GE 7B Combustion Turbine parts Refurbishment
Mandatory Pre-Bid Meeting
NGS onsite, **Bidder rep. onsite**
Conference Call support information;
Project Manager:
Technical Engineer:

Technical Specification
Northside Generating Station
GE 7B Combustion Turbine parts Refurbishment

A solicitation of inspection and repair/ refurbishment, on selected sets of current inventory in various forms of needed repair. JEA NGS reserves the right to award all or part of the following work under this solicitation.

1st Stage Buckets = A full set, 92 pieces (PN#932E103P2H1 as on each Bucket) (2 sets)
1st Stage Shroud Blocks = A full set (48pcs), OEM, Coated w/hardware (2 sets)
F7B 1st Stage Nozzle (PN#172C8909P7 as on each segment) (2 sets)
2nd Stage Buckets = A full set,
3rd Stage Buckets = A full set,
Thrust Bearing (226A1151P001)

Request for quote for including the Shipping, an in shop NDE of damage and recommended repair method on the listed above. The following is per each part type a minimum required scope outline, with Inspection, repair, and report requirements. **Required with the quote: 1)** The NDE requirements will very to the part type, a breakdown of the part type with the suggested NDE method used. **2)** The repair method quote will be per OEM required specifications, EPRI and/or equivalent, including a break down in detail for evaluation of cost and recommendations. Some part's items will be beyond repair and subject to replacement; availability and pricing of equal like parts is required to be supplied at this time as well. **3)** An exact amount of parts fall out/non repairable/scrap is not known at this time and a number is given for availability and evaluation of this proposal, projected amount listed below.

- **F7B 1st Stage Buckets = 2 sets, A Final full set, 92 pieces (PN#932E103P2H1 as on each Bucket)**

Inspection Workscope
1. Receive, photo log and record serial numbers
2. Verify all cooling holes are open
3. NDT and evaluate material condition
4. Verify seal pin dimension
5. Full body blend complete airfoil to remove any corrosion/oxidation and residual coating. (FPI) Fluorescent Penetrant Inspection.
and record defects

Repair Workscope
1. Weld repair as required using approved process and filter material.
2. FPI and visual inspect and touch-up as required.

3. Post weld stress relieve.
4. Shot peen dovetail.
5. Apply Al strip to dovetail.
6. Re-check cooling holes and verify all are open.
7. Moment weigh and chart.
8. Complete final engineering/QC acceptance.

***Note:** Based on Incoming Inspections, many buckets had fall out, therefore on the remaining 44 possible repairable buckets the scope has changed to Major repair because of angel wing buildup, and more blending on the airfoil.

III. Report Contents

1. Certificate of Conformance
2. Inspection Report
3. Final Dimensional Reports
4. Final NDT Report

For estimating/ bid evaluation repairs are as follows (used later in bid evaluation form)
Light repair =
Medium repair =
Major/Heavy repair =
Non Repairable/ replace with in-kind refurbished =
Repair criteria clarification (per bidder) of Light, Medium, Major, and Non Repairable:
Light repair =
Medium repair =
Major/Heavy repair =
Non Repairable = Scrap and will be replaced with in-kind refurbished

- **1st Stage Shroud Blocks = 2 sets, A Final full set (48pcs), The PN# 118D6432P005, OEM, Coated w/hardware**

Inspection

1. Receive Shroud blocks set.
2. Label and verify condition.
3. Remove sample for metallurgical evaluation. Coating
4. Remove segments and hardware from crate. Save all reusable hardware.
5. Remove all seal strips from each segment.
6. Inspect all segments for damage.
7. Blast clean components prior to NDT.
8. Perform incoming inspection.
9. Provide inspection report.

Repair

1. Complete heat treatment (solution anneal) prior to the weld process.
2. Reform and straighten any partitions hardware.
3. Note out all indications, and FOD, repair method
4. Weld repair and buildup any eroded areas.
5. Check and re-establish all cooling holes as required.
6. Weld restore flat seal groove to correct engagement of flat seal if required.
7. Hand dress all weld areas restoring contours and throat openings.
8. Blast clean.
9. Round out retaining ring and pre-assemble segments. Check and adjust butt gaps, area, seal groove, alignment, and segment mismatch. Adjust as required.
10. NDE and report.
11. Remove damaged coating surfaces.
12. Blast and NDE.
13. Touch up as required.
14. Coating applied at each agreed position of segments.
15. Solution and age heat-treat.
16. Final blast clean/NDE and report.
17. Repair cores and covers.
18. Fit and assemble cores and covers.
19. Assemble and fit segments in test retaining ring. (**Not supplied**)
20. Assemble and fit refurbished flat seals.

21. Take complete dimensional checks.
22. Box and prepare for shipping.

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- **F7B 1st Stage Nozzle 2 sets, A Final full set**

Inspection Work scope

1. Receive nozzle assembly
2. Label and verify condition of assembly.
3. Remove sample for metallurgical evaluation.
4. Disassemble nozzle segments and hardware from retaining ring. Save all reusable hardware.
5. Remove all cores. Covers and trapezoids from each segment.
6. Inspect all cores for damage.
7. Blast clean nozzle components prior to NDT.
8. Perform incoming inspection.
9. Provide inspection report.

Repair Work scope

1. Complete heat treatment (solution anneal) prior to the weld process.
2. Reform and straighten any bowed trailing edges and bulged partitions.
3. Rout out all indications, and FOD.
4. Weld repair and buildup any eroded areas.
5. Check and re-establish all cooling holes as required.
6. Weld restore flat seal groove to correct engagement of flat seal if required.
7. Hand dress all weld areas restoring contours and throat openings.
8. Blast clean.
9. Round out retaining ring and pre-assemble segments. Check and adjust butt gaps, area, seal, groove, alignment, and segment mismatch. Adjust as required.
10. NDE and report.
11. Assemble anti-distortion bars.
12. Blast and NDE.

13. Touch up as required.
14. Solution and age heat-treat.
15. Final blast clean/NDE and report.
16. Repair cores and covers.
17. Fit and assemble cores and covers.
18. Assemble and fit segments in retaining ring.
19. Fit segments Hast-X seals.
20. Assemble and fit refurbished flat seals.
21. Take complete dimensional checks.
22. Box and prepare for shipping.

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- **2nd Stage Buckets, 1 full set, A Final full set,**

Inspection Workscope

1. Receive, photo log and record serial numbers
2. Verify all cooling holes are open
3. NDT and evaluate material condition
4. Verify seal pin dimension
5. Full body blend complete airfoil to remove any corrosion/oxidation and residual coating.

(FPI) Fluorescent Penetrant Inspection and record defects

Repair Workscope

1. Weld repair as required using approved process and filter material.
2. FPI and visual inspect and touch-up as required.
3. Post weld stress relieve.
4. Shot peen dovetail.
5. Apply Al strip to dovetail.
6. Re-check cooling holes and verify all are open.
7. Moment weigh and chart.

8. Complete final engineering/QC acceptance.

III. Report Contents

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3. Final Dimensional Reports
4. Final NDT Report

For estimating/ bid evaluation repairs are as follows (used later in bid evaluation form)
Light repair =
Medium repair =
Major/Heavy repair =
Non Repairable/ replace with in-kind refurbished =
Repair criteria clarification (per bidder) of Light, Medium, Major, and Non Repairable:
Light repair =
Medium repair =
Major/Heavy repair =
Non Repairable = Scrap and will be replaced with in-kind refurbished

- **3rd Stage Buckets, A full set, A Final full set,**

Inspection Workscope

1. Receive, photo log and record serial numbers
2. Verify all cooling holes are open
3. NDT and evaluate material condition
4. Verify seal pin dimension
5. Full body blend complete airfoil to remove any corrosion/oxidation and residual coating.

(FPI) Fluorescent Penetrant Inspection.
and record defects

Repair Workscope

1. Weld repair as required using approved process and filter material.
2. FPI and visual inspect and touch-up as required.
3. Post weld stress relieve.
4. Shot peen dovetail.
5. Apply Al strip to dovetail.
6. Re-check cooling holes and verify all are open.
7. Moment weigh and chart.
8. Complete final engineering/QC acceptance.

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3. Final Dimensional Reports
4. Final NDT Report

For estimating/ bid evaluation repairs are as follows (used later in bid evaluation form)
Light repair =
Medium repair =
Major/Heavy repair =
Non Repairable/ replace with in-kind refurbished =
Repair criteria clarification (per bidder) of Light, Medium, Major, and Non Repairable:
Light repair =
Medium repair =
Major/Heavy repair =
Non Repairable = Scrap and will be replaced with in-kind refurbished

- **Thrust Bearing (226A1151P001)**

The active/inactive tilt pad thrust bearing is a clean verify all is there and NDE all parts to make ready for installation. This has been on the shelf for (who knows)?, or if it is all there.

I. Inspection Workscope

1. Receive and identify pieces; record all serial/part numbers.
2. Match mark if required, remove pieces, and clean.
3. Dimensionally and fixture inspect all pieces.

II. Repair Workscope

1. Replace any pieces that are missing and repair if any damaged.
2. Re assemble for installation, and coat for lay-up spares..
3. Crate, document final dimensional checks, prepare for shipping.

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Evaluated Bid form: (part 1)

Minimum Qualifications: (on forms provided)
List 3 First (1st), Second (2nd), Third (3rd) stage refurbishments in the last 3 years including details with references:

1.
2.
3.

List 3 First (1st) stage nozzle refurbishments in the last 3 years including details with references:

1.
2.
3.

List 3 refurbishments of First (1st) stage shroud blocks and/or other combustion turbine hot gas path parts completed in the last 3 years including details with references:

1.
2.
3.

Refurbishment shop Location: Details including visit information and contact:

Evaluated Bid form: Cost breakdown (part 2)

First (1st) stage Buckets/Blades definition of repair & cost:

- **Light repair,** (bidders definition) **Cost per each =**
- **Medium repair,** (bidders definition) **Cost per each =**
- **Major/Heavy repair,** (bidders definition) **Cost per each =**
- **Non Repairable/ replace with in-kind refurbished,** (bidders definition) **Cost per each = , On hand Availability =,**

First (1st) Stage Shroud Blocks = A full set (48pcs), OEM, Coated w/hardware **refurbishment cost =**

F7B First (1st) Stage Nozzle (PN#172C8909P7 as on each segment) **refurbishment cost =**

Thrust Bearing (226A1151P001) **refurbishment cost =**

Total package, refurbishment cost =

Potential Bidder list:

Jeremy Four
Director of Sales
Jeremy4@turbineops.com
Cell: 281.806.8132
www.turbineops.com

Christopher "Coty" James
Director of Field Services
Global Consulting and Mechanical Services
903-639-1212 | 423-285-9138 | cjames@gcandms.com

Gas Turbine Parts & Services, Inc.
1 Old Route 146
Clifton Park, NY 12065 U.S.A.
www.gtps-inc.com
T: 518.631.9641 / C: 617.223.1810 / F: 732.879.0254
Farren@gtps-inc.com

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8303 McHard Rd.
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660-596-7796 direct
660-829-5100 office
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Americo Zapata <Azapata@proenergyservices.com>

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