



Capital Investment Review

Follow-Up Responses from April 19-20 Workshops





Show the math to calculate the \$M/aMW in the EE slides

- To clarify, the \$M/aMW on slides #11 of the EE CIR slides is only calculated for BPA-funded programmatic savings. The costs included are capital as well as CRC funds. The table below shows the calculation.

	2010	2011
Capital Funded	\$ 58	\$ 162
CRC Funded (expense)	\$ 41	\$ 12
Total Dollars	\$ 99	\$ 174
Total BPA Funded Programmatic Savings (aMW)	57	105
\$M/aMW	\$ 1.7	\$ 1.7



How much could be lease financed?

- We are highly confident 30% of Transmission's annual capital program forecast could be lease financed and are working to lease finance as much as 50%.



Transmission Asset Strategies

Revised strategy implementation plans to meet 2012 proposed IPR budget



Revisions to strategy forecasts and implementation plans

- In December 2011, the Transmission asset programs developed strategies with unconstrained, individually optimized replacement programs and funding levels to best mitigate system risks. When the overall IPR funding levels were later determined that were constrained by capital availability, other priorities and resource constraints, the sustain programs were adjusted to produce a "next best" alternative which best optimizes the replacement programs, while minimizing increased risk to the system.
- As stated in the initial CIR publication, Transmission Services has completed conducting a review of each program and has developed a revised forecast and plan to stay within the 10-year initial CIR forecast. The review also included an evaluation of the resources necessary to execute the programs.
- The revised forecast was formulated by evaluating the total system and program priorities, as well as ability to deliver on the total program, and making funding shifts between programs and fiscal years to best mitigate critical system risks.

Revisions to strategy forecasts and implementation plans

- Future strategy revisions will incorporate the economic value-based modeling currently underway. This will further Transmission Services in the development of optimized strategies and replacement plans across all programs that take funding and resource availability into account.
 - With this in mind, revised strategy implementation plans were developed to adequately fund the early years based on current strategy direction and deliver on Transmission Services' mission. It is expected that applying the modeling to all programs will provide better direction in how the out year funding will be prioritized and allocated across programs.
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- The following slides include the results of the revised strategy implementation plans and
 - take deliverability into account;
 - reflect recent project and program changes and dependencies; and
 - identify potential risks or demands on the program.
 - It should be recognized that in limited circumstances some sustain program objectives are addressed through expansion project implementation, i.e. an expansion project replaces aging equipment.

Original forecast for program implementation as reflected in strategies

Capital Costs (In Millions, Nominal)

Current rate		Next rate period		4-Year Total	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	10-Year Total
FY 2012	FY 2013	FY 2014	FY 2015								

Capital Costs (excluding AFUDC and Corporate Overheads)

Transmission

Sustain Programs:

AC Substations	21.9	25.9	26.9	29.7	104.4	35.3	31.1	31.4	33.2	29.3	28.4	293.1
DC Substations	11.3	11.3	7.2	4.5	34.3	-	-	-	-	-	-	34.3
Control Center	4.8	7.3	7.4	7.6	27.1	7.6	7.7	7.8	7.9	7.9	8.0	74.0
Power Systems Control and Telecom	44.0	65.5	67.6	61.1	238.2	54.9	60.0	61.7	60.3	59.8	59.6	594.5
Rights of Way	24.8	20.5	22.0	22.2	89.5	16.9	16.9	16.9	16.9	16.9	16.9	190.9
System Protection and Control	25.9	36.7	45.3	45.7	153.6	46.2	46.6	42.7	46.6	47.3	47.8	430.8
Steel Lines	32.7	28.4	16.5	12.6	90.2	12.9	13.1	11.5	11.5	11.5	11.5	162.2
Wood Pole Lines	36.0	42.8	47.2	42.2	168.2	39.1	43.0	37.2	36.5	36.5	36.5	397.0
TEAP Tools	0.9	1.0	1.0	1.0	3.9	1.1	1.0	1.1	1.0	1.1	1.1	10.3
Subtotal	202.3	239.4	241.1	226.6	909.4	214.0	219.4	210.3	213.9	210.3	209.8	2,187.1

Expand Program:

Main Grid	216.1	158.3	112.6	116.8	603.8	189.6	160.0	163.0	43.0	74.0	194.0	1,427.4
Area and Customer Service	13.2	27.3	17.5	12.8	70.8	12.0	16.3	10.0	10.0	10.0	10.0	139.1
Upgrades and Additions	48.2	35.0	23.6	25.1	131.9	32.1	29.1	29.1	29.1	29.1	29.1	309.5
Subtotal	277.5	220.6	153.7	154.7	806.5	233.7	205.4	202.1	82.1	113.1	233.1	1,876.0
PDCI (Celilo) Upgrade Project	1.3	85.4	116.1	93.6	296.4	27.6	-	-	-	-	-	324.0
Transmission Indirects (Capitalized)	41.5	45.6	46.1	47.0	180.2	47.9	48.9	49.9	50.9	51.9	52.9	482.6
Customer Requested Projects (PFIA)	45.2	45.0	35.0	25.0	150.2	25.0	25.0	32.0	32.0	32.0	32.0	328.2
Total	567.8	636.0	592.0	546.9	2,342.7	548.2	498.7	494.3	378.9	407.3	527.8	5,197.9

Original CIR forecast

4,731.6

Delta - Over/ (under)

466.3

Areas highlighted in yellow denote programs with revisions

Revised forecast for program implementation

Capital Costs (In Millions, Nominal)

Current rate		Next rate period		4-Year Total	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	10-Year Total
FY 2012	FY 2013	FY 2014	FY 2015								

Capital Costs (excluding AFUDC and Corporate Overheads)

Transmission												
Sustain Programs:												
AC Substations	18.2	28.7	26.2	25.9	99.0	32.3	27.2	27.1	28.8	20.2	19.3	253.9
DC Substations	11.3	11.3	7.2	4.5	34.3	-	-	-	-	-	-	34.3
Control Center	4.8	7.3	7.4	7.6	27.1	7.6	7.7	6.5	6.5	6.5	6.5	68.4
Power Systems Control and Telecom.	21.9	65.5	67.6	59.6	214.6	54.9	60.0	52.1	34.5	34.1	34.1	484.3
Rights of Way	24.2	26.1	23.3	23.6	97.2	17.0	17.0	11.3	11.3	11.3	11.3	176.4
System Protection and Control	7.4	25.9	19.4	19.5	72.2	21.2	22.7	23.3	25.2	21.7	21.7	208.0
Steel Lines	32.7	28.4	16.5	12.6	90.2	14.9	14.1	12.5	11.5	11.5	11.5	166.2
Wood Pole Lines	29.1	43.4	47.2	42.2	161.9	34.1	43.0	36.0	36.0	36.0	36.0	383.0
TEAP Tools	0.9	1.0	1.0	1.0	3.9	1.1	1.0	1.1	1.0	1.1	1.1	10.3
Subtotal	150.5	237.6	215.8	196.5	800.4	183.1	192.7	169.9	154.8	142.4	141.5	1,784.8
Expand Program:												
Main Grid	216.1	158.3	112.6	116.8	603.8	189.6	160.0	163.0	43.0	74.0	194.0	1,427.4
Area and Customer Service	13.2	27.3	17.5	12.1	70.1	12.0	10.0	10.0	10.0	10.0	10.0	132.1
Upgrades and Additions	51.2	35.0	29.3	25.1	140.6	32.1	19.4	15.1	15.1	15.1	15.1	252.5
Subtotal	280.5	220.6	159.4	154.0	814.5	233.7	189.4	188.1	68.1	99.1	219.1	1,812.0
PDCI (Celilo) Upgrade Project	1.3	85.4	116.1	93.6	296.4	27.6	-	-	-	-	-	324.0
Transmission Indirects (Capitalized)	41.5	45.6	46.1	47.0	180.2	47.9	48.9	49.9	50.9	51.9	52.9	482.6
Customer Requested Projects (PFIA)	45.2	45.0	35.0	25.0	150.2	25.0	25.0	32.0	32.0	32.0	32.0	328.2
Total	519.0	634.2	572.4	516.1	2,241.7	517.3	456.0	439.9	305.8	325.4	445.5	4,731.6

Actual Capital Costs FY2007-2011

Capital Costs (In Millions, Nominal)

Actuals FY 2007	Actuals FY 2008	Actuals FY 2009	Actuals FY 2010	Actuals FY 2011
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Capital Costs (excluding AFUDC and Corporate Overheads)

Transmission

Sustain Programs:

AC Substations	11.4	17.0	41.0	10.5	12.4
DC Substations	1.4	7.2	12.7	9.4	5.3
Control Center	4.1	6.4	1.4	2.3	4.9
Power Systems Control and Telecom.	9.4	8.9	11.4	10.7	19.9
Rights of Way	2.5	2.7	22.2	29.9	17.7
System Protection and Control	5.6	7.7	2.9	6.1	5.8
Steel Lines	9.9	12.3	10.5	18.9	14.9
Wood Pole Lines	14.6	8.4	13.2	20.9	36.4
TEAP Tools	0.0	0.0	1.1	2.7	1.0
Misc Replacements	2.7	1.7	5.4	1.1	0.0
Subtotal	61.6	72.3	121.8	112.5	118.3

Expand Program:

Main Grid	13.3	5.8	56.7	94.2	118.2
Area and Customer Service	2.3	13.2	10.6	23.5	12.9
Upgrades and Additions	18.4	29.7	22.2	24.1	53.9
Customer Requested Projects (PFIA)	60.1	17.3	37.6	83.1	81.3
Subtotal	94.1	66.0	127.1	224.9	266.3

Total

155.7	138.3	248.9	337.4	384.6
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Investment in sustain programs has increased steadily since 2007, although prior years of under investment has created a backlog of work that now needs to be addressed at a increased pace.

Potential risks and demands

- Even though the annual spending rate in the revised Sustain Program forecast is significantly higher than in previous year's spending, some program replacement "backlogs" are significant and will be monitored, with further adjustments recommended as trends are better understood, life-cycles optimized, and expensive emergency replacements are avoided.
- Resource availability needed to execute the projects are causing adjustments to be made to planned strategy implementation.
- Scarce and unreliable vendor support for some equipment will have adverse affect on operability and may cause further program revisions.
- Emergency replacements take priority over scheduled capital and maintenance work. If emergency replacements continue to rise due to the "backlog" the risk is greater to not complete the programs and Transmission will experience prolong outages and increased risk exposure.
- Replacements due to system expansion projects or customer funded (PFIA) projects are not included in the base replacement programs.