Wind Catcher
Benefits/Costs
Actual (No-Shaping) Annual Revenue Requirement - Ultra-Low Gas Sensitivity
All dollars in Nominal Millions

Year	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
			21	22	23	24	25	26	27	28	29	30	31	32	33
		Year count	1	2	3	4	5	6	7	8	9	10	11	12	13
SWEPCO NPV Discount rate			7 598%												
PSO NPV Discount rate			7 220%												
SWEPCO Share of Total Project			70 0%												
PSO Share of Total Project			30 0%												
Wind Farm and Gen Tie Line			Dollars in Millions												
$1,000,000	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Witness Aaron Models Jurisdictional Total Company View Excluding PTC's - Split 70/30															
SWEPCO															
AR Wind Farm	$2,773 4	$5,822 5	$283 8	$278 9	$280 8	$275 8	$270 8	$277 3	$271 3	$265.2	$259.1	$253 1	$247 5	$241.4	$235.5
AR Tie Line	$1,167 9	$2,439.2	$124 5	$122.3	$120 0	$117 9	$115 5	$113 3	$111 0	$108 9	$106.5	$104 3	$102.0	$100.2	$97.5
AR Total	$3,941 2	$8,261 7	$408 3	$401 2	$400 8	$393 7	$386 3	$390 7	$382 2	$374 1	$365 6	$357 4	$349.4	$341.7	$332 9
LA Wind Farm	2,678 3	5,611 5	298 2	276 8	276 4	263 9	253 6	258 9	253 7	248 6	243 5	238.3	233 6	228.6	223 5
LA Tie Line	$1,238 1	2,487 0	143.5	138 3	138.5	133 7	129.0	124 7	120 3	116.2	111.6	107.4	103 0	99.2	94 4
LA Total	$3,916 4	$8,098 6	$441 7	$415.1	$414 9	$397 7	$382 6	$383 6	$374 0	$364.8	$355.1	$345 8	$336.7	$327.8	$317 9
TX Wind Farm	2,653 3	5,566 6	$296 0	$274 9	$272 5	$260 3	$250 4	$255 9	$250 9	$245 9	$240 9	$236 0	$231 4	$226 5	$221.6
TX Tie Line	$1,216 0	2,441 9	$142 1	$136 9	$135.5	$130 9	$126 3	$122 1	$117.8	$113 8	$109.4	$105 3	$101 0	$97.3	$92.6
TX Total	$3,869 3	$8,008.5	$438 1	$411 8	$407 9	$391 3	$376 6	$378 0	$368 7	$359.7	$350.3	$341 3	$332 4	$323.8	$314 2
FERC Wind Farm	$2,691.3	$5,624 8	$307 0	$284 4	$276 1	$263.6	$253 3	$258 7	$253 5	$248 4	$243.3	$238 2	$233.5	$228.4	$223.4
FERC Tie Line	$1,236 4	$2,472 3	$148 1	$142 6	$137 3	$132 6	$127.9	$123.6	$119 2	$115 1	$110.6	$106.4	$102 0	$98.2	$93.4
FERC Total	$3,927 7	$8,097 1	$455 1	$427 0	$413 4	$396 3	$381 2	$382 3	$372 7	$363.5	$353.9	$344.5	$335.5	$326.6	$316.7
Total Weighted Average SWEPCo Wind Farm	$2,689 3	$5,638 0	$295 6	$277 3	$275 9	$264 9	$255 8	$261 4	$256 1	$250 8	$245.6	$240.3	$235.5	$230.3	$225 1
Total Weighetd Average SWEPCO Tie Line	$1,216 9	$2,460.9	$139 9	$135 2	$133 8	$129 6	$125.4	$121 5	$117 5	$113 8	$109.8	$106.0	$102 0	$98.6	$94 2
Subtotal SWEPCO	$3,906 2	$8,098 8	$435 5	$412 5	$409.6	$394 6	$381.1	$382 9	$373 6	$364 7	$355.3	$346 3	$337.5	$329.0	$319.4
PSO Wind Farm	$1,163 4	$2,368 6	$127 5	$117 5	$116 1	$110 5	$105 9	$108 3	$106 2	$104 1	$102 1	$100.0	$98 1	$96.1	$94.1
PSO Tie Line	$537 8	$1,044 7	$61 8	$59 5	$58 8	$56 7	$54 6	$52 7	$50 8	$48 9	$47.0	$45 1	$43.1	$41 4	$39.3
PSO Total	$1,701 3	$3,413 3	$189 3	$177 0	$174 9	$167 2	$160.6	$161 0	$157.0	$153 1	$149 0	$145 1	$141 3	$137.5	$133 4
Total Both Companies Wind Farm	$3,852 7	$8,006 6	$423 1	$394 8	$391 9	$375 4	$361 7	$369 7	$362.3	$354.9	$347 6	$340.3	$333.7	$326.4	$319.2
Total Both Companies Tie Line	$1,754.7	$3,505.5	$201.7	$194 7	$192 6	$186.4	$180.0	$174 2	$168.3	$162 8	$156 7	$151.1	$145 1	$140.1	$133.6
Total PSO and SWEPCO	$5,607.4	$11,512 1	$624.8	$589 5	$584 6	$561 8	$541 7	$543.9	$530 6	$517.7	$504 4	$491.4	$478.8	$466.5	$452 8
Witness Aaron Model Jurisdictional View - Net of PTC Split 70/30															
SWEPCO															
AR Wind Farm	$160 7	$566 8	$4 2	$2 3	$1 7	($0 3)	($2 4)	($2 2)	($4.5)	($6.9)	($9 2)	($11 4)	$47 4	$46.3	$45.1
AR Tie Line	$223 9	$467 7	$23.9	$23.4	$23 0	$22 6	$22 1	$21 7	$21 3	$20 9	$20.4	$20 0	$19.5	$19.2	$18 7
AR Total	$384 6	$1,034.5	$28 1	$25 7	$24 7	$22.3	$19.7	$19 6	$16.7	$14 0	$11.2	$8.6	$67 0	$65.5	$63.8
LA Wind Farm	284 8	1,015 4	15 4	5 8	3 9	(2 4)	(8 3)	(8 2)	(12 3)	(16 3)	(20 3)	(24 0)	84.3	82 5	80 6
LA Tie Line	$446 7	897.4	51 8	49 9	50.0	48 3	46 5	45 0	43 4	41 9	40 3	38 8	37 2	35.8	34 1
LA Total	$731 6	$1,912 8	$67 2	$55 7	$53 8	$45 8	$38.2	$36 8	$31 1	$25 6	$19 9	$14 8	$121 5	$118.3	$114.7
TX Wind Farm	286 2	985.5	$17 1	$8.2	$5 7	($0 1)	($5 5)	($5 3)	($9 0)	($12 7)	($16 4)	($19.8)	$79 4	$77.7	$76.0
TX Tie Line	$417.2	837.7	$48 7	$47.0	$46 5	$44 9	$43.3	$41 9	$40 4	$39.0	$37.5	$36.1	$34 6	$33.4	$31 8
TX Total	$703 3	$1,823 2	$65 8	$55 2	$52.2	$44 8	$37 8	$36.6	$31 4	$26 3	$21 1	$16.3	$114.0	$111.1	$107 8
FERC Wind Farm	$83 8	$295 2	$5 4	$2 5	$1 1	($0 7)	($2 4)	($2 4)	($3.6)	($4.7)	($5 9)	($7.0)	$24 4	$23 8	$23.3
FERC Tie Line	$129 1	$258 1	$15 5	$14 9	$14 3	$13 8	$13.4	$12 9	$12 4	$12 0	$11 5	$11 1	$10.6	$10.3	$9.7
FERC Total	$212 9	$553 3	$20 8	$17 4	$15 4	$13 1	$10 9	$10 5	$8 9	$7 3	$5 6	$4 1	$35.0	$34.1	$33.1
Total SWEPCo Wind Farm	$815 5	$2,862 9	$42 1	$18.8	$12 3	($3 6)	($18 7)	($18 1)	($29 4)	($40 7)	($51 9)	($62.1)	$235 5	$230.3	$225 1
Total SWEPCO Tie Line	$1,216 9	$2,460 9	$139.9	$135 2	$133 8	$129 6	$125 4	$121 5	$117 5	$113 8	$109 8	$106 0	$102.0	$98.6	$94 2
Subtotal SWEPCO	$2,032 4	$5,323 8	$181 9	$154.0	$146 1	$126 0	$106 6	$103 4	$88.1	$73 2	$57 9	$43.9	$337.5	$329.0	$319.4
PSO Wind Farm	$326 4	$1,150 5	$16 2	$4 1	$0 5	($7 3)	($14 5)	($14 3)	($19 0)	($23 7)	($28 4)	($32 7)	$98 1	$96.0	$94 0
PSO Tie Line	$537 5	$1,044 1	$61 8	$59 4	$58 8	$56 7	$54 6	$52 7	$50 7	$48 9	$46 9	$45 1	$43 1	$41.4	$39 3

Wind Catcher
Benefits/Costs
Actual (No-Shaping) Annual Revenue Requirement - Ultra-Low Gas Sensitivity
All dollars in Nominal Millions

PSO Total	$863 9	$2,194 6	$78 0	$63 5	$59 3	$49 4	$40.1	$38 4	$31 7	$25 2	$18.5	$12.4	$141 2	$137.5	$133 3
Total Both Companies Wind Farm	$1,141 9	$4,013 4	$58 3	$22 9	$12 8	($10 9)	($33 2)	($32 4)	($48 4)	($64 4)	($80 3)	($94 8)	$333 6	$326 4	$319 1
Total Both Companies Tie Line	$1,754 4	$3,504 9	$201 6	$194 6	$192 6	$186 3	$179 9	$174 2	$168 3	$162 8	$156.7	$151.1	$145 1	$140.1	$133.5
Total PSO and SWEPCO	$2,896.3	$7,518 4	$259 9	$217 5	$205 4	$175 5	$146 7	$141 8	$119.8	$98.4	$76 4	$56 3	$478 7	$466 4	$452.7

Dollars in Millions	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Production Tax Credits															
Witness Aaron model PTC's - Not Grossed Up															
SWEPCO PTC	$1,176	$1,742	$159	$162	$165	$169	$172	$175	$179	$183	$187	$190	$0	$0	$0
PSO PTC	$513	$747	$68	$70	$71	$72	$74	$75	$77	$78	$80	$81	$0	$0	$0
Total PTC	$1,689	$2,488	$227	$232	$236	$241	$246	$251	$256	$261	$267	$271	$0	$0	$0
Witness Aaron model PTC's Grossed Up															
Arkansas	$2,765	$4,094	$374	$381	$389	$396	$405	$412	$421	$430	$439	$446	$0	$0	$0
Louisiana	$2,698	$3,996	$365	$372	$379	$387	$395	$402	$411	$420	$428	$436	$0	$0	$0
Texas	$2,599	$3,849	$352	$359	$365	$372	$381	$388	$396	$404	$413	$419	$0	$0	$0
FERC	$2,698	$3,996	$365	$372	$379	$387	$395	$402	$411	$420	$428	$436	$0	$0	$0
PSO	$2,790	$4,058	$371	$378	$385	$393	$401	$409	$417	$426	$435	$442	$0	$0	$0
Witness Aaron model PTC's Grossed up - Split 70/30 SWEPCO / PSO															
Arkansas	$1,935	$2,866	$262	$267	$272	$277	$284	$289	$295	$301	$307	$312	$0	$0	$0
Louisiana	$1,889	$2,797	$256	$261	$266	$271	$277	$282	$288	$294	$300	$305	$0	$0	$0
Texas	$1,819	$2,694	$246	$251	$256	$261	$266	$271	$277	$283	$289	$294	$0	$0	$0
FERC	$1,889	$2,797	$256	$261	$266	$271	$277	$282	$288	$294	$300	$305	$0	$0	$0
PSO	$837	$1,217	$111	$113	$116	$118	$120	$123	$125	$128	$130	$133	$0	$0	$0
Average PTC's by Op Co - Grossed Up															
Weighted Average SWEPCO PTC	$1,874	$2,775	$254	$259	$264	$269	$275	$280	$285	$291	$297	$302	$0	$0	$0
PSO PTC	$837	$1,217	$111	$113	$116	$118	$120	$123	$125	$128	$130	$133	$0	$0	$0
Total PTC	$2,711	$3,992	$365	$372	$379	$386	$395	$402	$411	$419	$428	$435	$0	$0	$0
Wind Farm Avoided New Build CC Capacity cost - $ in Millions															
Forecasted Actual New Build CC Carrying Costs															
SWEPCO Gross New Build Carrying Costs	$190 3	$738 1	$0 0	$0.0	$0 0	$0.0	$0 0	$0 0	$0.0	$0 0	$0 0	$0.0	$0.0	$0.0	$56.5
PSO Gross New Build Carrying Costs	$1,643 5	$4,628 0	$0 0	$46 7	$46 7	$46 7	$96.3	$96 4	$148.0	$148 1	$148 2	$148.4	$204.2	$204 4	$204.6
Total	$1,833 9	$5,366 1	$0 0	$46.7	$46 7	$46 7	$96 3	$96.4	$148 0	$148 1	$148 2	$148.4	$204.2	$204.4	$261 1
Forecasted Actual New Build CC Carrying Costs - Market Case															
SWEPCO Gross New Build Carrying Costs	$459 8	$1,510 4	$0 0	$0 0	$0 0	$0 0	$0 0	$50 5	$50 5	$50.6	$50.6	$50 7	$50.7	$50 8	$50 8
PSO Gross New Build Carrying Costs	$1,717 3	$4,850 1	$0.0	$46 7	$46 7	$95 3	$95 4	$95 4	$147 0	$147.2	$147 3	$147 4	$203.3	$203 5	$203.7
Total	$2,177 2	$6,360 4	$0 0	$46 7	$46 7	$95 3	$95 4	$145 9	$197 6	$197.7	$197 9	$198.1	$254 0	$254 3	$254 5
Capacity Savings vs Market															
SWEPCO Capacity Savings	$269 5	$772 3	$0 0	$0 0	$0 0	$0 0	$0 0	$50 5	$50 5	$50 6	$50 6	$50 7	$50 7	$50.8	($5.7)
PSO Capacity Savings	$73 8	$222 1	$0 0	$0.0	$0 0	$48 5	($0 9)	($0 9)	($0 9)	($0.9)	($0 9)	($0 9)	($0 9)	($0.9)	($0.9)
Total	$343 3	$994 4	$0 0	$0 0	$0 0	$48 5	($0 9)	$49 6	$49 6	$49.7	$49.7	$49.7	$49 8	$49.8	($6.6)
# of Years for Levlization calculation	21														
PSO Levelized Capacity benefit - Starting in 2024	$6 9		0	0	0	$6 9	$6 9	$6 9	$6 9	$6.9	$6.9	$6.9	$6.9	$6.9	$6.9

Dollars in Millions	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Plexos Net Production Cost Prior to OSS Margin Adjustment															
Wind Catcher 50% of Low Gas															
SWEPCO Net Production Cost	$9,071	$24,341	$488	$499	$481	$541	$620	$680	$712	$761	$838	$864	$948	$1,002	$1,016
PSO Net Production Cost	$7,912	$19,764	$471	$482	$489	$533	$581	$599	$603	$642	$681	$698	$717	$759	$790
Total Net Production Cost	$16,983	$44,106	$959	$981	$970	$1,074	$1,200	$1,279	$1,315	$1,403	$1,518	$1,563	$1,665	$1,761	$1,806

Wind Catcher
Benefits/Costs
Actual (No-Shaping) Annual Revenue Requirement - Ultra-Low Gas Sensitivity
All dollars in Nominal Millions

Market 50% of Low Gas															
SWEPCO Net Production Cost	$11,308	$30,086	$630	$647	$633	$701	$786	$837	$878	$938	$1,025	$1,064	$1,160	$1,226	$1,285
PSO Net Production Cost	$8,812	$22,049	$521	$533	$543	$574	$620	$668	$674	$718	$763	$788	$810	$858	$892
Total Net Production Cost	$20,120	$52,136	$1,151	$1,180	$1,177	$1,274	$1,406	$1,505	$1,553	$1,656	$1,789	$1,852	$1,970	$2,084	$2,177
Change between Plexos Cases - Net Production Cost															
Change Wind Catcher 50% of Low Gas vs Market ($ Millions)															
SWEPCO Share of Change	($2,236.7)	($5,745.1)	($142 3)	($147.6)	($152 7)	($159 7)	($166 3)	($156 4)	($166.4)	($177 3)	($187 9)	($199.4)	($212.0)	($223.5)	($268.4)
PSO Share of Change	($900 5)	($2,284.9)	($50 3)	($51.5)	($54 3)	($40.3)	($39 7)	($68 7)	($71 3)	($75.4)	($82 6)	($89 6)	($92.6)	($99.2)	($102.3)
Wind Catcher Base vs Generic Wind Base	($3,137)	**($8,030.1)**	**($192.6)**	**($199 1)**	**($207.0)**	**($200.1)**	**($206.0)**	**($225.1)**	**($237.7)**	**($252.7)**	**($270.5)**	**($289.0)**	**($304.6)**	**($322.8)**	**($370.7)**

	#REF!	$0.0

Off System Sales Margin Retained by AEP - Deduct from Plexos Benefits

Total Plexos OSS Margin by Case

SWEPCO Blended Margin Retention.	Margin Retained	% Allocation	Weighted Retention %
Arkansas	10.0%	19 3%	1.9%
Louisiana	10.0%	32 7%	3 3%
Texas	10.0%	37.4%	3 7%
FERC	67 0%	10 6%	7.1%
Total		100 0%	16.0%

Wind Catcher 50% of Low Gas															
SWEPCO Gross OSS Margin	$228	$415	$46 0	$45 5	$60 4	$38.9	$15 0	$9 4	$8 9	$4.1	($3.0)	$0 8	($4 0)	($6 4)	$12 6
Blended % Retained by Shareholders			16.0%	16 0%	16.0%	16 0%	16 0%	16.0%	16.0%	16.0%	16 0%	16.0%	16 0%	16.0%	16.0%
Margin Retained	$37	$67	$7.4	$7.3	$9 7	$6 2	$2 4	$1 5	$1 4	$0 7	($0.5)	$0 1	($0.6)	($1.0)	$2.0
PSO Gross OSS Margin	$208	$460	$15 3	$23.0	$27 9	$13 8	$9 2	$15.6	$19 4	$18 0	$16 6	$15 1	$21.1	$17.7	$17 9
% Retained by Shareholders			10.0%	10 0%	10.0%	10 0%	10.0%	10 0%	10.0%	10.0%	10 0%	10 0%	10 0%	10.0%	10.0%
Margin Retained	$21	$46	$1 5	$2.3	$2 8	$1 4	$0 9	$1 6	$1 9	$1.8	$1.7	$1.5	$2.1	$1.8	$1 8
Total OSS Margin Retained	$57	$113	$9	$10	$12	$8	$3	$3	$3	$2	$1	$2	$1	$1	$4
Market 50% of Low Gas															
SWEPCO Gross OSS Margin	$115	$222	$17 5	$17 9	$22.5	$13 8	$5 2	$12 1	$12 7	$9 2	$7.0	$5 0	$6.2	$5 3	$1.5
Blended % Retained by Shareholders			16 0%	16 0%	16 0%	16.0%	16 0%	16 0%	16.0%	16.0%	16 0%	16.0%	16 0%	16 0%	16.0%
Margin Retained	$18	$36	$2 8	$2.9	$3 6	$2 2	$0 8	$1 9	$2.0	$1.5	$1.1	$0.8	$1 0	$0.9	$0.2
PSO Gross OSS Margin	$189	$381	$20 4	$27 1	$30 9	$24.9	$14 4	$12 2	$13.5	$11.7	$10 6	$9 2	$12 8	$10.7	$10.8
% Retained by Shareholders			10 0%	10 0%	10 0%	10.0%	10 0%	10.0%	10.0%	10 0%	10 0%	10 0%	10.0%	10.0%	10 0%
Margin Retained	$19	$38	$2 0	$2.7	$3 1	$2 5	$1 4	$1.2	$1.4	$1 2	$1.1	$0.9	$1 3	$1.1	$1.1
Total OSS Margin Retained	$37	$74	$5	$6	$7	$5	$2	$3	$3	$3	$2	$2	$2	$2	$1

Change in OSS Margin Retained Between Cases	**NPV**	**Total 2021-2045**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Change Wind Catcher 50% of Low Gas vs Market ($ Millions)															
SWEPCO Change in Margin	$18	$31	$4 6	$4.4	$6 1	$4 0	$1 6	($0 4)	($0.6)	($0 8)	($1.6)	($0.7)	($1.6)	($1.9)	$1.8
PSO Change in Margin	$2	$8	($0 5)	($0 4)	($0.3)	($1 1)	($0 5)	$0 3	$0.6	$0 6	$0 6	$0 6	$0 8	$0 7	$0 7
Total Change ($ Millions)	$20	$39	$4 1	$4 0	$5.8	$2 9	$1.0	($0.1)	($0.0)	($0.2)	($1 0)	($0 1)	($0 8)	($1.2)	$2.5

Congestion Cost - Included in Plexos Net Production Cost	**NPV**	**Total 2021-2045**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**

Wind Catcher
Benefits/Costs
Actual (No-Shaping) Annual Revenue Requirement - Ultra-Low Gas Sensitivity
All dollars in Nominal Millions

Wind Catcher 50% of Low Gas															
SWEPCO Congestion	$549	$1,379	$36	$37	$38	$39	$40	$43	$46	$49	$51	$54	$58	$61	$55
PSO Congestion	$359	$783	$29	$29	$29	$30	$30	$30	$32	$34	$36	$35	$36	$37	$37
Total Congestion	$908	$2,161	$64 9	$66	$68	$69	$70	$73	$78	$83	$87	$89	$93	$98	$92
NPV each year			$60 4	$57 3	$54 3	$51 5	$48 8	$47.3	$46 6	$46 1	$45 1	$42.9	$41 7	$40.8	$35.6
NPV first 10 years	$500														
Market 50% of Low Gas															
SWEPCO Congestion	$45	$72	$5	$6	$6	$6	$6	$6	$6	$7	$6	$6	$7	$7	$0
PSO Congestion	$124	$206	$15	$14	$14	$14	$14	$13	$14	$14	$15	$14	$13	$13	$13
Total Congestion	$170	$278	$20 2	$20	$20	$19	$19	$19	$20	$21	$21	$20	$19	$20	$13
NPV each year			$18 8	$17 2	$15 8	$14 5	$13 3	$12 1	$11 9	$11 8	$10.9	$9 5	$8 7	$8 4	$4.9
NPV first 10 years	$136														

Change in Congestion Between Cases - Cost / (Savings)

	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Change Wind Catcher 50% of Low Gas vs Market ($ Millions)															
SWEPCO Congestion	$503	$1,307	$30 7	$31.8	$32 8	$33 8	$34 9	$37 5	$39 7	$42 3	$45 3	$47.9	$51.1	$54.2	$55 0
PSO Congestion	$235	$577	$14 0	$14 6	$15 2	$15 7	$16 3	$17 2	$18 3	$19.4	$20.8	$21 6	$22 7	$24.0	$24 7
Total	$738	$1,884	$44 8	$46 4	$48.0	$49 6	$51.2	$54 7	$57 9	$61 7	$66.1	$69.5	$73 9	$78.2	$79.7
First 10 years	$364 4														

Marginal Energy Loss Savings / (Cost)

Wind Catcher vs Market - 50% of Low Gas	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
SWEPCO	($1 8)	($2 8)	($0 6)	($0 5)	($0.3)	($0 2)	($0 0)	($0 0)	($0 1)	($0 1)	($0 1)	($0 0)	($0 0)	($0.0)	($0.0)
PSO	($1 6)	($2 6)	($0 5)	($0 4)	($0 3)	($0 2)	($0.0)	($0 0)	($0 0)	($0 0)	($0 0)	($0 0)	($0 0)	($0.0)	($0.0)
Total	($3 4)	($5 4)	($1 1)	($0 9)	($0 6)	($0.4)	($0.1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0.1)	($0.1)	($0.1)

SWEPCO Overall Impact - Not Shaped

Wind Catcher 50% of Low Gas vs Market	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Wind Catcher Wind Farm and Tie Line	$2,032	$5,324	$181 9	$154 0	$146 1	$126 0	$106 6	$103 4	$88.1	$73.2	$57.9	$43.9	$337 5	$329.0	$319.4
Fuel Savings	($2,237)	($5,745)	($142 3)	($147 6)	($152 7)	($159 7)	($166 3)	($156 4)	($166 4)	($177 3)	($187 9)	($199 4)	($212 0)	($223.5)	($268.4)
Change in OSS Margin Retained by AEP	$18	$31	$4 6	$4 4	$6 1	$4 0	$1 6	($0 4)	($0 6)	($0 8)	($1.6)	($0 7)	($1 6)	($1.9)	$1.8
Marginal Loss Savings	$0	$0													
Avoided Capacity Cost	$269	$772	$0 0	$0 0	$0 0	$0 0	$0 0	$50 5	$50 5	$50 6	$50 6	$50.7	$50 7	$50 8	($5.7)
Net Cost (Savings) / Increase	$83	$382	$44 1	$10 8	($0 5)	($29 6)	($58 1)	($3 0)	($28 3)	($54.3)	($81.0)	($105.6)	$174 6	$154.3	$47.1

PSO Overall Impact - Not Shaped

Wind Catcher 50% of Low Gas vs Market	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Wind Catcher Wind Farm and Tie Line	$864	$2,195	$78 0	$63.5	$59.3	$49 4	$40 1	$38 4	$31 7	$25 2	$18.5	$12.4	$141.2	$137.5	$133.3
Fuel Savings	($901)	($2,285)	($50 3)	($51 5)	($54 3)	($40 3)	($39 7)	($68 7)	($71 3)	($75 4)	($82 6)	($89.6)	($92.6)	($99.2)	($102.3)
Change in OSS Margin Retained by AEP	$2	$8	($0 5)	($0 4)	($0 3)	($1.1)	($0 5)	$0.3	$0 6	$0 6	$0 6	$0 6	$0 8	$0.7	$0.7
Marginal Loss Savings	$0	$0													
Avoided Capacity Cost	$74	$222	$0 0	$0 0	$0 0	$48 5	($0 9)	($0.9)	($0 9)	($0 9)	($0 9)	($0 9)	($0.9)	($0.9)	($0.9)
Net Cost (Savings) / Increase	$39	$140	$27 2	$11 6	$4 7	$56 5	($1 0)	($31 0)	($40 0)	($50 6)	($64 4)	($77.5)	$48.5	$38.0	$30.8

Wind Catcher
Benefits/Costs
Actual (No-Shaping) Annual Revenue Requirement - Ultra-Low Gas Sensitivity
All dollars in Nominal Millions

Overall Impact - Not Shaped

Wind Catcher 50% of Low Gas vs Market	NPV	Total 2021-2045	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Wind Catcher Wind Farm and Tie Line	$2,896	$7,518	$259 9	$217.5	$205 4	$175.5	$146.7	$141 8	$119.8	$98 4	$76 4	$56 3	$478.7	$466.4	$452.7
Fuel Savings	($3,137)	($8,030)	($192 6)	($199.1)	($207 0)	($200 1)	($206 0)	($225 1)	($237.7)	($252.7)	($270 5)	($289 0)	($304.6)	($322.8)	($370.7)
Change in OSS Margin Retained by AEP	$20	$39	$4.1	$4.0	$5 8	$2.9	$1 0	($0.1)	($0.0)	($0 2)	($1.0)	($0 1)	($0.8)	($1.2)	$2 5
Marginal Loss Savings	$0	$0	$0 0	$0.0	$0 0	$0 0	$0 0	$0.0	$0 0	$0 0	$0.0	$0.0	$0.0	$0.0	$0.0
Avoided Capacity Cost	$343	$994	$0.0	$0 0	$0 0	$48.5	($0 9)	$49 6	$49.6	$49.7	$49.7	$49.7	$49.8	$49.8	($6.6)
Net Cost (Savings) / Increase	$122	$522	$71 4	$22 4	$4 1	$26.8	($59.1)	($33.9)	($68.3)	($104 9)	($145.4)	($183.1)	$223 1	$192 3	$77.9

FERC CALCULATIONS

FERC Contracts Blended OSS Margin Company Retained %	AEP Retained %	Est 2017 Energy Purchased	% of Total Energy Purchased	Weighted Retained
Hope	75 0%	311,586,133	21.6%	16 2%
Bentonville	75 0%	672,506,908	46.6%	34.9%
Prescott	50 0%	93,951,187	6.5%	3 3%
Minden	50.0%	157,384,567	10.9%	5 5%
NTEC	50.0%	207,794,449	14.4%	7 2%
ETEC-NTEC	50 0%	-	0 0%	0 0%
		1,443,223,245	100.0%	67.0%

Other contracts will be gone by then - ETEC, TexLa, TexLa ERCOT and Rayburn

FERC Contracts Blended ROE	2017 Contract ROE	Est 2017 Energy Purchased	% of Total Energy Purchased	Weighted ROE
Hope	10 18%	311,586,133	21.6%	2.20%
Bentonville	10 18%	672,506,908	46 6%	4.74%
Prescott	11.1%	93,951,187	6 5%	0.72%
Minden	11.1%	157,384,567	10 9%	1 21%
NTEC	11.1%	207,794,449	14 4%	1 60%
ETEC-NTEC	11.1%	-	0 0%	0.00%
		1,443,223,245	100 0%	10.47%

Discount Rate Calculation

Weighted Discount rate	SWEPCO 70 % Ownership		Jurisdictional WACC	After Tax WACC	Pre Tax WACC	Weighted Pre Tax WACC
	Jurisdictional Energy	Jurisdictional Allocation				
AR	826	19.17%	7.96%	1 53%	11.00%	2 11%
LA	1,554	36.08%	7 43%	2 68%	10.18%	3 67%
TX	1,478	34 30%	7 53%	2.58%	10.02%	3 44%
FERC	450	10 44%	7.74%	0 81%	10.68%	1 12%
Total SWEPCO	4,308	100 00%		7.60%		10 33%
Oklahoma	4,145		7 22%	7 22%	10.28%	10 28%

Arkansas Traditonal WACC using only Debt and Equity

Component	Amount	Proportion	Rate	After-Tax Weighted Cost		
Long-Term Debt	1,568,118,469	53 91%	6 02%	3 25%		3 25%
Preferred Stock	4,700,221	0.16%	4 87%	0 01%		0 01%
Common Equity	1,335,804,622	45 93%	10 25%	4 71%	1 64540	7 75%

Wind Catcher
Benefits/Costs
Actual (No-Shaping) Annual Revenue Requirement - Ultra-Low Gas Sensitivity
All dollars in Nominal Millions

Total	2,908,623,312	100 00%	21 14%	0 00%	7.96%		11 00%	

	NPV	Total 2021-2045	2021	2022	2023	$2,024.000	2025	2026	2027	2028	2029	2030	2031	2032	2033
Deferred tax Asset Carrying Charges															
WACC Based Carrying Charges															
PSO	$97	$163	$1 8	$5 4	$8 7	$11 4	$13 6	$15 4	$16 8	$17 9	$18 4	$18 3	$16 1	$11.9	$7.6
SWEPCO	$212	$366	$4 1	$12.1	$19 6	$25 6	$30 5	$34 5	$37 7	$40 0	$41 1	$41 0	$36 1	$26.5	$16 9
Debt Rate Carrying Charges															
PSO	$32	$55	$0 6	$1 9	$2 9	$3.8	$4 5	$5 1	$5 6	$6.0	$6 1	$6 1	$5 4	$3.9	$2.5
SWEPCO	$88	$152	$1.8	$5 2	$8 1	$10 6	$12.7	$14 4	$15 7	$16 7	$17.1	$17 1	$15.0	$11.0	$7.0
Total Carrying Charges															
PSO	$129	$218	$2.4	$7 2	$11 6	$15 2	$18 2	$20 6	$22.4	$23 8	$24 5	$24.4	$21 5	$15.8	$10 1
SWEPCO	$300	$518	$5 8	$17 3	$27 7	$36.2	$43 2	$48.9	$53 4	$56 7	$58 3	$58.1	$51 2	$37.6	$24 0

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
34	35	36	37	38	39	40	41	42	43	44	45
14	15	16	17	18	19	20	21	22	23	24	25

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$229.5	$223 5	$218 0	$212 0	$206 1	$200 2	$194 7	$189 6	$184 2	$178 7	$173 3	$172.2
$95 3	$93 0	$90 9	$88 5	$86 3	$84 0	$82 0	$79 5	$77 3	$75 0	$73 4	$70 5
$324 8	$316 5	$308 9	$300 5	$292 4	$284 2	$276.7	$269 1	$261 5	$253 7	$246.7	$242.6
218 5	213 4	208 8	203 8	198 9	193 9	189 4	185 4	181 1	176 7	172 4	171 4
90.2	86 3	84.0	81 8	80 0	77.9	76 2	73 9	72 1	70 0	68 7	66.1
$308.6	$299 8	$292 8	$285 6	$278.8	$271 8	$265.6	$259.4	$253 2	$246 8	$241.2	$237 5
$216 7	$211 9	$207 4	$202 6	$197 8	$193 0	$188 6	$184 8	$180 6	$176 5	$172 3	$171 3
$88 5	$84 7	$82 5	$80 3	$78 5	$76.5	$74.8	$72 7	$70 9	$68 8	$67 6	$65 0
$305 2	$296 6	$289 9	$282 9	$276 3	$269 5	$263.5	$257 5	$251 5	$245 3	$239 9	$236 3
$218 3	$213 3	$208 7	$203 7	$198 8	$193 8	$189 3	$185 4	$181 0	$176 7	$172.4	$171.4
$89 2	$85.3	$83 0	$80 8	$79 0	$76 9	$75 2	$73 0	$71 1	$69.0	$67 7	$65 1
$307 5	$298 6	$291 7	$284 6	$277 8	$270.7	$264 5	$258 3	$252.2	$245.8	$240 2	$236 5
$220 0	$214 8	$210 1	$205 0	$199 9	$194 8	$190 2	$186 0	$181 5	$177 0	$172 6	$171.5
$90 5	$86 9	$84 7	$82.5	$80.6	$78 5	$76 7	$74 5	$72 6	$70 5	$69 1	$66 5
$310 4	$301 8	$294 8	$287 4	$280 5	$273 3	$266 9	$260 5	$254.1	$247.5	$241.7	$238.0
$92 1	$90 0	$88 2	$86 2	$84.2	$82.2	$80 5	$78.9	$77 2	$75 5	$73.8	$73.4
$37 5	$35.8	$34 8	$33 9	$33 1	$32 3	$31.6	$30 7	$30 0	$29 1	$28.6	$27.5
$129 5	$125 8	$123 0	$120 1	$117 4	$114 5	$112 1	$109 6	$107 1	$104 6	$102.4	$100.9
$312 0	$304 8	$298 3	$291 2	$284 1	$277 0	$270.6	$264.9	$258 7	$252 5	$246 4	$244 9
$127 9	$122 7	$119 5	$116 4	$113 7	$110 8	$108 3	$105 2	$102 5	$99 6	$97.7	$94.0
$439 9	$427 6	$417 8	$407 6	$397.8	$387.8	$378 9	$370 1	$361 2	$352.1	$344 1	$338.8
$44 0	$42.9	$41 8	$40 7	$39 5	$38 4	$37 3	$36 4	$35 3	$34 3	$33 2	$33 0
$18 3	$17 8	$17 4	$17 0	$16 6	$16.1	$15 7	$15 2	$14.8	$14 4	$14 1	$13 5
$62 3	$60 7	$59 2	$57 6	$56 1	$54 5	$53 0	$51 6	$50 1	$48 6	$47 3	$46 5
78 8	77 0	75 3	73 5	71 8	70 0	68.3	66.9	65 3	63.8	62.2	61 8
32 5	31 1	30 3	29.5	28 9	28.1	27 5	26 7	26 0	25.3	24 8	23 8
$111 4	$108 2	$105 7	$103 1	$100 6	$98 1	$95 8	$93 6	$91 4	$89 0	$87 0	$85.7
$74 3	$72 7	$71 2	$69 5	$67 8	$66 2	$64.7	$63 4	$62 0	$60 5	$59 1	$58 8
$30.4	$29 1	$28 3	$27 6	$26 9	$26 2	$25.7	$24 9	$24 3	$23 6	$23 2	$22.3
$104 7	$101 7	$99 4	$97 1	$94 8	$92 5	$90 4	$88 3	$86 3	$84 2	$82 3	$81 1
$22 8	$22 3	$21 8	$21 3	$20 8	$20 2	$19 8	$19 4	$18 9	$18 5	$18.0	$17 9
$9 3	$8 9	$8 7	$8 4	$8 2	$8 0	$7 8	$7.6	$7 4	$7 2	$7 1	$6 8
$32 1	$31 2	$30 5	$29 7	$29 0	$28.3	$27 6	$27 0	$26 3	$25 7	$25 1	$24 7
$220 0	$214 8	$210 1	$205 0	$199 9	$194 8	$190 2	$186.0	$181 5	$177 0	$172 6	$171 5
$90 5	$86 9	$84 7	$82 5	$80 6	$78 5	$76.7	$74.5	$72 6	$70 5	$69 1	$66.5
$310 4	$301 8	$294 8	$287 4	$280 5	$273 3	$266 9	$260 5	$254 1	$247.5	$241.7	$238.0
$92 0	$90 0	$88 2	$86 2	$84 2	$82 2	$80 4	$78 8	$77 1	$75.4	$73 7	$73.3
$37 4	$35 8	$34 8	$33 9	$33 1	$32 3	$31.6	$30.7	$29 9	$29 1	$28 6	$27 5

$129 4	$125 7	$122 9	$120 0	$117 3	$114 5	$112 0	$109 5	$107 1	$104 5	$102 3	$100 8
$312 0	$304 8	$298 2	$291 1	$284 1	$277 0	$270.6	$264 9	$258 6	$252 5	$246.3	$244 8
$127.9	$122 7	$119 5	$116 4	$113.7	$110 8	$108 3	$105 1	$102 5	$99 5	$97 7	$93 9
$439 9	$427 5	$417 7	$407.5	$397 8	$387 7	$378 9	$370 0	$361 2	$352 0	$344 0	$338 8

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$56 5	$56 6	$56 6	$56 7	$56 7	$56 8	$56 8	$56 9	$56 9	$57 0	$57 0	$57.1
$204 8	$205 0	$266 8	$267.0	$267.3	$267 5	$267.8	$268.1	$268 3	$268 6	$268.9	$269 2
$261 3	$261.6	$323 4	$323 7	$324 0	$324.3	$324 6	$324 9	$325 3	$325 6	$326 0	$326.3
$50 9	$50 9	$51 0	$51 0	$112 5	$112.5	$112.6	$112 6	$112 7	$112 8	$112 8	$112 9
$203 9	$264 4	$264 7	$264 9	$265 2	$265 4	$265.7	$266 0	$266 3	$266 5	$339 0	$339 3
$254 7	$315 3	$315 6	$315 9	$377.7	$378.0	$378.3	$378 6	$379 0	$379 3	$451 8	$452 2
($5 7)	($5 7)	($5 7)	($5 7)	$55.8	$55 8	$55 8	$55 8	$55 8	$55.8	$55 8	$55.8
($0 9)	$59 4	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	$70 0	$70 1
($6 6)	$53 8	($7 7)	($7 7)	$53 7	$53 7	$53 7	$53 7	$53 7	$53 7	$125 8	$125.9
$6 9	$6 9	$6 9	$6 9	$6 9	$6 9	$6 9	$6 9	$6 9	$6.9	$6.9	$6 9

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$1,068	$1,090	$1,122	$1,155	$1,183	$1,218	$1,239	$1,284	$1,322	$1,347	$1,413	$1,449
$818	$837	$874	$899	$925	$963	$987	$1,019	$1,048	$1,084	$1,116	$1,148
$1,885	$1,928	$1,996	$2,055	$2,108	$2,181	$2,226	$2,303	$2,370	$2,431	$2,530	$2,598

$1,346	$1,377	$1,416	$1,454	$1,443	$1,481	$1,509	$1,559	$1,603	$1,633	$1,707	$1,748
$926	$911	$990	$1,015	$1,044	$1,087	$1,114	$1,148	$1,181	$1,220	$1,207	$1,242
$2,272	$2,288	$2,407	$2,469	$2,487	$2,568	$2,623	$2,707	$2,785	$2,854	$2,915	$2,991

($277.8)	($286 8)	($294 3)	($298 6)	($259 5)	($263 6)	($269.6)	($274 5)	($281 3)	($286 5)	($294 0)	($298.7)
($108 2)	($73 4)	($116 6)	($115 6)	($119 0)	($123 1)	($127 5)	($128 8)	($132 9)	($136 5)	($91 0)	($94.3)
($386.1)	($360 2)	**($410.9)**	**($414.2)**	**($378.5)**	**($386.8)**	**($397.2)**	**($403.3)**	**($414.2)**	**($423.0)**	**($385.0)**	**($393.0)**

$10 8	$15 3	$16 4	$14 5	$14 6	$15.3	$15 8	$16 1	$15 9	$17 3	$17.8	$16 8
16.0%	16 0%	16 0%	16 0%	16 0%	16 0%	16 0%	16.0%	16.0%	16 0%	16.0%	16 0%
$1 7	$2 5	$2 6	$2 3	$2 4	$2 5	$2 5	$2 6	$2 5	$2 8	$2 9	$2 7
$17 3	$18 8	$20 3	$21 6	$20.8	$18 2	$18 5	$19.2	$20 0	$19 0	$18 3	$17 7
10 0%	10 0%	10 0%	10 0%	10 0%	10 0%	10.0%	10.0%	10 0%	10 0%	10 0%	10 0%
$1 7	$1 9	$2 0	$2 2	$2.1	$1 8	$1 9	$1 9	$2 0	$1 9	$1 8	$1 8
$3	$4	$5	$4	$4	$4	$4	$5	$5	$5	$5	$4
$1 5	$2 1	$2.9	$2 6	$10 2	$10 7	$9 1	$9 8	$9.2	$10 4	$9 6	$8 1
16 0%	16 0%	16 0%	16 0%	16 0%	16.0%	16 0%	16 0%	16 0%	16 0%	16 0%	16 0%
$0 2	$0 3	$0 5	$0 4	$1 6	$1 7	$1 5	$1 6	$1 5	$1 7	$1 5	$1 3
$9 5	$21 9	$11 5	$12 9	$12 6	$10 7	$12 0	$12 1	$13.1	$12 4	$22 5	$20.9
10 0%	10 0%	10 0%	10 0%	10 0%	10 0%	10 0%	10 0%	10 0%	10 0%	10 0%	10 0%
$1 0	$2 2	$1 1	$1 3	$1 3	$1 1	$1 2	$1.2	$1 3	$1 2	$2 2	$2 1
$1	$3	$2	$2	$3	$3	$3	$3	$3	$3	$4	$3

2034	2035	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**
$1 5	$2 1	$2 2	$1 9	$0 7	$0 7	$1 1	$1 0	$1 1	$1 1	$1 3	$1 4
$0 8	($0 3)	$0 9	$0 9	$0 8	$0 8	$0 6	$0 7	$0 7	$0 7	($0.4)	($0 3)
$2 3	$1 8	$3 0	$2 8	$1 5	$1 5	$1 7	$1 7	$1 7	$1 8	$0 9	$1 1

2034	2035	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**

$57	$59	$60	$61	$62	$63	$65	$66	$67	$69	$70	$71
$39	$40	$26	$26	$27	$27	$28	$28	$29	$29	$30	$30
$96	$99	$86	$87	$89	$90	$92	$94	$96	$98	$100	$102
$34 3	$32 8	$26 5	$25 1	$23 8	$22 5	$21 4	$20 2	$19 2	$18 2	$17 2	$16.3

$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$13	$13	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$13	$13	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$4.7	$4 5	$0 0	$0 0	$0 0	$0 0	$0 0	$0 0	$0 0	$0 0	$0 0	$0.0

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$57 0	$58 7	$59 9	$61 1	$62 4	$63 3	$64 7	$65 9	$67 3	$68 7	$69 7	$71 1
$25 6	$26 3	$25 7	$26 2	$26 7	$27 1	$27 7	$28 3	$28 8	$29 5	$29 9	$30 5
$82 6	$85 0	$85.5	$87 3	$89 1	$90 4	$92.4	$94 2	$96 1	$98 2	$99 6	$101 6

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0.1)	($0 1)
($0 1)	($0 0)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0.1)	($0.1)
($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0 1)	($0.1)	($0 1)	($0 1)	($0 1)	($0 2)	($0.2)

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$310.4	$301 8	$294 8	$287 4	$280 5	$273 3	$266 9	$260 5	$254 1	$247 5	$241.7	$238 0
($277 8)	($286 8)	($294 3)	($298 6)	($259 5)	($263 6)	($269 6)	($274 5)	($281 3)	($286 5)	($294 0)	($298.7)
$1 5	$2 1	$2 2	$1 9	$0 7	$0 7	$1.1	$1 0	$1 1	$1 1	$1 3	$1 4
($5 7)	($5 7)	($5 7)	($5 7)	$55 8	$55 8	$55 8	$55 8	$55 8	$55 8	$55 8	$55.8
$28 4	$11.5	($3 0)	($14 9)	$77 5	$66 2	$54 1	$42.7	$29 7	$17 9	$4 8	($3.5)

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$129 4	$125 7	$122 9	$120 0	$117 3	$114.5	$112 0	$109 5	$107 1	$104 5	$102 3	$100.8
($108 2)	($73 4)	($116 6)	($115 6)	($119 0)	($123 1)	($127.5)	($128 8)	($132 9)	($136 5)	($91 0)	($94 3)
$0 8	($0 3)	$0 9	$0 9	$0.8	$0 8	$0 6	$0 7	$0 7	$0 7	($0 4)	($0.3)
($0 9)	$59 4	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	($2 1)	$70 0	$70 1
$21 1	$111 5	$5 1	$3 2	($3 0)	($10 0)	($17 0)	($20 6)	($27 3)	($33 4)	$81 0	$76 3

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$439 9	$427 5	$417 7	$407 5	$397 8	$387 7	$378 9	$370.0	$361 2	$352 0	$344 0	$338 8
($386 1)	($360 2)	($410 9)	($414 2)	($378 5)	($386 8)	($397 2)	($403 3)	($414 2)	($423.0)	($385.0)	($393 0)
$2 3	$1 8	$3 0	$2 8	$1 5	$1 5	$1 7	$1 7	$1 7	$1 8	$0 9	$1 1
$0 0	$0 0	$0 0	$0 0	$0 0	$0 0	$0.0	$0 0	$0 0	$0 0	$0.0	$0 0
($6 6)	$53 8	($7 7)	($7 7)	$53 7	$53 7	$53 7	$53 7	$53 7	$53.7	$125 8	$125 9
$49 5	$122 9	$2 1	($11.7)	$74 5	$56 2	$37.1	$22 1	$2 4	($15 5)	$85.8	$72 8

2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
$0	$0										
$0	$0										
$0	$0										
$0.0	$0.0										
$0.0	$0 0	$0 0	$0 0	$0.0	$0 0	$0 0	$0 0	$0 0	$0 0	$0.0	$0 0
$0 0	$0 0	$0 0	$0.0	$0.0	$0 0	$0 0	$0.0	$0 0	$0 0	$0.0	$0 0

APPENDIX

Redline Comparison of
Direct Testimony (12/04/17) and
Revised Direct Testimony (02/07/18)

SOAH DOCKET NO. 473-17-5481
PUC DOCKET NO. 47461

APPLICATION OF SOUTHWESTERN ELECTRIC POWER COMPANY FOR CERTIFICATE OF CONVENIENCE AND NECESSITY AUTHORIZATION AND RELATED RELIEF FOR THE WIND CATCHER ENERGY CONNECTION PROJECT IN OKLAHOMA	**§**	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

REVISED DIRECT TESTIMONY

AND

WORKPAPERS

OF

KARL NALEPA

ON BEHALF OF THE

OFFICE OF PUBLIC UTILITY COUNSEL

~~**DECEMBER 4, 2017**~~
FEBRUARY 7, 2018

SOAH DOCKET NO. 473-17-5481
PUC DOCKET NO. 47461

REVISED DIRECT TESTIMONY AND WORKPAPERS OF KARL NALEPA

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I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is Karl J. Nalepa. I am President of ReSolved Energy Consulting, LLC, an independent utility consulting company. My business address is 11044 Research Boulevard, Suite A-420, Austin, Texas 78759.

Q. ON WHOSE BEHALF ARE YOU PRESENTING TESTIMONY IN THIS PROCEEDING?

A. I am presenting testimony on behalf of the Office of Public Utility Counsel (OPUC).

Q. PLEASE OUTLINE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I hold a Bachelor of Science degree in Mineral Economics and a Master of Science degree in Petroleum Engineering, and am a certified mediator. I have been a partner in ReSolved Energy Consulting since July 2011, but joined R.J. Covington Consulting, its predecessor firm, in June 2003 as a Management Consultant. Before that I served for more than five years as an Assistant Director with the Texas Railroad Commission (RRC). In this position, I was responsible for overseeing the economic regulation of natural gas utilities in Texas. And prior to that, I spent five years with two different consulting firms providing expert advice regarding a broad range of electric and natural gas industry issues. Before that, I served four years as a Fuels Analyst with the Public Utility Commission of Texas (PUC). My professional career began with eight years in the reservoir engineering department of the exploration company affiliated with Transco

Gas Pipeline, a major interstate pipeline company. My Statement of Qualifications is included as Attachment A.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes, I have testified many times before both the PUC and the RRC on a variety of regulatory issues. A summary of my previously filed testimony is provided in Attachment B. In addition, I supervised the staff case in proceedings before the RRC and served as a Technical Rate Examiner on behalf of the RRC. I have also provided analysis and recommendations in numerous city-level regulatory proceedings that resulted in settlements without written testimony.

II. PURPOSE AND SCOPE

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to evaluate whether Southwestern Electric Power Company's (SWEPCO or Company) application for a Certificate of Convenience and Necessity (CCN) is in the public interest and should be granted.

Q. WHAT IS THE SCOPE OF YOUR TESTIMONY?

A. My testimony evaluates the costs and benefits of the project asserted by SWEPCO in its application as well as the Company's proposals for project cost recovery.

III. OVERVIEW OF APPLICATION

Q. WHAT IS SWEPCO REQUESTING IN ITS APPLICATION?

A. SWEPCO is seeking the Commission's approval to amend its CCN to include its Wind Catcher Energy Project, which is a proposed wind facility and associated transmission line (the Project).[1] More specifically, the Project is comprised of:

- the 1,900 megawatt (MW) States Edge Wind generating plant and associated facilities located in Texas and Cimarron Counties in the Oklahoma Panhandle that is under construction by Invenergy Wind Development North America, LLC (the Wind Facility); and
- a 350- to 380-mile extra high voltage (EHV) 765 kV transmission line (the Gen-Tie) running through northern Oklahoma from the Wind Facility in the Panhandle to the American Electric Power (AEP) load zone in the Tulsa area.

The Project is proposed to be owned 70 percent by SWEPCO and 30 percent by Public Service Company of Oklahoma (PSO).

Q. WHAT IS THE BASIS FOR SWEPCO'S REQUEST?

A. SWEPCO states that the Wind Catcher Project is being developed to capitalize on the wind profiles in the Oklahoma Panhandle while realizing the potential cost savings due to the availability of federal production tax credits (PTCs). The Project is intended to provide immediate economic benefits to customers through reduced energy costs, not to serve growing load.[2]

Q. WHAT ARE THE PROJECTED COSTS OF THE WIND PROJECT?

[1] Application at 3-4.

[2] Application at 2 and 6.

A. In its application, SWEPCO estimates the cost (including Allowance for Funds Used During Construction (AFUDC)) of the Wind Facility to be approximately $2.90 billion, of which SWEPCO's share is approximately $2.03 billion. The total estimated cost (including AFUDC) of the Gen-Tie is $1.62 billion, of which the SWEPCO share is approximately $1.14 billion. Thus, the total estimated cost of the Project (including AFUDC) is approximately $4.53 billion and SWEPCO's share is approximately $3.17 billion. The SWEPCO Texas retail jurisdictional total estimated cost of the Project (including AFUDC) is $1.09 billion.[3]

Q. WHAT IMPACT WOULD THESE COSTS HAVE ON SWEPCO'S CURRENT RATE BASE?

A. This is a significant project that will increase SWEPCO's rate base by more than 70%, from $4.44 billion to $7.61 billion.[4]

Q. WHAT ARE THE PROJECTED BENEFITS OF THE WIND PROJECT?

A. SWEPCO explained that it developed (through its parent AEP) three market simulation cases to estimate the savings attributable to the Wind Facility. In its application, SWEPCO claims that the results of the economic evaluation show that the Project is expected to save SWEPCO customers approximately $1.9 billion on a total Company net

[3] Application at 4 and Attachment B, *Public Notice*.

[4] See Docket No. 46449, *Application of Southwestern Electric Power Company for Authority to Change Rates*, Schedule B-1, *Rate Base and Return*: Total requested rate base of $4.44 billion compared to a cost of $3.17 billion for the Wind Catcher Project.

present value (NPV) basis and approximately $750 million on a Texas retail jurisdictional NPV basis.[5]

Q. HOW WOULD THESE SAVINGS IMPACT SWEPCO'S CURRENT FUEL COSTS?

A. SWEPCO's projected savings on a Texas retail jurisdictional basis is approximately $30 million per year ($750 million / 25 years = $30 million per year). SWEPCO's Texas retail jurisdictional fuel costs are approximately $224 million per year.[6] Therefore, SWEPCO's projected savings from the Wind Catcher Project is approximately 13% of its annual fuel expense.

Q. DID SWEPCO UPDATE ITS CLAIMED PROJECT SAVINGS TO CUSTOMERS AFTER FILING ITS APPLICATION?

A. Yes. In its revised rebuttal testimony filed on January 19, 2018, SWEPCO updated its assumptions regarding the calculation of Project savings, including (1) lowering the federal income tax (FIT) rate from 35% to 21% consistent with the recently passed Tax Cuts and Jobs Act of 2017 (Tax Act), (2) adding the return on a deferred tax asset, and (3) recognizing the flow-through of 100% of off-system sales margins to customers. The deferred tax asset is intended to carry PTCs that cannot be fully utilized by the Company in the years that they are earned. This is the result of the change in FIT rate. According to SWEPCO, the effect of these changes is to lower the overall Project savings to $1.5

[5] Application at 4-5.

[6] See Docket No. 47553, *Application of Southwestern Electric Power Company for Authority to Reconcile Fuel Costs*, Application at 2, where $670,859,057 / 3 years = $223,619,686 per year.

billion for SWEPCO customers under its Base Gas Case forecast and $1.1 billion under its Low Gas Case forecast.[7]

Q. DID SWEPCO MAKE ANY OTHER CHANGES IN ITS REVISED REBUTTAL TESTIMONY?

A. Yes. In its rebuttal testimony, SWEPCO for the first time provided certain minimum performance guarantees for the Project. SWEPCO then revised these guarantees in its revised rebuttal testimony.[8] In particular, SWEPCO now proposes the following guarantees:

1. A cost cap for the Wind Facility, Gen Tie, and generation interconnection costs of $3.339 billion, excluding AFUDC, which is 109% of the estimated cost of SWEPCO's 70% share of the Project. This also excludes costs related to force majeure and changes in law.

2. The Project will qualify for 100% of the value of the PTCs.

3. The Project will generate a minimum annual production at the busbar of 5,481 GWh on a 5-year average. This equates to a 44.7% net capacity factor. If the minimum is not met, SWEPCO will make a "make whole" payment for the value of the energy not delivered from the Project and associated PTCs.

4. SWEPCO will flow to customers 100% of incremental off-system energy sales margins and the net proceeds from the sale of Project renewable energy credits.

In addition:

5. SWEPCO will ensure Most Favored Nation status in the event that more favorable terms are agreed to in other state utility commission proceedings regarding the Project.

6. SWEPCO will file a fuel reconciliation within 12 months after the Project is included in base rates, so parties will have the opportunity to review the costs recovered through the fuel clause. Additionally, SWEPCO will file a rate case no

[7] Revised Rebuttal Testimony of Kelly Pearce at 10 and Exhibit KDP-2R.
[8] Revised Rebuttal Testimony of Thomas Brice at 5-8.

later than four years after the Commission issues its final order in SWEPCO's current Docket No. 46449 rate case.

Q. HOW DO THESE GUARANTEES COMPARE TO THE GUARANTEES PROVIDED IN SWEPCO'S REBUTTAL TESTIMONY?

A. SWEPCO made two changes to its guarantees to improve the benefit to customers. First, it lowered the cost cap from 110% to 109% of project costs and applied the cost cap to the entire project cost rather than only on the portion of the costs it proposed to be recovered through the fuel clause. Second, it increased the minimum generation guarantee from 5,179 GWh to 5,481 GWh on a five-year average basis, which equates to improving the NCF from 42.2% to 44.7%.

Q. WHAT EFFECT DOES SWEPCO CONTEND THESE MINIMUM PERFORMANCE GUARANTEES WILL HAVE ON ITS CLAIMED CUSTOMER SAVINGS?

A. SWEPCO claims that its customers would still receive benefits of $260 million under the Company's Low Gas Case, with a 21% federal corporate tax rate, the impact of PTC carrying costs, and these minimum performance guarantees.[9]

Q. WHAT IS THE SPECIFIC RELIEF THAT SWEPCO IS REQUESTING IN THIS PROCEEDING?

A. SWEPCO specifically requests that the Commission:[10]

1. Amend SWEPCO's CCN and authorize acquisition of the Wind Facility and construction of the associated Gen-Tie pursuant to PURA § 37.056;

[9] Revised Rebuttal Testimony of Kelly Pearce at 21.

[10] Direct Testimony of Venita McCellon-Allen at 5-6.

2. Find that a good cause exception to 16 TAC § 25.236 is warranted to allow SWEPCO to pass the Project revenue requirement and PTCs to customers through fuel expense until the Project is included in SWEPCO's base rates;

3. If the Commission determines PURA § 14.101 is applicable, find that SWEPCO's purchase of the Wind Facility is in the public interest under that provision;

4. Approve SWEPCO's request to include any PTCs deferred for ratemaking purposes in a regulatory liability that is included in rate base and earns interest at the Company's pre-tax weighted average cost of capital (WACC) from the commercial operation date of the Project;

5. Approve SWEPCO's request to include any unrealized PTCs in a deferred tax asset included in rate base in the event the PTCs cannot be fully utilized in a given year;

6. Approve the requested depreciation rates for the Wind Facility and associated Gen-Tie;

7. Approve SWEPCO's request to defer certain PTCs for credit beyond 10 years of production; and

8. Issue a final order by April 30, 2018 to enable the commercial operation of the Wind Facility and associated Gen-Tie prior to January 1, 2021.

Q. IS SWEPCO'S REQUESTED RELIEF TYPICAL FOR A CCN APPLICATION?

A. No, a typical application may request project approval but does not include the ratemaking treatments as requested by SWEPCO.

IV. SUMMARY AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION IN THIS PROCEEDING.

A. SWEPCO's estimate of benefits is very uncertain, while placing all risk on ratepayers if the claimed benefits do not materialize. Therefore, for the Company's application to be in the public interest, the Commission should require that the following conditions be met:

a. The Wind Facility capital costs must be capped at $1,451 per kW, which is inclusive of the purchase price and all associated costs.

b. The Gen-Tie capital costs must be capped at the contracted fixed price amount of $1.62 billion.

c. Customers must receive the benefit in reduced fuel expense and PTCs based on a minimum Wind Facility net capacity factor (NCF) of 51.1%, regardless of whether the actual NCF is lower.

d. Customers must be credited at the 100% level of PTCs, regardless of whether SWEPCO qualifies for the PTCs or not.

e. SWEPCO must guarantee energy savings to customers based on its Base Case forecasted natural gas prices, regardless of actual market prices.

f. The Commission should deny SWEPCO's request for a special circumstances exception to the fuel rule and not allow the Wind Facility's initial revenue requirement to be recovered through the fuel factor.

g. PTCs should be credited to fuel expense so that customers receive the full benefit of the PTCs in a timely manner.

h. The Commission should reject SWEPCO's request to defer certain PTCs in order to "shape" the PTC credit.

V. BASIS FOR EVALUATION

Q. WHAT STANDARD DID YOU APPLY IN YOUR EVALUATION OF SWEPCO'S APPLICATION?

A. The basis for my evaluation of SWEPCO's application is whether its request is in the public interest. PURA § 37.056 states that the Commission may approve an application and grant a certificate only if it finds that the certificate is necessary for the service, accommodation, convenience, or safety of the public. PURA allows the Commission to consider whether the application will also lower costs to consumers.

SWEPCO admits that it does not have a need for the capacity obtained by the Wind Facility, but instead is proposing the Project as a speculative venture intended to lower its customers' energy costs. SWEPCO's proposal has two components: (1) the costs to acquire, construct and operate the Wind Facility and Gen-Tie; and (2) the energy savings attributable to the Wind Facility, which are driven by the ability of the Wind Facility to generate power, the lack of fuel costs needed for generation, and the PTCs obtained when the facility generates. SWEPCO contends that the energy savings will exceed the cost of the Project and result in substantial net energy savings for customers.

Q. ARE THERE RISKS TO SWEPCO'S REQUEST?

A. Yes. SWEPCO expects the Project costs to be borne entirely by ratepayers, and in return ratepayers retain any energy savings. However, while the costs are certain to be substantial, the existence of any net savings is more speculative. Once the Commission authorizes rates to include the Wind Facility and Gen-Tie, customers are obligated to repay those costs until the plant is retired. Conversely, project savings are driven by

market conditions and are not guaranteed. Many factors will affect the extent of any market savings, such as how much energy the Wind Facility produces, the market price of natural gas (which sets the marginal price of electricity), and the market price of electricity (with which the wind energy will compete). Thus, under SWEPCO's proposal, customers will be responsible for all of the fixed project costs and bear the entire risk of whether potential energy savings, which are subject to market forces, will materialize.

Q. HOW SHOULD SWEPCO'S REQUEST BE EVALUATED?

A. Since the value of SWEPCO's request is based entirely on its claimed energy savings, its proposal should be evaluated, at least in part, on how robust its assumptions are regarding the magnitude of the Project costs and savings. If costs exceed savings under reasonable assumptions other than those applied by SWEPCO, the Commission must conclude that the Project is not in the public interest. Or, if approved, the Commission should establish conditions so that these unbalanced risks are more evenly shared.

VI. EVALUATION OF PROJECT RISKS

Q. HOW DID SWEPCO EVALUATE THE COSTS AND BENEFITS OF THE PROPOSED WIND PROJECT?

A. SWEPCO developed a baseline scenario (Base Case), which assumed no new wind resource additions for the Company, and a change-case scenario that included the wind project (Project Case), and then compared the difference or "delta" between these two cases for the period modeled, 2021 to 2045. SWEPCO assumed Natural Gas Combined Cycle units would be added to its generation resources in both the Base Case and Project Case as needed throughout the period to maintain a 12% capacity reserve margin as required by the Southwest Power Pool (SPP). The forecasted total variable costs used to determine the adjusted production cost savings were based on a MWh generation forecast for each SWEPCO generation unit determined utilizing the simulation model PLEXOS, which AEP uses to forecast its operating companies' production costs.[11]

To determine the impact of the wind project on market energy prices, SWEPCO retained the Brattle Group to support modeling of the entire SPP system. Brattle modeled in PROMOD the SPP and neighboring systems for two representative years, 2020 and 2025, to forecast the impacts that the wind project would have on SPP hourly market energy prices including the impact on total locational marginal prices (LMPs) and the congestion and loss components of those prices. The results of the PROMOD output were extrapolated over the 25-year planning period using the annual change in AEP's

[11] Direct Testimony of Kelly Pearce at 7.

long-term forecast of SPP market energy prices, and the results were input into the PLEXOS model.[12]

Q. WHAT IS THE RESULT OF SWEPCO'S MODEL?

A. SWEPCO's model results in a Project total net benefit of $1.94 billion. Its revised rebuttal model lowers this asserted benefit to $1.50 billion. Included in this reduction is the impact of lower FIT rates, which SWEPCO asserts reduces the PTC tax gross-up by $332 million and increases ADIT by $87 million, for a net reduction of $245 million.[13] Table 1 provides the components of the resulting NPV as calculated by SWEPCO:[14]

[12] *Ibid.* at 9.

[13] Revised Rebuttal Testimony of Kelly Pearce, Exhibit KDP-1R.

[14] Direct Testimony of Kelly Pearce at 5 and Exhibit KDP-2R.

Table 1

Costs and Benefits	Amount (2021 – 2045) NPV ($ Millions) As Filed	Amount (2021 – 2045) NPV ($ Millions) Revised
Avoided Cost Benefits	$3,974	$3,973
Revenue Requirement of Wind Facilities and Gen-Tie	($3,906)	($3,819)
PTCs Including Tax Gross-Up	$1,874	$1,541
Deferred Tax Asset Carrying Charges	$0	($300)
100% Additional OSS Margin	$0	$100
Net Benefits	$1,942	$1,495

Q. DID SWEPCO MODEL ANY OTHER CASES?

A. Yes, SWEPCO modeled a "Generic Wind Case" to test the feasibility and economics of a similarly sized project without the Gen-Tie. However, SWEPCO determined that adding 1,900 MW of wind in the same area of the Project without the Gen-Tie was not realistic given the expected magnitude of congestion that would be created, so instead it assumed 1,900 MW of wind resources were distributed and sourced from several delivery points in western Oklahoma, Kansas, Texas, Nebraska and Missouri.[15] For the Generic Wind Case, SWEPCO assumed 7,991 GWhs of annual wind output, a purchase price of $18.62/MWh (escalated at 2.25% per year), and contingency costs of $90 million. Using these assumptions, SWEPCO determined that the Generic Wind Case results in customer savings that are $686 million less than the estimated Project Case savings.[16] SWEPCO believes that the Tax Act would have a similar impact on its Generic Wind Case as on its

[15] Direct Testimony of Kelly Pearce at 14.

[16] *Ibid.* at 14-15.

Project Case, so these customer savings would not materially change under lower tax rate assumptions.[17]

Q. DO YOU HAVE ANY INITIAL ISSUES WITH THE CASES MODELED?

A. Yes. SWEPCO noted that its Base Case assumes no new development or purchase of wind resources between 2021 and 2045. The Base Case reflects an approach to meeting future energy needs of SWEPCO and PSO without additional wind generation.[18] This assumption is unrealistic given the amount of wind resources that are already in service or being developed in the area, especially over the 25-year planning period reflected in the models. The result of this assumption is to overstate the cost of the Base Case and thus overstate the value of the Project Case and Generic Wind Case.

Q. WHAT OTHER MODEL ASSUMPTIONS ARE YOU ADDRESSING?

A. I have identified several assumptions that have a significant impact on the results of the Company's analysis. As discussed below, these include cost and completion risk of the Wind Facility, assumptions regarding output from the Wind Facility, cost and completion risk of the Gen-Tie, and assumptions regarding natural gas price forecasts.

A. Cost and Completion Risk of the Wind Facility

Q. PLEASE PROVIDE A BREAKDOWN OF THE ESTIMATED PROJECT COSTS AND COMMERCIAL OPERATION DATE.

A. The estimated Project costs include:[19]

[17] Response to OPUC RFI 5-2.

[18] Direct Testimony of Johannes Pfeifenberger at 8.

[19] Direct Testimony of Michael Bright at 14-15.

MIPA Purchase Price – Membership Interests Purchase Agreement (MIPA) price is the contractual purchase price for the Wind Facility.

Other Estimated Costs – Reflects the cost of associated projects necessary to complete the Wind Facility, including the Tulsa North Substation interconnection facilities, Western 765 kV generation substation contingency, O&M building contingency, changes to Gen-Tie scope that impact the collection system design, O&M mobilization costs, Gridliance operating fee, and capital spare parts.

Owners Costs & Overheads – Includes the direct cost for project management, engineering and construction, personnel and expenses, legal and regulatory costs, O&M mobilization, telecommunication and IT support and equipment, and overheads.

Contingencies – Covers potential changes to the scope of work, possible environmental risk mitigation, potential changes to operations oversight, possible changes to security requirements, and general estimating accuracy.

AFUDC – AFUDC is the cost of funds used to finance plant construction and included in the project cost.

Table 2 summarizes these costs by component:[20]

Table 2

Component	($million)
MIPA Purchase Price	$2,694.0
Other Estimated Costs	$90.2
Owner Costs & Overheads	$22.6
Contingencies	$93.3
AFUDC	$1.9
Total Cost	$2,902.0

The project will have a nameplate capacity of 2,000 MW, which is equal to a purchase cost of $1,347/MW or total Project cost of $1,451/MW.[21] SWEPCO anticipates a commercial operation date (COD) in the fourth quarter of 2020.[22]

Q. WHAT IS YOUR CONCERN REGARDING THE COST AND COMPLETION RISK OF THE WIND FACILITY?

A. There are several issues related to cost and completion risk. First is the expected completion date for the facility. Under current tax rules, the facility must be in operation by December 31, 2020 to earn 100% of the available PTCs, so a completion date late in 2020 does not leave room for error. Project completion after 2020 may result in SWEPCO's failure to qualify for PTCs.[23] If SWEPCO experiences any delays related to such issues as regulatory approvals, construction difficulties, environmental impacts or adverse weather, the necessary deadline could be missed.

Q. CAN SWEPCO MITIGATE SOME OF THESE RISKS?

[20] Direct Testimony of Michael Bright, Exhibit MLB-1.

[21] $2,694 / 2,000 MW = $1,347/MW; $2,902 / 2,000 MW = $1,451/MW.

[22] Direct Testimony of Michael Bright at 5.

[23] Direct Testimony of Jay Godfrey at 4-5.

A. SWEPCO reports it has certain mitigation strategies in place, such as delay liquidated damages in the contract with GE for scheduled delivery of the wind turbine generators, multiple turbine erection crews, use of multiple commissioning crews, ready contracts for when the notice to proceed is received, and liquidated damages associated with completion of the Wind Facility by Invenergy.[24]

Despite these measures, the Company has not yet received its requested regulatory approvals, its construction and site studies are still ongoing, and weather is not controllable, so these risks remain.

Q. IS THERE AN ADDITIONAL RISK RELATED TO PTCS?

A. Yes. ~~Most significantly, the U.S. House of Representatives recently proposed tax law changes that would repeal the current PTC inflation adjustment so that the credit amount would revert to 1.5 cents per kWh for the remaining portion of the 10 year eligibility period.[25] Because the current inflation adjusted credit is 2.4 cents per kWh, this proposal would reduce the value of PTCs by at least 38% over the life of the Project. This equates to a possible reduction in net benefits of at least $712 million.[26]~~ The change in the FIT rate under the Tax Act has reduced AEP's tax liability that the PTCs offset. SWEPCO states that AEP will still have a need for 100% of the Wind Catcher PTCs, but the timing as to the year in which AEP can use the tax credits has changed. SWEPCO's latest

[24] Direct Testimony of Michael Bright at 11.

~~[25] https://waysandmeansforms.house.gov/uploadedfiles/tax_cuts_and_jobs_act_section_by_section_hr1.pdf~~

~~[26] From Exhibit KDP-1, the NPV of PTCs is $1,874 million. 38% x $1,874 million = $712 million.~~

assessment indicates that there likely will be a delay in when AEP will have sufficient taxable income against which to deduct the PTCs earned.

The effect of this change is that while SWEPCO plans to flow the PTCs' value through to customers in the year they are earned, AEP will not fully utilize the PTCs in that year. Therefore, SWEPCO proposes to create a deferred tax asset on the Company's books for the un-utilized PTCs, and the return on the deferred tax asset would reduce the customer benefits of the Project. Under the Company's assumptions, this deferral would reduce customer benefits by $300 million from the Company's original projections.[27]

Q. IS SWEPCO CERTAIN OF THE IMPACT OF THE DEFERRED TAX ASSET?

A. No. SWEPCO admits that its updated long-term financial forecast incorporating the changes in the Tax Act will not be completed until later this year. And in addition, its forecast will only cover the period from 2018 to 2028, rather than the PTC period.[28] Therefore, the Company's projected impact is only an estimate.

B. Generation Risk

Q. HOW DID THE COMPANY DEVELOP ITS ESTIMATE OF WIND FACILITY GENERATION OUTPUT?

A. Invenergy, the developer of the Wind Facility, retained DNV-GL to complete an independent assessment of the wind resource and forecasted energy production for the facility. SWEPCO explained that DNV-GL is the world's largest technical consultant for

[27] Revised Rebuttal Testimony of Paul Chodak at 8-9 and Exhibit KDP-2R.

[28] *Ibid.*

the renewable energy industry.[29] DNV assessed a number of variables related to performance of the wind turbines and developed two estimates of the expected average production from the facility over 25 years – Scenario A of 8,963.9 GWh/year and Scenario B of 8,951.1 GWh/year. The estimates vary only in the degree of wake effects present, and are within 0.1% of each other. The net capacity factor (NCF) of the Wind Facility under both scenarios is 51.1%[30] and represents a P50 estimate.[31] A P50 estimate means that there is a 50% likelihood that the actual value will be equal to or greater than the estimated value. Likewise, there is also a 50% likelihood that the actual value will be less than estimated.

In addition, SWEPCO hired Simon Wind, an experienced wind consulting firm, to independently review DNV's expected wind resource and forecasted annual net generation.[32] Simon Wind's analysis resulted in an estimated P50 NCF of 50.74% over one year and 50.63% over ten years,[33] slightly lower than the DNV estimate. SWEPCO concluded that the Simon Wind analysis confirms that the DNV production forecast is acceptable and in line with methodologies used in the wind generation industry.[34]

Q. WHY IS THE NCF RELEVANT TO SWEPCO'S PROPOSAL?

A. An NCF is the ratio of the actual output of a generating unit over a period of time to its potential output if it were able to operate at full nameplate capacity. This factor is

[29] Direct Testimony of Jay Godfrey at 13.

[30] Direct Testimony of Jay Godfrey, Exhibit JFG-4 at 7.

[31] *Ibid.* at 34.

[32] Direct Testimony of Jay Godfrey at 14.

[33] Direct Testimony of Jay Godfrey, Exhibit JFG-6 at 3.

[34] Direct Testimony of Jay Godfrey at 14.

important because it relates to the amount of energy that can be delivered from the Wind Facility. A higher NCF means more energy is delivered from the facility to the grid, while a lower NCF means less energy is delivered.

Q. WHAT IS YOUR CONCERN REGARDING GENERATION RISK?

A. The economic analysis SWEPCO developed to support its application utilized the Scenario B result developed by DNV,[35] but the Company did not prepare a sensitivity on any other level of plant output.[36] Yet, the Company's consultants indicated a range of variables and probabilities that contributed to their generation estimates. It is important to note that there are no operating wind farms utilizing the proposed turbine configuration, so this production risk is real.[37] If the plant output is less than forecast, the value of the wind resource will be reduced, both in the amount of energy it can deliver and the PTCs it can capture. For example, DNV's P90 estimate of generation is 8,161.7 GWh per year, which is equivalent to a 46.6% NCF. This is 9% less than the estimate used in SWEPCO's models and equates to a reduction in net benefits of $547 million.[38] SWEPCO provided an estimate of the reduction in net benefits for generation at a 44.7% NCF of $431 million under its revised rebuttal model.[39]

C. Cost and Completion Risk of the Gen-Tie

Q. WHY DOES SWEPCO ASSERT THAT THE GEN-TIE IS NECESSARY?

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[35] *Ibid.*

[36] Response to TIEC RFI 1-17.

[37] Response to TIEC RFI 1-16.

[38] Response to TIEC RFI 4-1.

[39] ~~Response to TIEC RFI 4-1.~~ Exhibit KDP-1R.

A. SWEPCO explains that the Oklahoma Panhandle has some of the best wind resources in the country, but lacks sufficient transmission facilities to deliver that wind energy to major load centers. The Gen-Tie will allow SWEPCO and PSO to fully realize the benefits of those wind energy resources without incurring curtailments.[40]

Q. CAN THE WIND PROJECT BE CONNECTED DIRECTLY TO THE SPP SYSTEM?

A. SWEPCO claims that the Wind Facility cannot be interconnected directly to the SPP system in the Oklahoma Panhandle without a significant investment in upgrades or additions to the local transmission infrastructure. In addition, the Company expects significant grid congestion with a direct interconnection even with these investments.[41]

Q. WHAT IS YOUR CONCERN REGARDING THE COST AND COMPLETION RISK OF THE GEN-TIE?

A. There are several issues related to cost and completion risk. First, like the Wind Facility itself, a delay in completion of the Gen-Tie might limit the number of PTCs that can be earned because of the limited capacity of the alternative transmission options. Similar to concerns regarding the Wind Facility, if there are any delays related to such issues as regulatory approvals, construction difficulties, land acquisition, environmental impacts or adverse weather, the deadline could be missed.

Q. WHAT HAS SWEPCO DONE TO MITIGATE SOME OF THESE RISKS?

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[40] Direct Testimony of Robert Bradish at 6.

[41] *Ibid.* at 5.

A. To manage its cost, the Gen-Tie will be constructed via a fixed-price Engineer, Procure, Construct (EPC) contract with Quanta, a transmission construction contractor specializing in designing, building and maintaining transmission systems,[42] so price risk should be minimized. Furthermore, the EPC contract requires delay liquidated damages payments if the substantial completion date of the Gen-Tie exceeds the guaranteed completion date of December 15, 2020. Liquidated damages, in aggregate, are capped at the contract price.[43] The liquidated damages clause, however, will not completely recover any lost production-based PTC value.[44]

Despite these measures, the Company has not yet received its requested regulatory approvals, its construction and land acquisition activities are still ongoing, and weather is not controllable, so these risks to complete the Project still remain.

Q. DOES SWEPCO HAVE A CONTINGENCY PLAN TO QUALIFY FOR 100% OF PTCS SHOULD THE GEN-TIE NOT BE COMPLETED ON TIME?

A. Yes. SWEPCO contracted with Invenergy to execute an alternative interconnection with Gridliance, a regional transmission service provider, that will allow for commissioning, completion and interconnection of completed wind facilities, and consequently, qualification for the PTCs. But the Gridliance Interconnection Agreement (GIA) provides for only 50 MW of interconnection service, so while it can be used for

[42] Direct Testimony of Brian Weber at 7.

[43] *Ibid.* at 13.

[44] Response to OPUC RFI 2-2.

commissioning of the wind facilities, it cannot provide the full benefit of the wind energy production or PTCs.[45]

Q. DO YOU HAVE OTHER CONCERNS REGARDING THE COST AND COMPLETION RISK OF THE GEN-TIE?

A. Yes. A second concern is the mismatch of service lives between the Wind Facility and the Gen-Tie. The Wind Facility is expected to have a 25-year life, yet the Gen-Tie is expected to remain in service for 50 years.[46] SWEPCO suggests that one potential use of the Gen-Tie after the Wind Facility reaches the end of its service life would be to interconnect other existing, re-powered or new wind facilities located in that same wind resource rich region of SPP. Alternatively, network integration of the Gen-Tie into the then-existing SPP system would be possible.[47] While these alternatives might generate transmission revenues that SWEPCO can credit to customers to offset the capital cost of the Gen-Tie, SWEPCO has not estimated the amount of any such potential revenues.[48]

Q. WHAT IS THE IMPACT IF THE SERVICE LIFE OF THE GEN-TIE IS SHORTENED TO 25 YEARS TO MATCH THE LIFE OF THE WIND PROJECT?

A. SWEPCO calculated that if the Gen-Tie is depreciated at the same 25-year rate as the Wind Facility, the total costs of the Gen-Tie would increase by approximately $117 million on an NPV basis and the total net benefit of the wind project would be reduced

[45] Response to OPUC RFI 1-2.

[46] Direct Testimony of Robert Bradish at 15.

[47] *Ibid.*

[48] Response to OPUC RFI 2-1.

from approximately $1.94 billion to $1.82 billion.[49] SWEPCO estimates that if the Gen-Tie were depreciated at the same 25-year rate as the Wind Facility under the lower FIT rate, total costs of the Gen-Tie would increase by approximately $102 million on an NPV basis.[50]

Q. WHAT IS THE IMPACT IF THE TOTAL PROJECT COSTS (WIND FACILITY AND GEN-TIE) EXCEED SWEPCO'S ESTIMATED COST?

A. SWEPCO estimates the total Project cost to be $4.53 billion.[51] If actual Project costs are 10% higher than estimated, then the net benefit to customers is reduced from approximately $1.94 billion to $1.63 billion, or $310 million.[52] Under the lower FIT rate, SWEPCO estimates the net benefit to customers is reduced by $296 million.[53]

D. Natural Gas Price Risk

Q. WHY ARE NATURAL GAS PRICE FORECASTS RELEVANT TO SWEPCO'S PROPOSAL?

A. Natural gas price forecasts are relevant because gas prices set the marginal price for electricity in the market. The price for natural gas essentially caps the price for wind resources. The higher the gas price, the higher wind prices can go, and this improves the Project's value. Conversely, if gas prices remain low, this results in lower wind energy prices and thus reduces the Project's value to customers.

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[49] Direct Testimony of Kelly Pearce at 13.

[50] Response to OPUC RFI 5-5.

[51] $2.90 billion (Wind Facility) + $1.63 billion (Gen-Tie) = $4.53 billion.

[52] Response to TIEC RFI 4-1.

[53] Exhibit KDP-1R.

Q. HOW WERE THE NATURAL GAS FORECASTS USED IN SWEPCO'S MODELS DEVELOPED?

A. The natural gas price forecasts were developed as part of AEP's fundamentals forecast, which is a long-term, weather-normalized commodity market forecast. Along with a Base Case forecast, AEP provided lower and upper band forecasts to reflect lower and higher North American demand for electric generation and fuels.[54]

Q. HOW DOES A MARKET-BASED FORECAST DIFFER FROM A FUNDAMENTALS FORECAST?

A. A market-based forecast reflects market participants' expectations for future prices. These prices are gathered and reported daily by various outlets. The New York Mercantile Exchange (NYMEX) provides a report of natural gas prices that are not strictly a forecast, but rather a set of future prices at which market participants are willing to enter into natural gas transactions. These prices will move up and down over time as market participants' expectations change. On the other hand, a fundamentals forecast relies on a model that considers the relationship between fundamental components of the economy. For example, model inputs might include natural gas supply and demand forecasts, forecasts of competing energy resources, inflation rates, etc. The model will generate a set of gas prices based on the relationship between these inputs.

Q. HOW DO THESE FORECASTS COMPARE?

A. The fundamentals forecast is derived from forecasts of other components of the economy, so it is only as good as the forecast of these variables. The quality of these input

[54] Direct Testimony of Karl Bletzacker at 3-4.

forecasts will drive the quality of the resulting natural gas price forecasts. And once developed, the natural gas price forecasts are fixed until the model is run again with updated inputs. For example, AEP's forecast was prepared in October 2016, and has not been updated.[55] Conversely, a market-based forecast is constantly updated as market participants consider changes that impact the market. Buyers and sellers of futures contracts set the price for natural gas, and market-based indices are typically used in natural gas supply agreements to set the price at which natural gas is purchased.

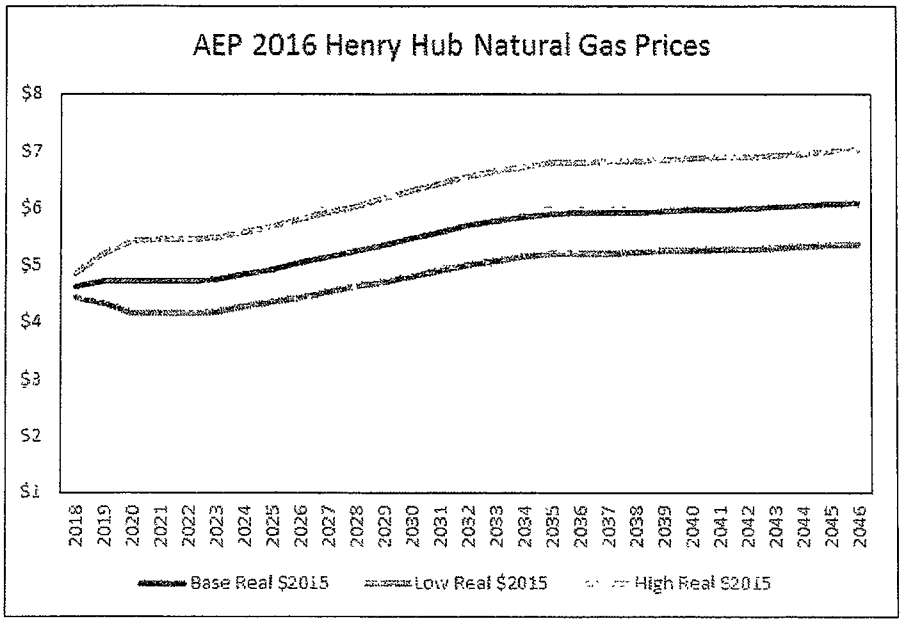
Q. HOW DO THE GAS PRICE FORECASTS PROVIDED BY AEP COMPARE?

A. As I mentioned, AEP provided to SWEPCO a Base Case natural gas price forecast, along with lower and upper band forecasts to reflect lower and higher North American demand for electric generation and fuels. The prices are for the Henry Hub, which is located in South Louisiana and is a significant natural gas market hub as well as the pricing point for NYMEX futures prices.

Figure 1 is a graphical presentation of AEP's three gas price forecasts:

Figure 1

[55] Response to OPUC RFI 2-12.



Q. WHAT IS THE IMPACT OF THESE SENSITIVITIES ON THE COMPANY'S NET ENERGY SAVINGS CALCULATIONS?

A. Table 3 shows the impact of the three gas price forecast cases on SWEPCO's claimed project savings:[56]

Table 3

AEP Gas Price Forecast	NPV Savings ($ million) As Filed	NPV Savings ($ million) Revised
High	$2,353	$1,932
Base	$1,942	$1,495
Low	$1,593	$1,114

As can be seen, as the gas price forecast declines, so does the value of the Project.

Q. SHOULD OTHER GAS PRICE FORECASTS BE CONSIDERED?

A. Yes. Because the natural gas price forecast is such a significant driver of the Project's economics, other forecasts should be considered. Since future natural gas prices are

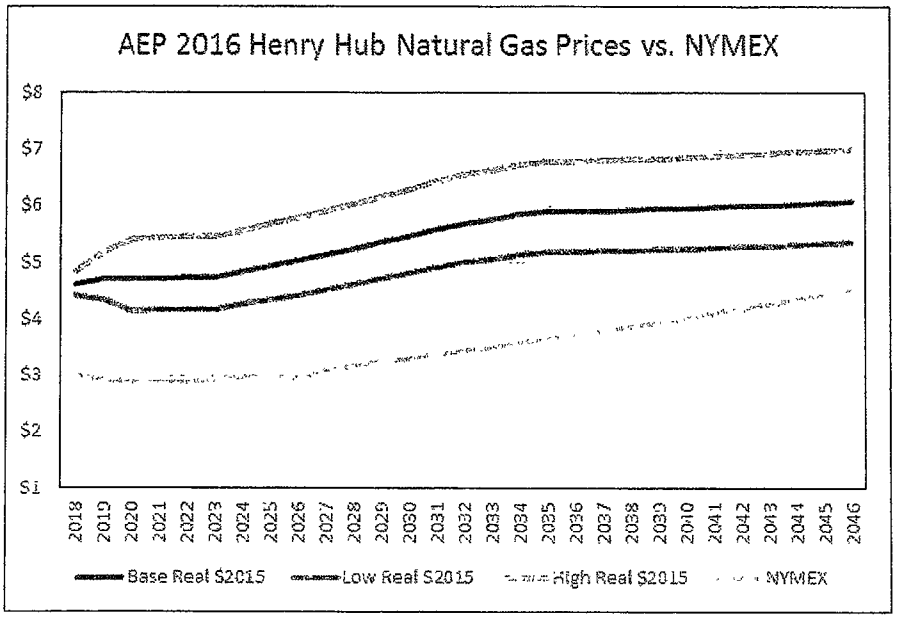
[56] Direct Testimony of Kelly Pearce, Exhibit KDP-2 and Exhibit KDP-2R.

unknown, it is critical for the Commission to know how the economics of the Project are impacted by prices other than those presented by SWEPCO.

Q. HOW DO NYMEX FUTURES PRICES COMPARE TO THE COMPANY'S GAS PRICE FORECASTS?

A. I prepared a more recent NYMEX futures price forecast, using closing prices from November 28, 2017. Figure 2 compares AEP's gas price forecasts against the NYMEX prices:

Figure 2



It can be seen that the NYMEX gas prices are much lower than all three of AEP's projected prices throughout the forecast period. Current natural gas prices are in the range of $3/MMBtu, and the NYMEX suggests that natural gas prices will remain in that range for several years. AEP's forecasts predict that average natural gas prices will rise more than 50% next year, which SWEPCO attributes to changes in the weather.[57]

Q. WHAT IS THE IMPACT OF USING A LOWER GAS PRICE FORECAST ON PROJECT ECONOMICS?

A. In response to discovery, SWEPCO prepared an analysis of the impact on project economics of an "Ultra-Low" gas price forecast, which reflected a 50% reduction to AEP's Low Case forecast.[58] The result of this analysis is an NPV benefit of $454.

[57] Response to OPUC RFI 2-14.

[58] Response to CARD RFI 2-58.

million, which is $1,488 million, or 77%, lower than SWEPCO's claimed benefit of $1,942 million. Notably, under SWEPCO's revised rebuttal model, the "Ultra-Low" gas price forecast yields a net cost to customers of $74 million.[59] SWEPCO calls its "Ultra-Low" forecast "implausible,"[60] but while SWEPCO's "Ultra-Low" gas prices are 27% lower than current market prices, its Base gas prices are 53% higher than current market prices. This is no less implausible.

Q. PLEASE SUMMARIZE THE REDUCTIONS TO NET BENEFITS FOR EACH OF THE RISKS YOU DISCUSSED.

A. To the extent that they could be quantified, Table 4 summarizes the reductions to net benefits of the risks I discussed in my testimony:

[59] Response to ETEC-NTEC RFI 3-1, Attachment 1.

[60] Revised Rebuttal Testimony of Kelly Pearce at 5.

Table 4

Risk Issue	NPV Impact ($ million) As Filed	NPV Impact ($ million) Revised
The value of PTCs is reduced due to ~~changes~~reduction in tax ~~laws~~credit amount	($712)	$0
Net benefits reduced due to lower tax rate (1)	$0	($245)
Return on PTC deferred tax asset (1)	$0	($300)
Energy savings are reduced due to a lower NCF of the Wind Facility	($547)	($431)
Gen-Tie is depreciated over same time period as the Wind Facility	($117)	($102)
Revenue requirement is increased due to higher Project costs	($310)	($296)
Energy savings are reduced due to lower natural gas prices	($1,488)	($1,569)
Total Impact	($3,174)	($2,398)

(1) Not included in Total Impact as it is already included in SWEPCO's Project net benefits.

As can be seen, the total negative impact of these risks more than offsets the proposed Project net benefits of $1,942 million or $1,495 million under the revised rebuttal model.

Q. WHAT DO YOU RECOMMEND IN LIGHT OF THESE RISKS?

A. SWEPCO's estimate of benefits is very uncertain, while placing all risk on ratepayers if the claimed benefits do not materialize. Therefore, for the Company's application to be in the public interest, the Commission should require that the following conditions be met:

1. The Wind Facility capital costs must be capped at $1,451 per kW, which is inclusive of the purchase price and all associated costs.

2. The Gen-Tie capital costs must be capped at the contracted fixed price amount of $1.62 billion.

3. Customers must receive the benefit in reduced fuel expense and PTCs based on a minimum Wind Facility NCF of 51.1%, regardless of whether the actual NCF is lower.

4. Customers must be credited at the 100% level of PTCs, regardless of whether SWEPCO qualifies for the PTCs or not.

5. SWEPCO must guarantee energy savings to customers based on its Base Case forecasted natural gas prices, regardless of actual market prices.

Q. DO THE COMPANY'S PROPOSED GUARANTEES IN ITS REVISED REBUTTAL TESTIMONY SATISFY THE RISKS YOU IDENTIFIED?

A. No, they do not.

Q. PLEASE EXPLAIN WHY NOT.

A. First, SWEPCO guarantees a cost cap of 109% of the estimated cost of the Project. But this cap excludes AFUDC of approximately $2 million.[61] More importantly, the guarantee excludes force majeure and changes in law, so customers still bear the entire risk of any additional costs incurred from these outside events.

Second, SWEPCO guarantees it will qualify for 100% of the value of PTCs. But without the value of the PTCs, the Project provides no economic value to customers,[62] so the Project would not be viable at all. Furthermore, even with the guarantee, the Company has provided no method by which customers would be "made whole" by the loss of PTCs.

Third, SWEPCO guarantees minimum annual production from the Project equivalent to a 44.7% NCF. This level of production corresponds to SWEPCO's P95 estimate, meaning that there is only a 5% probability the actual production will be less than the guaranteed level so is not a meaningful guarantee at this level.

[61] Direct Testimony of Michael Bright at 16 and Direct Testimony of Brian Weber at 5.

[62] See Exhibit KDP-2R. Total benefit according to SWEPCO is $1,495 million, but the value of the PTCs is $1,541 million. Thus, the Project results in a net cost of $46 million without the PTCs.

Fourth, SWEPCO guarantees to flow through 100% of incremental off-system energy sales margins and net proceeds from the sale of renewable energy credits to customers. Since these off-system sales and renewable energy credits would be generated by facilities paid for entirely by customers, it would be unreasonable for these revenues not to be fully credited to customers.

VII. SWEPCO'S REQUESTED COST RECOVERY

Q. WHAT RATE RELIEF IS SWEPCO REQUESTING IN ITS APPLICATION?

A. SWEPCO is requesting that the Commission:

1. Find that a good cause exception to 16 TAC § 25.236 is warranted to allow it to pass the Project revenue requirement and PTCs to customers through fuel expense until the Project is included in its base rates;

2. Approve its request to include any PTCs deferred for ratemaking purposes in a regulatory liability that is included in rate base and earns interest at the Company's pre-tax WACC from the commercial operation date of the Project;

3. Approve its request to include any unrealized PTCs in a deferred tax asset included in rate base in the event the PTCs cannot be fully utilized in a given year;

4. Approve the requested depreciation rates for the Wind Facility and associated Gen-Tie; and

5. Approve its request to defer certain PTCs for credit beyond 10 years of production.

Q. WHAT RATE RELIEF ARE YOU ADDRESSING?

A. I am addressing: a) SWEPCO's request for a good cause exception to 16 TAC § 25.236 to allow it to pass the Project revenue requirement and PTCs to customers through fuel expense until the Project is included in its base rates, and b) the Company's request to defer certain PTCs for credit beyond 10 years of production.

Q. PLEASE EXPLAIN SWEPCO'S REQUEST FOR A GOOD CAUSE EXCEPTION TO THE FUEL RULE.

A. SWEPCO believes that since fuel costs will be immediately impacted by low cost wind energy once the wind project is operating, it should also be able to credit the Project revenue requirement and PTCs against fuel expense until such time as the Project is included in SWEPCO's base rates. Absent this approval, the Company will retain any PTCs obtained until such time as the Project revenue requirement is included in rates. SWEPCO anticipates that the PTCs will also be credited to base rates at that time.[63] SWEPCO estimates the net effect of lower energy costs and added revenue requirement due to the wind project is a decrease of approximately 1% to an average customer's bill in the first year of operations.[64]

Q. DO YOU AGREE WITH SWEPCO'S REQUEST FOR AN EXCEPTION TO THE FUEL RULE?

A. No, I do not. Section 25.236(a) of the Commission's rules defines eligible fuel expenses as those properly recorded in the Federal Energy Regulatory Commission (FERC) fuel-related accounts. The wind project's revenue requirement does not fall into any of these accounts. SWEPCO claims that it qualifies for a special circumstances exception because its proposal lowers fuel expenses from what would otherwise be the case. And while Section 25.236(a)(7) provides that an electric utility may recover as eligible fuel expenses fuel or fuel-related expenses otherwise excluded if it can demonstrate that such

[63] Direct Testimony of John Aaron at 8.

[64] Direct Testimony of Venita McCellon-Allen at 21-22.

treatment is justified by special circumstances, the Commission is not obligated to allow it.

SWEPCO's proposal is simply a mechanism to eliminate the normal effects of regulatory lag. But the Company has other mechanisms available to it to minimize any lag in recovery of its project revenue requirement. For example, it can file a base rate case as soon as the wind project is in service. SWEPCO can also request interim rates that will further reduce the time lag. The fuel factor was designed to allow a utility the opportunity to collect fuel costs on an interim basis because fuel costs are often subject to volatility-driven market forces outside the control of the utility. It was not designed to avoid regulatory lag.

Q. DO YOU HAVE ANOTHER RECOMMENDATION?

A. Yes. SWEPCO seems to expect that PTCs will be reflected in base rates once the Project revenue requirement is included in base rates. But this treatment will not necessarily allow customers to receive the full benefit of the value of the PTCs, since PTCs are proportional to generation output and in base rates the level of PTCs will only be adjusted in a subsequent base rate case. In order to avoid this situation, I recommend that the PTCs be credited to fuel expense so that customers receive the full benefit of the PTCs in a timely manner.

Q. PLEASE EXPLAIN SWEPCO'S PROPOSAL TO DEFER CERTAIN PTCS.

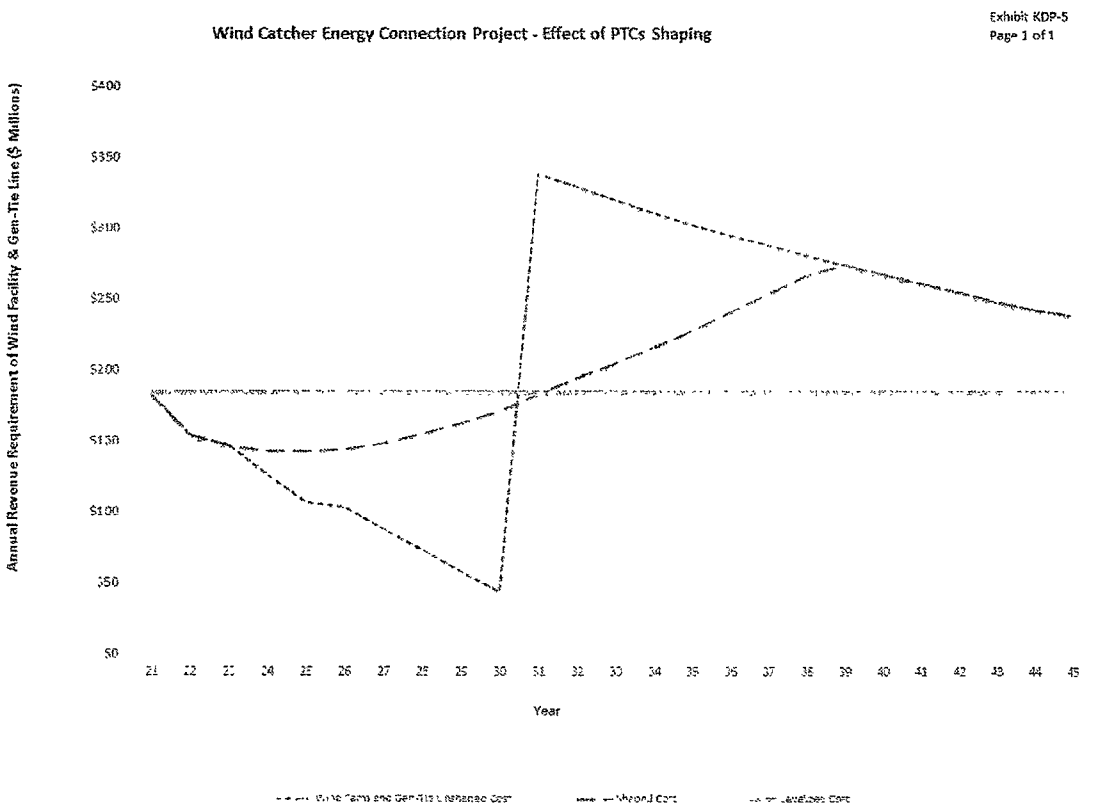
A. The value of the PTCs grows over time until their expiration after 10 years of production, or 2030. The Company is proposing to defer, for rate-making purposes, some of the value of the PTCs beginning in 2024 through 2030. This would be accomplished by

establishing a regulatory liability, and then returning this value to customers beginning in 2031 until the entire liability has all been returned in the form of credits to customers. The result of this "shaping" of PTCs is that the revenue requirement does not result in a decrease from 2021 to 2030 followed by an increase in 2031.[65]

Q. WHAT DOES SWEPCO MEAN BY "SHAPING" THE PTCS?

A. Figure 3 reproduces SWEPCO Exhibit KDP-5 which compares the annual revenue requirement impact before and after "shaping" the PTCs.[66]

Figure 3



[65] Direct Testimony of Kelly Pearce at 18.

[66] Direct Testimony of Kelly Pearce, Exhibit KDP-5.

As can be seen, "shaping" the PTCs reduces customer credits during the first 10 years of production, but returns those credits after 10 years to dampen the increase in revenue requirement that would otherwise occur. SWEPCO's proposal is modeled so that the NPV is the same under both the original and "shaped" cases.[67]

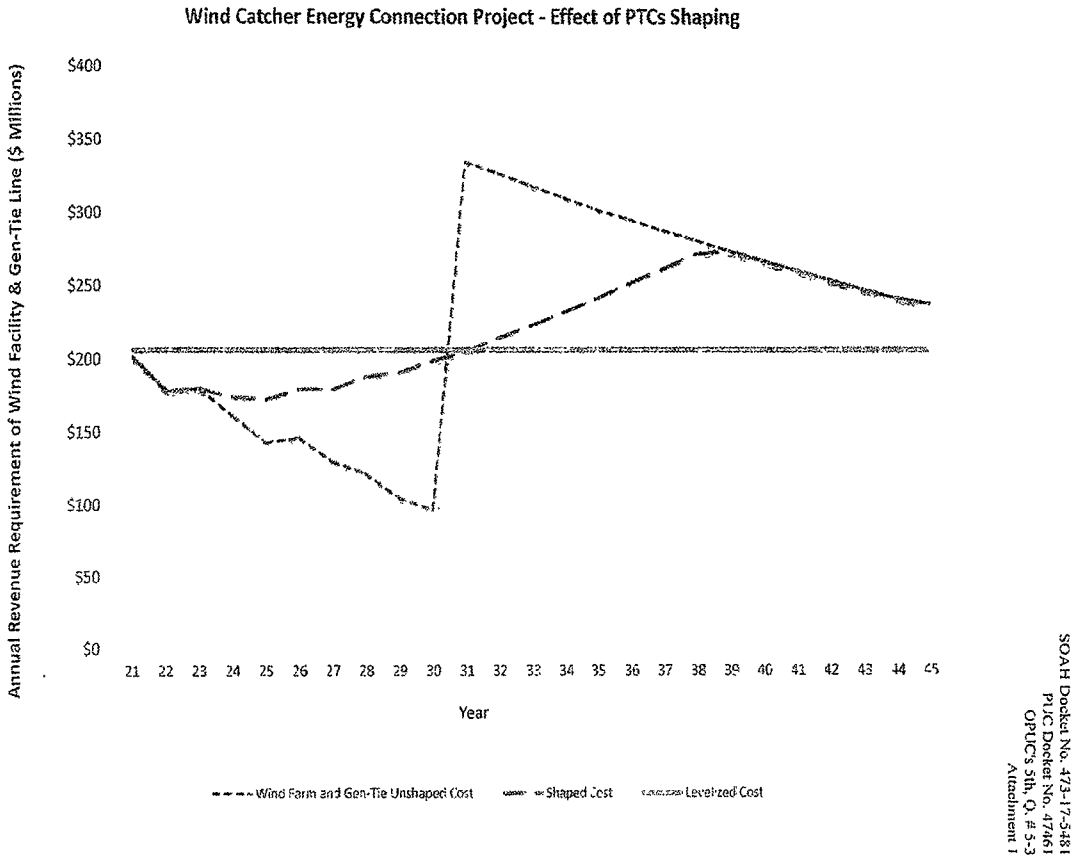
Q. HOW DOES THIS CURVE CHANGE UNDER THE COMPANY'S REVISED REBUTTAL MODEL?

A. Figure 4 shows this curve under the revised rebuttal model:[68]

Figure 4

[67] Direct Testimony of Kelly Pearce, Exhibit KDP-6.

[68] Response to OPUC RFI 5-3, Attachment 1.



As can be seen, the general shape of the curve is the same, but both the annual revenue requirement and levelized cost are higher.

Q. DO YOU AGREE WITH SWEPCO'S PROPOSAL TO DEFER THESE PTCS?

A. No, I do not. First, the Project revenue requirement, although significant, is only 16% of SWEPCO's total current revenue requirement.[69] Furthermore, SWEPCO proposes to defer $375.8 million of PTCs, which corresponds to 14% of the total PTCs earned.[70] This indicates that the amount of revenue requirement at stake is only about 2% (16% x

[69] $1.823 million / 25 = $73 million; $73 million / ($370 million + $73 million) = 16%.

[70] From Exhibit KDP-1, the nominal value of PTCs is $2,775 million. $375.8 million / $2,775 million = 14%.

14%). In addition, SWEPCO's calculations of the value of the deferred PTCs are based on assumptions regarding ratemaking treatments, interest rates, inflation, and the value of PTCs in the future which are all likely to change. And it is uncertain what other relief SWEPCO might be requesting 10 years from now, so any impact of the proposed PTC deferral might well be offset by other ratemaking changes at that time. Finally, it is not likely that SWEPCO will file for annual rate changes, so even if PTCs are included in fuel expense much of the revenue requirement volatility noted by SWEPCO will not be experienced in rates. I agree with SWEPCO that there is no one "right" way to perform this shaping,[71] and in fact there is no "right" way at all, so would recommend that PTCs not be deferred but instead be credited to customers as soon as they are available.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

[71] Direct Testimony of Kelly Pearce at 19.