

Attachment 7  
Electrical Distribution Model Output Reports

### ETAP® PowerStation ® Model Results

This attachment is provided to model the anticipated electrical distribution system required to support conversion of Indian Point Units 2 and 3 to a closed loop condenser cooling water configuration, and account for expected electrical parasitic losses due to the new components. The following documents are included in this attachment (for Indian Point 2 and Indian Point 3):

One Line Sketches of the proposed Distribution System as modeled including,

- 138kV One Line Distribution for Indian Point 2 and Indian Point 3
- One Line Distribution for Indian Point 2
- One Line Distribution for Indian Point 3

Analytical evaluation via ETAP PowerStation model of projected plant power demand using load flow and voltage drop calculations. The evaluation is presented as excerpts from the output reports of two loading configurations:

- Load Flow and voltage drop of tower fan and circulating water pump loads at full load.
- Load Flow and voltage drop of tower fan and circulating water pump loads at the reduced load representative of wet cycle fans and circulating water pumps only.

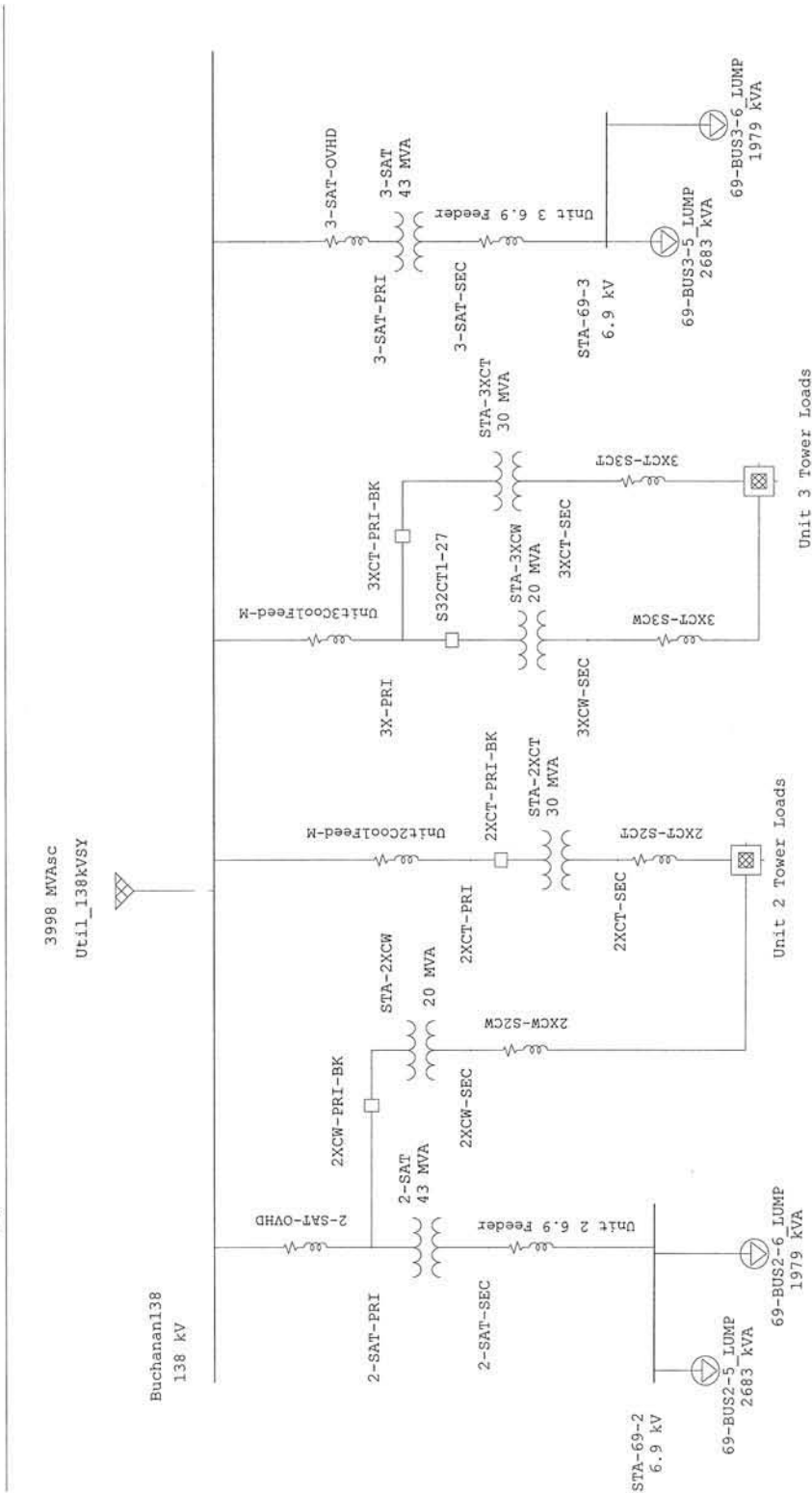
Analytical evaluation via ETAP PowerStation model of projected plant short circuit burden using IEEE methodology and calculations. The evaluation is presented as excerpts from the output report which assumed maximum fault and rated loading conditions.

The software model was developed and run using the following assumed parameters:

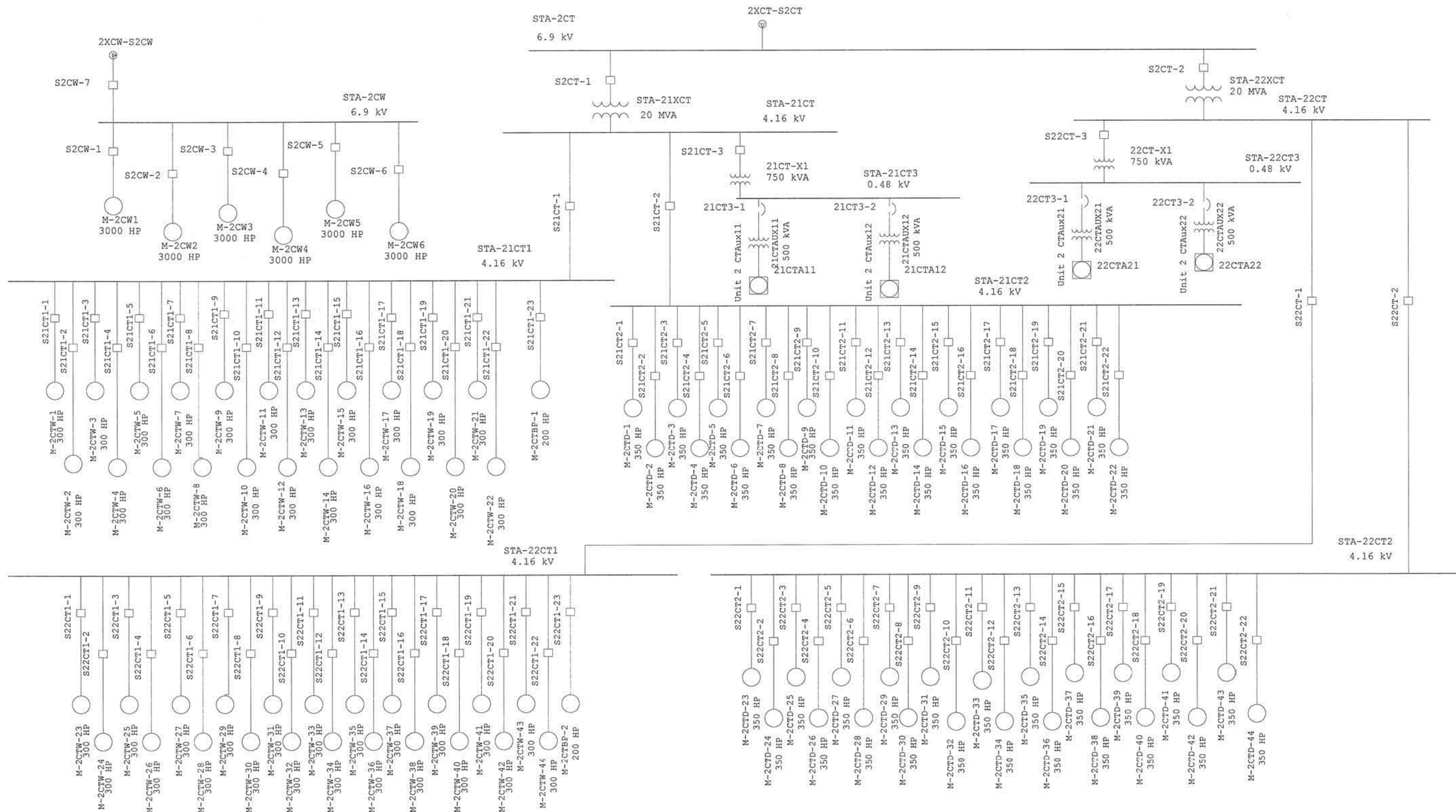
- Motors, cables, and transformer characteristics were sized based upon preliminary vendor information of tower configuration and required horsepower. Subsequent analytical parameters were assumed based upon the standard or typical values available in the software database for the input size of each component.
- The 138kV Buchanan Substation parameters were taken from a representative Indian Point 2 calculation (FEX-00143-00). Likewise, Indian Point 2 loads on the Buchanan Substation during normal operation were derived from the same calculation by assuming lumped load groups equivalent to the Indian Point 2 calculated load. Based upon plant similarities, the same assumed load was used for Indian Point 3.
- The fans for dry cycle cooling were either assumed to be on at full load (350HP) during nominal conditions, or off during wet cycle only conditions. Reduction in parasitic load due to variable speed dry cycle fan motors is not considered directly in this analysis, rather, it is accounted for in the percent of the time the tower is assumed to be in either full load or wet cycle only conditions.

Power to circulating water loads passes through transformers STA-2XCW and STA-3XCW. Power to tower loads (wet and dry fans and booster pumps) passes through transformers STA-2XCT and STA-3XCT. The expected power flow is highlighted in the report excerpts.

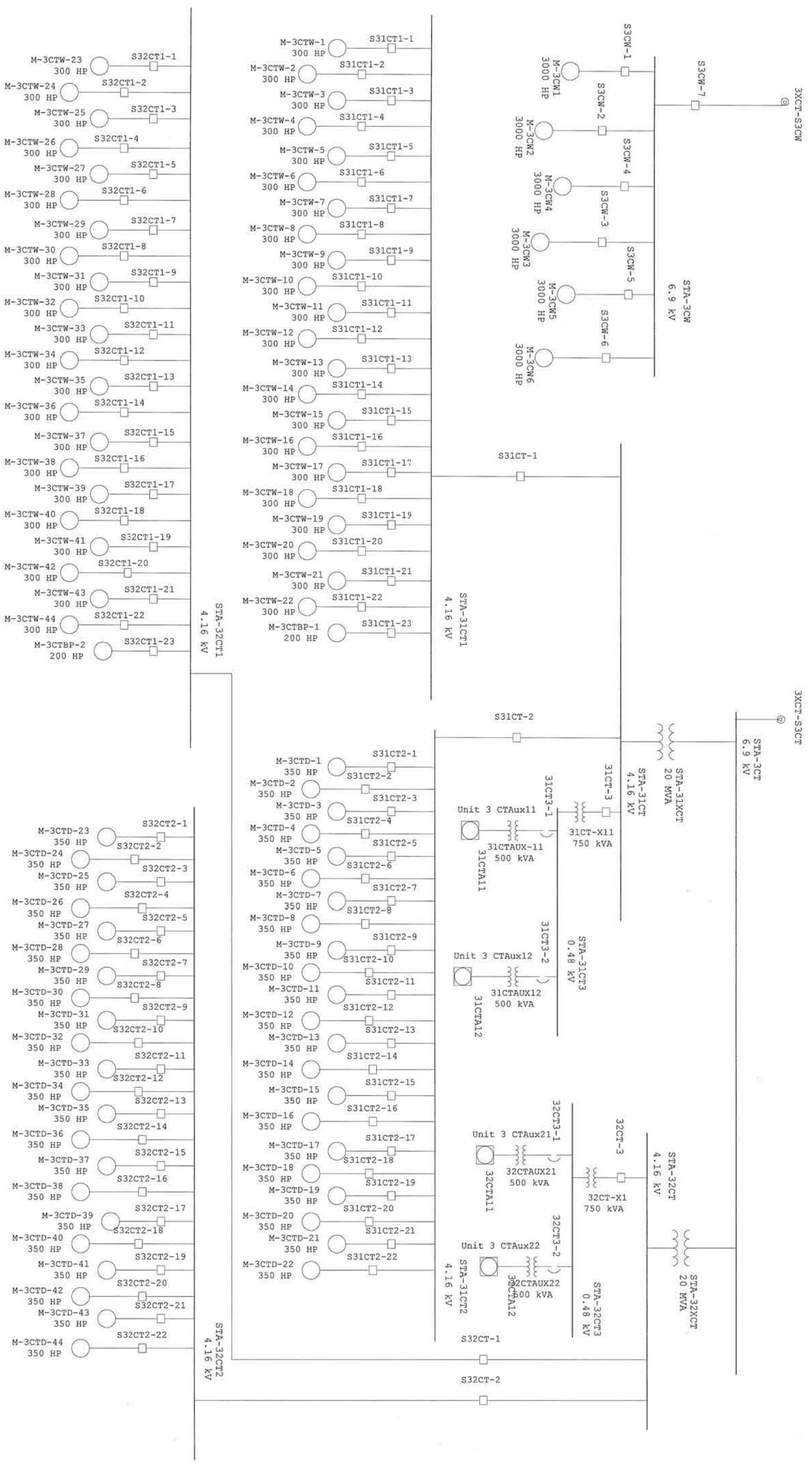
One-Line Diagram - IP-138kV



One-Line Diagram - IP-138kV=>Unit 2 Tower Loads



One-Line Diagram - IP-138kV=>Unit 3 Tower Loads



Economic and Environmental Impacts Associated with  
 Conversion of Indian Point Units 2 and 3 To A Closed-Loop  
 Condenser Cooling Water Configuration

SYSTEM ANALYSIS

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: CO199  
 Engineer: Eric J Praser

=====  
 PowerStation 4.0.4C  
 Study Case: LF -FullLoad

Page: 1  
 Date: 06-02-2003  
 SN: ENERCONSV  
 File: IndianPoint

-----  
 Indian Point 2 & 3 Cooling Tower  
 Wet and Dry loads at nominal.  
 =====

Electrical Transient Analyzer Program  
 -----

LOAD FLOW ANALYSIS  
 Loading Category 2 ( Normal )

Normal Loading  
 -----

	Swing	Gen.	Load	Total			
Number of Buses:	1	0	40	41			
	XFRM2	React.	Line/Cable	Imp.	Tie PD	XFRM3	Total
Number of Branches:	22	0	10	0	8	0	40

Maximum Number of Iterations: 99  
 Precision of the Solution: .00010 MW and Mvar  
 Method of Solution: Newton-Raphson  
 System Frequency: 60.0 Hz  
 Unit System: English  
 Data Filename: IndianPoint  
 Output Filename: L:\PROJECTS\CO\CO199\BYRON-ELECTRICAL\IPMODEL\FullLoad.lfr

Economic and Environmental Impacts Associated with  
 Conversion of Indian Point Units 2 and 3 To A Closed-Loop  
 Condenser Cooling Water Configuration

Attachment 7  
 Section 2 – Load Flow (Excerpts)

LOAD FLOW REPORT

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: C0199  
 Engineer: Eric J Praser

PowerStation 4.0.4C  
 Study Case: LF -FullLoad

Page: 11  
 Date: 06-02-2003  
 SN: ENERCONSV  
 File: IndianPoint

Indian Point 2 & 3 Cooling Tower  
 Wet and Dry loads at nominal.

Bus Information & Nom kV			Voltage		Generation		Motor Load		Static Load		Load Flow					XFRM
ID	Type	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	To Bus ID	MW	Mvar	Amp	%PF	% Tap
2-SAT-PRI	Load	138.00	99.97	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-17.56	-10.92	86	84.9	
											2-SAT-SEC	4.09	2.56	20	84.8	-2.500
											2XCW-SEC	13.47	8.35	66	85.0	-2.500
2-SAT-SEC	Load	6.90	101.58	-0.8	0.00	0.00	0.00	0.00	0.00	0.00	STA-69-2	4.09	2.48	393	85.5	
											2-SAT-PRI	-4.09	-2.48	393	85.5	
2XCT-PRI	Load	138.00	99.96	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-23.99	-13.57	115	87.0	
											2XCT-SEC	23.99	13.57	115	87.0	-2.500
2XCT-SEC	Load	6.90	100.96	-4.0	0.00	0.00	0.00	0.00	0.00	0.00	STA-2CT	23.90	11.40	2194	90.3	
											2XCT-PRI	-23.90	-11.40	2194	90.3	2.500
2XCW-SEC	Load	6.90	101.19	-3.3	0.00	0.00	0.00	0.00	0.00	0.00	STA-2CW	13.41	7.28	1261	87.9	
											2-SAT-PRI	-13.41	-7.28	1261	87.9	2.500
3-SAT-PRI	Load	138.00	99.99	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-4.09	-2.56	20	84.8	
											3-SAT-SEC	4.09	2.56	20	84.8	-2.500
3-SAT-SEC	Load	6.90	101.61	-0.8	0.00	0.00	0.00	0.00	0.00	0.00	STA-69-3	4.09	2.48	393	85.5	
											3-SAT-PRI	-4.09	-2.48	393	85.5	
3XCT-SEC	Load	6.90	100.97	-4.0	0.00	0.00	0.00	0.00	0.00	0.00	STA-3CT	23.92	11.48	2199	90.2	
											3X-PRI	-23.92	-11.48	2199	90.2	2.500
3XCW-SEC	Load	6.90	101.13	-3.3	0.00	0.00	0.00	0.00	0.00	0.00	STA-3CW	13.42	7.31	1263	87.8	
											3X-PRI	-13.42	-7.31	1263	87.8	2.500
3X-PRI	Load	138.00	99.93	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-37.47	-22.04	181	86.2	
											3XCT-SEC	24.00	13.65	115	86.9	-2.500
											3XCW-SEC	13.47	8.38	66	84.9	-2.500
21CTA11	Load	0.12	96.53	-10.1	0.00	0.00	0.00	0.00	0.25	0.12	STA-21CT3	-0.25	-0.12	1396	90.0	
21CTA12	Load	0.12	96.06	-10.1	0.00	0.00	0.18	0.11	0.07	0.04	STA-21CT3	-0.25	-0.15	1472	85.0	
22CTA21	Load	0.12	101.62	-6.0	0.00	0.00	0.00	0.00	0.00	0.00	STA-22CT3	0.00	0.00	2	0.0	
22CTA22	Load	0.12	101.62	-6.0	0.00	0.00	0.00	0.00	0.00	0.00	STA-22CT3	0.00	0.00	4	0.0	
31CTA11	Load	0.12	96.82	-10.2	0.00	0.00	0.00	0.00	0.25	0.12	STA-31CT3	-0.25	-0.12	1400	90.0	

\* A regulated (constant voltage) bus.

LOAD FLOW SUMMARY

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: C0199  
 Engineer: Eric J Praser

=====  
 PowerStation 4.0.4C  
 Study Case: LF -FullLoad

Page: 23  
 Date: 06-02-2003  
 SN: ENERCONSV  
 File: IndianPoint

-----  
 Indian Point 2 & 3 Cooling Tower  
 Wet and Dry loads at nominal.  
 =====

SUMMARY OF TOTAL GENERATION, LOADING & DEMAND  
 -----

	MW	Mvar	MVA	% PF
	=====	=====	=====	=====
Swing Bus(es):	83.150	49.118	96.574	86.1 Lagging
Generators:	0.000	0.000	0.000	100.0 Lagging
Total Demand:	83.150	49.118	96.574	86.1 Lagging
Total Motor Load:	80.213	38.626	89.029	90.1 Lagging
Total Static Load:	2.444	1.422		
Apparent Losses:	0.493	9.070		
System Mismatch:	0.000	0.000		

Number of Iterations = 3

Economic and Environmental Impacts Associated with  
 Conversion of Indian Point Units 2 and 3 To A Closed-Loop  
 Condenser Cooling Water Configuration

SYSTEM ANALYSIS

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: CO199  
 Engineer: Eric J Praser

=====  
 PowerStation 4.0.4C  
 Study Case: LF-WetLoad

Page: 1  
 Date: 06-02-2003  
 SN: ENERCONSV  
 File: IndianPoint

-----  
 Indian Point 2 & 3 Cooling Tower  
 Dry Loads off, Wet cycle loads at nominal.  
 =====

Electrical Transient Analyzer Program  
 -----

LOAD FLOW ANALYSIS  
 Loading Category 8 ( Wet Only )

Normal Loading  
 -----

	Swing	Gen.	Load	Total			
Number of Buses:	1	0	40	41			
	XFRM2	React.	Line/Cable	Imp.	Tie PD	XFRM3	Total
Number of Branches:	22	0	10	0	8	0	40

Maximum Number of Iterations: 99  
 Precision of the Solution: .00010 MW and Mvar  
 Method of Solution: Newton-Raphson  
 System Frequency: 60.0 Hz  
 Unit System: English  
 Data Filename: IndianPoint  
 Output Filename: L:\PROJECTS\CO\CO199\BYRON-ELECTRICAL\IPMODEL\WetLoad.lfr

Economic and Environmental Impacts Associated with  
 Conversion of Indian Point Units 2 and 3 To A Closed-Loop  
 Condenser Cooling Water Configuration

Attachment 7  
 Section 2 – Load Flow (Excerpts)

LOAD FLOW REPORT

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: CO199  
 Engineer: Eric J Praser

PowerStation 4.0.4C  
 Study Case: LF-WetLoad

Page: 11  
 Date: 06-02-2003  
 SN: ENERCONSV C  
 File: IndianPoint

Indian Point 2 & 3 Cooling Tower  
 Dry Loads off, Wet cycle loads at nominal.

Bus Information & Nom kV			Voltage		Generation		Motor Load		Static Load		Load Flow					XFRM
ID	Type	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	To Bus ID	MW	Mvar	Amp	%PF	% Tap
2-SAT-PRI	Load	138.00	99.97	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-17.56	-10.92	86	84.9	
											2-SAT-SEC	4.09	2.56	20	84.8	-2.500
											2XCW-SEC	13.47	8.35	66	85.0	-2.500
2-SAT-SEC	Load	6.90	101.58	-0.8	0.00	0.00	0.00	0.00	0.00	0.00	STA-69-2	4.09	2.48	393	85.5	
											2-SAT-PRI	-4.09	-2.48	393	85.5	
2XCT-PRI	Load	138.00	99.98	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-10.67	-5.16	49	90.0	
											2XCT-SEC	10.67	5.16	49	90.0	-2.500
2XCT-SEC	Load	6.90	103.47	-1.7	0.00	0.00	0.00	0.00	0.00	0.00	STA-2CT	10.65	4.76	943	91.3	
											2XCT-PRI	-10.65	-4.76	943	91.3	2.500
2XCW-SEC	Load	6.90	101.19	-3.3	0.00	0.00	0.00	0.00	0.00	0.00	STA-2CW	13.41	7.28	1261	87.9	
											2-SAT-PRI	-13.41	-7.28	1261	87.9	2.500
3-SAT-PRI	Load	138.00	99.99	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-4.09	-2.56	20	84.8	
											3-SAT-SEC	4.09	2.56	20	84.8	-2.500
3-SAT-SEC	Load	6.90	101.61	-0.8	0.00	0.00	0.00	0.00	0.00	0.00	STA-69-3	4.09	2.48	393	85.5	
											3-SAT-PRI	-4.09	-2.48	393	85.5	
3XCT-SEC	Load	6.90	103.51	-1.7	0.00	0.00	0.00	0.00	0.00	0.00	STA-3CT	10.42	4.66	922	91.3	
											3X-PRI	-10.42	-4.66	922	91.3	2.500
3XCW-SEC	Load	6.90	101.16	-3.3	0.00	0.00	0.00	0.00	0.00	0.00	STA-3CW	13.42	7.31	1263	87.8	
											3X-PRI	-13.42	-7.31	1263	87.8	2.500
3X-PRI	Load	138.00	99.96	0.0	0.00	0.00	0.00	0.00	0.00	0.00	Buchanan138	-23.90	-13.43	114	87.2	
											3XCT-SEC	10.43	5.05	48	90.0	-2.500
											3XCW-SEC	13.47	8.38	66	84.9	-2.500
21CTA11	Load	0.12	105.30	-2.6	0.00	0.00	0.00	0.00	0.00	0.00	STA-21CT3	0.00	0.00	0	0.0	
21CTA12	Load	0.12	105.30	-2.6	0.00	0.00	0.00	0.00	0.00	0.00	STA-21CT3	0.00	0.00	0	0.0	
22CTA21	Load	0.12	105.30	-2.6	0.00	0.00	0.00	0.00	0.00	0.00	STA-22CT3	0.00	0.00	0	0.0	
22CTA22	Load	0.12	105.30	-2.6	0.00	0.00	0.00	0.00	0.00	0.00	STA-22CT3	0.00	0.00	0	0.0	
31CTA11	Load	0.12	105.81	-2.6	0.00	0.00	0.00	0.00	0.00	0.00	STA-31CT3	0.00	0.00	0	0.0	

\* A regulated (constant voltage) bus.

Economic and Environmental Impacts Associated with  
 Conversion of Indian Point Units 2 and 3 To A Closed-Loop  
 Condenser Cooling Water Configuration

Attachment 7  
 Section 2 – Load Flow (Excerpts)

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: CO199  
 Engineer: Eric J Praser

=====  
 PowerStation 4.0.4C  
 Study Case: LF-WetLoad

Page: 23  
 Date: 06-02-2003  
 SN: ENERCONSV  
 File: IndianPoint

-----  
 Indian Point 2 & 3 Cooling Tower  
 Dry Loads off, Wet cycle loads at nominal.  
 =====

SUMMARY OF TOTAL GENERATION, LOADING & DEMAND  
 -----

	MW	Mvar	MVA	% PF
	=====	=====	=====	=====
Swing Bus(es):	56.236	32.086	64.746	86.9 Lagging
Generators:	0.000	0.000	0.000	100.0 Lagging
Total Demand:	56.236	32.086	64.746	86.9 Lagging
Total Motor Load:	54.234	27.444	60.782	89.2 Lagging
Total Static Load:	1.797	1.090		
Apparent Losses:	0.204	3.552		
System Mismatch:	0.000	0.000		

Number of Iterations = 3

SYSTEM ANALYSIS

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: CO199  
 Engineer: Eric J Praser

=====  
 PowerStation 4.0.4C  
 Study Case: SC

Page: 1  
 Date: 06-02-2003  
 SN: ENERCONSV  
 File: IndianPoint

-----  
 Indian Point 2 & 3 Cooling Tower  
 =====

Electrical Transient Analyzer Program  
 -----

SHORT CIRCUIT ANALYSIS  
 -----

3-Phase, LG, LL, & LLG  
 1/2 Cycle (Momentary) Fault Currents

	Swing	Gen.	Load	Total
	-----	-----	-----	-----
Number of Buses:	1	0	40	41

	XFRM2	REACT.	LINE/CABLE	IMP.	TIE PD	XFRM3	TOTAL
	-----	-----	-----	-----	-----	-----	-----
Number of Branches:	22	0	10	0	8	0	40

	Synch. Gen.	Synch. Motor	Ind. Motor	Lump Motor	Uti- lity	Total
	-----	-----	-----	-----	-----	-----
Number of Machines:	0	0	288	6	1	295

System Frequency: 60.0 Hz

Unit System: English

Data File Name: IndianPoint

Output File Name: L:\PROJECTS\CO\CO199\BYRON-ELECTRICAL\IPMODEL\IP2&3.shr

Economic and Environmental Impacts Associated with  
 Conversion of Indian Point Units 2 and 3 To A Closed-Loop  
 Condenser Cooling Water Configuration

Attachment 7  
 Section 3 – Short Circuit (Excerpts)

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: C0199  
 Engineer: Eric J Praser

S. C. SUMMARY REPORT  
 =====  
 PowerStation 4.0.4C  
 Study Case: SC

Page: 67  
 Date: 06-02-2003  
 SN: ENERCONSVC  
 File: IndianPoint

-----  
 Indian Point 2 & 3 Cooling Tower  
 =====

1/2 Cycle - Three-Phase, LG, LL, & LLG Faults: ( Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus Information		3-Phase Fault			Line-to-Ground Fault			Line-to-Line Fault			Line-to-Line-to-Ground*		
ID	kV	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.
2-SAT-PRI	138.00	1.344	-17.499	17.550	0.412	-4.736	4.754	15.155	1.164	15.199	-15.276	0.205	15.277
2-SAT-SEC	6.90	1.182	-23.835	23.864	1.111	-23.607	23.633	20.642	1.024	20.667	20.120	12.715	23.801
2XCT-PRI	138.00	1.348	-17.495	17.547	0.412	-4.736	4.754	15.151	1.167	15.196	-15.273	0.202	15.274
2XCT-SEC	6.90	1.833	-34.909	34.957	1.529	-31.582	31.619	30.232	1.588	30.274	29.583	16.004	33.635
2XCW-SEC	6.90	1.218	-26.425	26.453	1.120	-22.681	22.709	22.885	1.055	22.909	-23.400	8.878	25.027
3-SAT-PRI	138.00	1.371	-17.462	17.516	0.413	-4.735	4.753	15.122	1.187	15.169	-15.244	0.182	15.245
3-SAT-SEC	6.90	1.185	-23.837	23.867	1.113	-23.608	23.634	20.644	1.026	20.669	20.121	12.718	23.804
3XCT-SEC	6.90	1.668	-34.860	34.900	1.335	-31.560	31.588	30.189	1.444	30.224	29.645	15.859	33.621
3XCW-SEC	6.90	1.242	-26.308	26.337	1.131	-22.624	22.652	22.784	1.076	22.809	-23.301	8.846	24.923
3X-PRI	138.00	1.322	-17.532	17.582	0.410	-4.738	4.756	15.183	1.145	15.226	-15.304	0.225	15.306
21CTA11	0.12	2.303	-22.797	22.913	2.319	-25.911	26.014	19.743	1.994	19.843	18.627	16.993	25.214
21CTA12	0.12	3.993	-26.544	26.843	3.597	-29.054	29.276	22.988	3.458	23.247	21.513	19.473	29.017
22CTA21	0.12	2.189	-22.251	22.358	2.231	-25.436	25.534	19.270	1.896	19.363	18.179	16.734	24.708
22CTA22	0.12	2.189	-22.251	22.358	2.231	-25.436	25.534	19.270	1.896	19.363	18.179	16.734	24.708
31CTA11	0.12	2.302	-22.791	22.907	2.318	-25.906	26.009	19.738	1.994	19.838	18.622	16.991	25.209
31CTA12	0.12	3.992	-26.538	26.837	3.596	-29.049	29.271	22.983	3.457	23.241	21.508	19.470	29.012
32CTA11	0.12	2.188	-22.244	22.352	2.230	-25.431	25.528	19.264	1.895	19.357	18.174	16.731	24.702
32CTA12	0.12	2.188	-22.244	22.352	2.230	-25.431	25.528	19.264	1.895	19.357	18.174	16.731	24.702
Buchanan138	138.00	0.636	-18.444	18.455	0.364	-4.807	4.821	15.973	0.551	15.982	-16.086	0.831	16.107
STA-2CT	6.90	1.863	-34.755	34.805	1.920	-31.141	31.201	30.099	1.614	30.142	-31.060	12.489	33.477
STA-2CW	6.90	1.226	-26.365	26.394	1.318	-22.467	22.506	22.833	1.062	22.858	-23.496	8.723	25.063
STA-3CT	6.90	1.821	-34.118	34.166	3.108	-29.413	29.576	29.547	1.577	29.589	-31.425	11.300	33.395
STA-3CW	6.90	1.280	-26.017	26.049	2.044	-21.565	21.661	22.532	1.109	22.559	-23.702	8.075	25.040
STA-21CT	4.16	1.934	-32.581	32.638	2.044	-35.362	35.421	28.216	1.675	28.266	27.134	21.006	34.315
STA-21CT1	4.16	1.934	-32.581	32.638	2.044	-35.362	35.421	28.216	1.675	28.266	27.134	21.006	34.315
STA-21CT2	4.16	1.934	-32.581	32.638	2.044	-35.362	35.421	28.216	1.675	28.266	27.134	21.006	34.315
STA-21CT3	0.48	2.831	-15.649	15.903	2.776	-15.586	15.831	13.552	2.452	13.772	12.191	10.213	15.904
STA-22CT	4.16	1.902	-32.491	32.547	2.019	-35.292	35.349	28.138	1.647	28.186	27.064	20.957	34.229
STA-22CT1	4.16	1.902	-32.491	32.547	2.019	-35.292	35.349	28.138	1.647	28.186	27.064	20.957	34.229
STA-22CT2	4.16	1.902	-32.491	32.547	2.019	-35.292	35.349	28.138	1.647	28.186	27.064	20.957	34.229
STA-22CT3	0.48	2.471	-14.680	14.886	2.534	-14.931	15.145	12.713	2.140	12.892	-14.014	5.456	15.038
STA-31CT	4.16	1.905	-32.123	32.180	2.017	-34.909	34.968	27.820	1.650	27.868	26.750	20.762	33.862
STA-31CT1	4.16	1.905	-32.123	32.180	2.017	-34.909	34.968	27.820	1.650	27.868	26.750	20.762	33.862
STA-31CT2	4.16	1.905	-32.123	32.180	2.017	-34.909	34.968	27.820	1.650	27.868	26.750	20.762	33.862
STA-31CT3	0.48	2.828	-15.638	15.892	2.775	-15.579	15.824	13.543	2.449	13.763	12.182	10.209	15.894
STA-32CT	4.16	1.873	-32.034	32.089	1.992	-34.839	34.896	27.742	1.622	27.790	26.680	20.714	33.777
STA-32CT1	4.16	1.873	-32.034	32.089	1.992	-34.839	34.896	27.742	1.622	27.790	26.680	20.714	33.777
STA-32CT2	4.16	1.873	-32.034	32.089	1.992	-34.839	34.896	27.742	1.622	27.790	26.680	20.714	33.777

All fault currents are symmetrical momentary ( 1/2 cycle ) values in rms kA.  
 \* LLG fault current is the larger of the two faulted line currents.

Economic and Environmental Impacts Associated with  
 Conversion of Indian Point Units 2 and 3 To A Closed-Loop  
 Condenser Cooling Water Configuration

Attachment 7  
 Section 3 – Short Circuit (Excerpts)

Project: IP Load Flow  
 Location: IP 2 & 3  
 Contract: CO199  
 Engineer: Eric J Praser

S. C. SUMMARY REPORT  
 =====  
 PowerStation 4.0.4C  
 Study Case: SC

Page: 68  
 Date: 06-02-2003  
 SN: ENERCONSV  
 File: IndianPoint

-----  
 Indian Point 2 & 3 Cooling Tower  
 -----

1/2 Cycle - Three-Phase, LG, LL, & LLG Faults: ( Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus Information		3-Phase Fault			Line-to-Ground Fault			Line-to-Line Fault			Line-to-Line-to-Ground*		
ID	kV	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.
STA-32CT3	0.48	2.468	-14.669	14.875	2.532	-14.924	15.137	12.704	2.137	12.882	-14.004	5.456	15.029
STA-69-2	6.90	1.311	-23.115	23.152	2.144	-22.162	22.265	20.018	1.136	20.050	-21.440	9.476	23.441
STA-69-3	6.90	1.312	-23.578	23.614	1.266	-23.182	23.216	20.419	1.136	20.451	19.808	12.535	23.441

All fault currents are symmetrical momentary ( 1/2 cycle ) values in rms kA.  
 \* LLG fault current is the larger of the two faulted line currents.