

Sunnyside Replacement Equipment

Status Update Briefing– August 15, 2014

Boundless Energy



Contents

- Project Dashboard
- Progress & Schedule Summary
- Contracting Plan
- Risk Analysis
- Project Photos

(Incremental to Information provided July 30)

Project Dashboard

PM - Sunnyside Transformer Project
Joe Yurchesyn

Safety

Quality

Schedule

Cost

Progress & Schedule Summary

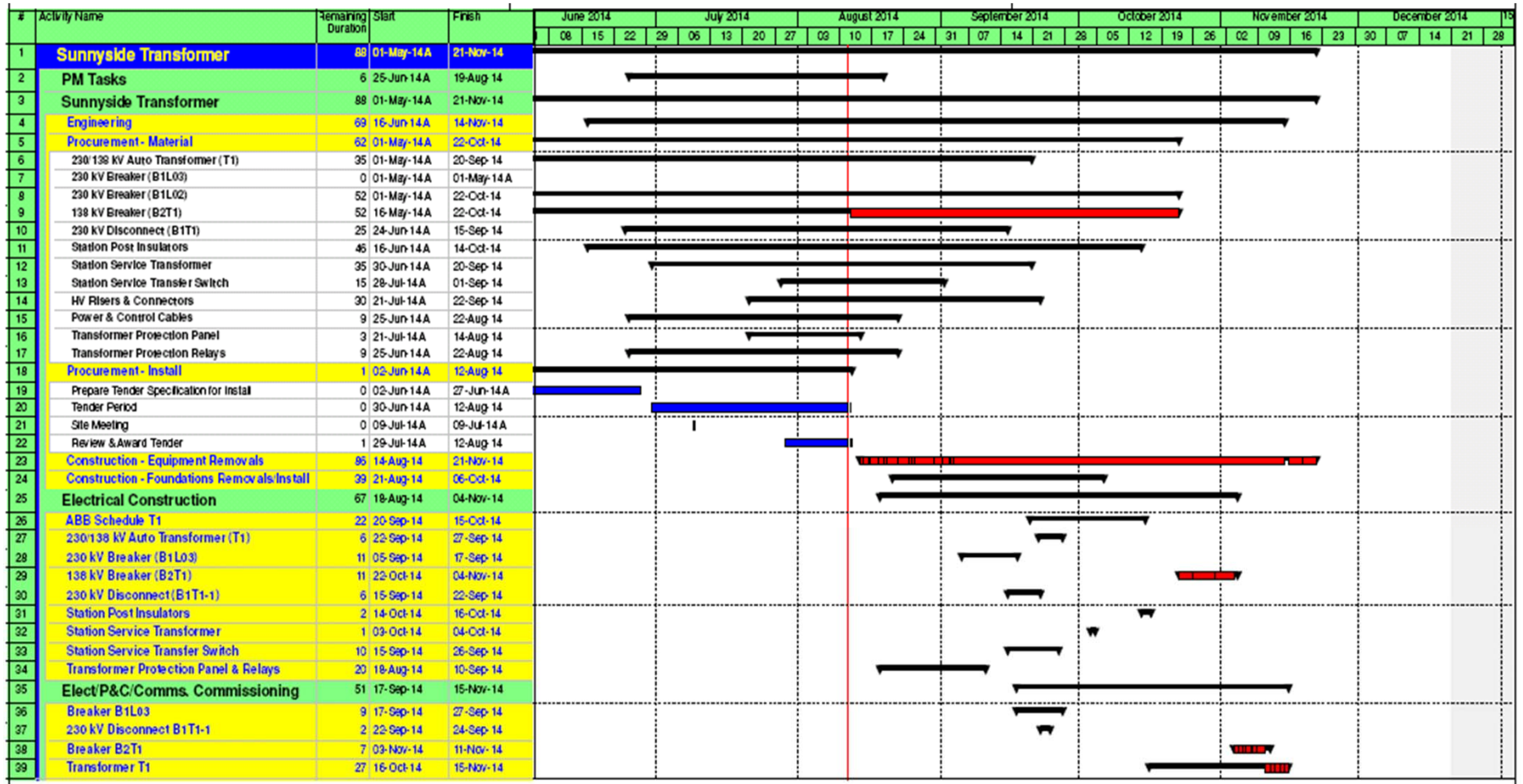
1. T1 Transformer Pre-Tank Inspection by Tensor Resources Aug 7; Factory Acceptance Tests Aug 18-22; Delivery Sep 20
2. T1 Delivery Logistics Planning – Aug 6 on site and route review with ABB/transporter
3. Installation Contract Award August 14 to Industrial Commercial Maintenance Limited – Mobilize August 18 for existing equipment removal and site preparation

Progress & Schedule Summary

4. TRO raised Bus Aug 14-15 to allow safe access for existing T1 removal
5. Risk Review Actions assessment completed Aug 8
6. Overall Schedule tracking with plan; Ready for Service date by end Nov 2014 (See attached schedule showing progress to date)

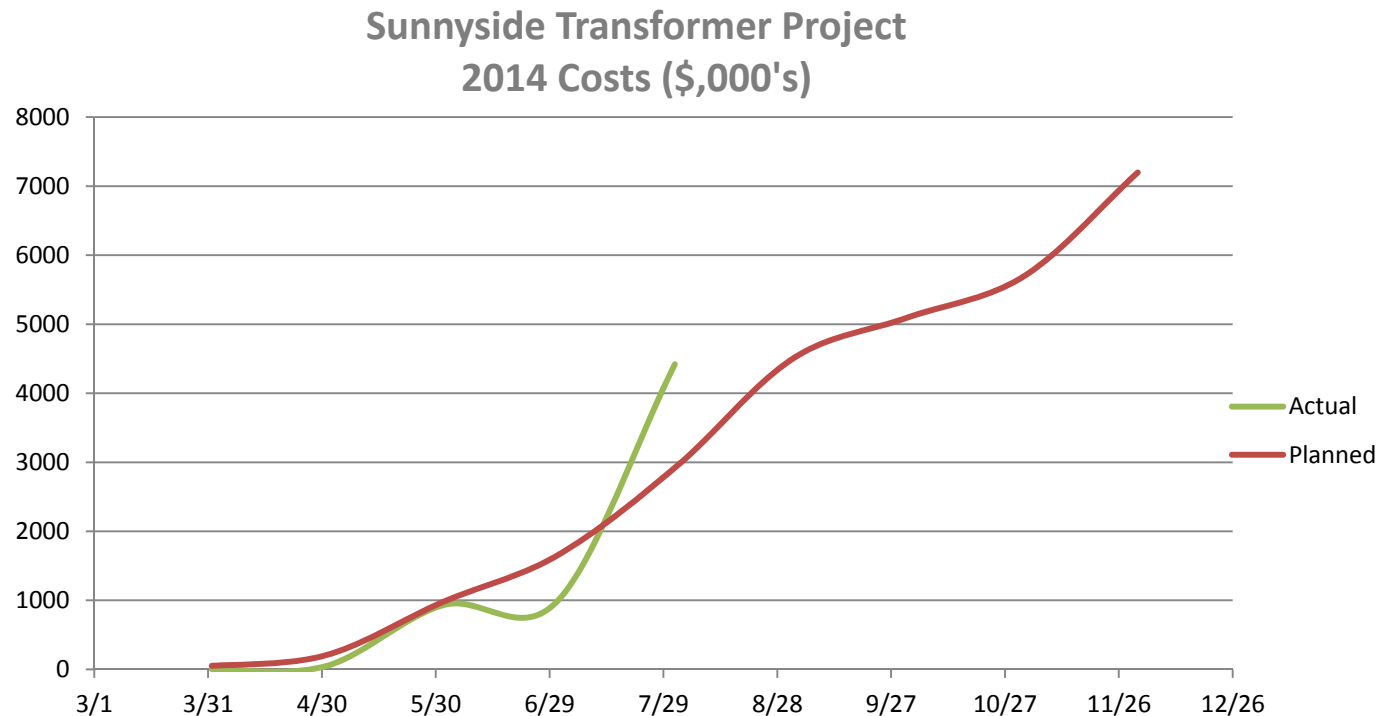
Level 2 - Schedule Summary

See attached full detail schedule for more information on specific tasks



Level 2 - Schedule S Curve

(Preliminary – Project Accounting in Process of Set-Up)



Note: Forecast Final Expenditures (FFE) tracking with compliance with original budget. Actual Costs Aug 1 reflects contractual commitments for major equipment and install contracts to Aug 15.

Contracting Plan

Item	Contract Title	Scope of Work	Contractor	Scheduled Start Date	Scheduled Finish Date	Manufacture/ Construction Status
1	T1 Transformer	T1 Transformer supply to PAD	ABB	19-Jun	20-Sep	Ongoing
2	B1L03 230 kV Breaker	Breaker supply	Nalcor Stores	1-May		Stored
3	B1T1-1 230 kV Disconnect	Disconnect supply (except insulators)	Pro-Energy		15-Sep	Ongoing
4	B1T1-1 230 kV Disconnect Insulators	Disconnect Insulators (Use stock and replace)	Nalcor Stores	1-May	15-Sep	Ongoing; Stock replace Oct 22
5	B1T1 230 kV Breaker	Breaker supply	TBD		Summer 2015	Not Started; Breaker order
6	B2T1 138 kV Breaker	Breaker supply	Siemens	23-May	22-Oct	Ongoing
7	Installation Contract	Removal of existing T1, P&C work, B1L03, B1T1-1, B2T1, other equipment, civil works and fdns; Installation of new pad; Connection of new transformer, including: cables, panels, connections, commissioning	Industrial Commercial Maintenance Limited	18-Aug	15-Nov	On-Site Aug 18
8	Station service Transformer	Stn Service Transformer supply		4-Jul	20-Sep	Ongoing
9	Station service Transfer Switch	Transfer switch supply	TBD	1-Aug	11-Sep	Tendered
10	HV Risers & Connectors	Risers and Connectors supply	TBD	25-Jul	19-Sep	Tendered
11	Power & Control Cables	Cables supply		30-Jun	22-Aug	Ongoing
12	Transformer Protection Panel	Panel supply		25-Jul	14-Aug	Tendered
13	Transformer Protection Relays	Relay supply		30-Jun	22-Aug	Ongoing

Risk Analysis

Third Party Facilitated Risk Workshop held July 23 and Actions Review Aug 7.

Fifty+ risks and tasks identified.

Risk Register used to manage risk during Project Execution.

Risk Analysis – Example of Issues

- TRO Bus raise Aug 14/15 – reduces complications and time for T1 removal
- T1 Delivery – Timing, Logistics, Damage – ABB logistics done, spare bushing being considered
- B1T1-1 230 kV Disconnect – 15 Sep delivery
 - Expedite and monitor;
- B1L03 230 kV Breaker in Stores – Storage
 - Inspect and monitor

Risk Analysis – Examples of Issues

- Long Lead Miscellaneous Items – missed or delayed – Checking list and ongoing status reviews
- T1 (Other Equipment) Failure – Infant failure, Transport/Install damage – FAT Test, transport assessment
- Site hydrocarbon in foundations soil
 - Inspections showed unlikely an issue, remove if required

Risk Analysis – Examples of Issues

- Outage requirements
 - Lift bus/wires as required to allow access without outages
 - Co-ordinate outages with other projects

Project Photos

Transformer Status – Aug 12, 2014

- **Pre-Tank Inspection – Aug 7**
- **Factory Acceptance Testing – Aug 18-22**
- **Delivery – Sep 20**

Photo 1 – Assembled Transformer T1



Photo 2 – Assembled Transformer T1



Photo 3 – Assembled Transformer



Photo 4– Assembled Transformer T1



Photo 5 – Assembled Transformer T1





Sunnyside Transformer

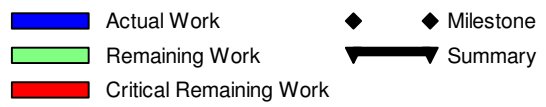
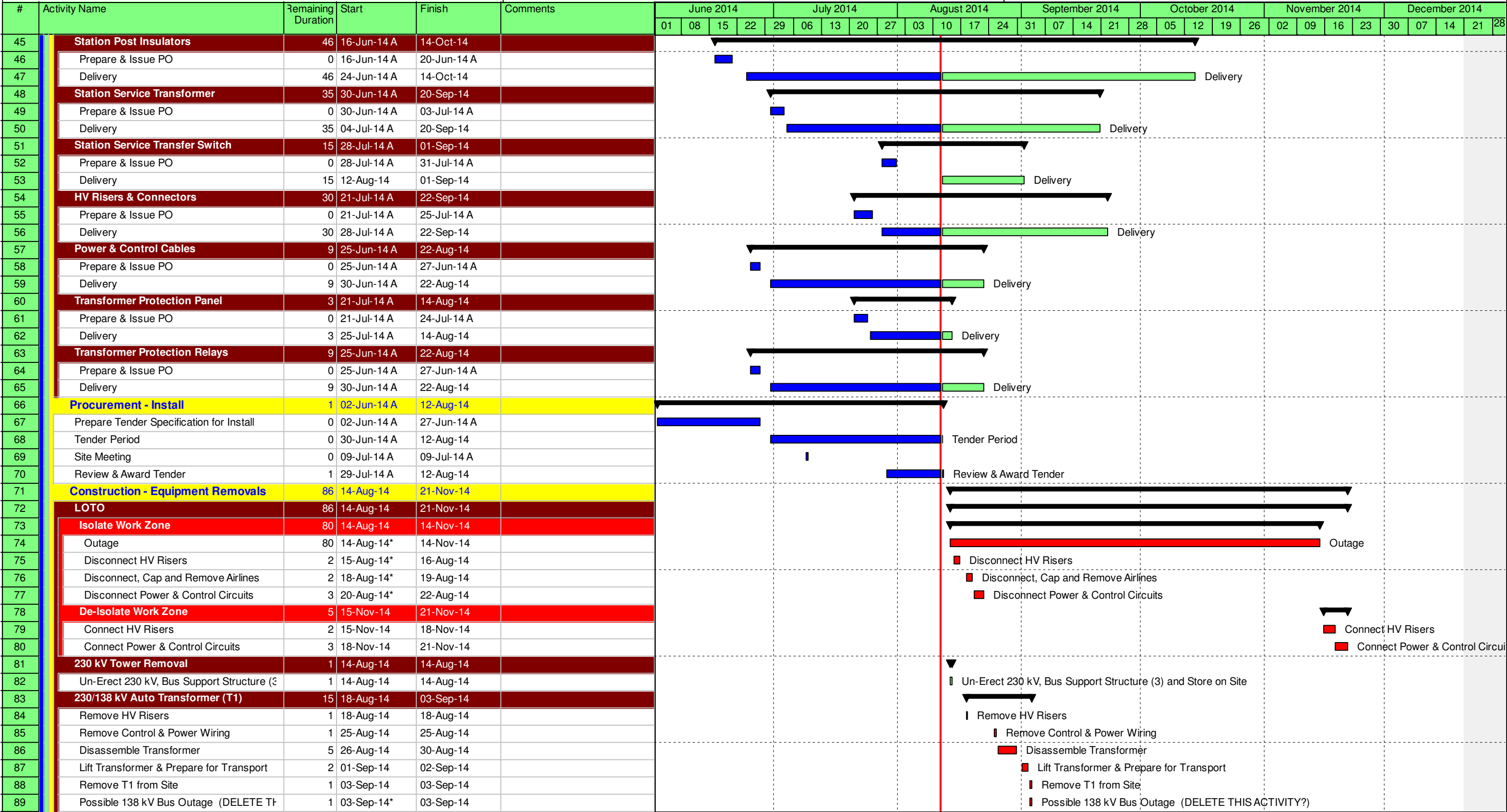
Updated: 12-Aug-14

#	Activity Name	Remaining Duration	Start	Finish	Comments	June 2014				July 2014				August 2014				September 2014				October 2014				November 2014				December 2014			
						01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	07
1	Sunnyside Transformer	88	01-May-14 A	21-Nov-14																													
2	PM Tasks	6	25-Jun-14 A	19-Aug-14																													
3	Determine Requirement of Oil Containment S	0	25-Jun-14 A	01-Jul-14 A																													
4	Devlop Project Scope Statement	0	25-Jun-14 A	12-Aug-14																													
5	Risk Workshop	0	23-Jul-14 A	13-Aug-14																													
6	Prepare Safety Assessment & Safety Plan	6	12-Aug-14*	19-Aug-14	Contractor																												
7	Sunnyside Transformer	88	01-May-14 A	21-Nov-14																													
8	Engineering	69	16-Jun-14 A	14-Nov-14																													
9	Civil	36	16-Jun-14 A	30-Sep-14																													
10	Engineering - Civil	36	16-Jun-14 A	30-Sep-14																													
11	P&C	69	16-Jun-14 A	14-Nov-14																													
12	Engineering - P&C	69	16-Jun-14 A	14-Nov-14																													
13	Design Drawings	10	08-Jul-14 A	25-Aug-14																													
14	Perform P&C Prep - Isolation plan	5	17-Jul-14 A	18-Aug-14	TRO																												
15	Relay Settings	5	12-Aug-14*	18-Aug-14																													
16	Electrical	69	16-Jun-14 A	14-Nov-14																													
17	Engineering - Electrical	69	16-Jun-14 A	14-Nov-14																													
18	Communications	9	21-Jul-14 A	22-Aug-14																													
19	Engineering - Communications	9	21-Jul-14 A	22-Aug-14																													
20	Physical Drawings	36	16-Jun-14 A	30-Sep-14																													
21	Engineering - Physical Drawings	36	16-Jun-14 A	30-Sep-14																													
22	Procurement - Material	62	01-May-14 A	22-Oct-14																													
23	230/138 kV Auto Transformer (T1)	35	01-May-14 A	20-Sep-14																													
24	Prepare Tender Specification	0	01-May-14 A	14-May-14 A																													
25	Tender Period	0	15-May-14 A	05-Jun-14 A																													
26	Review & Award Tender	0	06-Jun-14 A	19-Jun-14 A																													
27	T1 Delivery on Pad	35	20-Jun-14 A	20-Sep-14																													
28	Pre-Tank Inspection	1	12-Aug-14*	12-Aug-14																													
29	FAT	5	15-Aug-14*	21-Aug-14																													
30	230 kV Breaker (B1L03)	0	01-May-14 A	01-May-14 A																													
31	Delivery (in stores)	0	01-May-14 A	01-May-14 A																													
32	230 kV Breaker (B1L02)	52	01-May-14 A	22-Oct-14																													
33	Prepare Tender Specification	0	01-May-14 A	01-May-14 A																													
34	Tender Period	0	02-May-14 A	02-May-14 A																													
35	Review & Award Tender	0	05-May-14 A	30-May-14 A																													
36	Delivery/Install	52	02-Jun-14 A	22-Oct-14																													
37	FAT	5	29-Sep-14*	03-Oct-14																													
38	138 kV Breaker (B2T1)	52	16-May-14 A	22-Oct-14																													
39	Prepare & Issue PO	0	16-May-14 A	23-May-14 A																													
40	Delivery	52	26-May-14 A	22-Oct-14																													
41	FAT (date not confirmed)	5	22-Sep-14*	26-Sep-14																													
42	230 kV Disconnect (B1T1)	25	24-Jun-14 A	15-Sep-14																													
43	Prepare & Issue PO	0	24-Jun-14 A	25-Jun-14 A																													
44	Delivery	25	26-Jun-14 A	15-Sep-14																													

- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Summary

Sunnyside Transformer

Updated: 12-Aug-14



Sunnyside Transformer

Updated: 12-Aug-14

#	Activity Name	Remaining Duration	Start	Finish	Comments	June 2014				July 2014				August 2014				September 2014				October 2014				November 2014				December 2014					
						01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21
90	230 kV Breaker (B1L03)	5	16-Aug-14	21-Aug-14																															
91	Outage	1	16-Aug-14*	16-Aug-14																															
92	Remove HV Risers	1	16-Aug-14	16-Aug-14																															
93	Remove Power & Control Cables	2	18-Aug-14	19-Aug-14																															
94	Remove B1L03 Breaker c/w Post CT's & S	2	19-Aug-14	21-Aug-14																															
95	138 kV Breaker (B2T1)	5	16-Aug-14	21-Aug-14																															
96	Remove HV Risers and Remove Comp Air	1	16-Aug-14*	16-Aug-14																															
97	Remove Power & Control Cables	2	18-Aug-14	19-Aug-14																															
98	Remove B2T1 Breaker c/w Post CT's & S	2	19-Aug-14	21-Aug-14																															
99	230 kV Disconnect (B1T1-1)	6	16-Aug-14	22-Aug-14																															
100	Remove HV Risers	1	16-Aug-14*	16-Aug-14																															
101	Possible Sunnyside Station Outage	1	16-Aug-14*	16-Aug-14																															
102	Remove Power & Control Cables	2	19-Aug-14	20-Aug-14																															
103	Remove B1T1-1 Disconnect Switch	2	21-Aug-14	22-Aug-14																															
104	Station Post Insulators	1	16-Aug-14	16-Aug-14																															
105	Remove HV Risers	1	16-Aug-14*	16-Aug-14																															
106	Station Service Transformer	1	25-Aug-14	26-Aug-14																															
107	Remove Power Cables	1	25-Aug-14	25-Aug-14																															
108	Remove Station Service Transformer on T1	1	25-Aug-14	26-Aug-14																															
109	Station Service Transfer Switch	2	03-Sep-14	04-Sep-14																															
110	Remove Power Cables to T1	1	03-Sep-14	03-Sep-14																															
111	Remove Power Cables to T4	1	03-Sep-14	03-Sep-14																															
112	Remove Station Service Transfer Switch	1	04-Sep-14	04-Sep-14																															
113	Remove Cables Between Transfer Switch	1	04-Sep-14	04-Sep-14																															
114	Transformer Protection Panel & Relays	5	26-Aug-14	30-Aug-14																															
115	Remove Control Wiring from Relays	2	26-Aug-14	27-Aug-14																															
116	Remove Protection Relays in Control Buildi	3	28-Aug-14	30-Aug-14																															
117	Construction - Foundations Removals	39	21-Aug-14	06-Oct-14																															
118	230/138 kV Auto Transformer (T1)	15	04-Sep-14	20-Sep-14																															
119	Remove Foundation T1	4	04-Sep-14	08-Sep-14																															
120	Install Cable Raceways to T1 Transformer	3	09-Sep-14	11-Sep-14																															
121	Install New Foundation T1	4	09-Sep-14	12-Sep-14																															
122	Concrete Cure	7	13-Sep-14	20-Sep-14																															
123	230 kV Breaker (B1L03)	13	21-Aug-14	05-Sep-14																															
124	Remove Foundation B1L03	1	21-Aug-14	22-Aug-14																															
125	Install Foundation B1L03 Including Associa	5	22-Aug-14	28-Aug-14																															
126	Concrete Cure	7	28-Aug-14	05-Sep-14																															
127	138 kV Breaker (B2T1)	13	21-Aug-14	04-Sep-14																															
128	Remove Foundation B2T1	1	21-Aug-14	21-Aug-14																															
129	Install Foundation B2T1 (1) Including Assoc	5	22-Aug-14	27-Aug-14																															
130	Concrete Cure	7	28-Aug-14	04-Sep-14																															
131	230 kV Disconnect (B1T1-1)	13	23-Aug-14	06-Sep-14																															
132	Remove Foundation B1T1-1	1	23-Aug-14	23-Aug-14																															
133	Install Foundation B1T1-1 Including Associ	5	23-Aug-14	29-Aug-14																															
134	Concrete Cure	7	29-Aug-14	06-Sep-14																															

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Sunnyside Transformer

Updated: 12-Aug-14

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						01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21
135	Station Post Insulators	13	23-Aug-14	08-Sep-14																															
136	Remove Foundation Bus Support Foundati	1	23-Aug-14	25-Aug-14																															
137	Install Foundations Bus Support Including /	5	25-Aug-14	30-Aug-14																															
138	Concrete Cure	7	30-Aug-14	08-Sep-14																															
139	230 kV Breaker (B1T1)	12	08-Sep-14	22-Sep-14																															
140	Install Foundation B1T1 Including Associati	5	08-Sep-14	13-Sep-14																															
141	Concrete Cure	7	13-Sep-14	22-Sep-14																															
142	Station Service Transformer	1	04-Oct-14	06-Oct-14																															
143	Install Cable Raceways to 25 kV, Sta. Serv	1	04-Oct-14	06-Oct-14																															
144	Station Service Transfer Switch	1	10-Sep-14	10-Sep-14																															
145	Remove Foundation Station Service Trans	1	10-Sep-14	10-Sep-14																															
146	Electrical Construction	67	18-Aug-14	04-Nov-14																															
147	ABB Schedule T1	22	20-Sep-14	15-Oct-14																															
148	Transformer Deliveried to Site Outage Reql	1	20-Sep-14	20-Sep-14																															
149	Assemble 230/138 kV Transformer & Statio	10	23-Sep-14	03-Oct-14																															
150	Place Transformer on Vacuum	1	07-Oct-14	08-Oct-14																															
151	Vacuum Fill Transformer	1	08-Oct-14	09-Oct-14																															
152	Commission Test Transformer	4	09-Oct-14	14-Oct-14																															
153	Transformer Ready for Handover to Nalcor	1	14-Oct-14	15-Oct-14																															
154	230/138 kV Auto Transformer (T1)	6	22-Sep-14	27-Sep-14																															
155	Install Cables	2	22-Sep-14	23-Sep-14																															
156	Megger & Terminate Power & Control Wirin	1	24-Sep-14	24-Sep-14																															
157	Megger & Terminate Power & Control Wirin	1	25-Sep-14	25-Sep-14																															
158	Assign/Change Annunciator Windows	1	26-Sep-14	26-Sep-14																															
159	Make RTU Changes	1	27-Sep-14	27-Sep-14																															
160	230 kV Breaker (B1L03)	11	05-Sep-14	17-Sep-14																															
161	Install Breaker B1L03 & Ground	3	05-Sep-14	09-Sep-14																															
162	Install Cables to B1L03, Megger & Terminat	4	09-Sep-14	13-Sep-14																															
163	Install Trip Coil Monitoring Protection Relay	2	13-Sep-14	16-Sep-14																															
164	Primary Equipment Commission Breaker B1	3	13-Sep-14	17-Sep-14																															
165	Assign/Change Annunciator Windows	1	16-Sep-14	17-Sep-14																															
166	Make RTU Changes	1	17-Sep-14	17-Sep-14																															
167	138 kV Breaker (B2T1)	11	22-Oct-14	04-Nov-14																															
168	Install Breaker B2T1 and Ground	3	22-Oct-14	25-Oct-14																															
169	Install Cables to B2T1 Megger & Terminate	4	25-Oct-14	30-Oct-14																															
170	Install Trip Coil Monitoring Protection Relay	2	30-Oct-14	01-Nov-14																															
171	Primary Equipment Commission Switch B2T	3	30-Oct-14	03-Nov-14																															
172	Assign/Change Annunciator Windows	1	01-Nov-14	03-Nov-14																															
173	Make RTU Changes	1	03-Nov-14	04-Nov-14																															
174	230 kV Disconnect (B1T1-1)	6	15-Sep-14	22-Sep-14																															
175	Install Disconnect B1T1-1 and Ground	3	15-Sep-14	18-Sep-14																															
176	Install Cables to B1T1-1 Megger & Termina	2	18-Sep-14	20-Sep-14																															
177	Primary Equipment Commission Switch B1T	1	20-Sep-14	22-Sep-14																															
178	Station Post Insulators	2	14-Oct-14	16-Oct-14																															
179	Re-Erect 230 kV Bus Insulator Support Stru	1	14-Oct-14	15-Oct-14																															

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[illegible]

Sunnyside Transformer

Updated: 12-Aug-14

#	Activity Name	Remaining Duration	Start	Finish	Comments	June 2014				July 2014					August 2014				September 2014					October 2014				November 2014				December 2014				
						01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21	28
219	Transformer T1	27	16-Oct-14	15-Nov-14																																
220	Make Wire Terminations on Cable Ends Op	1	16-Oct-14*	16-Oct-14																																
221	Commission T1 Transf. Prot. & All Other App	3	17-Oct-14	20-Oct-14																																
222	Start - Second B1 Bus Outage	1	21-Oct-14	21-Oct-14																																
223	Make Wire Terminations on Cable Ends Op	1	22-Oct-14	22-Oct-14																																
224	Install HV Leads Between Transformer T1 &	1	23-Oct-14	23-Oct-14																																
225	End - Second B1 Bus Outage (prob delete r	1	24-Oct-14	24-Oct-14																																
226	Energize Switch B1T1-1 (B1 Bus Side)	1	10-Nov-14	11-Nov-14																																
227	Hydro Accepts T1 for Energization	1	11-Nov-14	12-Nov-14																																
228	Handover Breaker B2T1 to Hydro Operatio	1	12-Nov-14	13-Nov-14																																
229	Energize Transforer T1 by Closing Breaker	1	13-Nov-14	14-Nov-14																																
230	Handover Transformer T1 To Hydro Operat	1	14-Nov-14	15-Nov-14																																

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