Appropriation Request Summary Report

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

APR: 24003111
Title: Emery-Huntington; Replace MW & PLC Relays
Estimate Type:
Requesting Cost Center: 13694 - Price Plant Main Gri
Investment Reason: R2
Priority:
Implementation Start: 01/12/2012
In-Service Date: 12/31/2012

Asset Location: 005503
WBS : TZPC/2012/C/001/B
Func Group: P&C TSUB
State: UT
Plant 2425
Status: Approved
Responsible Manager:

Approver: Douglas Bennion **Approved On:** 01/24/2012

Spent To Date: 797,914

Fiscal Year	Labor	Material	Purchase Services	Other	Removal Costs	Salvage	SurCharge & AFUDC	Total Gross Capital	CIAC	O&M Expense	Total APR	Betterment
2013	400,000	250,000	0	0	5,000	0	111,852	766,852	0	0	766,852	0
Totals	**400,000**	**250,000**	**0**	**0**	**5,000**	**0**	**111,852**	**766,852**	**0**	**0**	**766,852**	**0**

*** Description of Assets and Work or Proposed Change:**

Replace the microwave and power line carrier relays on both ends of the Emery to Huntington 345kV transmission line. Upgrade the microwave to mirrored bits and replace all power line carrier communication gear. It is proposed to have the engineering complete and equipment ready to deliver by May 1, 2012. The start date will be pending completion of UDOT construction on the Emery-Camp Williams line. We will then complete the project in two stages, keeping partial protection in place and the line outages for testing/wavetrap replacement kept to a minumum.

*** Purpose and Necessity or Reason for Change:**

This relay package has failed and we no longer have spare parts in inventory. This equipment is no longer supported by the manufacturer and replacement parts are no longer available.

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*** Projected Conditions/Benefits of Change:**

Modern micro-processor based relays have more flexibility in the types and amount of protection available, as well as having built-in metering functions and greater options for inputs and outputs.

*** Risk Assessment and Alternatives Evaluated:**

No alternatives.

☑ PM Managed

Project Change Notice (PCN) Summary Report

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

APR: 94002170
Title: Emery-Huntington; Replace MW & PLC Relays
Change Type: Cost
Current In-Service Date: 12/31/2012

WBS : TZPC/2012/C/001/B
Investment Reason: R2
Project Manager:
Proposed In-Service Date: 12/31/2012

Created By: Sherry Avellar **Created On:** 04/17/2012
Approver: Douglas Bennion **Approved On:** 05/17/2012

Spent To Date:	797,914
Approved Project Costs:	766,852
Gross Funds Requested:	93,661
New Project Costs:	860,513

Fiscal Year	Labor	Material	Purchase Services	Other	Removal Costs	Salvage	SurCharge & AFUDC	Total Gross Capital	CIAC	O&M Expense	Total APR	Betterment
2013	265,000	250,000	215,000	0	5,000	0	125,513	860,513	0	0	860,513	0
Totals	**265,000**	**250,000**	**215,000**	**0**	**5,000**	**0**	**125,513**	**860,513**	**0**	**0**	**860,513**	**0**

*** Description of Assets and Work or Proposed Change:**

Replace the microwave and power line carrier relays on both ends of the Emery to Huntington 345kV transmission line. Upgrade the microwave to mirrored bits and replace all power line carrier communication gear. The current in-service date is December 31, 2012. This PCN is to request additional funds in the amount of $93,661.00.

*** Purpose and Necessity or Reason for Change:**

The original APR did not provide sufficient funds for purchased services (see attached file for additional details including updated forecast and approved APR for major cost categories). A new estimate was reviewed and approved by the supporting organizations.

*** Projected Conditions/Benefits of Change:**

Improve reliability of the transmission system.

*** Risk Assessment and Alternatives Evaluated:**

No change to the overall project risk profile.

Appropriation Request Summary Report

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

APR: 24002741
Title: Camp Williams-Mona Replace MW & PLC Relays
Estimate Type:
Requesting Cost Center: 13678 - Wasatch Front Relay
Investment Reason: R2
Priority:
Implementation Start: 10/20/2011
In-Service Date: 12/31/2012

Asset Location: 014025
WBS : TZJV/2011/C/001/B
Func Group: TRM TSUB
State: UT
Plant 2230
Status: Approved
Responsible Manager: CHRIS SPENCER

Approver: Russell Updike **Approved On:** 10/31/2011

Spent To Date: 310,717

Fiscal Year	Labor	Material	Purchase Services	Other	Removal Costs	Salvage	SurCharge & AFUDC	Total Gross Capital	CIAC	O&M Expense	Total APR	Betterment
2012	150,000	80,000	75,000	0	0	0	29,432	334,432	0	0	334,432	0
2013	100,000	10,000	10,000	0	0	0	41,566	161,566	0	0	161,566	0
Totals	**250,000**	**90,000**	**85,000**	**0**	**0**	**0**	**70,998**	**495,998**	**0**	**0**	**495,998**	**0**

*** Description of Assets and Work or Proposed Change:**

Replace both the MW and PLC set of relays on both ends of the Camp Williams-Mona #1 line. Upgrade the communications to mirrored bits over fiber.

Estimate is $300,000 labor for each end of one line for the relay replacement.

*** Purpose and Necessity or Reason for Change:**

There have been multiple failures of this equipment causing over-tripping. This equipment is approaching forty years old and is long past being supported from the factory. We have no spare parts besides forty year old relays that have been removed from the system somewhere else.

This old protection is changing its characteristics over time, causing

multiple failures of individual elements in therelays when tested.

The equipment will be purchased and installed by January 2012.

*** Projected Conditions/Benefits of Change:**

Proper relaying.

*** Risk Assessment and Alternatives Evaluated:**

If this project is not approved, the line will not have proper relay protection. Currently, the relays have been disabled due to misoperation, and a SEL 321 package has been installed temporarily.

Appropriation Request Summary Report

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

APR: 24001821
Title: Sigurd-Emery Replace MW & PLC Relays
Estimate Type:
Requesting Cost Center: 13673 - Cedar City Plant Mai
Investment Reason: R2
Priority:
Implementation Start: 06/06/2011
In-Service Date: 12/31/2012

Asset Location: 005701
WBS : TZCE/2011/C/001/B
Func Group:
State: UT
Plant 2450
Status: Approved
Responsible Manager: KELVIN SHORTT

Approver: A Richard Walje **Approved On:** 07/21/2011

Spent To Date: 2,005,931

Fiscal Year	Labor	Material	Purchase Services	Other	Removal Costs	Salvage	SurCharge & AFUDC	Total Gross Capital	CIAC	O&M Expense	Total APR	Betterment
2012	200,000	0	0	0	0	0	22,156	222,156	0	0	222,156	0
2013	795,000	500,000	0	0	5,000	0	184,349	1,484,349	0	0	1,484,349	0
Totals	**995,000**	**500,000**	**0**	**0**	**5,000**	**0**	**206,505**	**1,706,505**	**0**	**0**	**1,706,505**	**0**

*** Description of Assets and Work or Proposed Change:**

Replace both the MW and PLC set of relays on both ends. Upgrade the MW to mirrored bits. Replace all old PLC communication gear.

Estimate is $500,000 labor for each end of one line for the relay replacement. Estimate for the communication equipment is $235,230 for each end of one line.

*** Purpose and Necessity or Reason for Change:**

We have had multiple failures of this equipment causing over tripping. This equipment is approaching forty years old and is long past being supported from the factory. We have no spare parts besides forty year old relays that have been removed from the system somewhere else.

These lines connect our generation in Emery County to Sigurd Substation. False line outages will increase the odds of tripping generation. This

old protection is changing its characteristics over time causing multiple failures of individual elements in the relays when tested.

We propose to do the engineering in 2011 for $200K. We will purchase the equipment to arrive in January and install in early spring when a line outage will not adversely affect the generation.

** Projected Conditions or Benefit of Change:*
Proper relaying.

*** Risk Assessment and Alternatives Evaluated:**
If this project is not approved, the line will not have proper relay protection. Currently the relays have been disabled due to misoperation and a SEL 321 package has been installed temporarily.

Accounting Analysis:

The project will be phased over 2 years. During the project time period, Utah transmission substation meter and relay replacement projects have been allotted $574,094 per year in the 10-year plan. The Sigurd - Emery microwave and power-line-carrier relay replacement project costs of $1.7 million will be within the budget in CY2011 and above the budgeted value in CY2012. This will be considered in the current capital planning process for CY2012.

Financial Analysis:

It is recommended to spend $1.7 to install two new 345kV line relay packages and associated communication equipment on the Sigurd - Emery #1 and #2 lines.

The financial analysis was based on the following assumptions:
> The financial analysis was competed over 50 years.
> Transmission assets are depreciated over 15 years for tax and 58 years for book.
> The transmission assets are allocated to all six states.
> No incremental operating and maintenance or administrative and general expenses.

> 50% bonus deprecation for 2012 capital expenditures.
> In-service date of December 31, 2012.
> The financial analysis results presented below are based on the project's after-tax cash flows. This is based on a capital structure of 47% debt and 53% common with a 5.76% debt and a 10.33% common rate.
> A 1.19% Utah property tax rate was used.
> A 7.15% discount rate was used.
> A 37.95% tax rate was used.

The recommended solution to install two new 345kV line relay packages and associated communication equipment on the Sigurd - Emery #1 and #2 lines has a present value of revenue requirements cost of $2.0 million.

Project Change Notice (PCN) Summary Report

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

APR: 94002024
Title: Sigurd-Emery Replace MW & PLC Relays
Change Type: Cost
Current In-Service Date: 12/31/2012

WBS : TZCE/2011/C/001/B
Investment Reason: R2
Project Manager: PAUL HENRY
Proposed In-Service Date: 12/31/2012

Created By: Daniel Johnson **Created On:** 03/19/2012
Approver: A Richard Walje **Approved On:** 04/18/2012

Spent To Date:	2,005,931
Approved Project Costs:	1,706,505
Gross Funds Requested:	317,311
New Project Costs:	2,023,816

Fiscal Year	Labor	Material	Purchase Services	Other	Removal Costs	Salvage	SurCharge & AFUDC	Total Gross Capital	CIAC	O&M Expense	Total APR	Betterment
2012	46,329	10,073	52,512	1,314	0	0	16,782	127,010	0	0	127,010	0
2013	668,997	450,240	473,804	13,732	5,000	0	285,032	1,896,805	0	0	1,896,805	0
Totals	**715,326**	**460,313**	**526,316**	**15,046**	**5,000**	**0**	**301,815**	**2,023,816**	**0**	**0**	**2,023,816**	**0**

*** Description of Assets and Work or Proposed Change:**

Increase the project budget by $317,311 (18.6%) to cover forecasted project costs above the approved budget. The original block estimate included $995k for Labor costs, but no dollars for Purchased Services; however, there was significant external labor along with the internal labor required to complete the project in a timely manner. Therefore, the main reason for the overage is the forecasted combination of internal labor and external labor, i.e., labor + purchased services, which comes to $1,242k, or $247k more than the $995k original block estimate. The breakdown of the net $317k overall increase includes labor $280 less than the original estimate, purchased services $526k more, materials $40k less, other costs $15k more, and associated overheads $95k more than the original block estimate.

*** Purpose and Necessity or Reason for Change:**

The original block estimate anticipated that this project would be done

by internal labor resources; however, the extreme schedule compression associated with meeting system outage window requirements, including the Hunter Unit 3 scheduled outage, has resulted in extended hours and additional resources required to accomplish the work in a timely manner. Engineering labor was outsourced to ECI and Stanley for Emery and Sigurd respectively because internal resources were not available, communicati on engineering labor was outsourced to CCE due to the same reason. Panel fabrication was outsourced to Gexpro via the usual procurement process. In addition, expediting contract panel fabrication contributed to costs. Labor to install the conduit and communication cable was outsourced to KT Services because internal labor resources were not available. There have also been some additional field contract labor costs due to ice frozen in conduits and trenches.

** Projected Conditions or Benefit of Change:*

System reliability is the main driver.

*** Risk Assessment and Alternatives Evaluated:**

The risk to the system by not completing this work is significant. Some temporary relays were installed (expense orders outside of the proejct were setup for these costs) for line protection on one of the lines due to the failure of the original relays. There is no longer factory support for these obsolete relays, and no spare parts are available besides other forty-year-old relays as they are removed from the system somewhere else. This old protection is changing its characteristics over time causing multiple failures of individual elements in the relays when tested. These two lines connect generation in Emery County to Sigurd Substation. False line outages will increase the odds of tripping generation. Other scheduled system outages for other projects preclude the possibility of re-scheduling this work to be done in a timely manner later on this year. Risk Mitigation Alternatives:
Although the in-service date for this project is December 31, 2012, it is prudent that this work continue to be expedited and completed. The Emery-Sigurd Line #2 work has been completed the Emery-Sigurd Line #1 work is in progress to be completed within the Hunter Unit #3 scheduled outage. [Note that since submitting the PCN, the Emery-Sigurd Line #1 was placed in service on March 25, 2012, with some post in-service testing, as-built drawings, and closeout activities yet to do.] Efforts to mitigate the risk of cost increase have included the following:

- Pushing the outage window out into the Spring or Summer was considered to relieve some schedule compression; however, other system outages including a UDOT outage on the Camp Williams-Emery 345 kV line, the scheduled Hunter Unit #3 outage, and Summer heavy load conditions precluded moving the outages forward. In addition, the temporary relays installed for the PLC protection of one of the lines made it prudent to change out the relays sooner rather than later. The team worked with UDOT and Operations to arrange the best schedule. The Hunter Unit #3 outage didn't change, but the decision was made to do the Emery-Sigurd #2 line before the Hunter Unit #3 scheduled outage and schedule the UDOT required outage afterward.

- The existing control cables have been reused except where the existing cable was not long enough to reach the new panel or termination location.

- Weekly team meetings have been held to carefully coordinate the engineering and materials in order to have the materials delivered to the right place and design correct the first time.

-As many of the preliminary construction activities as possible have been done ahead of the outages to take advantage of windows of favorable weather.

Budget Status
This project is not in the CY12 budget. The overspend will be absorbed by the underspend in other projects.

Financial Review.
1. This project change notice increases authorized spend by $317k from $1,707k to $2,024k.
2. The in-service date remains January 31, 2012.
3. A financial analysis was prepared July 14, 2011 when APR 94001821 was approved.
4. The recommended alternative is the only feasible alternative.
5. The majority of project costs have been incurred.
6. An updated financial analysis is not required.