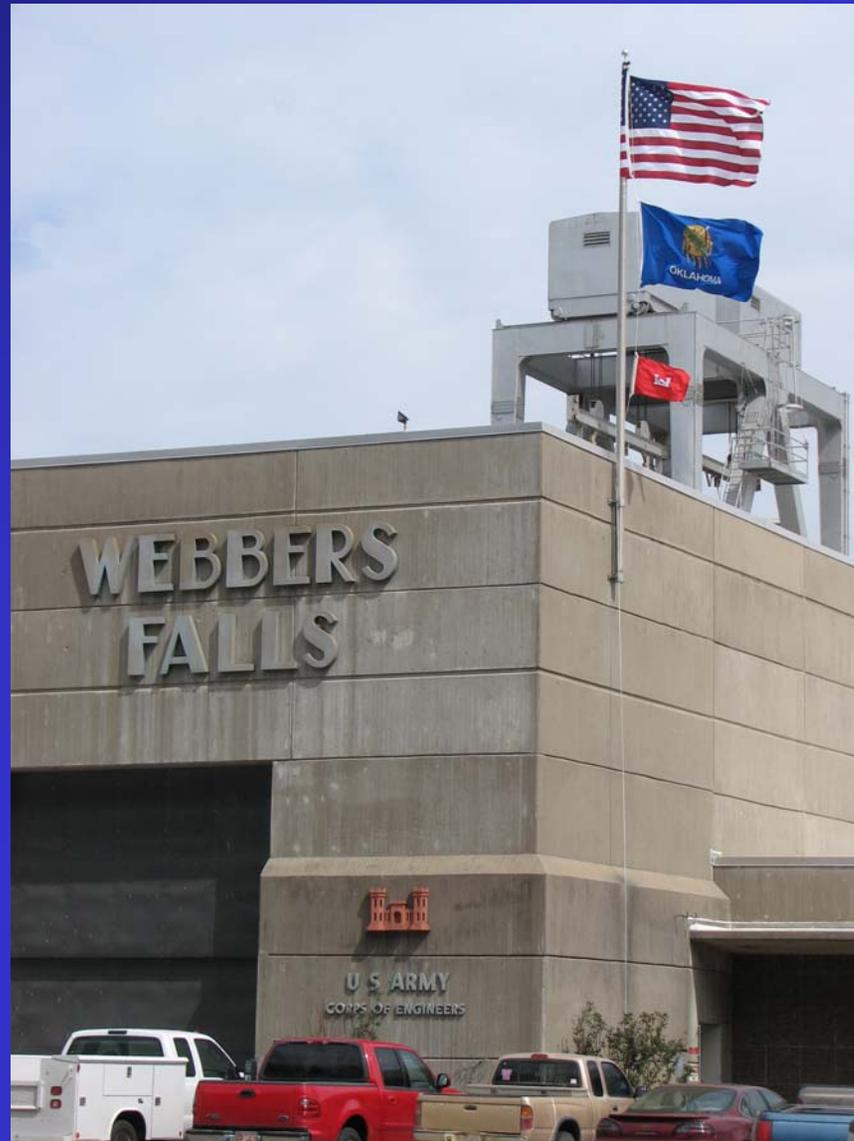




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# Webbers Falls Major Rehab



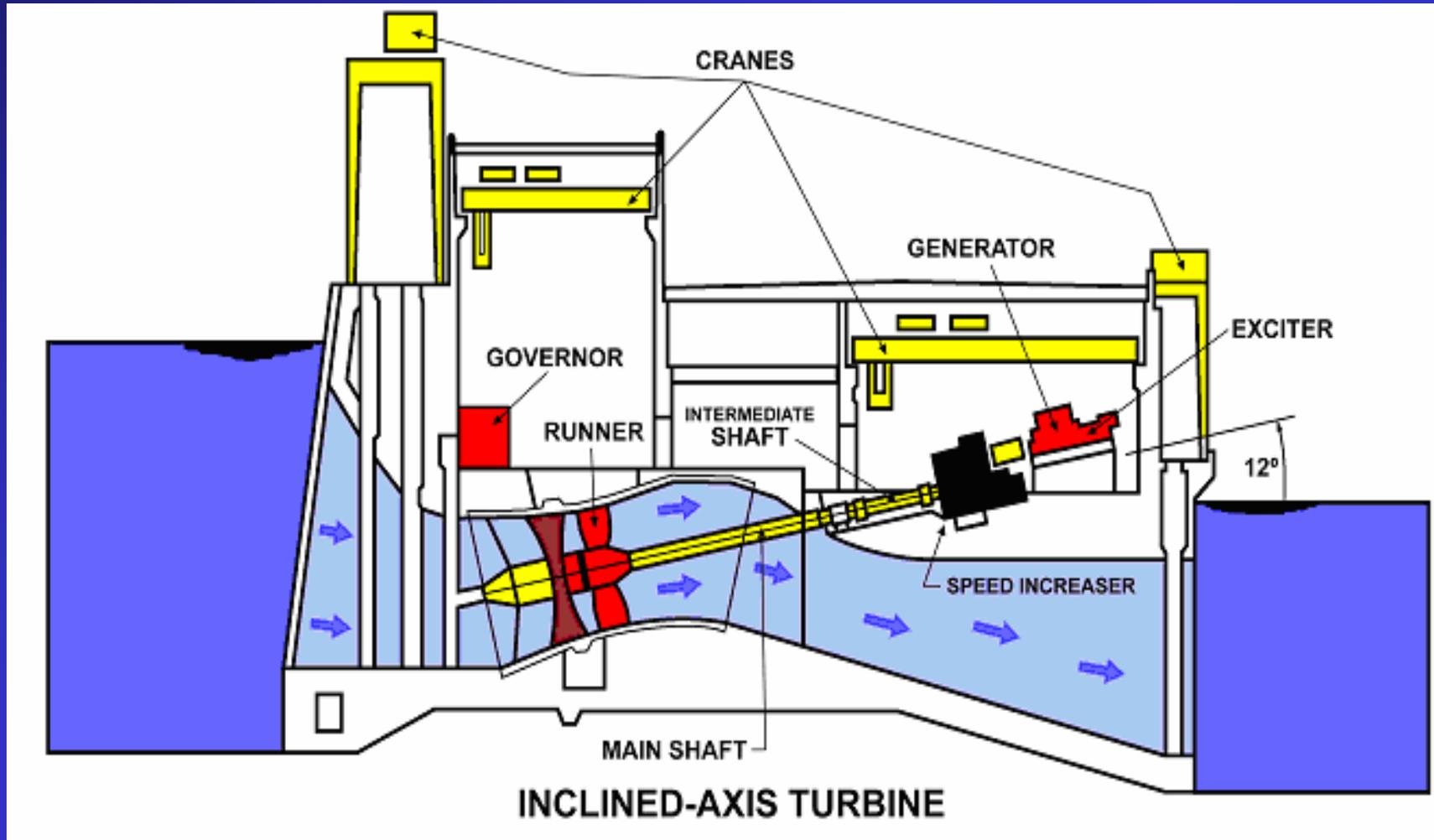
Webbers Falls Major Rehab



# Webbers Falls Major Rehab



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# Webbers Falls Major Rehab



## Background

- **Webbers Falls powerhouse unscheduled major breakdowns:**
  - **9/77-3/79 - generator failure – Unit 3**
  - **4/80-2/83 - cracked main shaft – Unit 1**
  - **6/80-9/83 - cracked main shaft – Unit 2**
  - **1/81-12/84 - cracked main shaft – Unit 3**
  - **5/96-12/99 - speed increaser gear – Unit 1**
  - **7/04 – Present - cracked main shaft – Unit 3**



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- To date, this FY (Oct 2008 - Mar 2009), about 24,000 MWh of energy has been lost (spilled) worth about \$1.5 million due to the outage on Unit #3.
- Since 1996, when the long-term outages began at Webbers Falls, about 758,000 MWh has been lost. - \$47M lost revenue



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- **Webbers Falls Turbine Replacement included as a contract option under the Little Rock District Ozark contract.**
- **\$5 Million savings (2001) by combining Webbers Falls and Ozark turbine replacement under one contract.**
- **Current Cost: \$72.7M**
- **Current Completion Date: Jan 2013**

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# Webbers Falls Major Rehab Total Cost Breakdown



- 2009 Current Cost Est. - \$72.7M
- Turbine Rehab Cont. - \$45.1M
- Generator Rewind Cont - 6.0
- Intake/Draft Tube Cranes – 4.0\*
- Rehab Two Bridge Cranes – 2.6
- Misc. Electrical Mech. - 4.0\*\*
- New 13.8KV Breakers - .8\*\*
- Mgmt./Contingency - 10.2
- Total - \$72.7M

\* ARRA Funded      \*\* Partial ARRA Funded

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# Webbers Falls Major Rehab Sub-agreement Status



- SW00431-S135 - Rehab of Unit 1 Turbine = \$17.90M
- Current Contract Amount - \$13.363M
- Actual Expenditures - \$1.60M
- Remaining Contingencies - \$3.60M
  
- SW00431-S131 - Rehab of Unit 2 Turbine = \$17.90M
- Current Contract Amount - \$13.389M
- Actual Expenditures - \$2.90M
- Remaining Contingencies - \$3.64M



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# Webbers Falls Major Rehab Project Funding



- SW00431-S127 - Rehab of Unit 3 Turbine = \$19.50M
- Current Contract Amount - \$14.604M
- Actual Expenditures - \$4.50M
- Remaining Contingencies - \$4.056M
  
- SW00431-S092- Rehab Bridge Cranes - \$2.62M
- Current Contract Amount - \$2.1M
- Actual Expenditures – 2.05M
- Remaining Contingencies - \$587K for painting and spare parts mod - in progress.

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# Webbers Falls Major Rehab Project Funding



- Project funded 100% through customer funding. ARRA funds now programmed to be used for, gantry cranes and breakers, cables and distribution panels.
- To date customer funds in the amount of \$62.2M have been provided for this project.



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# Webbers Falls Major Rehab

## Regional Partnering With Little Rock District



- Joint district contractor partnering sessions
- Joint QA overseas inspection service contract
- Joint input on turbine component submittals
- Lessons Learned (SWT personnel on site at SWL)
  - Contractor work plans
  - Modifications
  - Turbine disassembly
  - Stay vane crack repair and painting
- Project Management



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## Turbine Unit 3 Schedule



- **Turbine Unit 3**
  - **Runner Manufacturing – Apr 08 - Oct 09**
  - **Shaft Manufacturing - Jun 08 – Sep 09**
  - **Wicket Gate Manufacturing - Sep 08 – Aug 09**
  - **Disassembly – Feb 09 – Sep 09**
  - **Reassembly – Nov 09- Jun 10**
  - **Testing & Acceptance – Jun 10 –Sept 10**



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# Webbers Falls Major Rehab Project Innovation



- Use of a local bridge crane contractor in lieu of major US crane firms. Changing only necessary components. \$2.0M+ Savings
- Performing the stay vane inspection, repair and painting by separate small business contract in lieu of using Andritz.
- Purchasing scaffolding in lieu of continued contractor rentals.
- Performing the rehabilitation of the existing disassembly beams and trolleys by separate contract.
- Purchasing the governors by separate contract.

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# Webbers Falls Major Rehab Trash Racks



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# Webbers Falls Major Rehab Generator Bridge Crane



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# Webbers Falls Major Rehab Turbine Bay Bridge Crane New Operators Cab



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# Webbers Falls Major Rehab Turbine Bay Bridge Crane Load test (93.8 tons)



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# Webbers Falls Major Rehab Intermediate Shaft Removal (37 tons)



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# Webbers Falls Major Rehab Upper Shaft Removal (37 Tons)



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# Webbers Falls Major Rehab Upper Shaft Removal



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# Webbers Falls Major Rehab Runner Disassembly



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# Webbers Falls Major Rehab Runner Hub



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# Webbers Falls Major Rehab New Runner Design



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# Webbers Falls Major Rehab Stub Shaft Hochang Ltd. (S. Korea)



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# Webbers Falls Major Rehab Lower Main Shaft Hochang, Ltd. (S. Korea)



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# Webbers Falls Major Rehab Gantry Cranes



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## Questions