM THE PRESIDENT and CHIEF EXECUTIVE OFFICER

**SUBJECT: Procurement (Services) Contract – Niagara Power Project –
Lewiston Pump Generating Plant Life Extension and
Modernization Program – Independent Analyses for
Upgrade of Pump-Turbine Motor Generator Unit –
Contract Award**

SUMMARY

The Trustees are requested to approve the award of a two-year contract to Power Engineering Inc. (“PEI”) of Irvine, CA in the amount of \$269,775 to perform the independent Analysis of Motor Generator Amortisseur and Supporting Engineering Analysis for upgrade of the Pump-turbine Motor Generator Unit as part of the Life Extension and Modernization (“LEM”) Program at the Niagara Power Project, Lewiston Pump Generating Plant (“LPGP”).

BACKGROUND

Section 2879 of the Public Authorities Law and the Authority’s Guidelines for Procurement Contracts require the Trustees’ approval for procurement contracts involving services to be rendered for a period in excess of one year

At their June 29, 2010 meeting, the Trustees approved the LPGP LEM Program at the estimated cost of \$460 million. As of their November 9, 2012 meeting, the Trustees have authorized capital expenditure amount of approximately \$252 million for the LPGP LEM Program; the value of this contract falls within that capital expenditure authorization.

The principal reason for the life extension work at LPGP is the aging condition of the generating equipment. Failure to maintain the LPGP would result in significant loss of peaking and firm capacity from the Niagara Power Project, impacting the ability of the Niagara Power Project to meet requirements under power contracts with the Authority’s customers. The rotor poles and windings on the LPGP units are being replaced due to their age, having entered service in 1961, and due to periodic failure of the shorting bar and inter-pole connectors, which were believed to have cracked due to migration of the amortisseurs from pole to pole, causing flexure of the connectors and possible high current.

In July 2012, a multi-year contract was awarded to Andritz Hydro (“Andritz”) for the motor generator upgrade of all 12 of the existing motor generating units at LPGP (the “MG Upgrade Contract”). Replacement of the stator coils and rotor poles, as well as new amortisseurs designed by Andritz, for all 12 motor generating units was included in the scope-of-work under the MG Upgrade Contract.

During the refurbishment of the 1st Unit the stator coils fabricated by Andritz failed industry tests, causing the Authority to investigate further. Ultimately, the Authority issued a “stop work order” as a result of Andritz’s failure to properly fabricate the stator coils in accordance with the technical specifications, the Authority’s requirements and acceptable industry standards. This affected all further work under the MG Upgrade Contract. An emergency contract was issued to GE to install a spare set of stator coils that the Authority had previously purchased from GE, in lieu of the faulty Andritz coils, along with the replacement of the Stub Shaft, Collector Ring, DC and Neutral Bus and Current Transformers replacement on the 2nd Unit.

Commissioning of the 1st Unit revealed that the turbine required twice the amount of time to ramp-up to full speed in pump mode as compared to the original units and was experiencing overheating of the rotor pole jumpers and extreme high current upon across-the-line motor starting. A scheduled inspection in February 2014 revealed a complete failure of the amortisseurs designed by Andritz. Under warranty, Andritz revised its design of the amortisseurs, but the 1st Unit continued to experience high current events with no conclusive explanation from Andritz. The Authority is pursuing an independent analysis of the performance of the amortisseurs (both the original and redesigned configurations) and the rotor pole jumper overheating issue to determine the cause of the high current events before proceeding with the remaining rotor pole and stator coil replacement on all further units.

DISCUSSION

An advertisement to solicit bids (Q14-5642FS) was issued and appeared in the New York State *Contract Reporter* on May 7, 2014. A single proposal was received from PEI on June 17, 2014.

The initial proposal price is as follow:

<u>Bidder</u>	<u>Base Bid Price</u>
Power Engineering Inc.	\$149,775

Multiple options, including analysis and redesign of the Motor Generator Bearing and Pump-Turbine Bearing will be performed on a time and material basis, with an estimated cost of an additional \$120,000. As a result, the total sum for this contract award, inclusive of all options, is \$269,775.

The proposals were reviewed by an Evaluation Committee (“Committee”) with representatives from Procurement, Engineering, Niagara Project and Project Management. Queries were sent to PEI to clarify their proposal and to provide an opportunity to explain how they arrived at their work plan, guaranteed characteristics and pricing. PEI’s responses were acceptable to the Committee.

In the recent past, PEI successfully completed several projects at the Niagara Power Project which include Post Upgrade Vibration and Mechanical Testing of the 1st LEM Unit. PEI has broad experience in projects of this magnitude, has demonstrated knowledge of the scope-of-work and is capable of completing this project in a timely manner. The Committee recommends that a contract for the work described above be awarded to PEI whose bid is technically and commercially acceptable.

FISCAL INFORMATION

Payment associated with this project will be made from the Authority's Capital Fund and is included in the 2014 approved Capital budget.

RECOMMENDATION

The Senior Vice President and Chief Engineer – Operations Support Services, the Acting Vice President – Project Management, the Vice President – Engineering, the Acting Vice President – Procurement, the Project Manager and the Regional Manager – Western New York recommend that the Trustees approve the award of a two-year contract to Power Engineering Inc. of Irvine CA in the amount of \$269,775, to perform the independent Analyses of Motor Generator Amortisseur and Supporting Engineering Analyses for upgrade of the Pump-turbine Motor Generator Unit as part of the Life Extension and Modernization Program to renovate and modernize the Lewiston Pump Generating Plant.

For the reasons stated, I recommend the approval of the above-requested action by adoption of the resolution below.

Gil C. Quiniones
President and Chief Executive Officer

RESOLUTION

RESOLVED, That pursuant to the Guidelines for Procurement Contracts adopted by the Authority, approval is hereby granted to award a two-year contract to Power Engineering Inc. of Irvine CA, in the amount of \$269,775, to perform the independent Analysis of Motor Generator Amortisseur and Supporting Engineering and Analysis for upgrade of Pump-turbine Motor Generator Unit as part of the Life Extension and Modernization program to renovate and modernize the Lewiston Pump Generating Plant, as recommended in the foregoing memorandum of the President and Chief Executive Officer;

Contractor

Power Engineering Inc.

Contract Approval

\$269,775

AND BE IT FURTHER RESOLVED, That the Chairman, the Vice Chair, the President and Chief Executive Officer, the Chief Operating Officer and all other officers of the Authority are, and each of them hereby is, authorized on behalf of the Authority to do any and all things and take any and all actions and execute and deliver any and all agreements, certificates and other documents to effectuate the foregoing resolution, subject to the approval of the form thereof by the Executive Vice President and General Counsel.