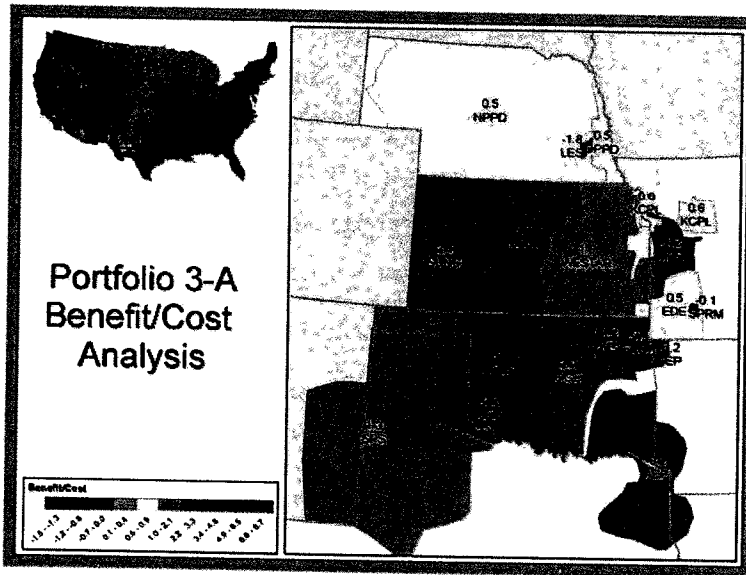
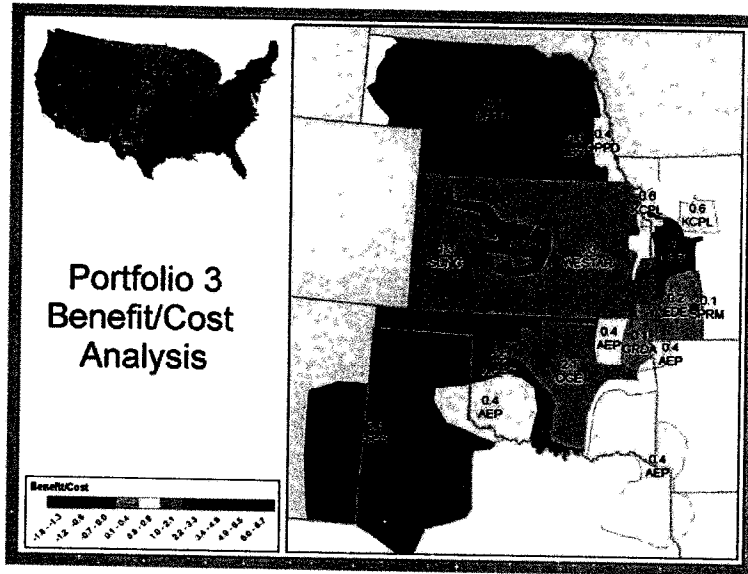
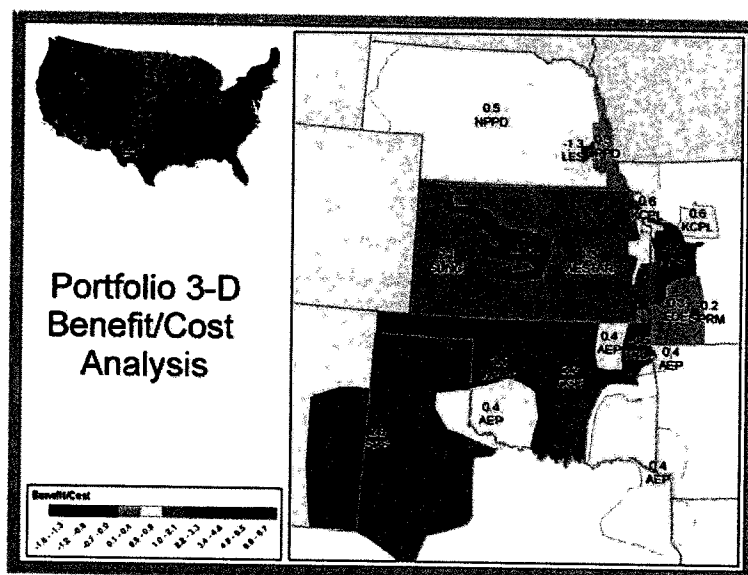
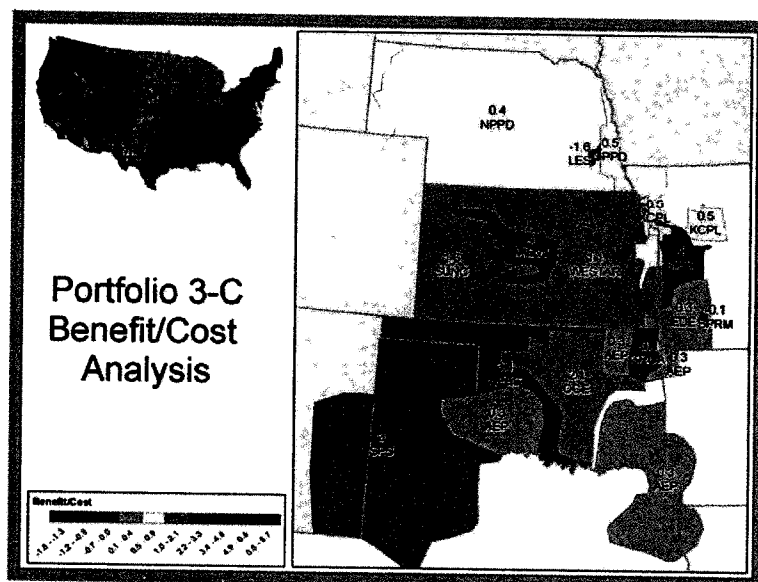


SPP Balanced Portfolio Report

The Benefit to Cost ratio per zone is shown for the respective portfolios in the following pictures. The B/Cs shown here are before transfers have been conducted to balance the respective portfolios.





Portfolio 3-D had the highest B/C ratio of the four portfolios screened and was selected for further development. In this analysis, each of the individual projects in the Portfolio was removed to determine the impact of the project on the portfolio as a whole. These results are shown in the following table. The table is divided into total Adjusted Production Cost (APC) benefit, benefit for SPP Open Access Transmission Tariff (OATT) members as well as benefits to areas outside the region, shown here as Tier 1 benefits. The transfer percentage (%) shown is the percentage of the total portfolio cost in dollars that must be transferred, following tariff provisions, to balance the respective portfolios shown below. Ideally, the goal is a lower transfer percentage is desirable with a higher B/C.

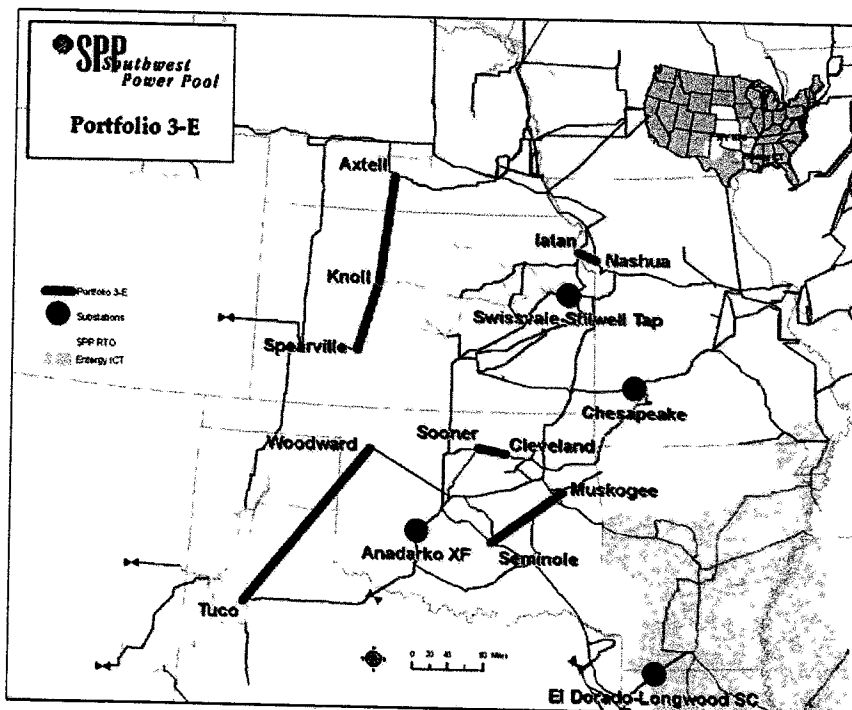
SPP Balanced Portfolio Report

Portfolio 3-D Refinement Analysis

Project	Total SPP Benefit (\$M)	SPP Benefit (\$M)	Net 1 Benefit (\$M)	Annual Total Portfolio Cost (\$M)	B/C	Transfer %
P-3D	\$148	\$149	(\$1.3)	\$ 139	1.08	158%
Portfolio 3D sensitivities						
no WRS (P-3E)	\$137	\$132	\$4.3	\$ 107	1.24	121%
no SKA	\$127	\$128	(\$0.8)	\$ 114	1.12	111%
no TW	\$121	\$116	(\$1.1)	\$ 105	1.10	324%
no Ches	\$146	\$148	(\$1.4)	\$ 136	1.09	156%
no SM	\$116	\$122	(\$6.6)	\$ 115	1.06	183%
no IN	\$143	\$142	\$0.5	\$ 132	1.08	168%
no WGard	\$152	\$149	(\$1.6)	\$ 138	1.08	160%
no ADK	\$146	\$147	(\$0.9)	\$ 137	1.07	159%
no SC	\$120	\$122	(\$1.2)	\$ 135	0.90	n/a

The projects that were the best candidates for removal from Portfolio 3-D were (1) Wichita – Reno Co. – Summit, (2) Spearville – Knoll – Axtell and (3) the Chesapeake Transformer. SPP staff recommended during the March 2009 CAWG meeting that the Wichita – Reno Co. – Summit line be removed from the portfolio, but also recommended Spearville – Knoll – Axtell and Chesapeake stay in the portfolio to maintain balance. This Portfolio was labeled Portfolio 3-E and is shown in the following map.

Portfolio 3-E



SPP Balanced Portfolio Report

Portfolio 3-D and 3-E were selected as the candidates for the full 10-year analysis of portfolios as required by the Tariff. The following tables demonstrate the results of the 10-year analysis, with interpolation between simulated years, 2012, 2017 and 2022. The results are discounted back to present worth, using an 8% discount rate. Levelized annual values were also calculated. The annual cost of the each portfolio is given such that the host utility carrying charge rate is assumed to be used for the construction of the project.

Portfolio 3-D: 10 Year Benefit vs. Costs

		Million of Dollars					
		Total Benefit	Incremental Benefit	Total Cost SPP OATT	Incremental Cost	Cost (E&C)	
				ATRR			
2012		\$ 149.0		\$ 138.55		826.4	
2017		\$ 208.5	\$ 11.904	\$ 138.55	\$ -	Annual	
2022		\$ 260.3	\$ 10.364	\$ 138.55	\$ -	138.5	
Year	8.00% Year #	Discount Factor	Annual Benefits	Discounted Benefits	Annual Costs	Discounted Costs	B/C
2012	1	1.00	\$ 149	\$ 149	\$ 139	\$ 139	1.08
2013	2	0.93	\$ 161	\$ 149	\$ 139	\$ 128	1.16
2014	3	0.86	\$ 173	\$ 148	\$ 139	\$ 119	1.25
2015	4	0.79	\$ 185	\$ 147	\$ 139	\$ 110	1.33
2016	5	0.74	\$ 197	\$ 145	\$ 139	\$ 102	1.42
2017	6	0.68	\$ 209	\$ 142	\$ 139	\$ 94	1.50
2018	7	0.63	\$ 219	\$ 138	\$ 139	\$ 87	1.58
2019	8	0.58	\$ 229	\$ 134	\$ 139	\$ 81	1.65
2020	9	0.54	\$ 240	\$ 129	\$ 139	\$ 75	1.73
2021	10	0.50	\$ 250	\$ 125	\$ 139	\$ 69	1.80
2022	11	0.46	\$ 260	\$ 121	\$ 139	\$ 64	1.88
Ten Year Totals		Yrs 1-10	7.25	\$ 2,010	\$ 1,405	\$ 1,385	\$ 1,004
Per Year Levelized				\$ 194		\$ 139	1.40

SPP Balanced Portfolio Report

Portfolio 3-DE: 10 Year Benefit vs. Costs

Portfolio 3-E		Million of Dollars					Cost (E&C)	
		Total Benefit	Incremental Benefit	Total Cost SPP OATT ATRR	Incremental Cost			
	2012	\$	132.3		\$	106.63	657.4	
	2017	\$	181.2	\$	9.786	\$	106.63	Annual
	2022	\$	229.5	\$	9.652	\$	106.63	106.6
Year	8.00% Year #	Discount Factor	Annual Benefits	Discounted Benefits	Annual Costs	Discounted Costs	B/C	
	2012 1	1.00	\$ 132	\$ 132	\$ 107	\$ 107	1.24	
	2013 2	0.93	\$ 144	\$ 133	\$ 107	\$ 99	1.35	
	2014 3	0.86	\$ 156	\$ 134	\$ 107	\$ 91	1.46	
	2015 4	0.79	\$ 168	\$ 133	\$ 107	\$ 85	1.58	
	2016 5	0.74	\$ 180	\$ 132	\$ 107	\$ 78	1.69	
	2017 6	0.68	\$ 181	\$ 123	\$ 107	\$ 73	1.70	
	2018 7	0.63	\$ 192	\$ 121	\$ 107	\$ 67	1.80	
	2019 8	0.58	\$ 202	\$ 118	\$ 107	\$ 62	1.89	
	2020 9	0.54	\$ 212	\$ 115	\$ 107	\$ 58	1.99	
	2021 10	0.50	\$ 223	\$ 111	\$ 107	\$ 53	2.09	
	2022 11	0.46	\$ 229	\$ 106	\$ 107	\$ 49	2.15	
Ten Year Totals		Yrs 1-10	7.25	\$ 1,790	\$ 1,253	\$ 1,066	\$ 773	1.62
Per Year Levelized				\$ 173		\$ 107		1.62

A reliability impact analysis was conducted on the portfolio projects to determine the impact of the Balanced Portfolio on the STEP reliability analysis as well as on Tier 1 entities, third parties to SPP. This analysis was conducted in the same manner and with the same methodologies used in the 2008 STEP 10 year reliability analysis. The analysis was conducted for the entire collection of portfolio projects considered for the March CAWG meeting. The results are broken into (1) advanced projects, those projects that would be moved up in the reliability timeline due to the Balanced Portfolio; (2) new projects, projects which are now needed that were not identified in the original 10 year reliability planning horizon, but may have been needed beyond that horizon; (3) third party impacts or projects needed on neighboring systems due to the Balanced Portfolio; and (4) deferred projects, projects which are either deferred beyond the planning horizon or mitigated entirely due to the portfolio. A summary of these results is shown in the table below.

Reliability Impact (E&C Dollars)

Portfolio	Advanced Projects	New Projects	3rd Party Impacts	Deferred Projects	Net Benefit
P-3	\$ 1.0	\$ 3.4	\$ 10.2	\$ 42.1	\$ 27.5
P-3A	\$ 1.0	\$ 3.4	\$ 10.2	\$ 27.7	\$ 13.1
P-3C	\$ 1.0	\$ 3.4	\$ 10.2	\$ 42.1	\$ 27.5
P-3D	\$ 1.0	\$ 19.2	\$ 10.2	\$ 42.1	\$ 11.7
P-3E	\$ 1.0	\$ 19.2	\$ 10.2	\$ 42.1	\$ 11.7

SPP Balanced Portfolio Report

April 2009: Balanced Portfolio Summit

The material from the March 2009 CAWG meeting was presented at an open meeting in Dallas, TX, April 1, 2009 as an SPP open stakeholder summit. Stakeholder comments and feedback were collected during this summit and incorporated in the final analysis used in the subsequent recommendation to the CAWG on an April 10th conference call.

Feedback from stakeholders and the CAWG included a request to consider the inclusion of a portion of the Wichita – Reno Co – Summit in the final recommendation, if it was feasible, and to include the project given its benefit and costs. Additionally, Empire District Electric Company staff requested that the Chesapeake transformer project be removed from the Balanced Portfolio recommendation due to the complex nature of the project and the associated third party impacts. Also, the CAWG directed SPP to further refine cost estimates of the projects in the portfolio to include greater granularity in the itemization of project costs associated with the portfolio projects, including but not limited to material costs, right of way requirements, labor, etc. Lastly, SPP staff was directed to determine the appropriate carrying charge rates to be used for each host zone to ensure that consistent values were being applied to all projects so that they could be considered on a consistent and reasonable basis.

April 2009: CAWG Conference Call

The work presented during the April SPP open stakeholder summit was refined to reflect the stakeholder feedback and comments and presented to the CAWG on April 10 via conference call.

The first portfolio change was to consider the removal of the Chesapeake transformer. The results are shown in the following tables.

Portfolio 3-E No Chesapeake: 10 Year Benefit vs. Costs

Portfolio 3-E No Ches			Million of Dollars					Cost (E&C)	
			Total Benefit	Incremental Benefit	Total Cost SPP OATT ATRR	Incremental Cost			
	2012		\$ 132.3		\$ 93.73			691.9	
	2017		\$ 181.2	\$ 9.79	\$ 93.73	\$ -		Annual	
	2022		\$ 229.5	\$ 9.65	\$ 93.73	\$ -		93.7	
Year	8.00% Year #	Discount Factor	Annual Benefits	Discounted Benefits	Annual Costs	Discounted Costs		B/C	
	2012	1	\$ 132	\$ 132	\$ 94	\$ 94		1.41	
	2013	2	\$ 145	\$ 134	\$ 94	\$ 87		1.55	
	2014	3	\$ 158	\$ 135	\$ 94	\$ 80		1.68	
	2015	4	\$ 171	\$ 136	\$ 94	\$ 74		1.82	
	2016	5	\$ 184	\$ 135	\$ 94	\$ 69		1.96	
	2017	6	\$ 181	\$ 123	\$ 94	\$ 64		1.93	
	2018	7	\$ 191	\$ 120	\$ 94	\$ 59		2.04	
	2019	8	\$ 201	\$ 117	\$ 94	\$ 55		2.14	
	2020	9	\$ 210	\$ 114	\$ 94	\$ 51		2.24	
	2021	10	\$ 220	\$ 110	\$ 94	\$ 47		2.35	
	2022	11	\$ 229	\$ 106	\$ 94	\$ 43		2.45	
Ten Year Totals			Yrs 1-10	7.25	\$ 1,792	\$ 1,257	\$ 937	\$ 679	1.85
Per Year Levelized					\$ 173		\$ 94		1.85

SPP Balanced Portfolio Report

The transfer analysis for portfolio 3-E without Chesapeake is shown in the following table. The analysis concluded that \$32M of transfers were required to balance this portfolio.

Attachment H Transfer Adjustments - Portfolio 3E no Ches - Annualized

#	Zone	Portfolio Benefits	Portfolio Costs	Zonal ATRR Transfers Out (Col. 5 Attach H)	Regional Allocation of Zonal ATRR Transfers	Net of Zonal Transfers and Transfer Allocation	Net Benefit	B/C
1	AEPW	\$30.8	\$21.1	\$0.0	\$7.2	\$7.2	\$2.5	1.1
2	EMDE	(\$0.4)	\$2.5	(\$3.7)	\$0.8	(\$2.8)	\$0.0	1.0
3	GRDA	\$0.8	\$1.8	(\$1.6)	\$0.6	(\$1.0)	\$0.0	1.0
4	KCPL	\$8.3	\$7.2	(\$1.4)	\$2.5	\$1.1	\$0.0	1.0
5	MIDW	\$12.8	\$0.7	\$0.0	\$0.2	\$0.2	\$11.9	14.1
6	MIPU	(\$1.6)	\$3.8	(\$6.7)	\$1.3	(\$5.4)	\$0.0	1.0
7	MKEC	\$11.7	\$1.1	\$0.0	\$0.4	\$0.4	\$10.2	8.3
8	OKGE	\$26.5	\$13.3	\$0.0	\$4.6	\$4.6	\$8.6	1.5
9	SPRM	(\$0.2)	\$1.5	(\$2.1)	\$0.5	(\$1.6)	\$0.0	1.0
10	SUNC	\$3.2	\$1.0	\$0.0	\$0.3	\$0.3	\$1.9	2.4
11	SWPS	\$56.0	\$10.8	\$0.0	\$3.7	\$3.7	\$41.5	3.9
12	WEFA	\$7.9	\$3.0	\$0.0	\$1.0	\$1.0	\$3.9	2.0
13	WRI	\$14.2	\$10.8	(\$0.4)	\$3.7	\$3.4	\$0.0	1.0
14	NPPD	\$5.5	\$7.5	(\$4.6)	\$2.6	(\$2.0)	\$0.0	1.0
15	OPPD	\$2.2	\$5.8	(\$5.7)	\$2.0	(\$3.7)	\$0.0	1.0
16	LES	(\$3.5)	\$1.8	(\$5.9)	\$0.6	(\$5.3)	\$0.0	1.0
Total		\$174	\$94	-\$32	\$32	\$0	\$80	1.9

Next, the inclusion of the Reno Co – Summit portion of the Wichita – Reno Co. – Summit Project was considered for inclusion after the removal of the Chesapeake transformer. These results are shown below.

Portfolio 3-E No Chesapeake, with Reno Co. - Summit: 10 Year Benefit vs. Costs

Portfolio 3-E No Ches, With RS		Million of Dollars					Cost (E&C)
		Total Benefit	Incremental Benefit	Total Cost SPP OATT	Incremental Cost		
				ATRR			
	2012	\$ 178.0		\$ 105.56			789.0
	2017	\$ 242.1	\$ 12.816	\$ 105.56	\$ -	Annual	
	2022	\$ 290.4	\$ 9.658	\$ 105.56	\$ -		105.6
Year	8.00% Year #	Discount Factor	Annual Benefits	Discounted Benefits	Annual Costs	Discounted Costs	B/C
	2012 1	1.00	\$ 178	\$ 178	\$ 106	\$ 106	1.69
	2013 2	0.93	\$ 191	\$ 177	\$ 106	\$ 98	1.81
	2014 3	0.86	\$ 204	\$ 175	\$ 106	\$ 90	1.93
	2015 4	0.79	\$ 216	\$ 172	\$ 106	\$ 84	2.05
	2016 5	0.74	\$ 229	\$ 169	\$ 106	\$ 78	2.17
	2017 6	0.68	\$ 242	\$ 165	\$ 106	\$ 72	2.29
	2018 7	0.63	\$ 252	\$ 159	\$ 106	\$ 67	2.38
	2019 8	0.58	\$ 261	\$ 153	\$ 106	\$ 62	2.48
	2020 9	0.54	\$ 271	\$ 146	\$ 106	\$ 57	2.57
	2021 10	0.50	\$ 281	\$ 140	\$ 106	\$ 53	2.66
	2022 11	0.46	\$ 290	\$ 135	\$ 106	\$ 49	2.75
Ten Year Totals							
Yrs 1-10		7.25	\$ 2,325	\$ 1,632	\$ 1,056	\$ 765	2.13
Per Year Levelized				\$ 225		\$ 106	2.13

SPP Balanced Portfolio Report

The transfer analysis for portfolio 3-E without Chesapeake but including with Reno Co. - Summit is shown in the following table. The analysis concluded that \$62M of transfers were required to balanced this portfolio

Attachment H Transfer Adjustments - Portfolio 3E no Ches with RS - Annualized

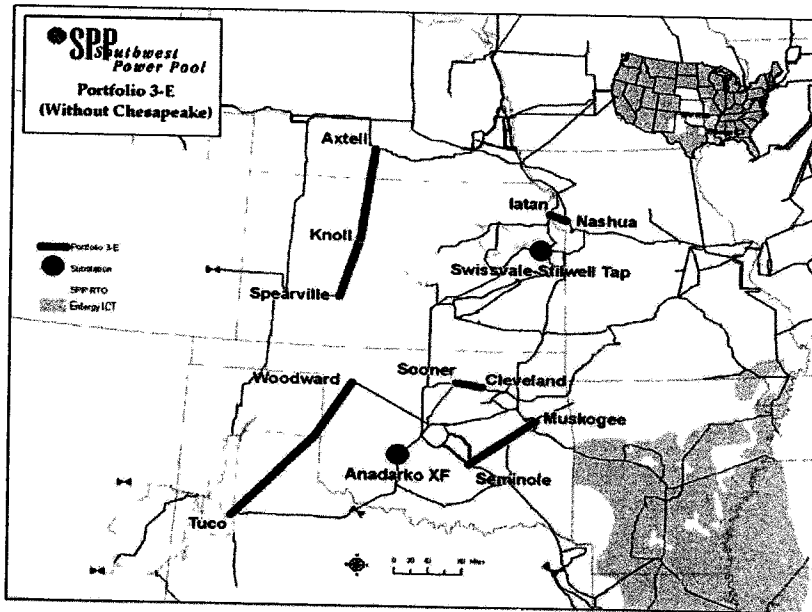
#	Zone	Portfolio Benefits	Portfolio Costs	Zonal ATRR Transfers Out (Col. 5 Attach H)	Regional Allocation of Zonal ATRR Transfers	Net of Zonal Transfers and Transfer Allocation	Net Benefit	B/C
1	AEPW	\$25.8	\$23.7	(\$11.8)	\$13.9	\$2.1	\$0.0	1.0
2	EMDE	(\$0.1)	\$2.8	(\$4.5)	\$1.6	(\$2.9)	\$0.0	1.0
3	GRDA	\$0.1	\$2.1	(\$3.2)	\$1.2	(\$1.9)	\$0.0	1.0
4	KCPL	\$8.7	\$8.2	(\$4.2)	\$4.8	\$0.5	\$0.0	1.0
5	MIDW	\$12.8	\$0.8	\$0.0	\$0.4	\$0.4	\$11.6	10.7
6	MIPU	(\$5.6)	\$4.3	(\$12.4)	\$2.5	(\$9.9)	\$0.0	1.0
7	MKEC	\$11.3	\$1.2	\$0.0	\$0.7	\$0.7	\$9.4	6.0
8	OKGE	\$36.8	\$15.0	\$0.0	\$8.8	\$8.8	\$13.0	1.5
9	SPRM	(\$0.3)	\$1.6	(\$2.9)	\$1.0	(\$1.9)	\$0.0	1.0
10	SUNC	\$3.6	\$1.1	\$0.0	\$0.7	\$0.7	\$1.8	2.0
11	SWPS	\$55.9	\$12.2	\$0.0	\$7.1	\$7.1	\$36.6	2.9
12	WEFA	\$11.8	\$3.3	\$0.0	\$2.0	\$2.0	\$6.5	2.2
13	WRI	\$59.9	\$12.2	\$0.0	\$7.1	\$7.1	\$40.6	3.1
14	NPPD	\$5.4	\$8.5	(\$8.0)	\$5.0	(\$3.0)	\$0.0	1.0
15	OPPD	\$2.7	\$6.6	(\$7.7)	\$3.8	(\$3.8)	\$0.0	1.0
16	LES	(\$3.9)	\$2.0	(\$7.1)	\$1.2	(\$5.9)	\$0.0	1.0
Total		\$225	\$196	-\$62	\$62	\$0	\$120	2.1

An analysis was conducted to determine the impact on total Annual Transmission Revenue Requirement (ATRR) for each zone in the tariff. The results are shown for portfolio 3-E, "3-E no Chesapeake" and "3-E no Chesapeake with Reno Co – Summit". These results are shown in the following table.

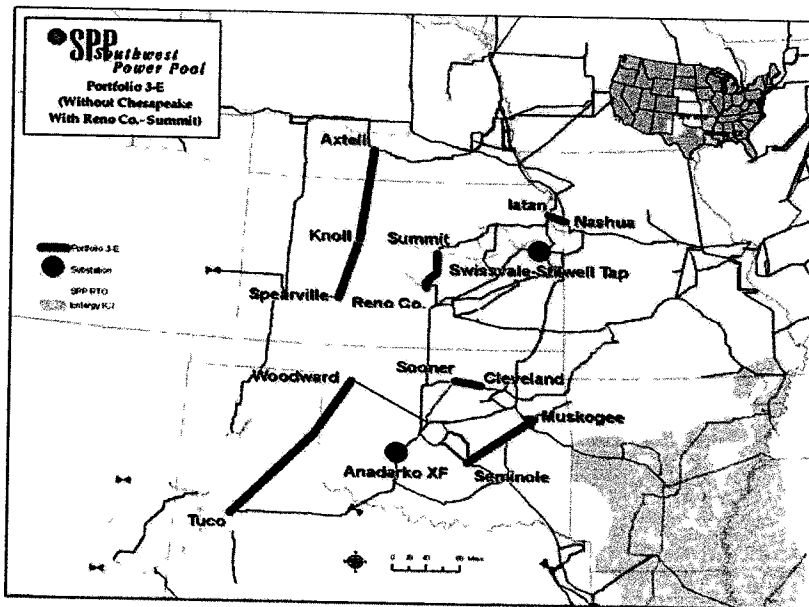
Total ATRR for Proposed Balanced Portfolios

Zone	BP 3E		3E no Ches		BP 3E no Ches w RS	
	Annual Zonal plus Annual Base Plan Zonal plus Annual Region Wide RR	Annual Base	Annual Zonal plus Annual Base Plan Zonal plus Annual Region Wide RR	Annual Base	Annual Zonal plus Annual Base Plan Zonal plus Annual Region Wide RR	Annual Base
AEPW	\$	175,484,688	\$	177,104,393	\$	174,641,806
SPRM	\$	8,934,262	\$	8,659,884	\$	8,524,079
EMDE	\$	14,660,746	\$	14,007,997	\$	14,294,209
GRDA	\$	25,891,875	\$	26,032,862	\$	25,312,950
KCPL	\$	43,661,239	\$	44,709,872	\$	45,060,781
OKGE	\$	118,952,010	\$	116,849,771	\$	122,735,245
MIDW	\$	5,277,346	\$	5,170,672	\$	5,469,320
MIPU	\$	19,618,726	\$	19,420,118	\$	15,471,824
SWPA	\$	9,431,500	\$	9,431,500	\$	9,431,500
SWPS	\$	104,700,870	\$	102,989,030	\$	107,781,536
SUNC	\$	16,092,722	\$	15,934,343	\$	16,377,746
WEFA	\$	25,545,806	\$	25,077,005	\$	26,389,469
WRI	\$	128,845,823	\$	129,135,340	\$	134,286,149
MKEC	\$	7,723,354	\$	7,557,124	\$	8,022,505
LES	\$	8,877,057	\$	8,718,252	\$	8,313,564
NPPD	\$	53,140,390	\$	53,181,895	\$	53,125,563
OPPD	\$	38,645,990	\$	38,661,265	\$	39,227,136
	\$	805,484,404	\$	802,641,325	\$	814,465,382

Portfolio 3-E "Adjusted"



Portfolio 3-E with Reno Co – Summit, without Chesapeake



Recommendation

The CAWG endorsed portfolio 3-E "Adjusted" (without Chesapeake, without Reno Co – Summit). Portfolio 3-E "Adjusted" provides a significant benefit vs. cost to the SPP region, as well as having lower balance transfer requirements. Portfolio 3-E "Adjusted" contains a comprehensive group of economic projects addressing many of the top constraints in the SPP. The projects associated with portfolio 3-E "Adjusted" are as follows:

- Tuco – Woodward District EHV, \$229M
- Iatan – Nashua, \$54M
- Swissvale – Stilwell tap at W. Gardner, \$2M
- Spearville – Knoll – Axtell, \$236M
- Sooner – Cleveland, \$34M
- Seminole – Muskogee, \$129M
- Anadarko Tap, \$8M

- Total E&C Costs: \$692M

The supporting material for portfolio 3-E was presented to the Markets and Operations Policy Committee (MOPC) in April 2009. The MOPC reviewed and discussed the portfolio options and the impact on the footprint. After discussion, the MOPC endorsed the recommendation for Balanced Portfolio 3-E "Adjusted" pending issuance of the final report, according to the SPP Tariff.

Portfolio 3-E "Adjusted" provides substantial benefit to customers in the SPP footprint. Based on a 1,000 kWh/month usage of a residential customer, the Portfolio provides an estimated net benefit of \$0.78/month (\$1.66/mo on average versus a cost of \$0.88/mo). The existing transmission revenue requirements for the SPP region in this typical monthly residential customer bill are estimated to be \$7.58. Additionally, it should be noted that the Portfolio could incur a construction cost increase of up to 113%, or more than double the estimated construction cost, and still provide a benefit to cost ratio of 1.0 for the region. Therefore, the Balanced Portfolio could have a total E&C final cost of over \$1.4B and still provide benefits greater than costs.

Estimated SPP average customer impact (based on 1,000 kWh/month usage)

Existing Zonal ATRR	Base Plan		New Base Plan NTCs		P-3E Costs
	1/3	2/3	1/3	2/3	Annual
\$688M	\$7M	\$14M	\$33M	\$66M	\$106 M
Total: \$808M					13%
Avg. Cost Per Customer Per Month: \$7.58					88 ¢

P-3E "Adjusted" Benefit = \$1.66

The CAWG and MOPC recommendation of Portfolio 3-E "Adjusted" was presented to the SPP Regional State Committee (RSC) during their April 27, 2009 meeting in Oklahoma City where Portfolio 3-E "Adjusted" was endorsed by the RSC. Staff then presented to the MOPC and RSC the recommended Portfolio during the SPP Board of Directors meeting on April 28th. The SPP Board approved the projects in Balanced Portfolio 3-E "Adjusted" for inclusion in the SPP Transmission Expansion Plan. The SPP Board went on to direct staff to finalize the Balanced Portfolio Report in accordance with the SPP tariff. Furthermore, the Board directed that Notification To Construct letters for the Projects in the Balanced Portfolio be issued once the required Balanced Portfolio Report is

SPP Balanced Portfolio Report

finalized after CAWG review and MOPC approval.

SPP Balanced Portfolio Report

Balanced Portfolio Stakeholder Process

The SPP Regional State Committee (**RSC**) requested the Cost Allocation Working Group (**CAWG**) to consider alternative cost allocations for economic upgrades.

Cost Allocation Working Group (CAWG)

The CAWG has been the primary stakeholder group overseeing development of the Balanced Portfolio. The CAWG created the Economic Concepts whitepaper. Many representatives from other SPP stakeholder groups attend the CAWG's monthly meetings.

Trapped Generation Task Force (TGTF)

This CAWG Task Force determined wind assumptions in the Adjusted Production Cost (**APC**) models.

Economic Modeling and Methods Task Force (EMMTF)

The EMMTF focused on the planning process and development of additional economic benefit metrics. It initially worked to acquire detailed data on generation units in the model. The EMMTF addressed confidential issues. The EMMTF is currently the Economic Studies Working Group (**ESWG**)

Regional Tariff Working Group (RTWG)

The RTWG facilitated acquiring FERC approval of Attachment O language for the Balanced Portfolio process.

Markets and Operations Policy Committee (MOPC), Board of Directors (BOD), Regional State Committee (RSC)

These groups will review and approve the Balanced Portfolio.

Planning Summits

Proposed Balanced Portfolios and related concepts were shared at planning summits in May and August.

Posting

Portfolios and associated information are posted on SPP.org:

<http://www.spp.org/section.asp?pageID=120>

SPP Balanced Portfolio Report

Appendix

Final Benefit to Cost Results for the Balanced Portfolio

The following table demonstrates the full, 10 year portfolio analysis including reliability costs and benefits. These costs and benefits accrue in the years that the portfolio projects impact the reliability plan.

Portfolio 3-E "Adjusted" 10 yr B/C with Reliability Impact

		Million of Dollars					
		Total Benefit	Incremental Benefit	Total Cost SPP OATT	Reliability Cost	Cost (E&C)	
Portfolio 3-E "Adjusted"				ATRR		Annual	692
2012		\$ 131.2		\$ 93.73	\$ 0.03	\$	93.7
2017		\$ 193.2	\$ 12.4	\$ 93.73	\$ 2.53	Total Annual	
2022		\$ 239.0	\$ 9.2	\$ 93.73	\$ 2.53	\$	93.8

Year	8.00% Year #	Discount Factor	Annual Benefits	Discounted Benefits	Annual Costs	Discounted Costs	B/C
2012	1	1.00	\$ 131	\$ 131	\$ 94	\$ 94	1.40
2013	2	0.93	\$ 144	\$ 133	\$ 94	\$ 87	1.53
2014	3	0.86	\$ 156	\$ 134	\$ 94	\$ 80	1.66
2015	4	0.79	\$ 168	\$ 134	\$ 94	\$ 74	1.80
2016	5	0.74	\$ 181	\$ 133	\$ 94	\$ 69	1.93
2017	6	0.68	\$ 193	\$ 131	\$ 96	\$ 66	2.01
2018	7	0.63	\$ 202	\$ 128	\$ 96	\$ 61	2.10
2019	8	0.58	\$ 212	\$ 123	\$ 96	\$ 56	2.20
2020	9	0.54	\$ 221	\$ 119	\$ 96	\$ 52	2.29
2021	10	0.50	\$ 230	\$ 115	\$ 96	\$ 48	2.39
2022	11	0.46	\$ 239	\$ 111	\$ 96	\$ 45	2.48
Ten Year Totals		Yrs 1-10	7.25	\$ 1,837	\$ 1,281	\$ 950	\$ 687
Per Year Levelized				\$ 177		\$ 95	1.87

The following three tables break out the benefits from the economic analysis. These tables do not include the reliability benefits. The numbers represent a change between the change and base cases, with the change case including the Balanced Portfolio. A negative number denotes a reduction in cost which is considered a benefit. Likewise a positive number is a cost increase.

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2012 Balanced Portfolio 3E "Adjusted" Benefits

Zone	Sum Of Change In Production Costs	Sum Of Delta Purchases	Sum Of Delta Sales	Adjusted Production Costs
AEPW	\$21,285,000	(\$14,003,000)	\$31,439,000	(\$24,155,000)
EMDE	\$2,990,000	(\$2,096,000)	\$207,000	\$687,000
GRDA	\$72,000	\$159,000	\$982,000	(\$751,000)
KCPL	\$4,273,000	(\$637,000)	\$9,994,000	(\$6,358,000)
LES	\$1,297,000	\$1,226,000	\$0	\$2,523,000
MIDW	(\$350,000)	(\$8,783,000)	\$0	(\$9,133,000)
MIPU	\$6,027,000	(\$3,968,000)	(\$5,000)	\$2,064,000
MKEC	(\$7,563,000)	(\$2,015,000)	(\$925,000)	(\$8,653,000)
NPPD	\$6,519,000	(\$28,000)	\$11,726,000	(\$5,235,000)
OKGE	(\$85,787,000)	\$52,737,000	(\$9,386,000)	(\$23,664,000)
OPPD	\$2,165,000	\$160,000	\$4,247,000	(\$1,922,000)
SPRM	\$734,000	(\$42,000)	\$668,000	\$24,000
SUNC	(\$5,206,000)	(\$2,096,000)	(\$5,171,000)	(\$2,131,000)
SWPS	(\$70,516,000)	\$31,769,000	(\$519,000)	(\$38,228,000)
WEFA	(\$13,163,000)	\$4,105,000	(\$375,000)	(\$8,682,000)
WRI	(\$5,257,000)	(\$359,000)	\$2,131,000	(\$7,747,000)

2017 Balanced Portfolio 3E "Adjusted" Benefits

Zone	Sum Of Change In Production Costs	Sum Of Delta Purchases	Sum Of Delta Sales	Adjusted Production Costs
AEPW	\$55,943,000	(\$17,738,000)	\$71,548,000	(\$33,344,000)
EMDE	\$3,525,000	(\$3,272,000)	\$100,000	\$153,000
GRDA	(\$28,000)	\$163,000	\$889,000	(\$754,000)
KCPL	\$6,229,000	(\$3,576,000)	\$11,897,000	(\$9,244,000)
LES	\$2,019,000	\$1,970,000	\$0	\$3,989,000
MIDW	(\$764,000)	(\$14,046,000)	\$0	(\$14,810,000)
MIPU	\$5,483,000	(\$3,915,000)	\$79,000	\$1,489,000
MKEC	(\$10,893,000)	(\$2,667,000)	(\$793,000)	(\$12,767,000)
NPPD	\$5,842,000	(\$779,000)	\$10,741,000	(\$5,678,000)
OKGE	(\$129,794,000)	\$88,180,000	(\$14,032,000)	(\$27,582,472)
OPPD	\$3,030,000	\$276,000	\$5,663,000	(\$2,357,000)
SPRM	\$603,000	(\$60,000)	\$251,000	\$292,000
SUNC	(\$7,575,000)	(\$2,386,000)	(\$6,776,000)	(\$3,185,000)
SWPS	(\$80,497,000)	\$18,914,000	(\$924,000)	(\$60,659,000)
WEFA	(\$22,863,000)	\$14,785,000	(\$468,000)	(\$7,610,000)
WRI	(\$14,392,000)	(\$1,073,000)	\$1,674,000	(\$17,139,000)

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2022 Balanced Portfolio 3E "Adjusted" Benefits

Zone	Sum of Change in Production Cost	Sum of Delta Purchases	Sum of Delta Sales	Adjusted Production Cost
AEPW	\$67,322,000	(\$22,618,000)	\$83,884,000	(\$39,181,000)
EMDE	\$4,703,000	(\$4,421,000)	\$91,000	\$191,000
GRDA	(\$480,000)	\$123,000	\$1,003,000	(\$1,360,000)
KCPL	\$6,624,000	(\$2,828,000)	\$14,974,000	(\$11,178,000)
LES	\$2,249,000	\$2,150,000	\$0	\$4,399,000
MIDW	(\$736,000)	(\$14,659,000)	\$0	(\$15,395,000)
MIPU	\$2,680,000	(\$1,044,000)	(\$19,000)	\$1,655,000
MKEC	(\$14,429,000)	(\$1,525,000)	(\$287,000)	(\$15,667,000)
NPPD	\$6,488,000	(\$1,250,000)	\$10,748,000	(\$5,510,000)
OKGE	(\$138,499,000)	\$85,998,000	(\$22,388,000)	(\$30,113,000)
OPPD	\$3,787,000	\$378,000	\$6,258,000	(\$2,093,000)
SPRM	\$637,000	(\$317,000)	\$301,000	\$19,000
SUNC	(\$7,360,000)	(\$2,495,000)	(\$3,923,000)	(\$5,932,000)
SWPS	(\$89,381,000)	\$2,205,000	(\$1,184,000)	(\$85,992,000)
WEFA	(\$20,837,000)	\$13,197,000	(\$575,000)	(\$7,065,000)
WRI	(\$11,595,000)	(\$6,705,000)	\$2,730,000	(\$21,030,000)

The following table demonstrates the benefits, costs and transfers on an annualized basis after the resulting reliability impacts, both the advancement and deferral, are accounted for. The net B/C impact of the reliability projects was an approximate marginal increase of .01 of the total Portfolio.

Portfolio 3-E "Adjusted" Annualized Benefits, Costs and Transfers, including Reliability Impacts

Attachment H Transfer Adjustments - Portfolio 3E "Adjusted" - Annualized

#	Zone	Portfolio Benefits	Portfolio Costs	Zonal ATRR Transfers Out (Col. 5 Attach H)	Regional Allocation of Zonal ATRR Transfers	Net of Zonal Transfers and Transfer Allocation	Net Benefit	B/C
1	AEPW	\$30.9	\$21.3	\$0.0	\$7.0	\$7.0	\$2.6	1.1
2	EMDE	(\$0.3)	\$2.5	(\$3.7)	\$0.8	(\$2.8)	\$0.0	1.0
3	GRDA	\$0.9	\$1.9	(\$1.6)	\$0.6	(\$1.0)	\$0.0	1.0
4	KCPL	\$8.4	\$7.3	(\$1.3)	\$2.4	\$1.1	\$0.0	1.0
5	MIDW	\$12.8	\$0.7	\$0.0	\$0.2	\$0.2	\$11.9	14.1
6	MIPU	(\$1.3)	\$3.8	(\$6.4)	\$1.3	(\$5.2)	\$0.0	1.0
7	MKEC	\$11.8	\$1.1	\$0.0	\$0.3	\$0.3	\$10.4	8.3
8	OKGE	\$26.6	\$13.4	\$0.0	\$4.4	\$4.4	\$8.7	1.5
9	SPRM	(\$0.1)	\$1.5	(\$2.1)	\$0.5	(\$1.6)	\$0.0	1.0
10	SUNC	\$3.7	\$1.0	\$0.0	\$0.3	\$0.3	\$2.3	2.7
11	SWPS	\$56.1	\$10.9	\$0.0	\$3.6	\$3.6	\$41.5	3.9
12	WEFA	\$8.0	\$3.0	\$0.0	\$1.0	\$1.0	\$4.0	2.0
13	WRI	\$14.2	\$11.0	(\$0.4)	\$3.6	\$3.2	\$0.0	1.0
14	NPPD	\$5.5	\$7.6	(\$4.6)	\$2.5	(\$2.1)	\$0.0	1.0
15	OPPD	\$2.3	\$5.9	(\$5.6)	\$1.9	(\$3.6)	\$0.0	1.0
16	LES	(\$3.1)	\$1.8	(\$5.5)	\$0.6	(\$4.9)	\$0.0	1.0
Total		\$176	\$95	-\$31	\$31	\$0	\$81	1.86

The spreadsheet which was used to calculate the transfers in the above table can be found on the Balanced Portfolio section of the SPP Website.^{††}

^{††} <http://www.spp.org/section.asp?pageID=120>

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The table shown below demonstrates the MW-mi impact of the deferred reliability projects. This impact is used to determine who receives the benefit for the deferral of each reliability project from the portfolio.

Portfolio 3-E – Reliability Impact MW-mi analysis

	HUNTSVILLE - HEC 115KV CKT 1 - Rebuild	HUNTSVILLE - ST_JOHN 115KV CKT 1 - Rebuild	CLEARWATER-GILL ENERGY CENTER WEST 138KV CKT 1 - Rebuild	EL RENO- EL RENO SW 69KV CKT 1 - Upgrade	LONGVIEW- WESTERN ELECTRIC 161KV CKT 1 - Replace Wavetraps
Date	2015	2015	2016	2017	2018
AEPW		1.6%			
EMDE					
GRDA					
KCPL					
MIDW	46.7%	16.2%			
MIPU					
MKEC	19.4%	36.0%			100.0%
OKGE	1.3%	5.3%			
SPRM				24.7%	
SUNC	9.9%	10.9%			
SWPS		4.4%			
WEFA					
WRI	22.6%	22.1%	100.0%	75.3%	
NPPD		3.6%			
OPPD					
LES					
	100.0%	100.0%	100.0%	100.0%	100.0%

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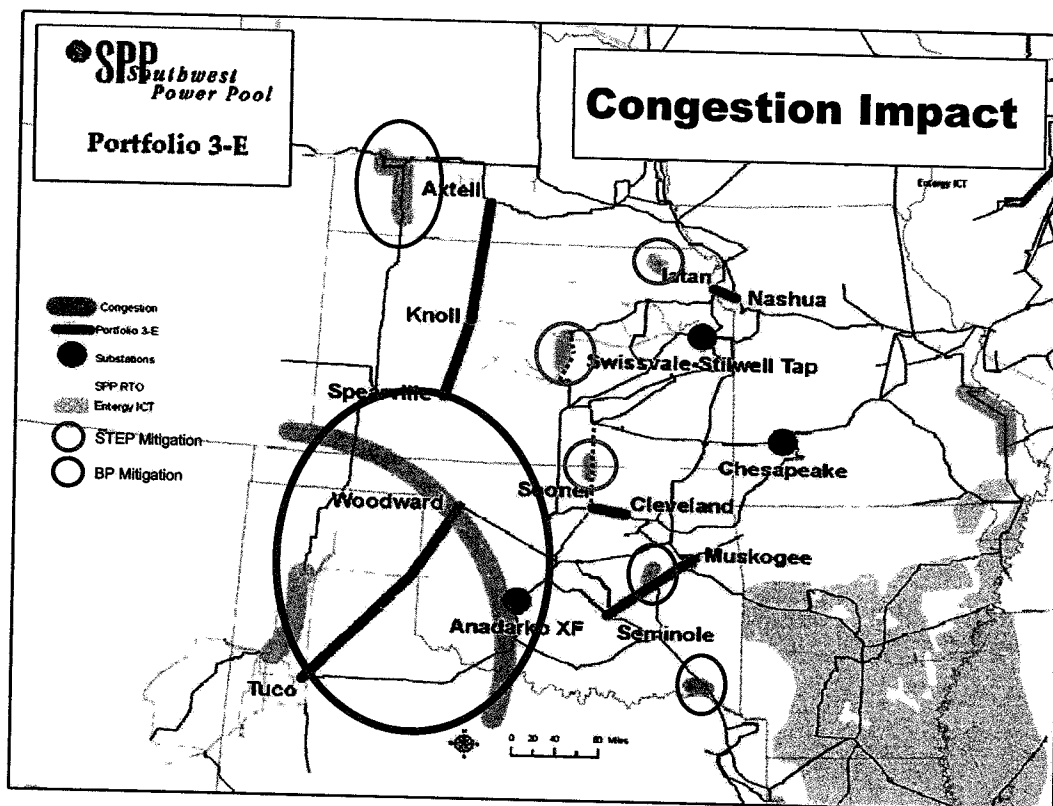
Reliability Results

The reliability results for the Portfolio 3E "Adjusted" are shown in the following table. The projects are broken into "deferred" and "mitigated" issues and "new" issues. Additionally, projects are shown for potential third party impacts. Note that a project highlighted in yellow (e.g. EARLSBORO – FIXICO) indicates that the project is merely advanced in time and not an entirely new issue.

Portfolio 3e without Chesapeake					
Costs of STEP Projects Solved by Portfolio 3e, with STEP date					
Issue Type	Project Name	Area	STEP Date	Deferred costs to TO: STEP projects solved by BP	
Overload	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1 - Rebuild	WERE	16SP	\$3,324,375	
Overload	EL RENO - EL RENO SW 69KV CKT 1 - Upgrade	WFEC	17SP	\$1,950,000	
Overload	HUNTSVILLE - HEC 115KV CKT 1 - Rebuild	WERE	15SP	\$12,487,500	
Overload	HUNTSVILLE - ST_JOHN 115KV CKT 1 - Rebuild	MIDW	15SP	\$7,965,000	
Overload	LONGVIEW - WESTERN ELECTRIC 161KV CKT 1 - Replace Wavetraps	MIPU	18SP	\$50,000	
Voltages	None				
Totals				\$25,776,875	
Cost of potential mitigation for New issues due to Implementation of portfolio improvements					
Description	Project Name	Area	Date of Needed Mitigation	SPP New Issues, Cost	Third Party Issues: Cost
Overloads-SPP	EARLSBORO - FIXICO 69KV CKT 1 - Increase limits (trap, CT ratio)	OKGE	13SP	\$150,000	
Overloads-SPP	MED LODGE-PRATT, ST.JOHN- GREATBENDTAP 115 KV LINE REBUILD	MKEC	18SP	\$15,840,000	
Overloads-Third Party	PLATTE CITY 161/69KV TRANSFORMER CKT 1 - Replace AECI XFMR	MIPU-AECI	13WP		\$7,500,000
Voltages	None				
Totals				\$15,990,000	\$7,500,000
Grand Total				\$23,490,000	
Net: Solved Minus SPP New				\$9,786,875	
Net: Solved Minus Total New				\$2,286,875	

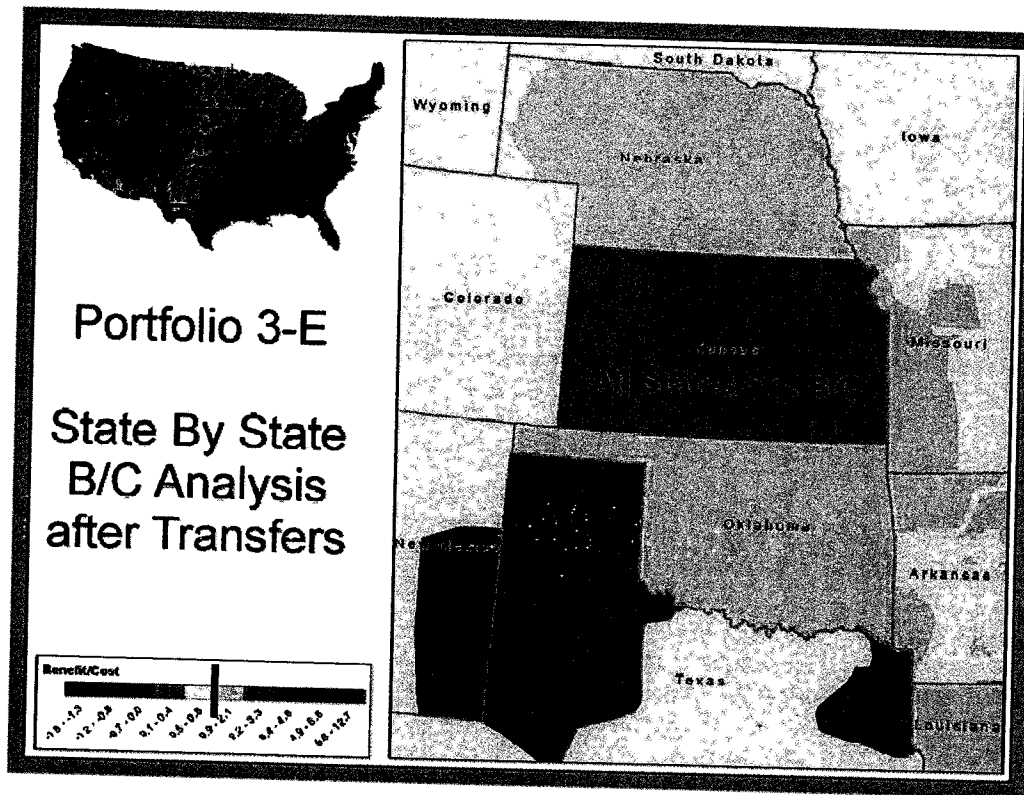
It should be noted that the third party impact of Platte City 161/69 kV transformer was coordinated with Associated Electric Cooperative, Inc. (AECI) staff. AECI staff did not see the same issue in their analysis.

Congestion Impact



The graphic shown above represents the top flowgates in the SPP EIS Market as they exist today. Congestion here is shown as an orange highlight. Portfolio projects, shown on the map as bold red highlight lines, relieve or mitigate much of the congestion that exists today. The congestion relief provided by the portfolio is shown as a green circle. Projects in the 10-year STEP plan that provide additional congestion relief are shown in light blue.

B/C by State



The diagram above demonstrates the B/C ratio of the Balanced Portfolio divided by state boundaries. While it should be noted that the portfolio of projects provides broad, regional benefits to all SPP members, this diagram is a good representation of the balance aspect of the portfolio broken into the respective state boundaries. This picture represents the balance of the portfolio after transfers have taken place in order to balance all zones. As can be seen from the diagram, all states have a B/C ratio greater than 1

Study Assumptions

Fuel Price Assumptions – Fuel price assumptions are taken from EIA forecasts and updated according to member specific data for particular plants. For the purpose of this study, the average gas price is \$6.50/MMBtu starting in 2012. The price is then escalated for inflation for the years 2017 and 2022 at the rate of 1.81%.

Environmental Costs - Carbon sensitivities have been conducted, but were not included in the portfolio selection process. A price of \$15 and \$40 per metric ton was used in these sensitivities. No sensitivity analysis was conducted for higher SO₂ or NO_x prices. SO₂ and NO_x were priced at \$466.50 and \$1742.16 per ton respectively.

Plant Outages – Stakeholders provided outage and maintenance rates to SPP staff through the EMMTF data collection effort. Forced outages were taken as a single draw and locked for the change and the base case. Similarly, maintenance outages were also locked down from a single scheduled pattern. These outage rates were plant specific and provided by each member.

Load Forecast – Load forecasts for the region were provided by each stakeholder in early 2009 for the projected years of 2012, 2017 and 2022 through the EMMTF update effort. These non coincident peak loads for the region were, in aggregate, as follows: 2012 - 43,068MW, 2017 – 47,109 MW, 2022 – 51,530 MW. The zonal shares of the 2012 load submittals were used to allocate the costs on a load ratio share basis.

Resource Forecast – The CAWG and EMMTF determined the criteria for inclusion of new resources into the Balanced Portfolio analysis. It was determined that only plants with firm transmission service and signed agreements or plants that were currently under construction would be included in the analysis. The following units are those which were included as a future resource.

- Turk (618 MW)
- Whelan Energy Center 2 (220 MW)
- Iatan 2 (900 MW)
- Central Plains (99 MW)
- Cloud County (201 MW)
- Flat Ridge (100 MW)
- Red Hills (120 MW)
- Smoky Hills (359 MW)

Hurdle Rates – A dispatch hurdle rate of \$5/MW and a commit hurdle rate of \$8/MW was used to commit resources across regional boundaries.

Demand Side Management – Interruptible load was modeled as supplied by the LSE's.

Market Structure – The simulation was conducted considering a single balancing authority and a day-ahead market structure for the SPP region.

Flowgate Assumptions – The NERC Book of Flowgates was used as the source for flowgates used in the analysis.

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DC Tie Profiles - Historical DC Tie profiles were used to simulate best known profiles for all DC Ties in the SPP region.

Wind Profiles – Historical wind profiles were used to simulate the wind output at each wind farm.

Load Profiles – Load profiles were simulated as supplied by each LSE through the EMMTF effort.

RMR Requirements – Each Balancing Authority submitted their respective Reliability Must Run (RMR) requirements to be simulated in the analysis.

Operating Reserves – SPP's current reserve sharing program (as of 2008) was used in the simulation for operating reserves.