PRELIMINARY

FY 2010

NON-ROUTINE MAINTENANCE LIST

May 22, 2008

May 2008				Preliminary FY10 List of Hydropower Work Packages for Integrated System																	
					Totals		FY10		FY11		FY12		FY13		FY14		FY15				
District		SWPA Region Priority	Project Name	Work Package Description	Pkg Tot ($1000)	Cum ($1,000)	Ant. Expend.	Cum ($1,000)	Ant. Expend.	Cum ($1,000)	Ant. Expend.	Cum ($1,000)	Ant. Expend.	Cum ($1,000)	Ant. Expend.	Cum ($1,000)	Ant. Expend.	Cum ($1,000)	MW AT RISK	Estimated Economic Risk ($1,000)	Cost Savings ($1,000)
SWL-01		1	Ozark	FY 2008 Rehabilitation Funding (FY 09 - FY 12 Work Plan)	84,000	84,000	17,000	17,000	14,000	14,000	0	0		0		0		0	100		
SWF-01		2	Whitney	Turbine and Generator Rehabilitation (FY 09 - FY 12 Work Plan)	22,700	106,700	5,550	22,550	3,990	17,990	3,000	3,000		0		0		0	30		
NWK-01		3	Truman	Inspection and Repair of Draft Tube Bulkheads, Cylinder Hoists, and Liner and Cavitation Damage (FY 05 & FY 06 Consolidated Project)	6,105	112,805	1,165	23,715	1,000	18,990	500	3,500		0		0		0	30	965/unit	
SWT-01		4	Webbers Falls	Generator Rewind (FY 08 Project)	6,000	118,805	2,000	25,715		18,990		3,500		0		0		0	6	8,362	
SWT-02		5	Webbers Falls	Miscellaneous Electrical & Mechanical Rehabilitation Work (FY 08 Project)	3,500	122,305	2,000	27,715	500	19,490		3,500		0		0		0	6	2,508	
SWT-03		6	R.S. Kerr Lock And Dam	Rehab Intake and draft tube gates (FY 09 Proposed Project)	1,600	123,905	1,050	28,765		19,490		3,500		0		0		0	27	221	
SWT-04		7	Fort Gibson	Transformer Oil Containment	400	124,305	400	29,165		19,490		3,500		0		0		0	11	678	
NWK-02		8	Harry S. Truman	Transformer Oil Containment	412	124,717	412	29,577		19,490		3,500		0		0		0	90	1,809	
SWL-02		9	Norfork	Install Fire Detection System	300	125,017	300	29,877											80	-	
SWL-03		10	Dardanelle	Replace 15kV Transformer Feeders	2,100	127,117	2,100	31,977		19,490		3,500		0		0		0	35	3,002	
SWT-05		11	Eufaula	Rehabilitate the unit penstocks.	550	127,667	550	32,527		19,490		3,500		0		0		0	30	965	
MVK-01		12	DeGray	Replace/Upgrade CO2 fire protection System	145	127,812	145	32,672		19,490		3,500		0		0		0	68	547	
MVK-02		13	DeGray	Repair Tailrace Gates	150	127,962	150	32,822		19,490		3,500		0		0		0	68	364	
SWT-06		14	Keystone	Sand blast and paint intake gates, replace seals, replace/repair chains, replace cables, replace cathodic protection anodes, replace/repair trashracks and replace intake gates control panel	750	128,712	750	33,572		19,490		3,500		0		0		0	35	141	
SWL-04		15	Beaver	Replace Powerhouse Roof	450	129,162	450	34,022		19,490		3,500		0		0		0	112	750	
MVK-03		16	Narrows	Repair Tailrace Gates	150	129,312	150	34,172		19,490		3,500		0		0		0	25	137	
SWL-05		17	Greers Ferry	Replace Powerhouse Roof	425	129,737	425	34,597		19,490		3,500		0		0		0	96	772	
SWT-07		18	Tenkiller	Replace the existing generator and transformer protective relays and upgrade control scheme	200	129,937	200	34,797		19,490		3,500		0		0		0	19	157	
SWL-06		19	Greers Ferry	Upgrade/Replace C02 System	263	130,200	263	35,060		19,490		3,500		0		0		0	96	386	
SWL-07		20	Norfork	Upgrade/Replace C02 System	263	130,463	263	35,323		19,490		3,500		0		0		0	80	322	
SWT-08		21	Denison	Rehabilitate the powerhouse elevator.	140	130,603	140	35,463		19,490		3,500		0		0		0	-	-	
SWT-09		22	Keystone	Replace the existing protective relays with solid-state relays	300	130,903	300	35,763		19,490		3,500		0		0		0	35	352	8/year
NWK-03		23	Stockton	HVAC Replacement	415	131,318	415	36,178		19,490		3,500		0		0		0	50	804	8/year
SWL-08		24	Norfork	Draft Tube and Intake Gates	1,000	132,318	1,000	37,178		19,490		3,500		0		0		0	-	-	2/year
SWT-10		25	R. S. Kerr	Motor Control Centers	400	132,718	400	37,578		19,490		3,500		0		0		0	27	221	
SWT-11		26	Fort Gibson	Motor Control Centers	330	133,048	330	37,908		19,490		3,500		0		0		0	11	23	
SWT-12		27	Denison	Motor Control Centers, Lighting Panels and Air Compressors	455	133,503	455	38,363		19,490		3,500		0		0		0	35	70	
NWK-04		28	Truman	Wicket Gate Servo Motors	1,240	134,743	1,240	39,603		19,490		3,500		0		0		0	30	603	11/year
SWL-09		29	Bull Shoals	Replace Neutral Breakers with High Impedance Grounds	400	135,143	400	40,003		19,490		3,500		0		0		0	45	121	
NWK-05		30	Stockton	Motor Operated Valves	301	135,444	301	40,304		19,490		3,500		0		0		0	50	804	5/year
NWK-06		31	Stockton	Governor Upgrade	489	135,933	489	40,793		19,490		3,500		0		0		0	50	1,206	

May 2008

Preliminary FY 10 Work Packages													
District	SWPA Region Priority	PROJECT NAME	Work Package Description	RELIABILITY	EFFICIENCY	SAFETY	COST SAVINGS	ENVIRONMENTAL	FORCED OUTAGE	PREVENTATIVE MAINTENANCE	OBSOLETE	NERC COMPLIANCE	MW AT RISK
SWL-01	1	Ozark	FY 2008 Rehabilitation Funding (FY 09 - FY 12 Work Plan)	X	X					X	X		100
SWF-01	2	Whitney	Turbine and Generator Rehabilitation (FY 09 - FY 12 Work Plan)	X	X					X	X		30
NWK-01	3	Truman	Inspection and Repair of Draft Tube Bulkheads, Cylinder Hoists, and Liner and Cavitation Damage (FY 05 & FY 06 Consolidated Project)	X		X	X	X		X			30
SWT-01	4	Webbers Falls	Generator Rewind (FY 08 Project)	X	X					X	X		6
SWT-02	5	Webbers Falls	Miscellaneous Electrical & Mechanical Rehabilitation Work (FY 08 Project)	X	X					X	X		6
SWT-03	6	R.S. Kerr Lock And Dam	Rehab Intake and draft tube gates (FY 09 Proposed Project)	X						X			27
SWT-04	7	Fort Gibson	Transformer Oil Containment	X				X	X				11
NWK-02	8	Harry S. Truman	Transformer Oil Containment	X				X	X				90
SWL-02	9	Norfork	Install Fire Detection System	X		X							80
SWL-03	10	Dardanelle	Replace 15kV Transformer Feeders	X						X			35
SWT-05	11	Eufaula	Rehabilitate the unit penstocks.	X					X	X			30
MVK-01	12	DeGray	Replace/Upgrade CO2 fire protection System	X					X	X	X		68
MVK-02	13	DeGray	Repair Tailrace Gates	X						X			68
SWT-06	14	Keystone	Sand blast and paint intake gates, replace seals, replace/repair chains, replace cables, replace cathodic protection anodes, replace/repair trashracks and replace intake gates control panel	X						X			35
SWL-04	15	Beaver	Replace Powerhouse Roof	X						X			112
MVK-03	16	Narrows	Repair Tailrace Gates	X						X			25
SWL-05	17	Greers Ferry	Replace Powerhouse Roof	X						X			96
SWT-07	18	Tenkiller	Replace the existing generator and transformer protective relays and upgrade control scheme	X			X				X		19
SWL-06	19	Greers Ferry	Upgrade/Replace C02 System	X					X	X	X		96
SWL-07	20	Norfork	Upgrade/Replace C02 System	X					X	X	X		80
SWT-08	21	Denison	Rehabilitate the powerhouse elevator.	X		X				X	X		-
SWT-09	22	Keystone	Replace the existing protective relays with solid-state relays	X			X				X		35
NWK-03	23	Stockton	HVAC Replacement	X	X		X			X	X		50
SWL-08	24	Norfork	Draft Tube and Intake Gates	X						X			-
SWT-10	25	R. S. Kerr	Motor Control Centers	X		X				X	X		27
SWT-11	26	Fort Gibson	Motor Control Centers	X		X				X	X		11
SWT-12	27	Denison	Motor Control Centers, Lighting Panels and Air Compressors	X		X				X	X		35
NWK-04	28	Truman	Wicket Gate Servo Motors	X	X		X	X		X			30
SWL-09	29	Bull Shoals	Replace Neutral Breakers with High Impedance Grounds	X						X			45
NWK-05	30	Stockton	Motor Operated Valves	X			X			X			50
NWK-06	31	Stockton	Governor Upgrade	X	X		X			X	X		50

Funding Year 2005

Information Data Sheet for Customer Funding

Hydropower Plant: Ozark **Run Of River** X **Storage**_____
District: Little Rock
Number of Units: 5 **Capacity of Units (MW):** 100
Estimated Annual Average Energy (MWH – SWPA Annual Report): 429,000

Current Status of Project: 3 units operational with the capability to run at 23 megawatts each.

Item Proposed for Customer Funding: Turbine Rehabilitation for all five units.

Reason for Item:

X Reliability	_____ Environmental
X Efficiency	_____ Forced Outage
_____ Safety	X Preventative Maintenance
_____ Cost Savings	X Obsolete
_____ NERC Compliance	

History of Outages/Deficiency: The turbines for the project are the original equipment installed when the powerhouse was built in 1973. The Ozark Powerhouse Major Rehabilitation Report identified the turbines as an equipment item that needed to be replaced due to defective design that has led to numerous long-term outages. The contract to replace all five turbines has been awarded as well as options that will replace the turbines for all three units at Webbers Falls.

Solution: The contract for replacement of the turbines at Ozark was awarded in May 2005. Continued funding for the project will be required to complete the contract. It is anticipated that the contract will be complete in 2012.

Scope of Work: Rehabilitate the Turbines for Units 1, 2, 3, 4, and 5.

Total Estimated Cost: $84,000,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 100 MW
2) Environmental Risk: N/A
3) Cost Savings: N/A
4) Other:N/A

Work/Funding Timeline: Rehabilitate Turbines 1 – 5 from May 2005 through May 2012 for $84,000,000.

Estimated Losses in Revenue/Benefits/Risk Factor: : Eventual failure of the generating units will result if rehabilitation is not completed.

Summary of Funding Argument(s):

- Rehabilitation will result in increased reliability.
- Timely repair with minimal interruption of service.
- Reduced likelihood of major failure.

Photographs: None.

Funding Year 2007

Information Data Sheet for Customer Funding

Hydropower Plant: Whitney **Run of River**_____ **Storage** __X__
District: Fort Worth
No. of Units: __2___ **Capacity of Units (MW) (Overload)** _30 (34) MW
Estimated Average Annual (MWH) (SWPA Annual Report) 73,000 MWh

Current Status of Project: Both units are available. The plant is 52 years old.

Item Proposed for Customer Funding: Replacement of both turbines, rewinding of both generators and replacement and upgrading of peripheral electrical and mechanical systems such as governors, exciters, coolers, controls, etc. (turbine, generator and associated equipment rehabilitation).

Reason for Item:

__X__Reliability	_____Environmental
__X__Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The rehabilitation of Whitney Powerhouse is discussed in the study and report approved by Headquarters in July 2001.

Solution: The contract for replacement of the turbines and rewinding of the generators was awarded in May 2007. The base bid was awarded for $3.3 million. Continued funding for the remaining four options will be required to complete the contract. Performance of the contract options will take four to five years.

Scope of Work: Continued execution of the existing Turbine/Generator Contract.

Total Estimated Cost: $22,700,000 over 5 years.

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 30 MW
2) Environmental Risk: None
3) Cost Savings: Delays in funding of the remaining options will cause possible termination of the contract and increased costs for delays and re-procurement of the contract.
4) Other: Eventual failure of the units due to increased age and usage will be the result if the rehabilitation of the turbines and generators are not completed.

Work/Funding Timeline:

Activity Item	Time frame	Dollars
Award of base bid	May 07	3,300,000
Award of Option 1	Feb 08	4,300,000
Award of Option 2	Feb 09	4,300,000
Award of Option 3	Feb 10	4,600,000
Award of Option 4	Feb 11	3,600,000
Award of optional items	Feb 08 – Feb11	2,600,000

Estimated Losses in Revenue/Benefits/Risk Factor: Eventual failure of the generating units will result if rehabilitation is not completed.

Summary of Funding Argument(s):

- Units are past their designed life.
- Rehabilitation will result in increased reliability.
- Increased power production due to up-rating of the rehabbed units.
- Increase unit reliability and availability.

Funding Year 2005

Information Data Sheet for Customer Funding

Hydropower Plant: Harry S. Truman **Run of River** X **Storage** ___
District: Kansas City
No. of Units: 6 **Capacity of Units (MW) (Overload)** 160 (180) MW
Estimated Average Annual (MWH) (SWPA Annual Report) 244,000 MWh

Current Status of Project: All six units are currently available.

Item Proposed for Customer Funding: Inspection and Repair of Draft Tube Bulkheads, Cylinder Hoists, and Liner and Cavitation Damage.

Reason for Item:

X Reliability	X Environmental
____ Efficiency	____ Forced Outage
X Safety	X Preventative Maintenance
X Cost Savings	____ Obsolete
____ NERC Compliance	

History of Outages/Deficiency: The draft tube liners are fabricated of carbon steel and are subject to corrosion and cavitation damage. The water at the project is highly corrosive and is detrimental to the liner, turbines, and structural supports resulting in corrosion damage and measurable reductions in unit efficiency. Sand blasting and vinyl painting of the liners will stop or greatly reduce the corrosive effect of the lake water, increase efficiency, and significantly reduce annual outage times by minimizing the amount of future cavitation repair work. Unit 6 was painted in 1993, but some repairs will be required to the existing vinyl paint. In order to perform the liner corrosion and cavitation repair work, the draft tube bulkheads will need to be inspected and repaired (if required) in accordance with Corps of Engineers' (COE) criteria outlined in Engineering Regulation (ER) 1110-2-8157, Responsibility for Hydraulic Steel Structures (HSS). ER 1110-2-8157 requires all HSS (bulkheads, stoplogs, gates, etc.) to receive a full initial inspection and follow-up periodic inspections every 25 years. The purpose of these inspections is to ensure the bulkheads are structurally sound and safe to use before Government or contractor personnel enter a dewatered area to perform maintenance or repair work. To ensure compliance with the ER and provide safety for Government and contractor personnel, a qualified structural engineer must inspect the bulkheads, determine their safety, and document the inspections. Structural and/or weld defects found during the inspections must be repaired before the bulkheads can be certified for use. The hydraulic power units and cylinders will have to be dismantled so the bulkheads can be removed from their slots and placed on the draft tube deck for these inspections. The operating stems and eye ends of the hydraulically operated draft tube bulkhead hoists (total of 12 hydraulic cylinders) are corroding and need to be repaired. Corrosion is occurring underneath the ceramic coating which protects the operating

stems and provides a sealing surface for the cylinders' internal seals and the nickel plating on the eye ends has failed. Continued corrosion of the operating stems will cause the protective ceramic coating to flake off and the hydraulic cylinders will no longer be able to operate and retain hydraulic oil. There is a potential of losing 900 gallons (from one cylinder) of hydraulic oil into the tailrace (Lake of the Ozarks) downstream of the power plant. Cylinder drift and cycling has also become a problem due to leakage past the internal piston seals. The number of cycles per day depends on the individual cylinder and fluid temperature, but some of the cylinders are cycling over 300 times a day to keep the draft tube bulkheads from drifting into the water passageway. Repair of the cylinders and installation of an automatic latching (dogging) mechanism is needed to prevent the bulkheads from drifting into the water passageways.

Solution: The draft tube bulkhead cylinder work will include redesign of the ceramic protective coating system, repair/rebuilding of the hydraulic cylinders with the redesigned ceramic coating system, and design and installation of an automatic dogging mechanism to prevent cylinder drift. **The draft tube bulkheads will be removed from their slots and inspected and repaired in accordance with COE criteria in concurrence with the hydraulic cylinder repair contract to avoid a duplication of work effort.** The anodes on the bulkheads will also be replaced. Cavitation repair and painting of the draft tube liners and turbines will be performed after the draft tube bulkheads cylinders have been repaired and the draft tube bulkheads inspected/repaired and certified for service.

Scope of Work: Perform engineering and design to develop a new protective coating system that protects the operating stems and an automatic latching dogging device that prevents cylinder drift. Prepare plans and specifications and advertise/award a contract to repair/rebuild the cylinders and install the dogging devices. COE (Kansas City District) will be responsible for the inspection and repair of the draft tube bulkheads. Work will include a visual inspection of all welds, documentation of inspection results, and repair of any weld and/or structural defects. Inspection and repair work will be performed by contract with COE oversight. Power Plant personnel will be responsible for purchasing and replacing the bulkheads' anodes. Also prepare plans and specifications for cavitation and corrosion repair work, sandblasting, and painting of draft tube liners, discharge rings, turbine runners, blades and wicket gates on all six units. Hired labor will be used to complete cavitation repair work and painting will be completed by contract.

Total Estimated Cost: $6,105,000 over 7 years (FY 06 - $1,390,000; FY07 - $545,000; FY08 - $1,005,000; FY09 - $500,000; FY10 - $1,165,000; FY11 - $1,000,000; FY12 - $500,000).

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: Loss of 30 MW/unit of available generating capacity (180 MW total for six units).
2) Environmental: High risk of polluting (900 gal/cylinder) the Lake of the Ozarks.

3) Cost Savings: Avoid expensive repairs, environmental cleanup costs, and potential fines if repaired before a failure occurs. Major reduction in costs associated with future cavitation repair work.
4) Other: Unanticipated failure of bulkheads could lead to the loss of life and/or property damage. Reduces risk of extended unit outages.

Work / Funding Timeline:

Activity Item	Time Frame	Dollars
E&D, Protective Coating & Repair Alternatives	Feb – Aug 07	40,000
P&S, Cyl. Repair/Replacement	May 07 – Sep 08	30,000
Contract Admin. (Cyl. Repair)	Oct 08 – Nov 08	10,000
Cylinder Repair Contract	Dec 08 – Jul 11	3,060,000
S&A (Cyl. Repair)	Dec 08 – Jul 11	160,000
Bulkhead Inspection/Repair Work	Dec 08 – Jul 11	300,000
Anode Replacement	Dec 08 – Jul 11	30,000
P&S, Draft Tube/Turbine Painting	Jan – Jul 11	12,000
Contract Admin. (Paint Contract)	Aug - Oct 11	8,000
Cav. Repair/Blast & Paint 6 Units	Jan 11 – Sep 13	2,455,000
	Total =	6,105,000

Duration with/without Customer Funding: Item has been submitted through the Corps' normal budget cycle. Lack of available funding through COE channels appears to be getting worse. Customer funding would prevent failure of the bulkheads and/or hydraulic cylinders resulting in loss of life or property and extended unit outages. Funding of this item would also reduce the likelihood of a significant oil spill into the tailrace water downstream of the power plant resulting in environmental cleanup costs, potential violations and fines, and unit unavailability. Customer funding would also prevent extended outages for cavitation repair work, thereby increasing unit efficiency, availability and reliability. Without customer funding cavitation repair costs will continue to increase and unit efficiency will decrease.

Estimated Losses in Revenue/Benefits/Risk Factor: All units becoming unavailable as the bulkheads and/or hydraulic cylinders failed. Loss of available generation capacity for all six units is 180 MW (30 MW/unit). Loss of generation capability for an average year is 12.6 GWh. Estimated costs for recovering a failed cylinder is $75,000/bulkhead cylinder. The costs for cleaning up an oil spill would also add to the overall costs of a failed cylinder. All units becoming in need of extensive cavitation repair work on the discharge rings, blades and liner. Annual cost savings for cavitation repair work is estimated at $110,000. 30 MW of available generating capacity would be lost to perform cavitation repair on each unit.

30 MW/unit x 32 weeks x 5 days/week x 3 hours/day x $67/MWh $\approx$ $965,000/unit

Summary of Funding Argument(s):

- Corps funding is not available.
- Prevent loss of control or failure of draft tube bulkhead cylinders.
- Possible loss of life and/or property if a bulkhead would fail.
- Loss of 30 MW/unit of available generating capacity (180 MW total for six units).
- Increased unit reliability and availability.
- Funding needed to reduce cavitation repair costs.
- Extended outage times required for extensive repair work.
- Increased spillway erosion due to the inability to generate.
- Dam Safety risk due to spillway erosion.
- High potential for environmental pollution.
- Extended unit outage times required for extensive repair work.

Photographs:

Funding Year 2008

Information Data Sheet for Customer Funding

Hydropower Plant: Webbers Falls **Run of River** _X_ **Storage**____
District: Tulsa
No. of Units: 3 **Capacity of Units (MW) (Overload)** 60 (69)
Estimated Average Annual Energy (MWH) (SWPA Annual Report) 213,000

Current Status of Project: 2 Units operational with the capability to run at 46 megawatts.

Item Proposed for Customer Funding: Generator Rewind of Unit 1, Unit 2 and Unit 3.

Reason for Item:

X Reliability	____ Environmental
X Efficiency	____ Forced Outage
____ Safety	X Preventative Maintenance
____ Cost Savings	X Obsolete
____ NERC Compliance	

History of Outages/Deficiency: The generators are the original equipment installed when the powerhouse was built in 1973. One unit has experienced a coil failure which was repaired. The Webbers Falls Powerhouse Major Rehabilitation Report identified the generators as an equipment item that needed to be replaced. With the turbine rehabilitation at Webbers Falls, it is possible that a 6 MW uprate could be realized at the Webbers Falls powerplant.

Solution: Rewind the Generators for Unit 1, Unit 2 and Unit 3.

Scope of Work: Rewind the units.

Total Estimated Cost: $6,000,000 (FY08 - $2,000,000; FY09 - $2,000,000; and FY10 – $2,000,000)

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 23 MW
2) Environmental Risk: N/A
3) Cost Savings: N/A
4) Other:N/A

Work / Funding Timeline:

Activity Item	Time frame	Dollars
Rewind Unit 3	Sept 08 – May 09	$2,000,000
Rewind Unit 1	Sept 09 – May 10	$2,000,000
Rewind Unit 2	Sept 10 – May 11	$2,000,000

Duration with/without Customer Funding: Without customer funding, the Units will continue to operate at the current rating (23 MW) and the obtainable uprate (2 MW per unit, 6 MW for the powerhouse) will not be realized. Delay in the rewind of the units will result in less power and energy that is available. The work item has been submitted through the Corps' normal budget cycle.

Estimated Losses in Revenue/Benefits/Risk Factor: If customer funding is not available, the generator rewind will be delayed until funds are available. Federal funds are not expected in the next 10 years.

6 MW x 520 weeks x 5 days/week x 8 hours/day x $67/MWh ≈ $8,362,000

Summary of Funding Argument(s):

- Corps funding is not available at this time.
- Increased unit capacity
- Increased reliability and availability.
- Timely replacement with interruption of service timed with turbine rehabilitation outage.
- Reduced likelihood of major failure.

Photographs: None.

Funding Year 2008

Information Data Sheet for Customer Funding

Hydropower Plant: Webbers Falls **Run of River** _X_ **Storage**____
District: Tulsa
No. of Units: 3 **Capacity of Units (MW) (Overload)** 60 (69)
Estimated Average Annual Energy (MWH) (SWPA Annual Report) 213,000

Current Status of Project: 2 Units operational with the capability to run at 46 megawatts.

Item Proposed for Customer Funding: Remaining Electrical and Mechanical work at the Webbers Falls Powerhouse to complete the powerhouse rehabilitation to increase reliability and to enable the uprate of the units.

Reason for Item:

X Reliability	____Environmental
X Efficiency	____Forced Outage
____Safety	X Preventative Maintenance
____Cost Savings	X Obsolete
____NERC Compliance	

History of Outages/Deficiency: The Webbers Falls Powerhouse Major Rehabilitation Report identified the turbines and generators as the major equipment items that needed to be replaced. A benefit of replacing the generators is an anticipated 6 MW uprate. For the powerplant to operate with the increased capacity, the main power cables and generator main bus need to be uprated as well. Also, the maintenance elevator, air compressor, clearwell tank for the packing box water, trash racks, electrical distribution centers, HVAC system and powerplant emergency generator need replacement due to their existing condition. The maintenance elevator is unreliable and is required to efficiently and safely move personnel and equipment for maintenance and repair; the clearwell tank, which is used to store the clean water required by the packing boxes, has corroded and is leaking; the station and governor air compressors are existing equipment and are worn out; the trashracks have holes and no longer prevent large debris from entering the water passage; the electrical distribution centers have breakers that are not properly rated for the duty and the spare parts are difficult to obtain; the HVAC is obsolete and is unable to keep the controlled areas cooled; and the emergency generator is obsolete and not able to reliably supply the critical loads. All of these items need replacement to complete the major rehabilitation at Webbers Falls. In addition, it will be necessary to make electrical control, power, and relaying changes to incorporate the new equipment.

Solution: Repair / replace the main power cables, main bus, maintenance elevator, air compressors, clearwell tank for the packing box water, trash racks, electrical distribution centers, HVAC system and powerplant emergency generator.

Scope of Work: Perform the required electrical and mechanical work needed to replace the main power cables, main bus, maintenance elevator, air compressor, clearwell tank for the packing box water, trash racks, electrical distribution centers, HVAC system and powerplant emergency generator including electrical control, power and relaying changes required for the uprate and new equipment.

Total Estimated Cost: $3,500,000

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 23 MW
2) Environmental Risk: N/A
3) Cost Savings: N/A
4) Other:N/A

Work / Funding Timeline:

Activity Item	Time frame	Dollars
Remaining Electrical and Mechanical Rehab Work	May 08 – May 11	$3,500,000

Duration with/without Customer Funding: Without customer funding, the needed rehabilitation work will not be repaired which may result in continued frequent forced outages and lost generation. The work item has been submitted through the Corps' normal budget cycle.

Estimated Losses in Revenue/Benefits/Risk Factor: If customer funding is not available, the remaining rehabilitation work will be delayed until funds are available. Federal funds are not expected in the next 3 years.

6 MW x 156 weeks x 5 days/week x 8 hours/day x $67/MWh ≈ $2,508,000

Summary of Funding Argument(s):

- Corps funding is not available at this time.
- Increased reliability and availability.
- Timely repair with minimal interruption of service.
- Reduced likelihood of major failure.

Photographs: None.

Funding Year 2009

Information Data Sheet for Customer Funding

Hydropower Plant: RS Kerr **Run of River** X **Storage** ___
District: Tulsa
No. of Units: 4 **Capacity of Units (MW) (Overload)** 110 (126.5)
Estimated Average Annual Energy (MWh) (SWPA Annual Report) 459,000

Current Status of Project: All units are currently available for service.

Item Proposed for Customer Funding: Sand blast and paint intake and draft tube gates, replace seals, bolts, replace chains, cables and replace cathodic protection anodes.

Reason for Item:

X Reliability	____ Environmental
____ Efficiency	____ Forced Outage
____ Safety	X Preventative Maintenance
____ Cost Savings	____ Obsolete
____ NERC Compliance	

History of Outages/Deficiency: The intake and draft tube gate paint system is failing due to age which is leading to structural deterioration of the gates. The existing paint on the gates is vinyl. The roller chains have pitted rollers and several of the keepers on the pins have failed. In recent years, several rollers have cracked and were replaced. Many of the fasteners have deteriorated and the seals on the gates are in poor condition and must be replaced as part of the project. Numerous areas on the surface of the gates are corroding where the paint system has failed. Deterioration will continue until the gates are repaired. Each of the four intake roller gates are approximately 21'-wide by 40 ft in length, each of the six bulkheads are 20' by 43' and each of six the draft tube gates are 20' wide by 31' in length.

Solution: Sand blast the intake and draft tube gates, make any required structural repairs, repaint with an acceptable paint system, repair or replace all roller chains where required, and replace all seals and bolts on all of the gates.

Scope of Work: Prepare plans and specifications to rehabilitate the intake and draft tube gates.

Total Estimated Cost: $1,600,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 27.5 MW, 1650 MWh
2) Environmental Risk: None
3) Cost Savings: $2,000/year of O&M Cost
4) Other: N/A

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/P&S	Jan 09 – Apr 09	40,000
Procurement	May 09 – Aug 09	5,000
Contract	Sep 09 – May 10	1,555,000

Duration with/without Customer Funding: Without customer funding, the intake and draft tube gates will continue to deteriorate. Continued deterioration will result in the failure of structural components of the gates and increasing costs and time of repair until gates are no longer useable. An increased chance of roller chain failure in an emergency condition will also exist. These gates are used for emergency closure of the water intake to the turbines, and the generators can not be operated without operational intake gates. With customer funding, the gates can be repaired and the probability of gate failing to close or open when needed is greatly reduced.

Estimated Losses in Revenue/Benefits/Risk Factor: $2,000/yr average savings in O&M costs. Intake gate failure could result in:

27.5 MW x 4 weeks x 5 days/week x 6 hours/day x $67/MWh ≈ $221,000

Summary of Funding Argument(s):

- Due to the condition and age of the gates and roller chains and their deteriorated condition, the availability of the gates for operation may be impacted if the gates are not repaired. Corrosion of structural members could effect the ability to use the gates

- Delay in rehab and painting will result in increased repair costs to replace corroded structural members.

Photographs:

Draft Tube Gate

Draft Tube Gate

Intake Gate

Intake Gate

Intake Gate

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Fort Gibson **Run of River** _X__ **Storage**___
District: Tulsa
No. of Units: 2 **Capacity of Units (MW) (Overload)** 45 (50)
Estimated Average Annual Energy (MWH) (SWPA Annual Report) 191,000

Current Status of Project: 4 generators operational with the capability to run at 45 megawatts.

Item Proposed for Customer Funding: Transformer Oil Containment.

Reason for Item:

__X__Reliability	__X__Environmental
_____Efficiency	__X__Forced Outage
_____Safety	_____Preventative Maintenance
_____Cost Savings	_____Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The transformers are 55 years old and containment will reduce the risk to the downstream water. If a transformer fails and oil is released into the tailrace, the environmental cleanup would impact the plant availability until cleanup has been completed. This project was identified to be funded in FY 2010 by the Transformer Oil Containment Work Group (TOCWG).

Solution: Construct oil containment.

Scope of Work: Produce plans and specifications for oil containment.

Total Estimated Cost: $400,000

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 11.25 MW
2) Environmental Risk: Potential of an oil release.
3) Cost Savings: N/A
4) Other: N/A

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/P&S	Jan 10 – Apr 10	40,000
Procurement	May 10 – Aug 10	5,000
Contract	Sep 10 – May 11	355,000

Duration with/without Customer Funding: Customer funding would prevent possible extended outages due to transformer oil entering the waterway, thereby increasing unit reliability, efficiency and output.

Estimated Losses in Revenue/Benefits/Risk Factor: In case of a failure that cannot be controlled 11 MW of capacity could be lost. Estimated forced outage time would be about 30 weeks.

11.25 MW x 30 weeks x 5 days/week x 6 hours/day x $67/MWh ≈ $678,000

Summary of Funding Argument(s):

- Reduced likelihood of an extended outage due to environmental remediation caused by a transformer failure.
- The TOCWG has reported that this project should be customer funded in FY 2010.

Photographs: None.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Harry S. Truman **Run of River** X **Storage** ___
District: Kansas City
No. of Units: 6 **Capacity of Units (MW) (Overload)** 160 (180) MW
Estimated Average Annual (MWH) (SWPA Annual Report) 244,000 MWh

Current Status of Project: All six units are currently available.

Item Proposed for Customer Funding: Oil Containment for Main Power Transformers.

Reason for Item:

X Reliability	X Environmental
____ Efficiency	X Forced Outage
____ Safety	____ Preventative Maintenance
____ Cost Savings	____ Obsolete
____ NERC Compliance	

History of Outages/Deficiency: Truman Power Plant has two main power transformers that each contains approximately 9,000 gallons of insulating oil. If one or both of the transformers would develop a significant oil leak or experience a catastrophic failure, the oil would be released into unit 1 draft tube bulkhead slot and tailrace water via the powerhouse drainage system. The release of oil into the water would result in a costly environmental cleanup and potential EPA and State environmental violations and fines. New spill plan regulations require facilities with oil filled equipment to have secondary containment or procedures established to prevent oil spills from reaching a waterway. A release of oil into the water or catastrophic failure would result in the plant becoming unavailable for power generation until cleanup operations were completed and/or repairs were made to the transformers. Installation of an oil containment system would bring us into compliance with the new spill plan regulations and prevent the release of oil into the tailrace water downstream of the power plant. This project was identified to be funded in FY 2010 by the Transformer Oil Containment Work Group (TOCWG).

Solution: Install an oil containment system for the main power transformers.

Scope of Work: Prepare plans and specifications and advertise/award a contract to install an oil containment system for the main power transformers.

Total Estimated Cost: $412,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: Loss of 90 MW/transformer of available generating capacity (180 MW total for both transformers) until cleanup operations and transformer repairs were completed.
2) Environmental: High risk for the introduction of oil into the Lake of the Ozarks.
3) Cost Savings: Prevent environmental cleanup costs and potential fines.
4) Other: Prevents the risk of an extended unit outage.

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D	Oct 09 – Jan 10	26,000
P&S	Feb – May 10	30,000
Contract Admin.	Jun – Jul 10	16,000
Installation Contract	Aug – Nov 10	321,000
S&A (approx. 6%)	Jun – Sep 10	19,000

Duration with/without Customer Funding: Item has been submitted through the Corps of Engineers' (COE) normal budget cycle and has not been funded due to budget constraints. Lack of available funding through COE channels appears to be getting worse. Customer funding would prevent costly environmental cleanups, extended unit outages, and potential EPA and State violations and fines. Without customer funding there will always be the risk of insulating oil entering the tailrace water resulting in environmental cleanup costs, unit unavailability, and potential violations and fines.

Estimated Losses in Revenue/Benefits/Risk Factor: Generating units becoming unavailable due to an oil spill from one or both of the main power transformers. 180 MW of available generating capacity would be lost until oil cleanup operations were completed. 90 MW of available generating capacity would be lost for one transformer. The estimated loss in revenue figure below assumes a catastrophic failure of a one transformer and extensive environmental cleanup work.

90 MW/transf x 20 weeks x 5 days/week x 3 hours/day x $67/MWh ≈ $1,809,000/transf

Summary of Funding Argument(s):

- Corps funding is not available.
- Loss of 90 MW/transformer of available generating capacity (180 MW total for two transformers).
- Increased unit reliability and availability.
- Decreases the risk of oil entering the tailrace water preventing costly environmental cleanup costs and fines.
- High potential for environmental pollution.
- Spillway erosion due to inability to generate.
- The TOCWG has reported that this project should be customer funded in FY 2010.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Norfork **Run of River**_____ **Storage** __X__
District: Little Rock
No. of Units: __2___ **Capacity of Units (MW) (Overload)** _80 (92) MW
Estimated Average Annual (MWH) (SWPA Annual Report)184,000 MWh

Current Status of Project: All units currently available for service.

Item Proposed for Customer Funding: Install fire detection system at Norfork powerhouse.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
__X__Safety	_____Preventative Maintenance
_____Cost Savings	_____Obsolete
_____NERC Compliance	

History of Outages/Deficiency: Norfork does not currently have a fire detection system. One event where a fire is allowed to propagate could result in significant damage to the powerhouse and possible loss of life.

Solution: Install fire detection system at the Norfork powerhouse.

Scope of Work: Prepare the necessary equipment specifications, drawings and description of work and contract for the purchase and installation of a fire detection system.

Total Estimated Cost: $300,000

Cost/Impacts if Item Not Funded:

1) Megawatts and Energy at Risk: 80 MW
2) Environmental Risk: None
3) Cost Savings: None
4) Other: None

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
P&S	Oct 09 – May 10	20,000
Procurement	Jun 10	10,000
Construction	Sep 10 – Sep 11	270,000

Duration with/without Customer Funding: O&M funds not available for foreseeable future.

Estimated Losses in Revenue/Benefits/Risk Factor: Norfork is a remote powerhouse that is occupied only 40 hours per week. If a fire were to break out it during un-staffed hours, it may propagate without detection until it caused damage to other systems which would only then alert the operator. Depending on the event, damages to the powerhouse could be in the millions of dollars.

Summary of Funding Argument(s):

- Corps funding is not available at this time.
- Increased reliability.
- Reduced likelihood of major failure.

Photographs: None – No Existing Fire Detection System.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Dardanelle **Run of River** X **Storage**_____
District: Little Rock
No. of Units: 4 **Capacity of Units (MW):** 140
Estimated Average Annual Energy (MWh) (SWPA Annual Report): 613,000

Current Status of Project: The project has all units available for operation. The generators were originally placed in service in 1965 and 1966. Major Rehabilitation of the power plant was completed in August 2000.

Item Proposed for Customer Funding: Replace 15kV Transformer Feeders.

Reason for Item:

X Reliability	_____ Environmental
_____ Efficiency	_____ Forced Outage
_____ Safety	X Preventative Maintenance
_____ Cost Savings	_____ Obsolete
_____ NERC Compliance	

History of Outages/Deficiency Original Cables were installed in 1962. Outer Jacket has started to crack. Spliced repairs were made approximately 10 years ago. Cables continue to degrade. All four units are installed in same cable tray system. Failure of one cable could result in the loss of all four units at the plant.

Solution: Install new 15kV feeders for all four units.

Scope of Work: Prepare the necessary equipment specifications, drawings and description of work, and contract for the purchase and installation of new components.

Total Estimated Cost: $2,100,000

Cost/Impacts if Item Not Funded:
5) Megawatts and Energy at Risk: 35 MW, 44,800 MWh
6) Environmental Risk: None
7) Cost Savings: None
8) Other: None

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
Design Phase	Jan 10 - Apr 10	50,000
Procurement	Jun 10	15,000
Construction Cost	Sep 10 - Dec 11	2,035,000

Duration with/without Customer Funding: O&M funds not available for foreseeable future.

Estimated Losses in Revenue/Benefits/Risk Factor: Failure of the existing 15kV feeder system would cause a forced outage of one unit for approximately 8 months.

35 MW x 32 weeks x 5 days/week x 8 hours/day x $67/MWh ≈ $3,002,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Timely repair with minimal interruption of service
- Repair will reduced likelihood of major failure

Photographs:

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Eufaula **Run of River** ____ **Storage** X
District: Tulsa
No. of Units: 3 **Capacity of Units (MW) (overload)** 90 (103.5)
Estimated Average Annual Energy (MWh) (SWPA Annual Report) 260,000

Current Status of Project: The hydropower plant has three 30 MW generating units with Francis type turbines. The three units are in good condition and are available except during scheduled annual inspections and occasional short term forced outages.

Item Proposed for Customer Funding: Rehab the unit penstocks.

Reason for Item:

X Reliability	____ Environmental
____ Efficiency	X Forced Outage
____ Safety	X Preventative Maintenance
____ Cost Savings	____ Obsolete
____ NERC Compliance	

History of Outages/Deficiency: The existing expansion joints on the penstocks have deteriorated with rust and corrosion. In addition the paint system on the penstock has failed. Deterioration will continue until rehabilitation is performed will increase the rate of water leakage, corrosion and metal loss. The penstock is constructed of riveted joints and rivets are corroding.

Solution: Sandblast inside and outside of penstocks in vicinity of the expansion joint, repair the expansion joints, repair damage rivets and repaint.

Scope of Work: Prepare specifications and drawings, contract for the rehab of the three penstocks

Total Estimated Cost: $550,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 30 MW, 14,400 MWh
2) Environmental Risk: None.
3) Cost Savings: None.
4) Other: N/A.

Work / Funding Timeline:

Activity Item	Time frame	Dollars
P&S	Jan 10 – Apr 10	20,000
Procurement	May 10 – Jul 10	5,000
Contract	Aug 10 – May 11	525,000

Duration with/without Customer Funding:
Without Customer funding, the existing penstocks will continue to deteriorate eventually resulting in significant water leakage forcing a long term outage. If the riveted joint fails the powerhouse would be subjected to excessive leakage or flooding.

Estimated Losses in Revenue/Benefits/Risk Factor: Eventually the unit(s) will have to shutdown to repair damage to metal. This will require a 6 month outage to contract the work and repair the damage.

30 MW x 24 weeks x 5 days/week x 4 hours/day x $67/MWh ≈ $965,000

Summary of Funding Argument(s):

- The corrosion protective coating has failed resulting in metal loss
- The expansion joint leaks adding to the corrosion problem and requires the sump pumps to operate more often
- Continued deterioration of the rivets could result in more severe leakage or flooding

Photographs:


Penstock Expansion Joint


Penstock Deterioration and Leakage

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: DeGray **Run of River**___ **Storage**__X__
District: Vicksburg
No. of Units:_2 **Capacity of Units:** 68 MW
Estimated Average Annual Energy (MWh) (SWPA Annual Report)_97,000

Current Status of Project: 2 generators operational with the capability to run at 78.0 megawatts.

Item Proposed for Customer Funding: Replace/Upgrade CO2 fire protection system.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	__X__Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The power plant has two CO2 systems that provide fire protection for the generators and lubricating oil storage room. These systems have been in service since 1973 and parts and repair costs continue to increase each year to keep these systems operational.

Solution: Replace existing CO2 fire protection system with new up-to-date equipment and controls.

Scope of Work: Prepare plans and specifications and advertise/award a contract to replace the power plants two CO2 fire protection systems. Work includes the installation of new firing heads, braded hoses, control valves and associated piping.

Total Estimated Cost: $145,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 68 MW, 10,200 MWh
2) Environmental Risk: N/A
3) Cost Savings: N/A
4) Other: N/A

Work / Funding Timeline: (Best case scenario for the repair with customer funding)

Activity Item	Time frame	Dollars
Procurement	Jan - Dec 2010	145,000

Duration with/without Customer Funding: Unknown funding dates from O&M dollars.

Estimated Losses in Revenue/Benefits/Risk Factor: Estimated forced outage time would be about 12 weeks.

68 MW x 12 weeks x 5 days/week x 2 hours/day x $67/MWh ≈ $547,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Timely repair with minimal interruption of service
- Reduced likelihood of major failure

Photographs:

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: DeGray **Run of River**___ **Storage**__X__
District: Vicksburg
No. of Units:_2 **Capacity of Units:** 68 MW
Estimated Average Annual Energy (MWh) (SWPA Annual Report)_97,000

Current Status of Project: 2 generators operational with the capability to run at 78.0 megawatts.

Item Proposed for Customer Funding: Tailrace gates

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	_____Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The Tailrace gates are 38 years old and do not meet the new hydraulic steel structure requirements outlined in ER 1110-2-8157.

Solution: Repair existing gates.

Scope of Work: Sandblast, repair welds to D1.1 standards to meet new ER 1110-2-8157 regulation for hydraulic steel structures and repaint.

Total Estimated Cost: $150,000

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 68 MW, 5440 MWh
2) Environmental Risk: N/A
3) Cost Savings: N/A
4) Other: N/A

Work / Funding Timeline: (Best case scenario for the repair with customer funding)

Activity Item	**Time frame**	**Dollars**
Procurement	Jan - Dec 2010	150,000

Duration with/without Customer Funding: Unknown funding dates from O&M dollars.

Estimated Losses in Revenue/Benefits/Risk Factor: Repairs would allow maintenance personnel work behind these gates and make needed repairs and inspections to turbines blades and runners. Estimated outage time for repairs would be about 8 weeks.

68 MW x 8 weeks x 5 days/week x 2 hours/day x $67/MWh ≈ $364,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Timely repair with minimal interruption of service
- Reduced likelihood of major failure

Photographs:

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Keystone **Run of River** __X__ **Storage** ___
District: Tulsa
No. of Units: _2_ **Capacity of Units (MW) (Overload)** 70 (80)
Estimated Average Annual Energy (MWh) (**SWPA Annual Report)** 228,000

Current Status of Project: All units are currently available for service.

Item Proposed for Customer Funding: Sand blast and paint intake gates, replace seals, replace/repair chains, replace cables and replace cathodic protection anodes. Also replace/repair trashracks and replace intake gates control panel.

Reason for Item:

__X__Reliability
_____Efficiency
_____Safety
_____Cost Savings
_____NERC Compliance
_____Environmental
_____Forced Outage
__X__Preventative Maintenance
_____Obsolete

History of Outages/Deficiency: The four power intake gates were last sand blasted and painted in 1981. The existing paint on the gates is vinyl. The roller chains have pitted rollers and several of the keepers on the pins have failed. In recent years, several rollers have cracked and were replaced. The cathodic protection anodes are also in need of replacement. Numerous areas on the surface of the gates are corroding where the paint system has failed. Deterioration will continue until the gates are repaired. Each penstock (turbine) has two intake gates that are approximately 16 feet wide by 32 feet in length. The trash racks are original and require rehabilitation. The trashracks are required to keep large debris out of the water passage. The intake gate control panel is the original equipment supplied when the powerhouse was built and some of the components are obsolete and replacement parts are not available.

Solution: Sand blast power intake gates, repaint with vinyl paint system, replace all roller chains, cables, replace seals, anodes and control panels on all four power gates.

Scope of Work: Prepare the plans and specifications to rehabilitate the four power intake gates and trash racks and contract for their rehabilitation.

Total Estimated Cost: $750,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 35 MW, 2100 MWh
2) Environmental Risk: none
3) Cost Savings: $2,000/year of O&M Cost
4) Other: N?A

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/P&S	Jan 10 – Apr 10	15,000
Procurement	May 10 – Jul 10	10,000
Contract	Aug 10 – May 11	725,000

Duration with/without Customer Funding: Without customer funding, the power intake gates will continue to deteriorate to a point where structural components of gates will become affected which will increase cost and increase time of eventual repair outage. Also an increased chance of roller chain failure in an emergency condition will also exist. The power intake gates are used for emergency closure of the water intake to the turbines and the generators can not be operated without operational intake gates. With customer funding, the gates can be repaired and the probability of gate failing to close or open when needed is greatly reduced.

Estimated Losses in Revenue/Benefits/Risk Factor: $2,000/yr average savings in O&M costs. Intake gate failure could result in:

35 MW x 2 weeks x 5 days/week x 6 hours/day x $67/MWh ≈ $141,000

Summary of Funding Argument(s):

- Due to the condition and age of the gates and roller chains and their deteriorated condition, the availability of the gates for operation may be impacted if the gates are not repaired.
- Delay in maintenance painting will possibly result in the need to replace structural members and lead to increased repair costs. If the roller chains break while operating the gates the gate could be jammed in the slot and divers would be needed to retrieve the chain from the intake.

Photographs:

VIEW OF RUST ON STRUCTURE OF INTAKE GATE

VIEW OF RUST AND DETERIORATED INTAKE GATE ROLLER CHAINS

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Beaver **Run of River**_____ **Storage**__X__
District: Little Rock
No. of Units: __2__ **Capacity of Units (MW):** __129__
Estimated Average Annual Energy (MWh) (SWPA Annual Report): 172,000

Current Status of Project: The project has all units available for operation. The generators were placed in service in 1965.

Item Proposed for Customer Funding: Replace existing liner roof with new standing seam metal roof. Existing liner roofs are rated for 15 year life. Metal Roofs have an estimated lifetime of 50 years.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	_____Obsolete
_____NERC Compliance	

History of Outages/Deficiency: Existing Roof is at the end of its expected life and is in need of replacement. The roof is 16 years old and has had numerous leaks that require patching on a regular basis. The most recent leak was over critical equipment. The existing EPDM roof needs to be replaced with a pitched metal roof system to alleviate future issues as well as provide much longer life.
Much maintenance is required for repairing the leaking roof.

Solution: Replace existing membrane roof with new standing seam metal roof.

Scope of Work: Prepare the necessary equipment specifications, drawings and description of work, and contract for the purchase and installation of new components.

Total Estimated Cost: $450,000

Cost/Impacts if Item Not Funded:

1) Megawatts and Energy at Risk: 112 MW, 11,200 MWh
2) Environmental Risk: None
3) Cost Savings: None.
4) Other: None

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
E&D	Jan 10-April 10	40,000
Procurement	Jun 10-Jul 10	10,000
Construction	Sept 10- Mar 11	400,000

Duration with/without Customer Funding: O&M funding not available for the foreseeable future.

Estimated Losses in Revenue/Benefits/Risk Factor: Water damage on critical equipment could result in loss of station service power which would affect the entire plant. Assume forced outage would be 1 month for both units.

112 MW x 4 weeks x 5 days/week x 5 hours/day x $67/MWh ≈ $750,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Reduced likelihood of critical system failure

Photographs: None.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Narrows **Run of River**___ **Storage**__X__
District: Vicksburg
No. of Units:____3_____ **Capacity of Units** (25.5 MW)
Estimated Average Annual Energy (MWh) (SWPA Annual Report) _30,000__

Current Status of Project: 3 generators operational with the capability to run at 28.5 megawatts.

Item Proposed for Customer Funding: Repair Tailrace Gates.

Reason for Item:

__X__Reliability
_____Efficiency
_____Safety
_____Cost Savings
_____NERC Compliance
_____Environmental
_____Forced Outage
__X__Preventative Maintenance
_____Obsolete

History of Outages/Deficiency: The tailrace gates are 58 years old and do not meet the new hydraulic steel structure requirements outlined in ER 1110-2-8157.
.
Solution: Repair 2 Tailrace gates

Scope of Work: Sandblast, repair welds to D1.1 standards to meet new ER 1110-2-8157 regulation for hydraulic steel structures and repaint.

Total Estimated Cost: $150,000

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 25.5 MW, 2040 MWh
2) Environmental Risk: n/a
3) Cost Savings: n/a
4) Other

Work / Funding Timeline: (Best case scenario for the repair with customer funding)

Activity Item	Time frame	Dollars
Procurement	Jan - Dec 2010	150,000

Duration with/without Customer Funding: Unknown funding dates from O&M dollars.

Estimated Losses in Revenue/Benefits/Risk Factor: Repairs would allow maintenance personnel work behind these gates and make needed repairs and inspections to turbines blades and runners. Estimated outage time for repairs would be about 8 weeks.

25.5 MW x 8 weeks x 5 days/week x 2 hours/day x $67/MWh ≈ $137,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Timely repair with minimal interruption of service
- Reduced likelihood of major failure

Photographs:


MAR 12 2004

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Greers Ferry **Run of River**_____ **Storage**__X__
District: Little Rock
No. of Units: __2__ **Capacity of Units (MW):** _96__
Estimated Average Annual Energy (MWh) (SWPA Annual Report): 189,000

Current Status of Project: All units currently available for service.

Item Proposed for Customer Funding: Replace existing liner roof with new standing seam metal roof. Existing liner roofs are rated for 15 year life. Metal Roofs have an estimated lifetime of 50 years.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	_____Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The roof leaks on sensitive electronic equipment and medium voltage distribution equipment. Several leaks have developed and been temporarily patched over the years. However, the location of these leaks will compromise the integrity of the equipment, if roof is not replaced. Leaks have dripped on the RTU, 480V distribution centers, temperature recorders, and other electrical equipment.

Solution: Replace existing membrane roof with new standing seam metal roof.

Scope of Work: Prepare the necessary equipment specifications, drawings and description of work, and contract for the purchase and installation of new components.

Total Estimated Cost: $450,000

Cost/Impacts if Item Not Funded:

1) Megawatts and Energy at Risk: 48 MW, 11,520 MWh
2) Environmental Risk: None
3) Cost Savings: None
4) Other: None

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
E&D	Jan 10 - Apr 10	40,000
Procurement	Jun 10 - Jul 10	10,000
Construction	Sep 10 - Mar 11	400,000

Duration with/without Customer Funding: O&M funding not available for the foreseeable future.

Estimated Losses in Revenue/Benefits/Risk Factor: Water damage on critical equipment could result in loss of station service power which would affect the entire plant. Assume forced outage would be 1 month for both units.

96 MW x 4 weeks x 5 days/week x 6 hours/day x $67/MWh ≈ $772,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Reduced likelihood of critical system failure

Photographs:

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Tenkiller **Run of River** ____ **Storage** _X_
District: Tulsa
No. Of Units: 2 **Capacity of Units (MW) (Overload)** 39 (44.5)
Estimated Average Annual Energy (MWh) (SWPA Annual Report) 95,000

Current Status of Project: All units are currently available for service.

Item Proposed for Customer Funding: Replace the existing generator and transformer protective relays and upgrade control scheme to District standard.

Reason for Item:

X Reliability	____ Environmental
____ Efficiency	____ Forced Outage
____ Safety	____ Preventative Maintenance
X Cost Savings	X Obsolete
____ NERC Compliance	

History of Outages/Deficiency: The existing electro-mechanical relays require replacement. New digital relays have been purchased but have yet to be installed. The existing electromechanical relays do not have self-diagnostic features, so relay failure is only detected during annual maintenance. If an electro-mechanical relay fails, the protected equipment will have to be taken out of service until the relay is replaced. In addition, the unit control scheme at Tenkiller is different from the control scheme used at all other Tulsa District Hydropower Plants and needs to be replaced. The unit controls at the other plants incorporate additional protective features that allow reliable automation and remote operation from the RS Kerr master plant. The main board panels and wiring will be modified along with the unit controls to incorporate the new protective relays; therefore being cost beneficial to standardize the controls at the same time. Automation will incorporate programmable controllers compatible with the automation/remoting at Ft. Gibson and RS Kerr.

Solution: Replace the existing switchboard panels at Tenkiller with new panels that incorporate the microprocessor-based relays on hand. The solid state relays do not have to be tested annually, which will reduce maintenance costs. System redundancy will allow generation availability in case of a single relay failure. Control scheme standardization and automation will be incorporated into the new panels as well using PLCs and microprocessor based instrumentation where practical to interface with remote operation from RS Kerr.

Scope of Work: Complete design work necessary to build and install new switchboard panels that incorporate the protective relays on hand for two generators, one station

service, and one power transformer. Also purchase control and instrumentation components and Programmable Logic Controllers for scheme standardization and incorporate into the new panels as well. Install new panels and controls with powerhouse maintenance personnel.

Total Estimated Cost: $200,000

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 19.5 MW, 2340 MWh/unit
2) Environmental Risk: None
3) Cost Savings: $8,000/year of reduced O&M Cost
4) Other: N/A.

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/P&S	Jan 10 – Mar 10	25,000
Procurement	Apr 10 – Jun 10	5,000
Purchase Equip.	Jul 10 – Oct 10	160,000
Installation	Nov 10 – Feb 11	10,000

Duration with/without Customer Funding: Without customer funding, the existing relays will continue to provide protection, but their unreliability to detect abnormalities in the system remain. Federal funding is not anticipated in the next three years. The benefit of customer funding for this item is reduced maintenance and redundancy that will provide increased generator reliability.

Estimated Losses in Revenue/Benefits/Risk Factor: $8,000/year savings in O&M costs. Maintenance requirement will be reduced from annual to 3-year interval with new relays. Automated controls will prevent forced outages and reduce maintenance call outs due to failure of antiquated control components.

Existing relays do not have self diagnostic features to indicate an internal relay failure and the settings fluctuate and are not repeatable. In addition, these relays do not have the same level of protection modern relays would provide. Because of this, failure of any protected equipment may not be sensed adequately resulting in additional damage, increased outage and/or upstream protection operation.

19.5 MW x 6 weeks x 5 days/week x 4 hours/day x $67/MWh ≈ $157,000

Summary of Funding Argument(s):

- Safety and reliability of the equipment is jeopardized by failure of the relays to detect and respond to critical alarms, resulting in loss of power generation capabilities.
- Possible loss of 19.5 MW of generating capacity.
- Probable extended outage time of six weeks due to failure of equipment.
- Standardization of control scheme will facilitate centralizing remote control at the RS Kerr powerhouse.
- The relays to be replaced were installed approximately 50 years ago. They require frequent maintenance and adjustments. Modern relays require less maintenance.

Photographs:

Protective Relays Panels

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Greers Ferry **Run of River**_____ **Storage**__X__
District: Little Rock
No. of Units: __2__ **Capacity of Units (MW):** _96__
Estimated Average Annual Energy (MWh) (SWPA Annual Report): 189,000

Current Status of Project: The project has all units available for operation.

Item Proposed for Customer Funding: Install C02 system Greers Ferry power plant.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	__X__Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: Upgrade system to meet NFPA 12 requirements and COE safety standard for emergency notification and upgrade replace routing valves, firing heads, and cylinders. This equipment is the original equipment and is approximately 47 years old.

Solution: Install new C02 cylinders, firing heads, routing valves, sensors, and replace controls as needed. Install new alert system for powerhouse personnel per NFPA 12.

Scope of Work: Prepare the necessary equipment specifications, drawings and description of work and contract for the purchase and installation of C02 system.

Total Estimated Cost: $262,500

Cost/Impacts if Item Not Funded:
1) Megawatts and Energy at Risk: 96 MW, 5,760 MWh
2) Environmental Risk: None
3) Cost Savings: None
4) Other: None

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
Design Phase	Jan 10 – May 10	22,500
Procurement	June 10	7,500
Contract Cost	Sept 10 - Dec 10	232,500

Duration with/without Customer Funding: O&M funds not available for foreseeable future.

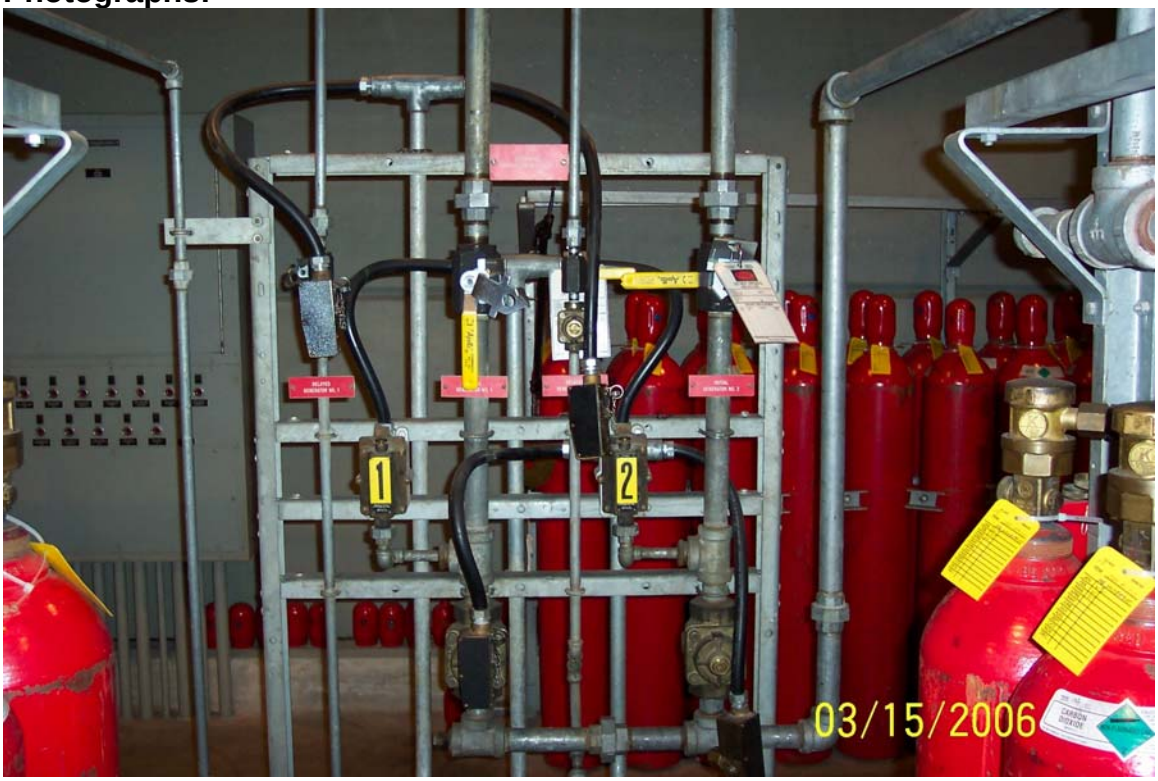
Estimated Losses in Revenue/Benefits/Risk Factor: In case of a failure that cannot be fixed 96 MW of capacity would be lost. Estimated forced outage time would be approximately 2 weeks.

96 MW x 2 weeks x 5 days/week x 6 hours/day x $67/MWh ≈ $386,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Reduced likelihood of major failure

Photographs:



Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Norfork **Run of River**_____ **Storage**__X__
District: Little Rock
No. of Units: __2__ **Capacity of Units (MW):** __80__
Estimated Average Annual Energy (MWh) (SWPA Annual Report): 184,000

Current Status of Project: The project has all units available for operation. The generators were placed in service in 1944 and 1950.

Item Proposed for Customer Funding: Install C02 system Norfork power plant.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	__X__Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: Upgrade system to meet NFPA 12 requirements and COE safety standard for emergency notification and upgrade replace routing valves, firing heads, and cylinders. This equipment is the original equipment and is approximately 57 years old.

Solution: Install new C02 cylinders, firing heads, routing valves, sensors, and replace controls as needed. Install new alert system for powerhouse personnel per NFPA 12.

Scope of Work: Prepare the necessary equipment specifications, drawings and description of work and contract for the purchase and installation of C02 system.

Total Estimated Cost: $262,500

Cost/Impacts if Item Not Funded:
1) Megawatts and Energy at Risk: 80 MW, 4,800 MWh
2) Environmental Risk: None
3) Cost Savings: None
4) Other: None

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
Design Phase	Jan 10 - May 10	22,500
Procurement	June 10	7,500
Contract Cost	Sept 10 - Dec 10	232,500

Duration with/without Customer Funding: O&M funds not available for foreseeable future.

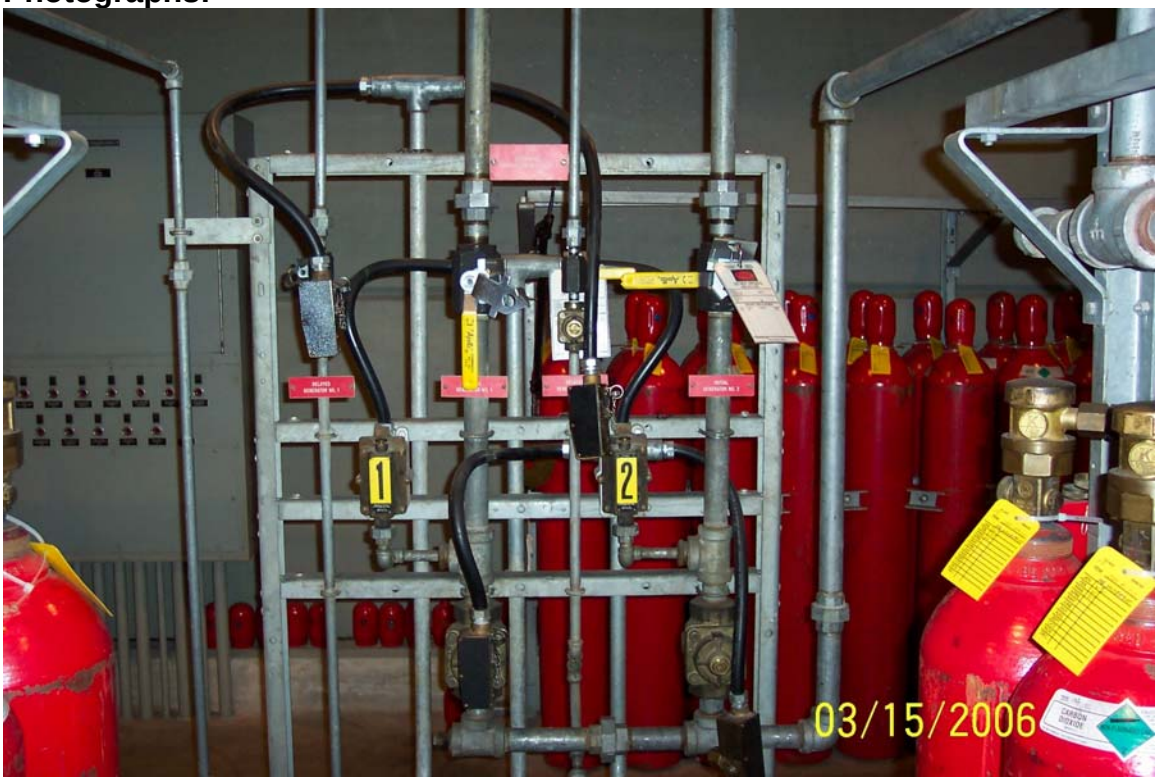
Estimated Losses in Revenue/Benefits/Risk Factor: In case of a failure that cannot be fixed 80 MW of capacity would be lost. Estimated forced outage time would be 2 weeks.

80 MW x 2 weeks x 5 days/week x 6 hours/day x $67/MWh ≈ $322,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Reduced likelihood of major failure

Photographs:



Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Denison **Run of River** ____ **Storage** _X__
District: Tulsa
No. of Units: __2_____ **Capacity of Units (MW) (Overload)** 70 (88)
Estimated Average Annual Energy (MWh) (SWPA Annual Report) 219,000

Current Status of Project: All units are currently available for service.

Item Proposed for Customer Funding: Rehabilitate the powerhouse elevator.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
__X__Safety	__X__Preventative Maintenance
_____Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The elevator is the original equipment and is over 60 years old. The controls on the elevator are unreliable and the elevator has a history of failure. The controls are obsolete and replacement parts are extremely difficult to obtain. The elevator is required to safely transport equipment to lower levels of the powerhouse to perform repairs to turbine equipment.

Solution: Contract to rehabilitate the controls and equipment for the powerhouse elevator.

Scope of Work: Rehabilitate the elevator controls and equipment.

Total Estimated Cost: $140,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: None.
2) Environmental Risk: None
3) Cost Savings: None
4) Other: N/A.

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/P&S	Oct 09 – Jan 10	10,000
Procurement	Feb 10 – Mar 10	5,000
Contract	Mar 10 – May 10	125,000

Duration with/without Customer Funding: Without customer funding, the elevator will continue to deteriorate until complete failure at which time the project will be unable to safely transport equipment to lower levels of the powerhouse to perform routine and breakdown maintenance. Federal funds are not anticipated for the next 3 years.

Estimated Losses in Revenue/Benefits/Risk Factor: During maintenance periods and repair, the amount of time to perform work will be extended if elevator is not available to transport equipment and personnel. There is also have a higher probability for injury of personnel when transporting heavy equipment if elevator is not available.

Summary of Funding Argument(s):

- Elevator controls have a history of failure and project has been unable to obtain replacement parts.
- Elevator is required to transport equipment to lower floors of powerhouse to perform turbine repairs.
- If elevator is not available there is a higher chance of injury when workers are transporting heavy equipment

Photographs: None.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Keystone **Run of River** __X__ **Storage** __
District: Tulsa
No. of Units: _2_ **Capacity of Units (MW) (Overload)** 70 (80)
Estimated Average Annual Energy (MWh) (**SWPA Annual Report)** 228,000

Current Status of Project: All units are currently available for service.

Item Proposed for Customer Funding: Replace the existing protective relays with solid-state relays.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
_____Safety	_____Preventative Maintenance
__X__Cost Savings	___X_Obsolete
_____NERC Compliance	

History of Outages/Deficiency: Protective relays for the generators and transformers are over 35-year-old electro-mechanical type relays. The protection does not comply with current industry standards for the protection of synchronous generators and transformers. The existing relays do not retain their settings and have become unreliable. The existing relays also do not have self-diagnostic features, so relay failure is only detected during annual maintenance. If an electro-mechanical relay fails, the protected equipment will have to be taken out of service until the relay is replaced. Modern digital relays have self diagnostic functions, require less maintenance and are more reliable.

Solution: Replace the existing electro-mechanical protective relays with modern digital relays.

Scope of Work: Purchase and install new digital relays for two generators, two transformers, and two station service transformers.

Total Estimated Cost: $300,000

Costs/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: 35 MW, 5,250 MWh/unit
2) Environmental Risk: None
3) Cost Savings: $8,000/year of O&M Cost
4) Other: N/A.

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/ P&S	Jan 10 – Mar 10	50,000
Procurement	Apr 10 – Jun 10	5,000
Contract	Jul 10 – Feb 11	245,000

Duration with/without Customer Funding: Without customer funding, the existing relays will continue to provide protection, but their unreliability to detect abnormalities in the system remain. Federal funding is not anticipated in the next three years. The benefit of customer funding for this item is reduced maintenance and redundancy that will improve plant reliability and reduce maintenance costs.

Estimated Losses in Revenue/Benefits/Risk Factor: $8,000/year savings in O&M costs. Maintenance requirement will be reduced from annual to 3-year interval with new relays. The loss is based on being able to utilize spare relays at other powerhouses, develop settings and testing the equipment. If the relay that fails does not have a spare available, the outage would be a minimum of 5 weeks.

35 MW x 5 weeks x 5 days/week x 6 hours/day x $67/MWh ≈ $352,000/relay failure

Summary of Funding Argument(s):

- Safety and reliability of the equipment is jeopardized by failure of the relays to detect and respond to critical alarms, resulting in loss of power generation capabilities.
- Probable extended outage time of six weeks due to failure of equipment.
- The relays to be replaced were installed approximately 35 years ago. They require frequent maintenance and adjustments.

Photographs:

Protective Relays Panels

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Stockton **Run of River**_____ **Storage** __X__
District: Kansas City
No. of Units: __1___ **Capacity of Units (MW) (Overload)** _45 (50) MW__
Estimated Average Annual (MWH) (SWPA Annual Report) 47,000 MWh

Current Status of Project: Unit is currently available.

Item Proposed for Customer Funding: Replace/Upgrade HVAC systems.

Reason for Item:

__X__Reliability	_____Environmental
__X__Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
__X__Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The power plant's HVAC systems have been in service since 1973 and the frequency and cost of maintenance continues to increase each year to keep these systems operational. Approximately $97,000 costs of has been expended over the past 13 years for repair and maintenance. The original manufacturers no longer support these systems and replacement parts are costly due to special manufacturing requirements. The HVAC systems provide temperature control for the generator and main control areas and are critical in maintaining a constant temperature throughout these areas to prevent equipment damage and/or failures. Constant temperatures must be maintained to avoid contact corrosion and adverse effects to the generator winding, main control board, and excitation system. New/Upgraded HVAC systems would be more efficient and reduce O&M costs.

Solution: Replace/Upgrade existing HVAC systems with modern up-to-date equipment to provide adequate heating and cooling throughout the power plant.

Scope of Work: Perform E&D, prepare plans and specifications, and advertise/award a contract to replace/upgrade the power plant's HVAC systems.

Total Estimate Costs: $415,000

Cost/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: Loss of 50 MW of available generating capacity.
2) Environmental: N/A.
3) Cost Savings: Reduced annual maintenance and repair costs (≈$8,000/yr).
4) Other: Prevents the risk of an extended outage to repair and/or replace HVAC equipment.

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
E&D	Oct 09 – Mar 10	43,000
P&S	Apr 10 – Sep 10	32,000
Contract Admin.	Oct 10 – Jan 11	16,000
Installation Contract	Feb 11 – Jun 11	306,000
S&A (approx. 6%)	Feb 11 – Jun 11	18,000

Duration with/without Customer Funding: Item has been submitted through the Corps of Engineers' (COE) normal budget cycle and has not been funded due to budget constraints. Lack of available funding through COE channels appears to be getting worse. Customer funding would prevent a loss of generating availability and equipment damage and reduce HVAC equipment repair/maintenance costs. Without customer funding, equipment repair/maintenance costs will continue to increase and reliability of the HVAC systems will continue to decrease.

Estimated Losses in Revenue/Benefits/Risk Factor: Generating unit becoming unavailable due to failure of HVAC system(s). Failure of critical power plant equipment that must be maintained at a constant temperature is likely if the power plant's HVAC system(s) are out of service. 50 MW of available generating capacity would be lost until necessary repairs were made to the HVAC system(s) and/or failed equipment.

$$50\ \text{MW} \times 16\ \text{weeks} \times 5\ \text{days/week} \times 3\ \text{hours/day} \times \$67/\text{MWh} \approx \$804{,}000$$

Summary of Funding Argument(s):

- Corps funding is not available.
- Increased unit reliability and availability.
- Loss of 50 MW of available generating capacity.
- Failure of critical power plant equipment.
- Unscheduled outage time required for HVAC equipment repair/replacement work.

Photographs: None.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Norfork **Run of River**_____ **Storage**__X__
District: Little Rock
No. of Units: __2__ **Capacity of Units (MW):** __80__
Estimated Average Annual Energy (MWh) (SWPA Annual Report): 184,000

Current Status of Project: The project has all units available for operation. The generators were placed in service in 1944 and 1950.

Item Proposed for Customer Funding: Repair coating on head gates and replace roller chains. These gates are fracture critical hydraulic steel structures.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
_____Cost Savings	_____Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The head gates are original equipment installed. Inspections indicate the need for gate refurbishment, new surface coatings, roller chain replacement, and side seals to prevent further deterioration. Failure of a roller chain could result in an extended outage at the plant. Failure of structure could result in flooding of power plant. Existing Coating is coal tar.

.

Solution: Issue contract for refurbishment of gates and to provide new chains.

Total Estimated Cost: $1,000,000

Cost/Impacts if Item Not Funded:

1) Megawatts and Energy at Risk: None
2) Environmental Risk: None
3) Cost Savings: $2,000/yr average savings in O&M costs.
4) Other: N/A

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
E&D	Jan 10 - Apr 10	40,000
Procurement	Apr 10 - Jun 10	15,000
Contract	Aug 10 - Aug 11	945,000

Duration with/without Customer Funding: O&M funds not available for foreseeable future.

Estimated Losses in Revenue/Benefits/Risk Factor: Failure of a gate may result in flooding of entire power plant. Time to repair and clean powerhouse is unknown. Loss of life is a possibility. Repair costs could be hundreds of millions.

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability
- Increased safety

Photographs:

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: R. S. Kerr **Run of River** _X_ **Storage** __
District: Tulsa
No. of Units: 4 **Capacity of Units (MW) (Overload)** 110 (126.5)
Estimated Average Annual Energy (MWh) (SWPA Annual Report) 459,000

Current Status of Project: The original equipment 480 volt Motor Control Centers were installed when the powerhouse went on line in 1970.

Item Proposed for Customer Funding: Replace original equipment 480 V distribution centers, which provide power to the auxiliary equipment in the plant.

Reason for Item:

__X__ Reliability	_____ Environmental
_____ Efficiency	_____ Forced Outage
__X__ Safety	__X__ Preventative Maintenance
_____ Cost Savings	__X__ Obsolete
_____ NERC Compliance	

History of Outages/Deficiency: The 480 volt motor control centers are the original equipment and over 35-years old. New replacement parts are no longer available. The same manufacture and model equipment has experienced catastrophic breaker failure in recent years at the Keystone powerhouse. Failure of a breaker to operate properly could possibly lead to extended loss of generation and injury to personnel.

Solution: Replace the 480 volt motor control centers with adequately rated equipment.

Scope of Work: Prepare the necessary equipment specification, drawings and description of work, and contract for the purchase and installation of the new equipment.

Total Estimated Cost: $400,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 27.5 MW, 3,300 MWh
2) Environmental Risk: None
3) Cost Savings: None
4) Other: N/A

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/P&S	Nov 09 – Feb 10	50,000
Pre-Procurement	Mar 10 – May 10	5,000
Contract	Jun 10 – Mar 11	345,000

Duration with/without Customer Funding: Without customer funding, the distribution panels will remain in service, but with increased inspection and maintenance and greater probability for failure until funding is available. Federal funds are not anticipated for the next 3 years.

Estimated Losses in Revenue/Benefits/Risk Factor: Possible loss in availability of 27.5 MW for one month:

27.5 MW x 4 weeks x 5 days/week x 6 hours/day x $67/Mwh ≈ $221,000

Summary of Funding Argument(s):

- Catastrophic failure of one of the molded case circuit breakers could result in injury to operation and maintenance personnel.
- An extended outage of one month is possible to get rebuilt replacement parts or to repair or to replace the entire panel.
- Due to the age of the equipment, replacement is necessary.
- New replacement breakers do not match with door cutouts.
- Distribution center provides power to critical auxiliary equipment such as generator thrust bearing oil pumps, governor oil pumps and excitation equipment.

Photographs:

Robert S. Kerr Motor Control Center

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Fort Gibson **Run of River** X **Storage** ___
District: Tulsa
No. of Units: 4 **Capacity of Units (MW) (Overload)** 45 (52)
Estimated Average Annual Energy (MWh) (SWPA Annual Report) 191,000

Current Status of Project: All units are currently available for service.

Item Proposed for Customer Funding: Replace the Motor Control Centers at the Fort Gibson Powerhouse.

Reason for Item:

X Reliability	____ Environmental
____ Efficiency	____ Forced Outage
X Safety	X Preventative Maintenance
____ Cost Savings	X Obsolete
____ NERC Compliance	

History of Outages/Deficiency: The Motor Control Centers (MCC's) that supply all of the auxiliary systems within the powerhouse are the original equipment that is obsolete. Replacement parts are difficult to obtain and, a short circuit study completed in 2005 revealed that the protective equipment within the MCCs is inadequately rated for the fault current available in the plant. This poses a significant hazard to both the installed operating equipment within the plant and also personnel if they happened to be in the vicinity of a MCC that experienced a fault current level beyond the interrupting rating of the equipment. When an underrated breaker at the Keystone Powerhouse failed, the arc exited the metal enclosure. If personnel were standing or walking front of the MCC at the time of the failure, they could have been injured

Solution: Replace the MCCs with new equipment that is maintainable and rated for the fault current available on the 480-volt station service distribution system within the powerhouse.

Scope of Work: Prepare the necessary specifications and drawings for the procurement of replacement of the Motor Control Centers. Installation will be done by Hired Labor.

Total Estimated Cost: $330,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 11.25 MW, 337 MWh
2) Environmental Risk: None
3) Cost Savings: None
4) Other: N/A

Work / Funding Timeline:

Activity Item	Time frame	Dollars
E&D/P&S	Nov 09 – Jan 10	50,000
Procurement	Feb 10 – Mar 10	5,000
Contract	Apr 10 – Dec 10	275,000

Duration with/without Customer Funding: Without Customer funding, the MCCs will not be replaced and hazards that exist from underrated equipment will remain at the Fort Gibson Powerhouse.

Estimated Losses in Revenue/Benefits/Risk Factor: The MCC's supply power to the unit auxiliaries and the Station drainage pumps. Failure of equipment could prevent the units from operating as well as being able to pump water out of powerhouse.

11.25 MW x 1 week x 5 days/week x 6 hours/day x \$67/Mwh ≈ \$23,000

Summary of Funding Argument(s):

- The existing MCCs are underrated and pose a hazard to both equipment and personnel.
- The existing MCCs are obsolete and cannot be properly maintained due to unavailability of spare parts.
- Loss of critical breakers could result in loss in ability to generate.

Photographs:

Fort Gibson Motor Control Center

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Denison **Run of River** ____ **Storage** _X__
District: Tulsa
No. of Units: __2_____ **Capacity of Units (MW)** 70
Estimated Average Annual Energy (MWh) (SWPA Annual Report) 219,000

Current Status of Project: All units are currently available for service.

Item Proposed for Customer Funding: Replace Motor Control Centers and station service air compressors at the Denison Powerhouse.

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
__X__Safety	__X__Preventative Maintenance
_____Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The Motor Control Centers and associated cabling that supply all of the auxiliary systems within the powerhouse are original equipment that is now obsolete. Replacement parts are difficult to obtain, and a short circuit study completed in 2005 revealed that the protective equipment within the MCCs is marginally rated for the fault current available in the plant. This poses a significant hazard to both the installed operating equipment within the plant and also personnel if they happened to be in the vicinity of a MCC that experienced a fault current level beyond the interrupting rating of the equipment. The station service air compressors are the original equipment. The station service air compressors are the original 60 + years old equipment and are requiring more frequent repair.

Solution: Replace eight MCCs and associated cables with new equipment that is maintainable and rated for the fault current available on the 480-volt station service distribution system within the powerhouse as well as distribution panelboards. Replace the station service air compressors and associated equipment.

Scope of Work: Prepare the necessary specifications and drawings for the procurement of replacement of the Motor Control Centers and station service air compressors.

Total Estimated Cost: $455,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: 35 MW, 1,050 MWh
2) Environmental Risk: None
3) Cost Savings: None
4) Other: N/A.

Work / Funding Timeline:

Activity Item	Time Frame	Dollars
E&D/P&S	Nov 09 – Jan 10	50,000
Procurement	Feb 10 – Mar 10	5,000
Contract	Apr 10 – Oct 10	300,000
Installation	Nov 10 – Jan 12	100,000

Duration with/without Customer Funding: Without Customer funding, the MCCs will not be replaced and hazards that exist from underrated equipment will remain at the Denison Powerhouse. Without Customer funding the air compressors will not be replaced.

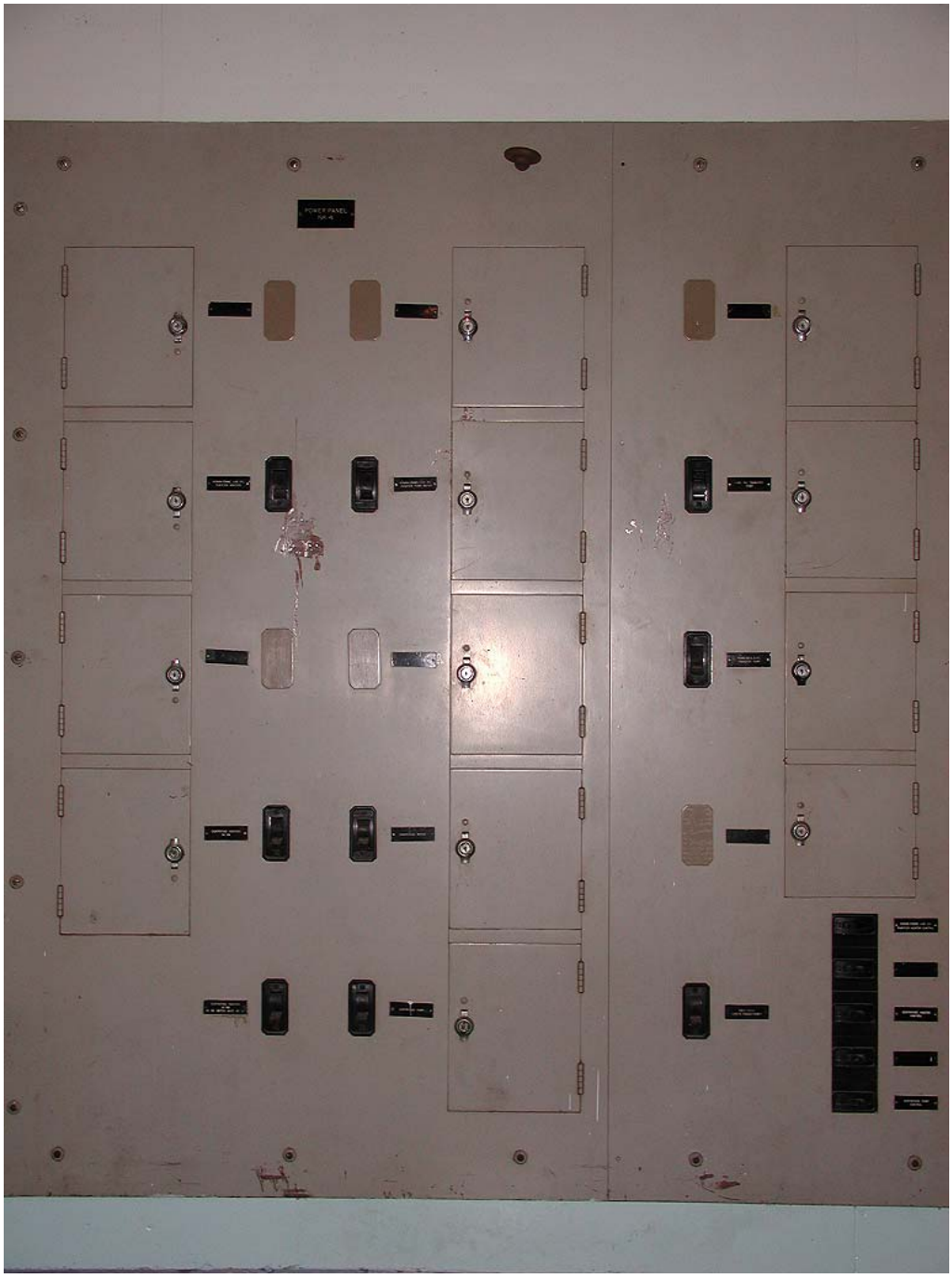
Estimated Losses in Revenue/Benefits/Risk Factor: Possible loss in availability of dewatering hydropower units for routine maintenance. Possibility of flooding powerhouse.

35 MW x 1 week x 5 days/week x 6 hrs/day x $67/Mwh ≈ $70,000

Summary of Funding Argument(s):

- The existing MCCs are underrated and pose a hazard to both equipment and personnel.
- The existing MCCs are obsolete and cannot be properly maintained due to unavailability of spare parts.
- The existing air compressors are original equipment and require more maintenance than the modern design screw type.

Photographs:



Denison Wall Mounted MCC

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Harry S. Truman **Run of River** X **Storage** ___
District: Kansas City
No. of Units: 6 **Capacity of Units (MW) (Overload)** 160 (180) MW
Estimated Average Annual (MWH) (SWPA Annual Report) 244,000 MWh

Current Status of Project: All six units are currently available.

Item Proposed for Customer Funding: Repair/Replace wicket gate servomotors, packings, and bushings.

Reason for Item:

X Reliability	X Environmental
X Efficiency	___ Forced Outage
___ Safety	X Preventative Maintenance
X Cost Savings	___ Obsolete
___ NERC Compliance	

History of Outages/Deficiency: In a major effort to expedite the return of all units to service, necessary ancillary equipment repair was delayed. Six unit availability was accomplished in September of 1999; however, the need to repair major auxiliary equipment is directly impacting our commitment of availability and reliability. Annual costs for maintaining the wicket gate servomotors and packings are estimated at $10,000/yr over the past six years. Oil leakage from the servomotors has become an environmental issue, increasing the risk of discharging oil into the tailrace downstream of the power plant. Costs associated with oil containment and disposal is estimated at $800-$1,000 per year. Water leakage from the wicket gate packings has also increased causing water to pool onto the lower gallery floor. Critical power plant equipment located in the lower gallery is at risk of being damaged from the water leakage. Repairs required for maintaining unit availability and reliability include machining and repair of wicket gate servomotors and the replacement of wicket gate packings and bushings.

Solution: Repair/Replace wicket gate servomotors, packings, and bushings.

Scope of Work: Prepare plans and specifications and advertise/award a contract for machining and repairing of wicket gate servomotors and the replacement of wicket gate bushings and packings. Wicket gate servomotor (disassembly/reassembly, machining, etc.), packing, and bushing work will be performed by contract. Power plant personnel will remove and install wicket gate servomotors.

Total Estimated Cost: $1,240,000

Costs/Impacts if Item is Not Funded:
1) Megawatts and Energy at Risk: Loss of 30 MW/unit of available generating capacity (180 MW total for six units).
2) Environmental: High risk for the introduction of oil into the Lake of the Ozarks.
3) Cost Savings: Reduced annual maintenance and repair costs (≈$11,000/yr).
4) Other: Increased risk of extended unit outages.

Work / Funding Timeline:

Activity Item	Time frame	Dollars
P&S	Jan 10 – Jun 10	27,000
Contract Admin.	Jul 10 – Aug 10	20,000
Servomotor/Bushing Contract	Sep 10 – Sep 12	1,125,000
S&A (approx. 6%)	Sep 10 – Sep 12	68,000

Duration with/without Customer Funding: Item has been submitted through the Corps of Engineers' (COE) normal budget cycle. Lack of available funding through COE channels appears to be getting worse. Customer funding would prevent extended unit outages required for wicket gate servomotors, bushings, and packing repair work. Without customer funding unit reliability will decrease and repair/maintenance costs will continue to increase.

Estimated Losses in Revenue/Benefits/Risk Factor: All of the units are becoming in need of wicket gate servomotor, bushing, and packing repair work. Loss of generation capacity occurs if the servomotors and wicket gates become inoperable for each 30 MW unit.

30 MW/unit x 20 weeks x 5 days/week x 3 hours/day x $67/MWh ≈ $603,000/unit

Summary of Funding Argument(s):

- Corps funding is not available.
- Loss of 30 MW/unit of available generating capacity (180 MW total for six units).
- Unscheduled unit outages required for extensive repairs.
- Increased unit reliability and availability.
- Potential for environmental pollution.
- Spillway erosion due to inability to generate.
- Dam Safety risk due to spillway erosion.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Bull Shoals **Run of River**_____ **Storage** X
District: Little Rock
No. of Units: 8 **Capacity of Units (MW):** 340
Estimated Average Annual Energy (MWh) (SWPA Annual Report): 785,000

Current Status of Project: The project has all units available for operation. The generators were placed in service in 1952, 1953, 1962, and 1963.

Item Proposed for Customer Funding: Replace neutral breakers for units 5 through 8 with high impedance grounds.

Reason for Item:

X Reliability	_____ Environmental
_____ Efficiency	_____ Forced Outage
_____ Safety	X Preventative Maintenance
_____ Cost Savings	_____ Obsolete
_____ NERC Compliance	

History of Outages/Deficiency: Breakers have had numerous failures with mechanical operating mechanism. Units 1 through 4 have already been replaced with high impedance grounds.

Solution: Install new impedance ground system on units 5 through 8.

Scope of Work: Prepare the necessary equipment specifications, drawings and description of work, and contract for the purchase and installation of new components.

Total Estimated Cost: $400,000

Cost/Impacts if Item Not Funded:
1) Megawatts and Energy at Risk: 45MW, 1,800 MWh
2) Environmental Risk: None
3) Cost Savings: None
4) Other: N/A.

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
Design Phase	Jan 10 - Apr 10	35,000
Procurement	Jun 10	10,000
Construction	Sep 10 – Dec 10	355,000

Duration with/without Customer Funding: O&M funds not available for the foreseeable future.

Estimated Losses in Revenue/Benefits/Risk Factor: In case of a failure that cannot be fixed 45 MW of capacity would be lost. Estimated forced outage time would be one week before replacement parts can be obtained and the breaker fixed.

45 MW x 1 week x 5 days/week x 8 hours/day x $67/MWh ≈ $121,000

Summary of Funding Argument(s):

- Corps funding is not available at this time
- Increased reliability

Photographs: None.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Stockton **Run of River**_____ **Storage** __X__
District: Kansas City
No. of Units: __1___ **Capacity of Units (MW) (Overload)** _45 (50) MW__
Estimated Average Annual (MWH) (SWPA Annual Report) 47,000 MWh

Current Status of Project: Unit is currently available.

Item Proposed for Customer Funding: Replacement of the power plant's motor operated valves (draft tube fill valve, draft tube drain valves, 3-way draft tube drain/fill valve, spiral case drain valve, generator cooling valve, and raw water fill valves and strainers).

Reason for Item:

__X__Reliability	_____Environmental
_____Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
__X__Cost Savings	_____Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The power plant's motor operated valves and raw water strainers have been in service since 1973 and are becoming less reliable every year. Maintenance has become more frequent over the past 6 years to keep these valves and strainers operational. Operation of the valves is becoming more difficult due to wear in the valve linkages and operators. Spare parts for the valves and strainers are longer available from the original manufacturer and replacement parts are costly due to special manufacturing requirements and long lead times. Three of the valves are located in a confined space and require a minimum of three people to make repairs. The location of these valves significantly increases repair times and costs. Annual repair and maintenance costs for these valves and strainers are estimated at $5,000/yr and continue to increase. The valves and strainers need to be replaced before unexpected repairs are required that lead to forced and/or extended unit outages.

Solution: Replace the existing motor operated valves, motor controls, and strainers with similar equipment.

Scope of Work: Prepare plans and specifications and advertise/award a contract to replace the motor operated valves, motor controls, and strainers.

Total Estimate Costs: $301,000

Cost/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: Loss of 50 MW of available generating capacity.
2) Environmental: N/A.
3) Cost Savings: Reduced annual maintenance and repair costs (≈$5,000/yr).
4) Other: Avoid the inability to raise the draft tube bulkheads, dewater the spiral case and draft tube, and provide cooling water to the generator bearings and air coolers. Also prevents the risk of an extended unit outage.

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
P&S	Oct 09 – Dec 09	18,000
Contract Admin.	Jan 10 – Mar 10	12,000
Installation Contract	Apr 10 – Sep 10	256,000
S&A (approx. 6%)	Apr 10 – Sep 10	15,000

Duration with/without Customer Funding: Item has been submitted through the Corps of Engineers' (COE) normal budget cycle and has not been funded due to budget constraints. Lack of available funding through COE channels appears to be getting worse. Customer funding would prevent the possibility of valve/strainer failures resulting in the inability to dewater or water up the spiral case and draft tube areas and provide cooling water to critical equipment (e.g. generator bearing and air coolers) throughout the power plant. Without customer funding, the risk of a valve or strainer failure will continue to increase and available generating capacity of 50 MW would be lost.

Estimated Losses in Revenue/Benefits/Risk Factor: Failure of the existing valves and strainers would adversely affect our ability to generate and perform the required inspection, maintenance and repair work of the generator-turbine unit. 50 MW of available generating capacity would also be lost until necessary repairs were made to the valves and strainers.

50 MW x 16 weeks x 5 days/week x 3 hours/day x $67/MWh ≈ $804,000

Summary of Funding Argument(s):

- Corps funding is not available.
- Increased unit reliability and availability.
- Loss of 50 MW of available generating capacity.
- Unscheduled outage time required for valve and strainer maintenance and repair/replacement work.
- Unable to dewater unit for inspection and maintenance work.

Photographs: None.

Funding Year 2010

Information Data Sheet for Customer Funding

Hydropower Plant: Stockton **Run of River**_____ **Storage** __X__
District: Kansas City
No. of Units: __1___ **Capacity of Units (MW) (Overload)** 45 (50) MW
Estimated Average Annual (MWH) (SWPA Annual Report) 47,000 MWh

Current Status of Project: Unit is currently available.

Item Proposed for Customer Funding: Retrofit governor with digital controls.

Reason for Item:

__X__Reliability	_____Environmental
__X__Efficiency	_____Forced Outage
_____Safety	__X__Preventative Maintenance
__X__Cost Savings	__X__Obsolete
_____NERC Compliance	

History of Outages/Deficiency: The power plant has experienced unscheduled outages in recent years to replace worn or failed governor parts. One example is the replacement of the governor's pilot valve and linkage assembly in 1999 ($10K Contract). The company who performed this work is no longer in business and there is no source for replacement parts. Replacement parts require special manufacturing resulting in high costs and long lead times. Unit stability has also been a problem during power generation (specifically at half and full loads). A digital governor retrofit would reduce governor maintenance costs, increase unit reliability, provide more consistent unit response, and improve unit stability.

Solution: Replace existing governor control mechanism with new digital programmable controls and electro-hydraulic valves.

Scope of Work: Perform E&D, prepare plans and specifications, and advertise/award a contract to retrofit existing governor with digital controls.

Total Estimate Costs: $489,000

Cost/Impacts if Item is Not Funded:

1) Megawatts and Energy at Risk: Loss of 50 MW of available generating capacity.
2) Environmental: N/A.
3) Cost Savings: Reduced governor maintenance and repair costs.
4) Other: Prevents the risk of an extended unit outage. Improves unit response and stability.

Work/Funding Timeline:

Activity Item	Time Frame	Dollars
E&D	Oct 09 – Mar 10	52,000
P&S	Apr 10 – Sep 10	42,000
Contract Admin.	Oct 10 – Mar 11	25,000
Governor Upgrade Contract	Apr 10 – Sep 11	349,000
S&A (Approx. 6%)	Apr 10 – Sep 11	21,000

Duration with/without Customer Funding: Item has been submitted through the Corps of Engineers' (COE) normal budget cycle and has not been funded due to budget constraints. Lack of available funding through COE channels appears to be getting worse. Customer funding would prevent a loss of generating availability and reduce governor repair/maintenance costs. Governor repair and maintenance costs will continue to increase and unit reliability will decrease without customer funding.

Estimated Losses in Revenue/Benefits/Risk Factor: Generating unit becoming unavailable due to failure of the governor system. 50 MW of available generating capacity would be lost until necessary repairs were made to the governor.

50 MW x 24 weeks x 5 days/week x 3 hours/day x \$67/MWh ≈ \$1,206,000

Summary of Funding Argument(s):

- Corps funding is not available.
- Increased unit reliability and availability.
- Loss of 50 MW of available generating capacity.
- Unscheduled outage time required for governor repair/replacement work.

Photographs: None.