

APPENDIX 11A. LIFE-CYCLE COST SUBGROUP RESULTS

TABLE OF CONTENTS

11A.1	MUNICIPAL UTILITIES SUBGROUP RESULTS	11A-1
11A.1.1	Design Line 1 Results	11A-1
11A.1.2	Design Line 2 Results	11A-2
11A.1.3	Design Line 3 Results	11A-3
11A.1.4	Design Line 4 Results	11A-4
11A.1.5	Design Line 5 Results	11A-5
11A.2	RURAL COOPERATIVES SUBGROUP RESULTS	11A-6
11A.2.1	Design Line 1 Results	11A-6
11A.2.2	Design Line 2 Results	11A-7
11A.2.3	Design Line 3 Results	11A-8
11A.2.4	Design Line 4 Results	11A-9
11A.2.5	Design Line 5 Results	11A-10
11A.3	VAULT TRANSFORMER SUBGROUP RESULTS	11A-11
11A.3.1	Design Line 5 Results, Medium Vault Cost Case	11A-11
11A.3.2	Design Line 5 Results, Very High Vault Cost Case	11A-12

LIST OF TABLES

Table 11A.1.1	Summary Life-cycle Cost Results for Design Line 1 Representative Unit	11A-1
Table 11A.1.2	Summary Payback Period Results Design Line 1 Representative Unit	11A-1
Table 11A.1.3	Summary Life-cycle Cost Results for Design Line 2 Representative Unit	11A-2
Table 11A.1.4	Summary Payback Period Results Design Line 2 Representative Unit	11A-2
Table 11A.1.5	Summary Life-cycle Cost Results for Design Line 3 Representative Unit	11A-3
Table 11A.1.6	Summary Payback Period Results Design Line 3 Representative Unit	11A-3
Table 11A.1.7	Summary Life-cycle Cost Results for Design Line 4 Representative Unit	11A-4
Table 11A.1.8	Summary Payback Period Results Design Line 4 Representative Unit	11A-4
Table 11A.1.9	Summary Life-cycle Cost Results for Design Line 5 Representative Unit	11A-5

Table 11A.1.10	Summary Payback Period Results Design Line 5 Representative Unit	11A-5
Table 11A.2.1	Summary Life-cycle Cost Results for Design Line 1 Representative Unit	11A-6
Table 11A.2.2	Summary Payback Period Results Design Line 1 Representative Unit	11A-6
Table 11A.2.3	Summary Life-cycle Cost Results for Design Line 2 Representative Unit	11A-7
Table 11A.2.4	Summary Payback Period Results Design Line 2 Representative Unit	11A-7
Table 11A.2.5	Summary Life-cycle Cost Results for Design Line 3 Representative Unit	11A-8
Table 11A.2.6	Summary Payback Period Results Design Line 3 Representative Unit	11A-8
Table 11A.2.7	Summary Life-cycle Cost Results for Design Line 4 Representative Unit	11A-9
Table 11A.2.8	Summary Payback Period Results Design Line 4 Representative Unit	11A-9
Table 11A.2.9	Summary Life-cycle Cost Results for Design Line 5 Representative Unit	11A-10
Table 11A.2.10	Summary Payback Period Results Design Line 5 Representative Unit	11A-10
Table 11A.3.1	Summary Life-cycle Cost Results for Design Line 5 Representative Unit	11A-11
Table 11A.3.2	Summary Payback Period Results Design Line 5 Representative Unit	11A-11
Table 11A.3.3	Summary Life-cycle Cost Results for Design Line 5 Representative Unit	11A-12
Table 11A.3.4	Summary Payback Period Results Design Line 5 Representative Unit	11A-12

APPENDIX 11A: LIFE-CYCLE COST SUBGROUP RESULTS

11A.1 MUNICIPAL UTILITIES SUBGROUP RESULTS

11A.1.1 Design Line 1 Results

Table 11A.1.1 Summary Life-cycle Cost Results for Design Line 1 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	98.90	98.90	98.90	99.04	99.19	99.59	99.19	99.08	99.08	99.04
Transformers with Net LCC Cost (%)	1.9	1.9	1.9	15.1	60.8	94.8	60.8	23.3	23.3	15.1
Transformers with No Change in LCC (%)	66.1	66.1	66.1	50.0	7.0	0.0	7.0	38.8	38.8	50.0
Transformers with Net LCC Benefit (%)	32.0	32.0	32.0	35.0	32.2	5.2	32.2	38.0	38.0	35.0
Mean LCC Savings (\$)	118	118	118	116	-23	-1003	-23	109	109	116
Mean LCC Savings for those effected	347	347	347	233	-25	-1003	-25	177	177	233

Table 11A.1.2 Summary Payback Period Results Design Line 1 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	5.7	5.7	5.7	16.4	32.0	43.4	32.0	19.6	19.6	16.4
Transformers Unaffected by the TSL (%)	66.1	66.1	66.1	50.0	7.0	0.0	7.0	38.8	38.8	50.0
Transformers having Well Defined Payback (%)	25.0	25.0	25.0	48.8	89.5	99.8	89.5	58.9	58.9	48.8
Transformers having Undefined Payback (%)	8.9	8.9	8.9	1.3	3.5	0.2	3.5	2.3	2.3	1.3
Mean Incremental First Cost (\$)	59	59	59	262	481	2087	481	286	286	262
Mean Operating Cost Savings (\$)	24	24	24	29	26	59	26	27	27	29
Payback of Average Transformer	2.5	2.5	2.5	9.0	18.5	35.4	18.5	10.6	10.6	9.0

11A.1.2 Design Line 2 Results

Table 11A.1.3 Summary Life-cycle Cost Results for Design Line 2 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	98.70	98.73	98.76	98.79	98.96	99.46	99.04	98.91	98.91	98.79
Transformers with Net LCC Cost (%)	12.2	10.7	9.2	11.9	57.1	99.1	78.9	42.9	42.9	11.9
Transformers with No Change in LCC (%)	42.0	38.4	36.3	34.1	10.0	0.0	0.1	16.5	16.5	34.1
Transformers with Net LCC Benefit (%)	45.8	50.9	54.5	54.0	32.9	0.9	21.0	40.6	40.6	54.0
Mean LCC Savings (\$)	55	59	74	75	-19	-1073	-106	21	21	75
Mean LCC Savings for those effected	95	97	116	113	-21	-1073	-106	25	25	113

Table 11A.1.4 Summary Payback Period Results Design Line 2 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	12.7	11.9	10.5	11.8	26.5	57.8	33.2	22.2	22.2	11.8
Transformers Unaffected by the TSL (%)	42.0	38.4	36.3	34.1	10.0	0.0	0.1	16.5	16.5	34.1
Transformers having Well Defined Payback (%)	54.1	57.0	58.6	61.1	88.6	100.0	98.0	81.9	81.9	61.1
Transformers having Undefined Payback (%)	3.9	4.6	5.1	4.8	1.4	0.0	1.9	1.6	1.6	4.8
Mean Incremental First Cost (\$)	84	94	85	96	295	1721	409	234	234	96
Mean Operating Cost Savings (\$)	10	11	12	12	16	34	17	15	15	12
Payback of Average Transformer	8.4	8.6	7.1	8.0	18.5	50.6	24.0	15.6	15.6	8.0

11A.1.3 Design Line 3 Results

Table 11A.1.5 Summary Life-cycle Cost Results for Design Line 3 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	99.30	99.38	99.46	99.54	99.74	99.75	99.54	99.47	99.42	99.38
Transformers with Net LCC Cost (%)	1.6	1.7	6.8	45.5	80.5	83.9	45.5	7.3	2.5	1.7
Transformers with No Change in LCC (%)	66.6	59.0	49.1	2.1	0.2	0.0	2.1	47.1	56.5	59.0
Transformers with Net LCC Benefit (%)	31.8	39.4	44.2	52.4	19.4	16.1	52.4	45.6	41.0	39.4
Mean LCC Savings (\$)	1357	1691	1885	1674	-1779	-2837	1674	1920	1798	1690
Mean LCC Savings for those effected	4064	4118	3701	1710	-1782	-2837	1710	3630	4135	4118

Table 11A.1.6 Summary Payback Period Results Design Line 3 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	3.7	5.2	9.7	19.6	29.5	32.8	19.6	9.8	6.3	5.2
Transformers Unaffected by the TSL (%)	66.6	59.0	49.1	2.1	0.2	0.0	2.1	47.1	56.5	59.0
Transformers having Well Defined Payback (%)	31.3	40.2	50.4	92.9	99.8	100.0	92.9	52.1	43.1	40.2
Transformers having Undefined Payback (%)	2.1	0.8	0.5	5.0	0.0	0.0	5.0	0.8	0.5	0.8
Mean Incremental First Cost (\$)	532	991	1784	2226	9294	10629	2226	1722	1237	991
Mean Operating Cost Savings (\$)	272	302	323	229	426	439	229	315	317	302
Payback of Average Transformer	2.0	3.3	5.5	9.7	21.8	24.2	9.7	5.5	3.9	3.3

11A.1.4 Design Line 4 Results

Table 11A.1.7 Summary Life-cycle Cost Results for Design Line 4 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	98.90	99.08	99.26	99.26	99.58	99.61	99.19	99.08	99.08	99.08
Transformers with Net LCC Cost (%)	7.9	19.2	22.5	22.5	74.7	83.4	33.5	19.2	19.2	19.2
Transformers with No Change in LCC (%)	54.4	20.6	13.0	13.0	0.1	0.0	13.0	20.6	20.6	20.6
Transformers with Net LCC Benefit (%)	37.7	60.2	64.5	64.5	25.2	16.6	53.5	60.2	60.2	60.2
Mean LCC Savings (\$)	435	577	661	661	-563	-1338	442	577	577	577
Mean LCC Savings for those effected	955	727	760	760	-563	-1338	508	727	727	727

Table 11A.1.8 Summary Payback Period Results Design Line 4 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	11.2	13.7	13.9	13.9	28.8	33.5	16.7	13.7	13.7	13.7
Transformers Unaffected by the TSL (%)	54.4	20.6	13.0	13.0	0.1	0.0	13.0	20.6	20.6	20.6
Transformers having Well Defined Payback (%)	43.8	77.2	86.9	86.9	99.7	100.0	86.9	77.2	77.2	77.2
Transformers having Undefined Payback (%)	1.8	2.2	0.1	0.1	0.2	0.0	0.1	2.2	2.2	2.2
Mean Incremental First Cost (\$)	669	947	1622	1622	4086	5054	1650	947	947	947
Mean Operating Cost Savings (\$)	95	97	138	138	199	209	124	97	97	97
Payback of Average Transformer	7.0	9.8	11.8	11.8	20.5	24.2	13.3	9.8	9.8	9.8

11A.1.5 Design Line 5 Results

Table 11A.1.9 Summary Life-cycle Cost Results for Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	99.30	99.36	99.42	99.47	99.71	99.71	99.54	99.47	99.42	99.42
Transformers with Net LCC Cost (%)	3.8	3.4	9.7	17.0	77.4	77.4	51.3	17.0	9.7	9.7
Transformers with No Change in LCC (%)	66.7	61.7	45.5	33.0	0.0	0.0	4.7	33.0	45.5	45.5
Transformers with Net LCC Benefit (%)	29.6	34.9	44.9	50.0	22.6	22.6	44.1	50.0	44.9	44.9
Mean LCC Savings (\$)	2370	3154	3708	4094	-3192	-3192	2096	4094	3708	3708
Mean LCC Savings for those effected	7105	8230	6799	6114	-3193	-3193	2199	6114	6799	6799

Table 11A.1.10 Summary Payback Period Results Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	7.7	8.0	11.6	13.3	28.0	28.0	21.3	13.3	11.6	11.6
Transformers Unaffected by the TSL (%)	66.7	61.7	45.5	33.0	0.0	0.0	4.7	33.0	45.5	45.5
Transformers having Well Defined Payback (%)	32.3	37.9	53.7	66.4	99.9	99.9	95.0	66.4	53.7	53.7
Transformers having Undefined Payback (%)	1.1	0.4	0.8	0.6	0.0	0.0	0.3	0.6	0.8	0.8
Mean Incremental First Cost (\$)	2409	3693	4265	5391	22624	22624	9794	5391	4265	4265
Mean Operating Cost Savings (\$)	561	700	649	673	1106	1106	693	673	649	649
Payback of Average Transformer	4.3	5.3	6.6	8.0	20.5	20.5	14.1	8.0	6.6	6.6

11A.2 RURAL COOPERATIVES SUBGROUP RESULTS

11A.2.1 Design Line 1 Results

Table 11A.2.1 Summary Life-cycle Cost Results for Design Line 1 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	98.90	98.90	98.90	99.04	99.19	99.59	99.19	99.08	99.08	99.04
Transformers with Net LCC Cost (%)	2.4	2.4	2.4	20.2	70.8	98.7	70.8	29.5	29.5	20.2
Transformers with No Change in LCC (%)	65.2	65.2	65.2	49.7	4.6	0.0	4.6	36.8	36.8	49.7
Transformers with Net LCC Benefit (%)	32.4	32.4	32.4	30.1	24.5	1.3	24.5	33.8	33.8	30.1
Mean LCC Savings (\$)	120	120	120	61	-131	-1218	-131	49	49	61
Mean LCC Savings for those effected	343	343	343	122	-137	-1218	-137	78	78	122

Table 11A.2.2 Summary Payback Period Results Design Line 1 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	6.6	6.6	6.6	21.1	40.9	51.6	40.9	25.0	25.0	21.1
Transformers Unaffected by the TSL (%)	65.2	65.2	65.2	49.7	4.6	0.0	4.6	36.8	36.8	49.7
Transformers having Well Defined Payback (%)	25.5	25.5	25.5	46.7	89.2	99.8	89.2	58.4	58.4	46.7
Transformers having Undefined Payback (%)	9.3	9.3	9.3	3.6	6.2	0.2	6.2	4.8	4.8	3.6
Mean Incremental First Cost (\$)	60	60	60	261	472	2094	472	282	282	261
Mean Operating Cost Savings (\$)	24	24	24	22	19	47	19	21	21	22
Payback of Average Transformer	2.5	2.5	2.5	11.9	24.8	44.6	24.8	13.4	13.4	11.9

11A.2.2 Design Line 2 Results

Table 11A.2.3 Summary Life-cycle Cost Results for Design Line 2 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	98.70	98.73	98.76	98.79	98.96	99.46	99.04	98.91	98.91	98.79
Transformers with Net LCC Cost (%)	15.6	13.5	13.1	16.5	66.7	99.7	84.7	50.0	50.0	16.5
Transformers with No Change in LCC (%)	35.8	32.1	30.1	28.0	6.1	0.0	0.1	11.5	11.5	28.0
Transformers with Net LCC Benefit (%)	48.6	54.3	56.8	55.5	27.2	0.3	15.2	38.5	38.5	55.5
Mean LCC Savings (\$)	54	61	71	67	-51	-1174	-148	4	4	67
Mean LCC Savings for those effected	85	90	102	94	-55	-1174	-148	5	5	94

Table 11A.2.4 Summary Payback Period Results Design Line 2 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	13.9	12.8	12.0	13.9	29.5	65.0	36.1	24.2	24.2	13.9
Transformers Unaffected by the TSL (%)	35.8	32.1	30.1	28.0	6.1	0.0	0.0	11.5	11.5	28.0
Transformers having Well Defined Payback (%)	59.4	63.0	64.1	66.5	92.1	100.0	98.2	86.4	86.4	66.5
Transformers having Undefined Payback (%)	4.8	4.9	5.8	5.5	1.8	0.0	1.8	2.1	2.1	5.5
Mean Incremental First Cost (\$)	84	94	85	96	301	1744	427	237	237	96
Mean Operating Cost Savings (\$)	10	11	11	11	14	30	16	14	14	11
Payback of Average Transformer	8.4	8.6	7.8	8.8	21.5	58.1	26.7	16.9	16.9	8.8

11A.2.3 Design Line 3 Results

Table 11A.2.5 Summary Life-cycle Cost Results for Design Line 3 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	99.30	99.38	99.46	99.54	99.74	99.75	99.54	99.47	99.42	99.38
Transformers with Net LCC Cost (%)	2.5	2.1	9.4	44.1	90.0	93.1	44.1	10.0	3.2	2.1
Transformers with No Change in LCC (%)	63.1	55.2	46.0	0.8	0.0	0.0	0.8	43.2	53.1	55.2
Transformers with Net LCC Benefit (%)	34.4	42.8	44.6	55.1	10.0	6.9	55.1	46.8	43.7	42.8
Mean LCC Savings (\$)	835	1151	1114	786	-3324	-4518	786	1155	1215	1151
Mean LCC Savings for those effected	2264	2566	2061	793	-3324	-4518	793	2034	2591	2566

Table 11A.2.6 Summary Payback Period Results Design Line 3 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	5.5	6.0	11.6	19.7	33.2	37.5	19.7	11.8	7.2	6.0
Transformers Unaffected by the TSL (%)	63.1	55.2	46.0	0.8	0.0	0.0	0.8	43.2	53.1	55.2
Transformers having Well Defined Payback (%)	34.0	44.3	52.8	95.4	100.0	100.0	95.4	55.1	46.6	44.2
Transformers having Undefined Payback (%)	2.9	0.6	1.2	3.8	0.0	0.0	3.8	1.7	0.3	0.6
Mean Incremental First Cost (\$)	546	999	1782	2251	9365	10710	2251	1705	1247	999
Mean Operating Cost Savings (\$)	166	211	226	177	339	345	177	220	227	211
Payback of Average Transformer	3.3	4.7	7.9	12.7	27.6	31.0	12.7	7.8	5.5	4.7

11A.2.4 Design Line 4 Results

Table 11A.2.7 Summary Life-cycle Cost Results for Design Line 4 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	98.90	99.08	99.26	99.26	99.58	99.61	99.19	99.08	99.08	99.08
Transformers with Net LCC Cost (%)	13.5	26.7	23.2	23.2	87.3	93.8	43.4	26.7	26.7	26.7
Transformers with No Change in LCC (%)	52.9	14.8	7.8	7.8	0.1	0.0	7.8	14.8	14.8	14.8
Transformers with Net LCC Benefit (%)	33.7	58.5	69.1	69.1	12.6	6.2	48.7	58.5	58.5	58.5
Mean LCC Savings (\$)	247	353	653	653	-1216	-2064	173	353	353	353
Mean LCC Savings for those effected	523	414	708	708	-1218	-2064	188	414	414	414

Table 11A.2.8 Summary Payback Period Results Design Line 4 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	15.2	16.2	13.7	13.7	31.8	37.5	19.1	16.2	16.2	16.2
Transformers Unaffected by the TSL (%)	52.9	14.8	7.8	7.8	0.1	0.0	7.8	14.8	14.8	14.8
Transformers having Well Defined Payback (%)	43.5	82.4	92.2	92.2	99.0	99.7	92.0	82.4	82.4	82.4
Transformers having Undefined Payback (%)	3.7	2.8	0.0	0.0	0.9	0.3	0.2	2.8	2.8	2.8
Mean Incremental First Cost (\$)	656	910	1631	1631	4167	5136	1638	910	910	910
Mean Operating Cost Savings (\$)	68	77	136	136	166	171	105	77	77	77
Payback of Average Transformer	9.6	11.8	12.0	12.0	25.1	30.0	15.6	11.8	11.8	11.8

11A.2.5 Design Line 5 Results

Table 11A.2.9 Summary Life-cycle Cost Results for Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	99.30	99.36	99.42	99.47	99.71	99.71	99.54	99.47	99.42	99.42
Transformers with Net LCC Cost (%)	8.0	7.9	16.5	26.1	91.1	91.1	55.2	26.1	16.5	16.5
Transformers with No Change in LCC (%)	65.5	59.9	42.0	30.1	0.0	0.0	2.0	30.1	42.0	42.0
Transformers with Net LCC Benefit (%)	26.5	32.2	41.5	43.8	8.8	8.8	42.9	43.8	41.5	41.5
Mean LCC Savings (\$)	945	1371	1537	1505	-8122	-8122	292	1505	1537	1537
Mean LCC Savings for those effected	2739	3419	2652	2152	-8125	-8125	298	2152	2652	2652

Table 11A.2.10 Summary Payback Period Results Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	13.4	12.4	15.5	17.7	32.7	32.7	25.5	17.7	15.5	15.5
Transformers Unaffected by the TSL (%)	65.5	59.9	42.0	30.1	0.0	0.0	2.0	30.0	42.0	42.0
Transformers having Well Defined Payback (%)	32.6	39.4	57.0	69.2	99.7	99.7	98.0	69.2	57.0	57.0
Transformers having Undefined Payback (%)	1.9	0.7	1.0	0.7	0.2	0.2	0.0	0.7	1.0	1.0
Mean Incremental First Cost (\$)	2377	3618	4161	5330	22930	22930	9830	5330	4161	4161
Mean Operating Cost Savings (\$)	300	412	398	435	830	830	582	435	398	398
Payback of Average Transformer	7.9	8.8	10.5	12.2	27.6	27.6	16.9	12.2	10.5	10.5

11A.3 VAULT TRANSFORMER SUBGROUP RESULTS

11A.3.1 Design Line 5 Results, Medium Vault Cost Case

Table 11A.3.1 Summary Life-cycle Cost Results for Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	99.30	99.36	99.42	99.47	99.71	99.71	99.54	99.47	99.42	99.42
Transformers with Net LCC Cost (%)	2.3	5.7	16.5	47.3	91.6	91.6	61.9	57.3	16.5	16.5
Transformers with No Change in LCC (%)	66.6	49.0	40.4	4.8	0.0	0.0	0.8	4.8	40.4	40.4
Transformers with Net LCC Benefit (%)	31.1	45.3	43.1	37.9	8.4	8.4	38.1	37.9	43.1	43.1
Mean LCC Savings (\$)	1707	2334	2523	1157	-13327	-13327	404	1157	2523	2523
Mean LCC Savings for those effected	5107	4576	4232	1216	-13327	-13327	404	1216	4232	4232

Table 11A.3.2 Summary Payback Period Results Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	7.1	8.2	12.6	23.7	34.3	34.3	20.2	23.7	12.6	12.6
Transformers Unaffected by the TSL (%)	66.6	49.0	40.4	4.8	0.0	0.0	0.0	4.8	40.4	40.4
Transformers having Well Defined Payback (%)	33.4	49.8	59.5	93.0	100.0	100.0	98.5	93.0	59.5	59.5
Transformers having Undefined Payback (%)	0.0	1.2	0.1	2.2	0.0	0.0	1.5	2.2	0.1	0.1
Mean Incremental First Cost (\$)	2857	2985	5101	7002	32453	32453	10358	7002	5101	5101
Mean Operating Cost Savings (\$)	525	498	609	528	1176	1176	690	528	609	609
Payback of Average Transformer	5.4	6.0	8.4	13.3	27.6	27.6	15.0	13.3	8.4	8.4

11A.3.2 Design Line 5 Results, Very High Vault Cost Case

Table 11A.3.3 Summary Life-cycle Cost Results for Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Efficiency (%)	99.30	99.36	99.42	99.47	99.71	99.71	99.54	99.47	99.42	99.42
Transformers with Net LCC Cost (%)	2.3	5.7	16.5	57.3	100.0	100.0	61.4	57.3	16.5	16.5
Transformers with No Change in LCC (%)	66.6	49.0	40.4	4.8	0.0	0.0	0.0	4.8	40.4	40.4
Transformers with Net LCC Benefit (%)	31.1	45.3	43.1	37.9	0.3	0.3	38.6	37.9	43.1	43.1
Mean LCC Savings (\$)	1707	2334	2523	1157	-197936	-197936	474	1157	2523	2523
Mean LCC Savings for those effected	5107	4576	4232	1216	-197936	-197936	474	1216	4232	4232

Table 11A.3.4 Summary Payback Period Results Design Line 5 Representative Unit

	Trial Standard Level									
	1 (TP 1)	2	3	4	5	6	A	B	C	D
Mean Payback (Years)	7.0	8.2	12.6	23.7	98.7	98.7	20.1	23.7	12.6	12.6
Transformers Unaffected by the TSL (%)	66.6	49.0	40.4	4.8	0.0	0.0	0.0	4.8	40.4	40.4
Transformers having Well Defined Payback (%)	33.4	49.8	59.5	93.0	100.0	100.0	98.2	93.0	59.5	59.5
Transformers having Undefined Payback (%)	0.0	1.2	0.1	2.2	0.0	0.0	1.8	2.2	0.1	0.1
Mean Incremental First Cost (\$)	2857	2985	5101	7002	226540	226540	10224	7002	5101	5101
Mean Operating Cost Savings (\$)	525	498	609	528	1154	1154	687	528	609	609
Payback of Average Transformer	5.4	6.0	8.4	13.3	196.3	196.3	14.9	13.3	8.4	8.4