OCTOBER 5, 2022 NATIONALS PARK, WASHINGTON DC

CASE STUDIES – SUCCESSFUL IMPLEMENTATION OF AN INTEGRATED SCHEDULE / COST CONTROL SYSTEM

Project Controls EXPO
Washington, DC - USA

ROHAN P. MUTHA, CCM, CCP, PSP, LEED AP, EIT
PROGRAM AND PROJECT CONTROLS PRACTICE LEAD
AECOM

WHY WERE WE CALLED UPON?

Performance Measurement	Review Existing System	Develop and implement an integrated Project Controls platform
• Establish KPI Protocols • Assess the performance of the program • Assist the Executive Management in improving the performance of the program	• Review the existing Project Controls processes, procedures and systems • Perform GAP analysis • Recommend best practices	• Provides realistic projection of fiscal budget and earned value assessment • Allows adequate scalability on the design of the system so that it can be implemented enterprise-wide on other programs

STATE OF EXISTING SYSTEMS

Lack of integrated schedule/cost system

Inadequate project capital fiscal budget planning

Performance measurement lacked earned value assessment

OUR APPROACH / STRATEGY

Understand the Enterprise Structure of the Organization and how costs need to be tracked

Develop Enterprise Project Structure (EPS) / Project Work Breakdown Structure

- Establish Work Breakdown Structure keeping in mind the Enterprise needs
- Early decision of what not to change (Accounting system) to optimize the path of least resistance
- Map the Accounting data to integrated schedule / cost system

Start with Pilot Project

- Some Project Managers were apprehensive.
- Note chosen project was an ongoing project

Develop Master Schedule

- Emulate the Enterprise Structure / WBS in Scheduling System
- Key Activities and Milestones
- Cost Load at the activity / work packages level

Implement Earned Value Management

- Compare with Actual Cost at a higher level of the WBS
- Capture Accruals
- Conduct Intellectual Interrogation of the numbers before publishing them

Develop Dashboard Reporting

- Excel, Visio, Microsoft Power BI
- Use Combination of WBS and Activity Codes in P6

Derive Fiscal Budgets

SOME KEY TERMINOLOGY:

BCWS (Budgeted Cost of Work Scheduled) – Planned Value (PV) – Cost of work planned from inception till the desired date.

BCWP (Budgeted Cost of Work Performed) – Earned Value (EV) - Cost of work earned from inception till the desired date.

ACWP (Actual Cost of Work Performed) – Actual Cost (AC) – Actual cost spent from inception till the desired date

BAC – Budget at Completion

CPI – Cost Performance Index = EV/AC

SPI – Schedule Performance Index = EV/PV

CV – Cost Variance = EV - AC

SV – Schedule Variance = EV - PV

ETC – Estimate to Complete = BAC - EV

EAC – Estimate at Completion = AC + ETC

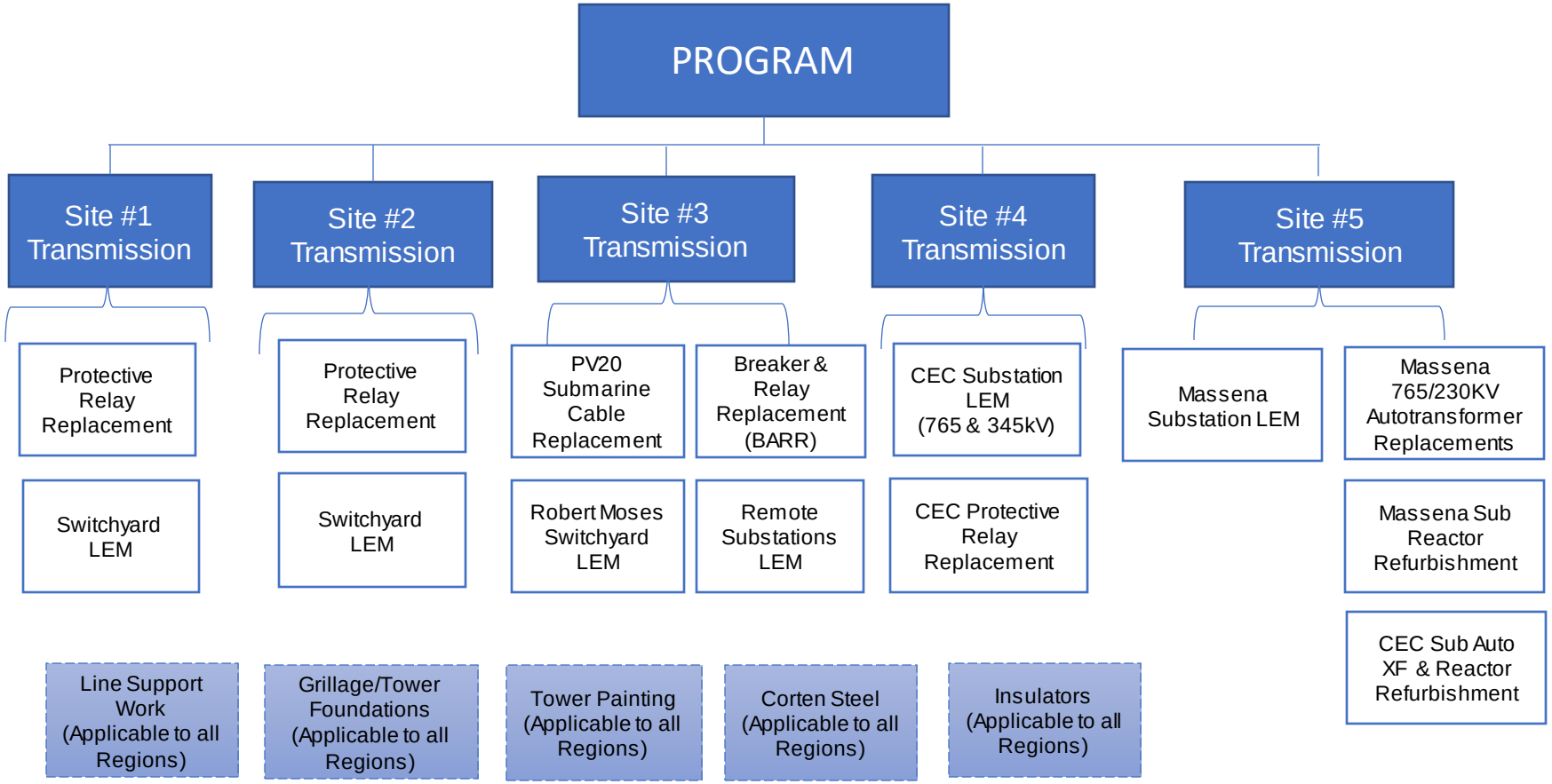
THREE PROGRAMS

Project Controls EXPO
Washington, DC - USA

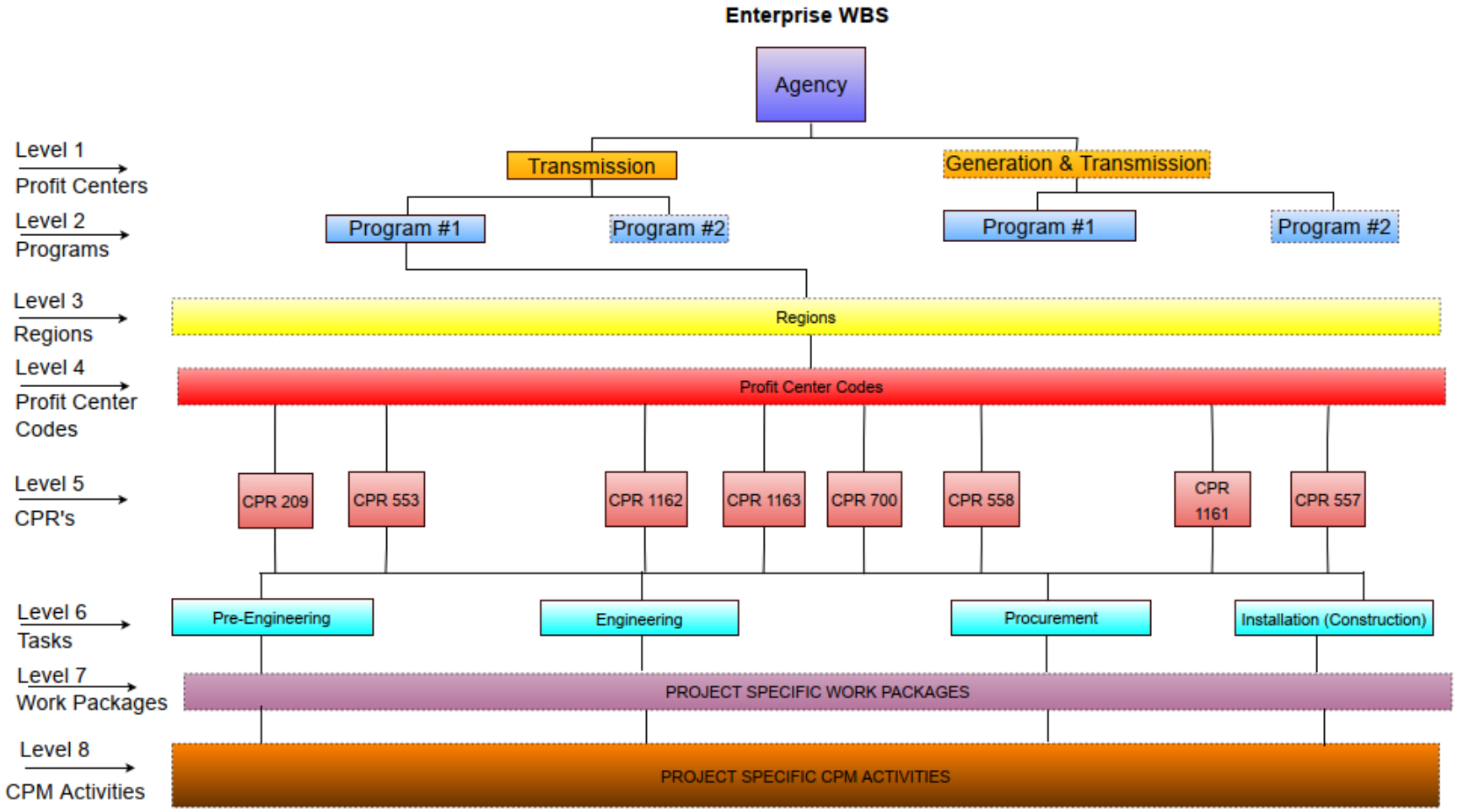
PROGRAM 1

- Program 1 involved extending and modernizing transmission lines and various power substations. Budget: $726 million.
- On-going Program
- Pilot program
- Only accounted Cost. No resources.
- We established and implemented a Scalable integrated Project Controls Management (PCM) platform that integrated the management of schedule and cost in a way that enables consistent and structured assessment, projecting / trending, and performance reporting throughout the life of the program.
- Developed Realistic Fiscal Budgets.

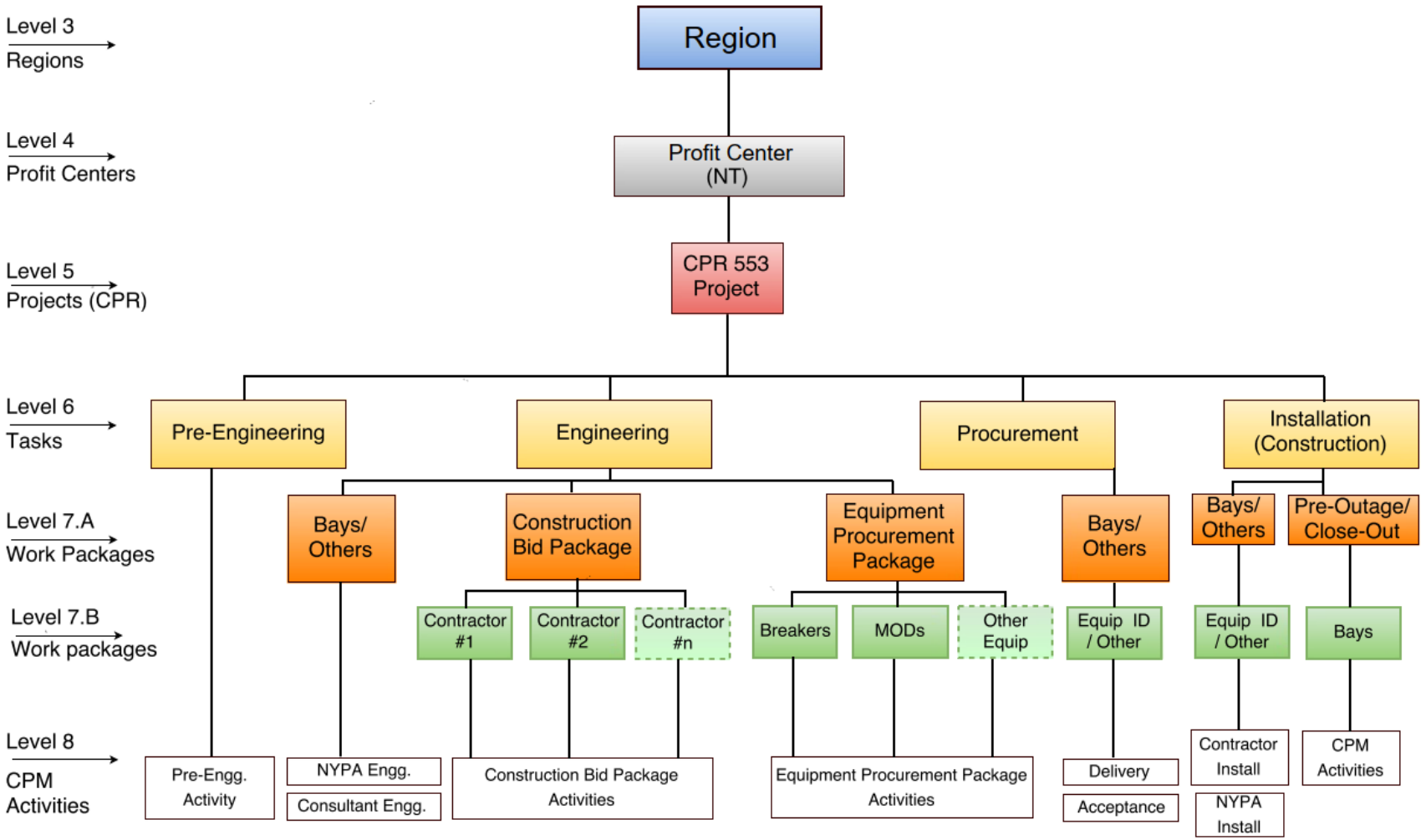
PROGRAM OVERVIEW



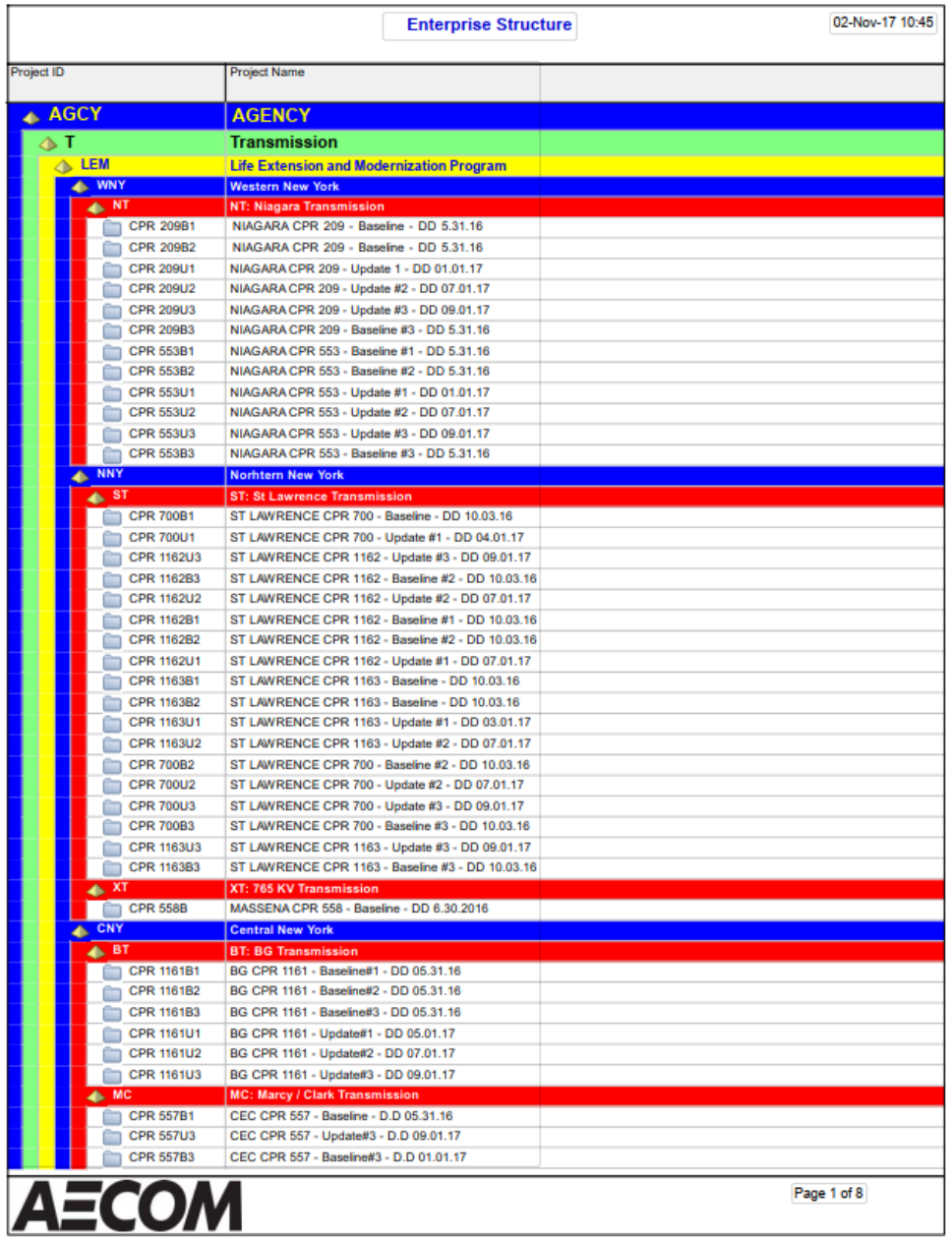
ENTERPRISE PROJECT STRUCTURE (EPS)



WORK BREAKDOWN STRUCTURE (WBS)



ENTERPRISE PROJECT STRUCTURE



Enterprise Structure

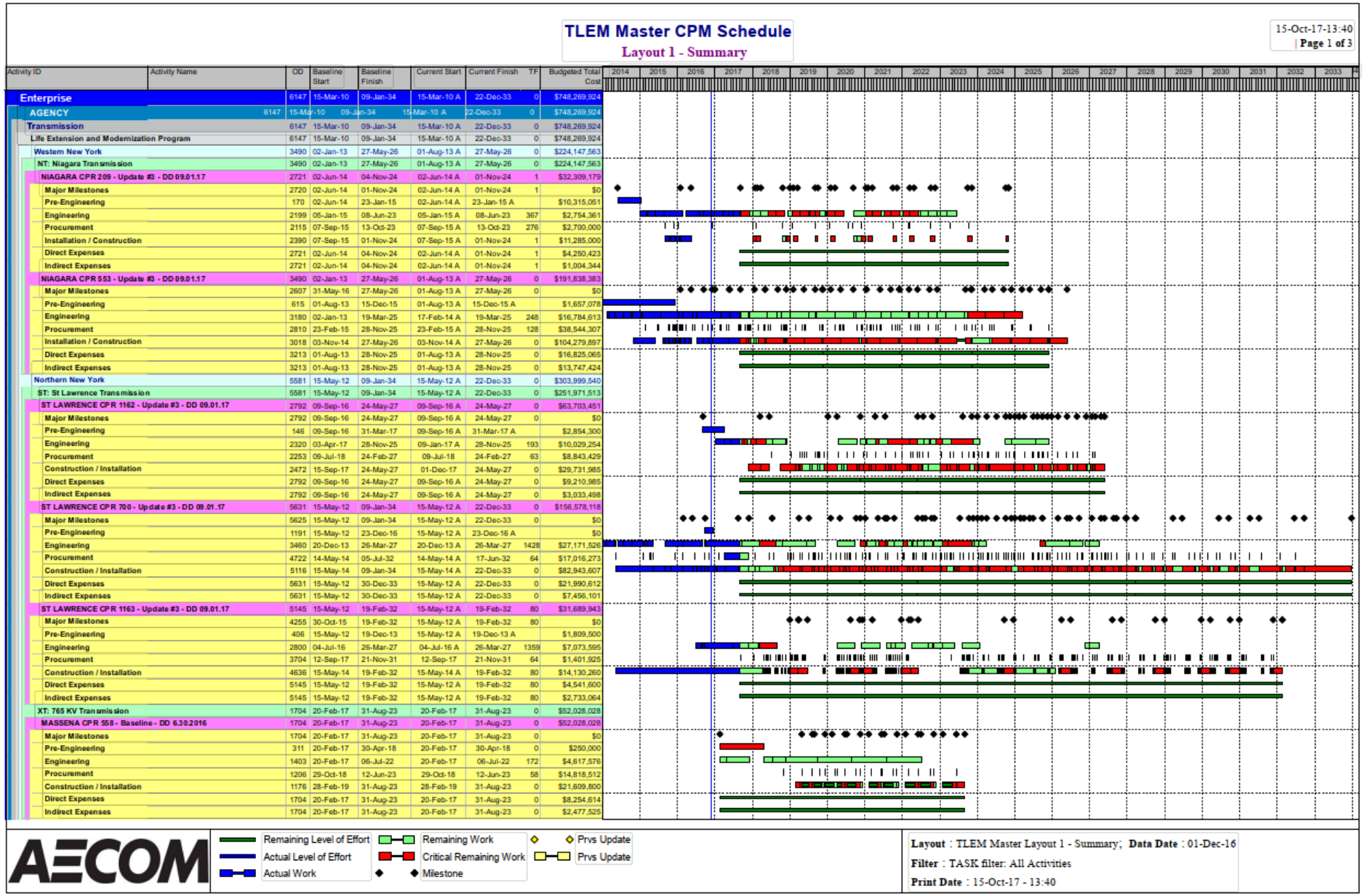
02-Nov-17 10:45

Project ID	Project Name
AGCY	AGENCY
T	Transmission
LEM	Life Extension and Modernization Program
WNY	Western New York
NT	NT: Niagara Transmission
CPR 209B1	NIAGARA CPR 209 - Baseline - DD 5.31.16
CPR 209B2	NIAGARA CPR 209 - Baseline - DD 5.31.16
CPR 209U1	NIAGARA CPR 209 - Update 1 - DD 01.01.17
CPR 209U2	NIAGARA CPR 209 - Update #2 - DD 07.01.17
CPR 209U3	NIAGARA CPR 209 - Update #3 - DD 09.01.17
CPR 209B3	NIAGARA CPR 209 - Baseline #3 - DD 5.31.16
CPR 553B1	NIAGARA CPR 553 - Baseline #1 - DD 5.31.16
CPR 553B2	NIAGARA CPR 553 - Baseline #2 - DD 5.31.16
CPR 553U1	NIAGARA CPR 553 - Update #1 - DD 01.01.17
CPR 553U2	NIAGARA CPR 553 - Update #2 - DD 07.01.17
CPR 553U3	NIAGARA CPR 553 - Update #3 - DD 09.01.17
CPR 553B3	NIAGARA CPR 553 - Baseline #3 - DD 5.31.16
NNY	Norhtern New York
ST	ST: St Lawrence Transmission
CPR 700B1	ST LAWRENCE CPR 700 - Baseline - DD 10.03.16
CPR 700U1	ST LAWRENCE CPR 700 - Update #1 - DD 04.01.17
CPR 1162U3	ST LAWRENCE CPR 1162 - Update #3 - DD 09.01.17
CPR 1162B3	ST LAWRENCE CPR 1162 - Baseline #2 - DD 10.03.16
CPR 1162U2	ST LAWRENCE CPR 1162 - Update #2 - DD 07.01.17
CPR 1162B1	ST LAWRENCE CPR 1162 - Baseline #1 - DD 10.03.16
CPR 1162B2	ST LAWRENCE CPR 1162 - Baseline #2 - DD 10.03.16
CPR 1162U1	ST LAWRENCE CPR 1162 - Update #1 - DD 07.01.17
CPR 1163B1	ST LAWRENCE CPR 1163 - Baseline - DD 10.03.16
CPR 1163B2	ST LAWRENCE CPR 1163 - Baseline - DD 10.03.16
CPR 1163U1	ST LAWRENCE CPR 1163 - Update #1 - DD 03.01.17
CPR 1163U2	ST LAWRENCE CPR 1163 - Update #2 - DD 07.01.17
CPR 700B2	ST LAWRENCE CPR 700 - Baseline #2 - DD 10.03.16
CPR 700U2	ST LAWRENCE CPR 700 - Update #2 - DD 07.01.17
CPR 700U3	ST LAWRENCE CPR 700 - Update #3 - DD 09.01.17
CPR 700B3	ST LAWRENCE CPR 700 - Baseline #3 - DD 10.03.16
CPR 1163U3	ST LAWRENCE CPR 1163 - Update #3 - DD 09.01.17
CPR 1163B3	ST LAWRENCE CPR 1163 - Baseline #3 - DD 10.03.16
XT	XT: 765 KV Transmission
CPR 558B	MASSENA CPR 558 - Baseline - DD 6.30.2016
CNY	Central New York
BT	BT: BG Transmission
CPR 1161B1	BG CPR 1161 - Baseline#1 - DD 05.31.16
CPR 1161B2	BG CPR 1161 - Baseline#2 - DD 05.31.16
CPR 1161B3	BG CPR 1161 - Baseline#3 - DD 05.31.16
CPR 1161U1	BG CPR 1161 - Update#1 - DD 05.01.17
CPR 1161U2	BG CPR 1161 - Update#2 - DD 07.01.17
CPR 1161U3	BG CPR 1161 - Update#3 - DD 09.01.17
MC	MC: Marcy / Clark Transmission
CPR 557B1	CEC CPR 557 - Baseline - D.D 05.31.16
CPR 557U3	CEC CPR 557 - Update#3 - D.D 09.01.17
CPR 557B3	CEC CPR 557 - Baseline#3 - D.D 01.01.17

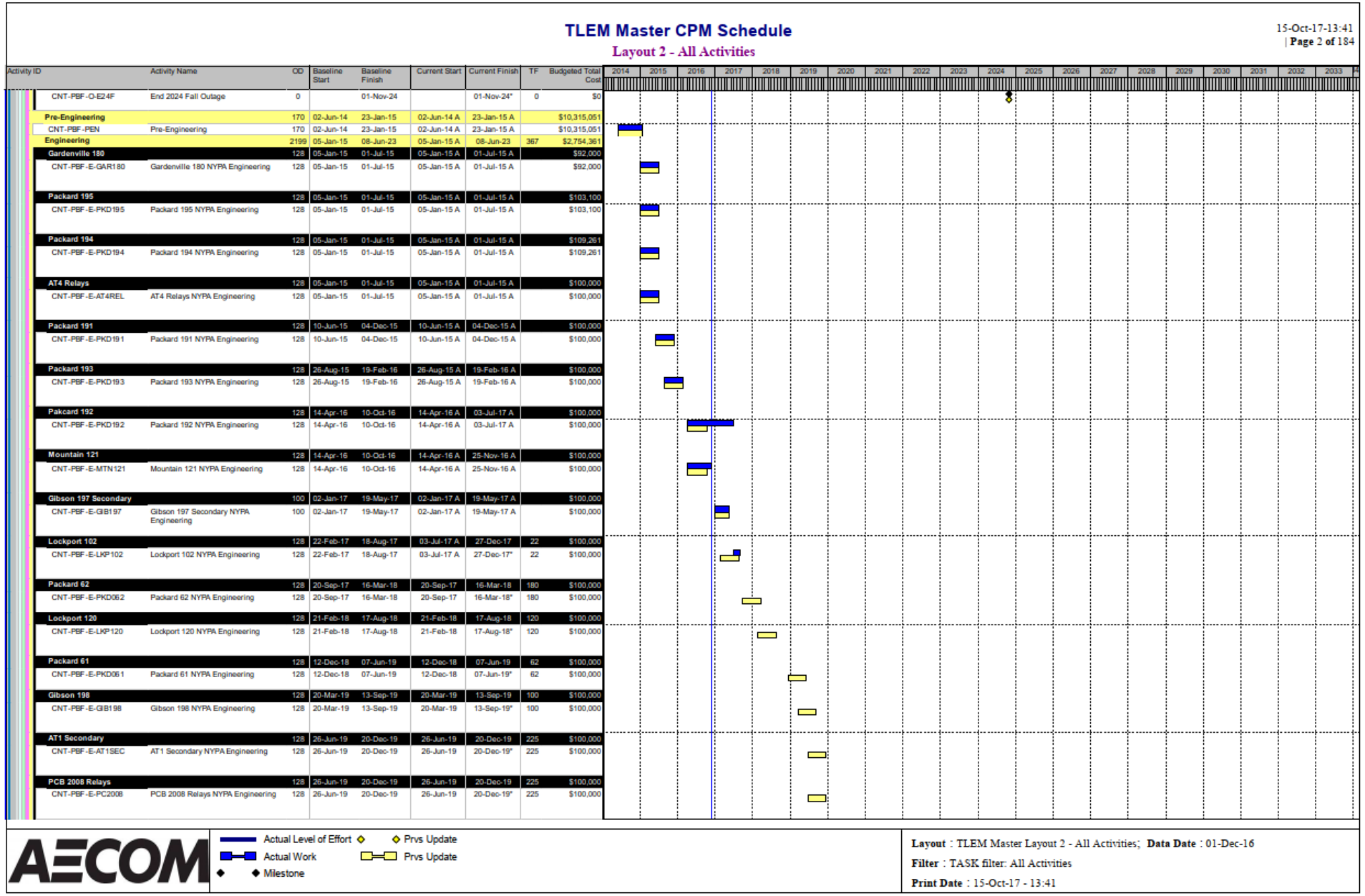
AECOM

Page 1 of 8

MASTER CPM SCHEDULE (SUMMARY LAYOUT)



MASTER CPM SCHEDULE (ACTIVITIES LAYOUT)



TLEM Master CPM Schedule

Layout 2 - All Activities

15-Oct-17-13:41
| Page 2 of 184

Activity ID	Activity Name	OD	Baseline Start	Baseline Finish	Current Start	Current Finish	TF	Budgeted Total Cost
CNT-PBF-O-E24F	End 2024 Fall Outage	0		01-Nov-24		01-Nov-24*	0	$0
Pre-Engineering		170	02-Jun-14	23-Jan-15	02-Jun-14 A	23-Jan-15 A		$10,315,051
CNT-PBF-PEN	Pre-Engineering	170	02-Jun-14	23-Jan-15	02-Jun-14 A	23-Jan-15 A		$10,315,051
Engineering		2199	05-Jan-15	08-Jun-23	05-Jan-15 A	08-Jun-23	367	$2,754,361
Gardenville 180		128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$92,000
CNT-PBF-E-GAR180	Gardenville 180 NYPA Engineering	128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$92,000
Packard 195		128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$103,100
CNT-PBF-E-PKD195	Packard 195 NYPA Engineering	128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$103,100
Packard 194		128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$109,261
CNT-PBF-E-PKD194	Packard 194 NYPA Engineering	128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$109,261
AT4 Relays		128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$100,000
CNT-PBF-E-AT4REL	AT4 Relays NYPA Engineering	128	05-Jan-15	01-Jul-15	05-Jan-15 A	01-Jul-15 A		$100,000
Packard 191		128	10-Jun-15	04-Dec-15	10-Jun-15 A	04-Dec-15 A		$100,000
CNT-PBF-E-PKD191	Packard 191 NYPA Engineering	128	10-Jun-15	04-Dec-15	10-Jun-15 A	04-Dec-15 A		$100,000
Packard 193		128	26-Aug-15	19-Feb-16	26-Aug-15 A	19-Feb-16 A		$100,000
CNT-PBF-E-PKD193	Packard 193 NYPA Engineering	128	26-Aug-15	19-Feb-16	26-Aug-15 A	19-Feb-16 A		$100,000
Pakcard 192		128	14-Apr-16	10-Oct-16	14-Apr-16 A	03-Jul-17 A		$100,000
CNT-PBF-E-PKD192	Packard 192 NYPA Engineering	128	14-Apr-16	10-Oct-16	14-Apr-16 A	03-Jul-17 A		$100,000
Mountain 121		128	14-Apr-16	10-Oct-16	14-Apr-16 A	25-Nov-16 A		$100,000
CNT-PBF-E-MTN121	Mountain 121 NYPA Engineering	128	14-Apr-16	10-Oct-16	14-Apr-16 A	25-Nov-16 A		$100,000
Gibson 197 Secondary		100	02-Jan-17	19-May-17	02-Jan-17 A	19-May-17 A		$100,000
CNT-PBF-E-GIB197	Gibson 197 Secondary NYPA Engineering	100	02-Jan-17	19-May-17	02-Jan-17 A	19-May-17 A		$100,000
Lockport 102		128	22-Feb-17	18-Aug-17	03-Jul-17 A	27-Dec-17	22	$100,000
CNT-PBF-E-LKP102	Lockport 102 NYPA Engineering	128	22-Feb-17	18-Aug-17	03-Jul-17 A	27-Dec-17*	22	$100,000
Packard 62		128	20-Sep-17	16-Mar-18	20-Sep-17	16-Mar-18	180	$100,000
CNT-PBF-E-PKD062	Packard 62 NYPA Engineering	128	20-Sep-17	16-Mar-18	20-Sep-17	16-Mar-18*	180	$100,000
Lockport 120		128	21-Feb-18	17-Aug-18	21-Feb-18	17-Aug-18	120	$100,000
CNT-PBF-E-LKP120	Lockport 120 NYPA Engineering	128	21-Feb-18	17-Aug-18	21-Feb-18	17-Aug-18*	120	$100,000
Packard 61		128	12-Dec-18	07-Jun-19	12-Dec-18	07-Jun-19	62	$100,000
CNT-PBF-E-PKD061	Packard 61 NYPA Engineering	128	12-Dec-18	07-Jun-19	12-Dec-18	07-Jun-19*	62	$100,000
Gibson 198		128	20-Mar-19	13-Sep-19	20-Mar-19	13-Sep-19	100	$100,000
CNT-PBF-E-GIB198	Gibson 198 NYPA Engineering	128	20-Mar-19	13-Sep-19	20-Mar-19	13-Sep-19*	100	$100,000
AT1 Secondary		128	26-Jun-19	20-Dec-19	26-Jun-19	20-Dec-19	225	$100,000
CNT-PBF-E-AT1SEC	AT1 Secondary NYPA Engineering	128	26-Jun-19	20-Dec-19	26-Jun-19	20-Dec-19*	225	$100,000
PCB 2008 Relays		128	26-Jun-19	20-Dec-19	26-Jun-19	20-Dec-19	225	$100,000
CNT-PBF-E-PC2008	PCB 2008 Relays NYPA Engineering	128	26-Jun-19	20-Dec-19	26-Jun-19	20-Dec-19*	225	$100,000

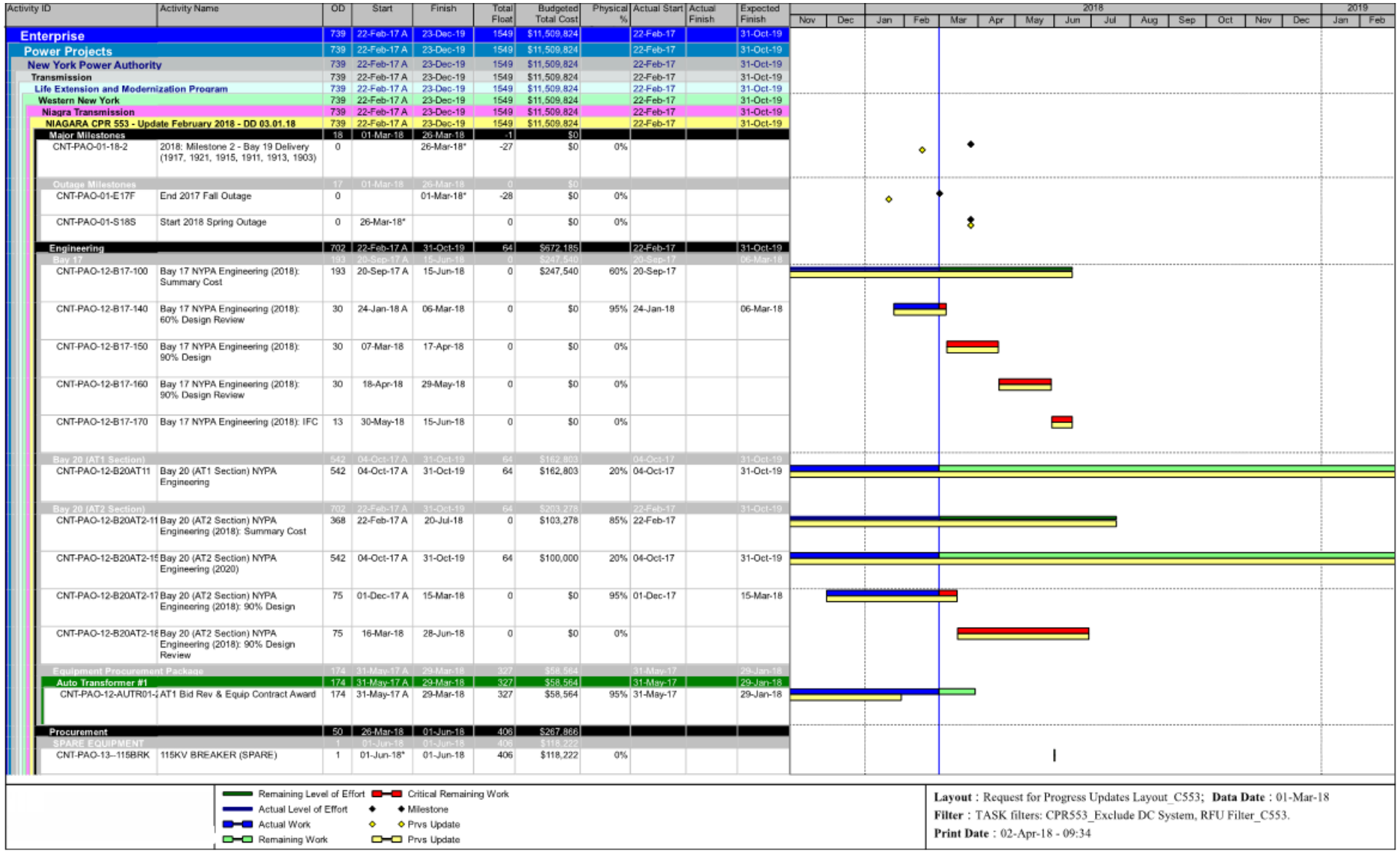
2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033

AECOM

Actual Level of Effort
Actual Work
Milestone
Prvs Update
Prvs Update

Layout : TLEM Master Layout 2 - All Activities; **Data Date** : 01-Dec-16
Filter : TASK filter: All Activities
Print Date : 15-Oct-17 - 13:41

REQUEST FOR PROGRESS UPDATES LAYOUT



Activity ID	Activity Name	OD	Start	Finish	Total Float	Budgeted Total Cost	Physical %	Actual Start	Actual Finish	Expected Finish
Enterprise		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
Power Projects		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
New York Power Authority		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
Transmission		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
Life Extension and Modernization Program		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
Western New York		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
Niagra Transmission		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
NIAGARA CPR 553 - Update February 2018 - DD 03.01.18		739	22-Feb-17 A	23-Dec-19	1549	$11,509,824		22-Feb-17		31-Oct-19
Major Milestones		18	01-Mar-18	26-Mar-18	-1	$0				
CNT-PAO-01-18-2	2018: Milestone 2 - Bay 19 Delivery (1917, 1921, 1915, 1911, 1913, 1903)	0		26-Mar-18*	-27	$0	0%			
Outage Milestones		17	01-Mar-18	26-Mar-18	0	$0				
CNT-PAO-01-E17F	End 2017 Fall Outage	0		01-Mar-18*	-28	$0	0%			
CNT-PAO-01-S18S	Start 2018 Spring Outage	0	26-Mar-18*		0	$0	0%			
Engineering		702	22-Feb-17 A	31-Oct-19	64	$672,185		22-Feb-17		31-Oct-19
Bay 17		193	20-Sep-17 A	15-Jun-18	0	$247,540		20-Sep-17		06-Mar-18
CNT-PAO-12-B17-100	Bay 17 NYPA Engineering (2018): Summary Cost	193	20-Sep-17 A	15-Jun-18	0	$247,540	60%	20-Sep-17		
CNT-PAO-12-B17-140	Bay 17 NYPA Engineering (2018): 60% Design Review	30	24-Jan-18 A	06-Mar-18	0	$0	95%	24-Jan-18		06-Mar-18
CNT-PAO-12-B17-150	Bay 17 NYPA Engineering (2018): 90% Design	30	07-Mar-18	17-Apr-18	0	$0	0%			
CNT-PAO-12-B17-160	Bay 17 NYPA Engineering (2018): 90% Design Review	30	18-Apr-18	29-May-18	0	$0	0%			
CNT-PAO-12-B17-170	Bay 17 NYPA Engineering (2018): IFC	13	30-May-18	15-Jun-18	0	$0	0%			
Bay 20 (AT1 Section)		542	04-Oct-17 A	31-Oct-19	64	$162,803		04-Oct-17		31-Oct-19
CNT-PAO-12-B20AT11	Bay 20 (AT1 Section) NYPA Engineering	542	04-Oct-17 A	31-Oct-19	64	$162,803	20%	04-Oct-17		31-Oct-19
Bay 20 (AT2 Section)		702	22-Feb-17 A	31-Oct-19	64	$203,278		22-Feb-17		31-Oct-19
CNT-PAO-12-B20AT2-11	Bay 20 (AT2 Section) NYPA Engineering (2018): Summary Cost	368	22-Feb-17 A	20-Jul-18	0	$103,278	85%	22-Feb-17		
CNT-PAO-12-B20AT2-15	Bay 20 (AT2 Section) NYPA Engineering (2020)	542	04-Oct-17 A	31-Oct-19	64	$100,000	20%	04-Oct-17		31-Oct-19
CNT-PAO-12-B20AT2-17	Bay 20 (AT2 Section) NYPA Engineering (2018): 90% Design	75	01-Dec-17 A	15-Mar-18	0	$0	95%	01-Dec-17		15-Mar-18
CNT-PAO-12-B20AT2-18	Bay 20 (AT2 Section) NYPA Engineering (2018): 90% Design Review	75	16-Mar-18	28-Jun-18	0	$0	0%			
Equipment Procurement Package		174	31-May-17 A	29-Mar-18	327	$58,564		31-May-17		29-Jan-18
Auto Transformer #1		174	31-May-17 A	29-Mar-18	327	$58,564		31-May-17		29-Jan-18
CNT-PAO-12-AUTR01-A	AT1 Bid Rev & Equip Contract Award	174	31-May-17 A	29-Mar-18	327	$58,564	95%	31-May-17		29-Jan-18
Procurement		50	26-Mar-18	01-Jun-18	406	$267,866				
SPARE EQUIPMENT		1	01-Jun-18	01-Jun-18	406	$118,222				
CNT-PAO-13--115BRK	115KV BREAKER (SPARE)	1	01-Jun-18*	01-Jun-18	406	$118,222	0%			

METHODS OF MEASURING WORK PROGRESS

- AACEI proposes six methods:
  - Units Completed
  - Incremental Milestone
  - Start/Finish
  - Supervisor Opinion
  - Cost Ratio
  - Weighted or Equivalent Units
- Establish 'Rules of Credit' tailored to your project
- "Soft" Effort: Many a times physical percent complete is subjective. One may tend to be over optimistic / pessimistic.
- Apply Reverse Psychology
  - Apply Physical Percent Complete
  - Calculate ETC
  - Ask yourself – Is ETC sufficient to complete the work?
  - Assess and re-apply physical percent complete
  - Last check – After applying the Actuals

PROGRAM RULES OF CREDIT

T-LEM Program – Physical Percent Complete/Earned Value Credit Rules

Procurement

Deliver Equipment on Site: 85%

Acceptance Testing on Site: 15%

Construction

By Contractor: Based on progress reported on the Schedule of Values / Payment Line Items reflected in Contractor's payment request

By Owner: Assessment by RE on the 'Physical' percent complete of construction activity

Design

Activity shorter than 45 Work days: 50%/50% (start/finish)

Activity greater than 45 Work days: Assessment by PM/Design Task Leader on the design activity based on following incremental milestones:

- Issue for In-House Review: 70%
- Issue for Owner review: 80%
- Issue for construction bid package: 100%

ACTUAL COST ANALYSIS

Resource Name	Cost Elei	CE Name	Name of offsetting a	2013	2014	2015	2016	2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Grand Tot	WBS	Org	C
	810129	Project Mgmt-S/T			52720.22	32644.14								8	64.36	Pre-Engineering		CNT-PAO-11-PRE1.H623.810129.
Indirect	850003	Capital Indirect OH		10859.61	23598.71	44161.71								7	20.03	Pre-Engineering		CNT-PAO-11-PRE1.H945.850003.
General Maint	810028	General Maint-S/T		270.56											70.56	Pre-Engineering		CNT-PAO-11-PRE1.N310.810028.
Switchyard Maint	683100	Design Eng-Consult	AEIS LLC												0	Pre-Engineering		CNT-PAO-11-PRE1.N332.683100.AEIS
Instrument & Control	810030	I&C-S/T													0	Pre-Engineering		CNT-PAO-11-PRE1.N400.810030.
Design & Drafting	810014	Drafting-O/T													0	Pre-Engineering		CNT-PAO-11-PRE1.N530.810014.
	810015	Drafting-S/T			248.67	76.2									24.87	Pre-Engineering		CNT-PAO-11-PRE1.N530.810015.
PM-Western NY	661400	Other Business Meals	EVERYDAY GOURMET					390.6							390.6	Indirect		CNT-PAO-18-DIR1.H622.661400.EVER
	661400		FAVORITE'S PIZZERIA						272.5						272.5	Indirect		CNT-PAO-18-DIR1.H622.661400.FAVO
	672100	Cont Srv-Labour/Mat	BUFFALO ENVIRONMENTAL			4317.31						1588.63			05.94	Direct	Environmental	CNT-PAO-18-DIR1.H622.672100.BUFF
	683200	Construct Mgt-Consul	NPTS INC		39089.68	123474.35	31360.51							19	24.54	Direct	Consultant	CNT-PAO-18-DIR1.H622.683200.NPTS
	683200		RCM TECHNOLOGIES INC					4572.8							572.8	Direct	Consultant	CNT-PAO-18-DIR1.H622.683200.RCM
PM-Northern NY	671200	Design & Drafting	HAROLD MOORE & ASSOCIATES INC			8800									8800	Engineering	Consultant	CNT-PAO-18-DIR1.H623.671200.HARC
	683100	Design Eng-Consult	Misc C&A-Liab-Hqtrs			-58000									8000	Accrual	Engineering-Consultant	CNT-PAO-18-DIR1.H623.683100.Misc (
	683100		RCM TECHNOLOGIES INC			29565									9565	Engineering	Consultant	CNT-PAO-18-DIR1.H623.683100.RCM
	683200	Construct Mgt-Consul	CITIBANK BTA CC-CONTRACTOR AIR CHG					1376.2							376.2	Engineering	Consultant	CNT-PAO-18-DIR1.H623.683200.CITIB
	683200		Misc C&A-Liab-Hqtrs		58000			38116	-38116						8000	Accrual	Direct-Consultant	CNT-PAO-18-DIR1.H623.683200.Misc
	683200		NPTS INC			18286.43	31852.41							5	38.84	Direct	Consultant	CNT-PAO-18-DIR1.H623.683200.NPTS
	683200		RCM TECHNOLOGIES INC		419152.54	1455344.35	509069.53	63634.11						244	00.53	Direct	Consultant	CNT-PAO-18-DIR1.H623.683200.RCM
PM-Transmission	682300	Expert-Witness Cons	Misc C&A-Liab-Hqtrs			545000	-545000								0	Accrual	Direct-Consultant	CNT-PAO-18-DIR1.H626.682300.Misc
	682300		RCM TECHNOLOGIES INC				89870								9870	Direct	Consultant	CNT-PAO-18-DIR1.H626.682300.RCM
	683100	Design Eng-Consult	AECOM USA INC					101583.61		7033	31660.67			14	77.28	Engineering	Consultant	CNT-PAO-18-DIR1.H626.683100.AECC
	683100		Misc C&A-Liab-Hqtrs								62429.44	-24922.32	75376.02	11	83.14	Accrual	Engineering-Consultant	CNT-PAO-18-DIR1.H626.683100.Misc (
	683100		RCM TECHNOLOGIES INC				5400								5400	Engineering	Consultant	CNT-PAO-18-DIR1.H626.683100.RCM
	683200	Construct Mgt-Consul	AECOM USA INC				125309.37	59471.64						18	81.01	Direct	Consultant	CNT-PAO-18-DIR1.H626.683200.AECC
	683200		Construct Mgt-Consul					5694.03							94.03	Direct	Consultant	CNT-PAO-18-DIR1.H626.683200.Cons
	683200		Misc C&A-Liab-Hqtrs				120000	263054.53	-277869.53	-105185	67176.34	-67176.34			0	Accrual	Direct-Consultant	CNT-PAO-18-DIR1.H626.683200.Misc
	683200		NPTS INC				2714.28								14.28	Direct	Consultant	CNT-PAO-18-DIR1.H626.683200.NPTS
	683200		RCM TECHNOLOGIES INC				653765.37	534454.2	303059.01	39710.41	54638	131111.31	53047.41	176	85.71	Direct	Consultant	CNT-PAO-18-DIR1.H626.683200.RCM
	689900	Other - Consulting	BUREAU VERITAS NORTH AMERICA INC				5592.17								92.17	Direct	Consultant	CNT-PAO-18-DIR1.H626.689900.BURE
	810129	Project Mgmt-S/T						4699.52	9781.85	17003.35	14377.35	14902.55	7418.45	6	83.07	Direct	NYPA	CNT-PAO-18-DIR1.H626.810129.
Indirect	850003	Capital Indirect OH			27524.83	108269.3	52893.75	56729.67	672.62	-1076.67	11700.51	2863.96	6958.06	26	36.03	Indirect		CNT-PAO-18-DIR1.H945.850003.
Design & Drafting	810014	Drafting-O/T				15681.6	8267.28	5454.34	650.98	1301.96	3728.34	1775.4	739.75	3	99.65	Engineering	NYPA	CNT-PAO-18-DIR1.N530.810014.
	810015	Drafting-S/T			34254.31	22917.15	19674.48	52091.97	15673.62	18602.86			2579.48	16	93.87	Engineering	NYPA	CNT-PAO-18-DIR1.N530.810015.
Protection & Control	683100	Design Eng-Consult	ROTATOR STAFFING SERVICES INC				1278.2								278.2	Engineering	Consultant	CNT-PAO-12-ENG1.H605.683100.ROT.
	810021	Engng Support - O/T						214.35							14.35	Engineering	NYPA	CNT-PAO-12-ENG1.H605.810021.
	810022	Engng Support - S/T					77487.03	120120	7826.91					20	33.94	Engineering	NYPA	CNT-PAO-12-ENG1.H605.810022.
Power System Equip	641100	Tools & Equipment	Misc Clearing					642.99							42.99	Procurement		CNT-PAO-12-ENG1.H607.641100.Misc
	810022	Engng Support - S/T					181229.72	245621.21	16593.75					44	44.68	Engineering	NYPA	CNT-PAO-12-ENG1.H607.810022.
Sys Civil Geo Hydro	683100	Design Eng-Consult	ROTATOR STAFFING SERVICES INC				3240								3240	Engineering	Consultant	CNT-PAO-12-ENG1.H608.683100.ROT.
	810022	Engng Support - S/T					60406.18	55042.11	4106.97					11	55.26	Engineering	NYPA	CNT-PAO-12-ENG1.H608.810022.
Design & Drafting	671200	Design & Drafting	AEROTEK ENERGY SERVICES				9610.56								10.56	Engineering	Consultant	CNT-PAO-12-ENG1.H609.671200.AERI
	671200		L J GONZER ASSOCIATES				71945.54	7546						7	91.54	Engineering	Consultant	CNT-PAO-12-ENG1.H609.671200.L J G
	671200		ROTATOR STAFFING SERVICES INC				46190.82							4	90.82	Engineering	Consultant	CNT-PAO-12-ENG1.H609.671200.ROT.
	810014	Drafting-O/T					347.5								347.5	Engineering	NYPA	CNT-PAO-12-ENG1.H609.810014.
	810015	Drafting-S/T					462742.63	668719.36	50657.42					11	19.41	Engineering	NYPA	CNT-PAO-12-ENG1.H609.810015.
Mechanical Engng	810035	Mech Engineer-S/T					8015.42	10247.27						1	62.69	Engineering	NYPA	CNT-PAO-12-ENG1.H610.810035.
Metering	810039	Metering-S/T					6789.91	6160.29							950.2	Engineering	NYPA	CNT-PAO-12-ENG1.H613.810039.
PM-Western NY	661400	Other Business Meals	FAVORITE'S PIZZERIA			60.5	248.5								309	Indirect		CNT-PAO-12-ENG1.H622.661400.FAV
	810106	Pgen Admiin-S/T					10615.18								15.18	Direct	NYPA	CNT-PAO-12-ENG1.H622.810106.
PM-Northern NY	683200	Construct Mgt-Consul	RCM TECHNOLOGIES INC			574186.53	136068							71	54.53	Direct	Consultant	CNT-PAO-12-ENG1.H623.683200.RCM
PM-Transmission	674600	Waste Removal	Misc C&A-Liab-Hqtrs					0							0	Direct	Construction-Contracto	CNT-PAO-12-ENG1.H626.674600.Misc
	682100	Outside Counsel Cons	Misc C&A-Liab-Hqtrs					0							0	Accrual	Direct-Consultant	CNT-PAO-12-ENG1.H626.682100.Misc
	682100		RCM TECHNOLOGIES INC					59640							9640	Direct	Consultant	CNT-PAO-12-ENG1.H626.682100.RCM
	683100	Design Eng-Consult	Construct Mgt-Consul					128218							28218	Direct	Consultant	CNT-PAO-12-ENG1.H626.683100.Cons
	683100		Cont Srv-Labour/Mat					-100000							00000	Engineering	Consultant	CNT-PAO-12-ENG1.H626.683100.Cont
	683100		Design Eng-Consult					19440							9440	Engineering	Consultant	CNT-PAO-12-ENG1.H626.683100.Desi
	683100		Misc C&A-Liab-Hqtrs					5158.5	45661.5	11024	-39189	-22655			0	Accrual	Engineering-Consultant	CNT-PAO-12-ENG1.H626.683100.Misc
	683100		RCM TECHNOLOGIES INC				51013	1468509.68	18520	15820	35484		34790	162	6.68	Engineering	Consultant	CNT-PAO-12-ENG1.H626.683100.RCM
	683200	Construct Mgt-Consul	Construct Mgt-Consul					100000							000	Engineering	Consultant	CNT-PAO-12-ENG1.H626.683200.Con

ACTUAL COST ANALYSIS

Row Labels	Sum of 2013	Sum of 2014	Sum of 2015	Sum of 2016	Sum of 2017	Sum of Jan 2018	Sum of Feb 2018	Sum of Mar 2018	Sum of Apr 2018	Sum of May 2018	Sum of Grand Total	Sum of till Apr18
Pre-Engineering	**$234,109.38**	**$495,572.94**	**$927,395.97**								**$1,657,078.29**	**$1,657,078.29**
Engineering		**$34,254.31**	**$78,950.29**	**$1,148,387.07**	**$2,911,251.66**	**$132,354.28**	**$172,445.93**	**$225,604.02**	**$145,222.81**	**$167,392.47**	**$5,015,862.84**	**$4,848,470.37**
NYPA		$34,254.31	$40,585.29	$938,633.80	$1,311,646.17	$113,834.28	$149,592.93	$156,204.31	$144,241.37	$130,096.23	$3,019,088.69	$2,888,992.46
Consultant			$38,365.00	$209,753.27	$1,599,605.49	$18,520.00	$22,853.00	$69,399.71	$981.44	$37,296.24	$1,996,774.15	$1,959,477.91
Procurement		**$196.46**	**$8,304,595.99**	**$2,987,184.39**	**$950,379.54**	**$477,978.80**	**$404,677.30**	**$17,958.63**	**$61,988.61**	**($156,931.70)**	**$13,048,028.02**	**$13,204,959.72**
Construction		**$33,752.04**	**$5,191,169.12**	**$6,907,025.35**	**$10,862,053.00**	**$2,282,440.53**	**$582,333.49**	**$642,287.48**	**$398,305.59**	**$61,921.15**	**$26,961,287.75**	**$26,899,366.60**
NYPA		$30,102.04	$266,738.66	$509,341.35	$358,594.38	$33,928.48	$34,554.69	$82,046.28	$132,497.04	$61,921.15	$1,509,724.07	$1,447,802.92
Contractor		$3,650.00	$4,924,430.46	$6,397,684.00	$10,503,458.62	$2,248,512.05	$547,778.80	$560,241.20	$265,808.55		$25,451,563.68	$25,451,563.68
Direct		**$486,717.42**	**$2,418,735.39**	**$2,802,662.48**	**$1,348,039.01**	**$345,607.41**	**$105,162.43**	**$117,456.48**	**$177,206.39**	**$109,027.02**	**$7,910,614.03**	**$7,801,587.01**
Indirect		**$39,146.02**	**$1,079,568.15**	**$479,873.47**	**$951,848.38**	**$29,125.81**	**$2,943.96**	**$46,513.42**	**$15,632.46**	**$89,265.67**	**$2,733,917.34**	**$2,644,651.67**
Accrual		**$228,000.00**	**$5,559,700.00**	**($4,262,500.00)**	**$2,943,231.23**	**($2,661,587.43)**	**($1,212,770.66)**	**($80,069.24)**	**($470,074.02)**	**$1,603,904.54**	**$1,647,834.42**	**$43,929.88**
Construction-Contractor		$170,000.00	$3,486,200.00	($2,726,700.00)	$2,332,537.15	($2,202,548.35)	($527,259.66)	($279,711.02)	($252,518.12)	$905,529.20	$905,529.20	$0.00
Direct-Consultant		$58,000.00	$545,000.00	($325,000.00)	($2,596,866.62)	$2,482,051.62	($105,185.00)	$67,176.34	($60,753.58)	($6,422.76)	$58,000.00	$64,422.76
Engineering-Consultant			($58,000.00)		$5,158.50	$45,661.50	$11,024.00	$23,240.44	($47,577.32)	$75,376.02	$54,883.14	($20,492.88)
Procurement			$1,586,500.00	($1,210,800.00)	$3,202,402.20	($2,986,752.20)	($591,350.00)	$109,225.00	($109,225.00)	$629,422.08	$629,422.08	$0.00
Grand Total	**$234,109.38**	**$1,317,639.19**	**$23,560,114.91**	**$10,062,632.76**	**$19,966,802.82**	**$605,919.40**	**$54,792.45**	**$969,750.79**	**$328,281.84**	**$1,874,579.15**	**$58,974,622.69**	**$57,100,043.54**

PROJECT COST STATUS SUMMARY

CPR 553: Niagara - Earned Value Report - May 2018								
DESCRIPTION	PLANNED BUDGET TO DATE (PB)	EARNED VALUE TO DATE (EV)	ACTUAL COST TO DATE (AC)	COST VARIANCE (CV)	SCHEDULE VARIANCE (SV)	TOTAL AUTHORIZED BUDGET (TAB)	ESTIMATE AT COMPLETION (EAC)	VARIANCE AT COMPLETION (VAC)
Enterprise								
Power Projects								
New York Power Authority								
Transmission								
Life Extension and Modernization Program								
Western New York								
Niagara Transmission (NT)								
CPR 553	$ 51,305,810	$ 50,496,855	$ 58,974,623	$ (8,477,768)	$ (808,954)	$ 191,838,383	$ 191,838,383	$ -
Pre-Engineerin	$ 1,657,078	$ 1,657,078	$ 1,657,078	$ (0)	$ -	$ 1,657,078	$ 1,657,078	
Engineering	$ 6,833,196	$ 6,773,084	$ 5,070,746	$ 1,702,338	$ (60,112)	$ 16,784,613	$ 16,784,613	
NYPA	$ 2,942,586	$ 2,882,474	$ 3,019,089	$ (136,615)	$ (60,112)	$ 12,893,527	$ 12,893,527	
Consultant	$ 3,890,610	$ 3,890,610	$ 2,051,657 ★	$ 1,838,953	$ -	$ 3,891,086	$ 3,891,086	
Procurement	$ 11,806,028	$ 11,406,028	$ 13,677,450 ★	$ (2,271,422)	$ (400,000)	$ 38,544,307	$ 38,544,307	
NYPA	$ 11,806,028	$ 11,406,028	$ 13,677,450 ★	$ (2,271,422)	$ (400,000)	$ 38,544,307	$ 38,544,307	
Construction	$ 22,776,543	$ 22,826,221	$ 27,866,817	$ (5,040,596)	$ 49,678	$ 104,279,897	$ 104,279,897	
NYPA	$ 2,586,260	$ 2,559,472	$ 1,509,724 ★	$ 1,049,748	$ (26,788)	$ 6,638,785	$ 6,638,785	
Contractor	$ 20,190,283	$ 20,266,749	$ 26,357,093 ★	$ (6,090,344)	$ 76,466	$ 97,641,112	$ 97,641,112	
Direct	$ 4,347,123	$ 4,304,039	$ 7,968,614 ★	$ (3,664,575)	$ (43,084)	$ 16,825,065	$ 16,825,065	
Indirect	$ 3,885,841	$ 3,530,405	$ 2,733,917	$ 796,488	$ (355,436)	$ 13,747,424	$ 13,747,424	
★ Includes Accruals from SAP.				CPI	SPI			
				0.86	0.98			

EARNED VALUE SUMMARY

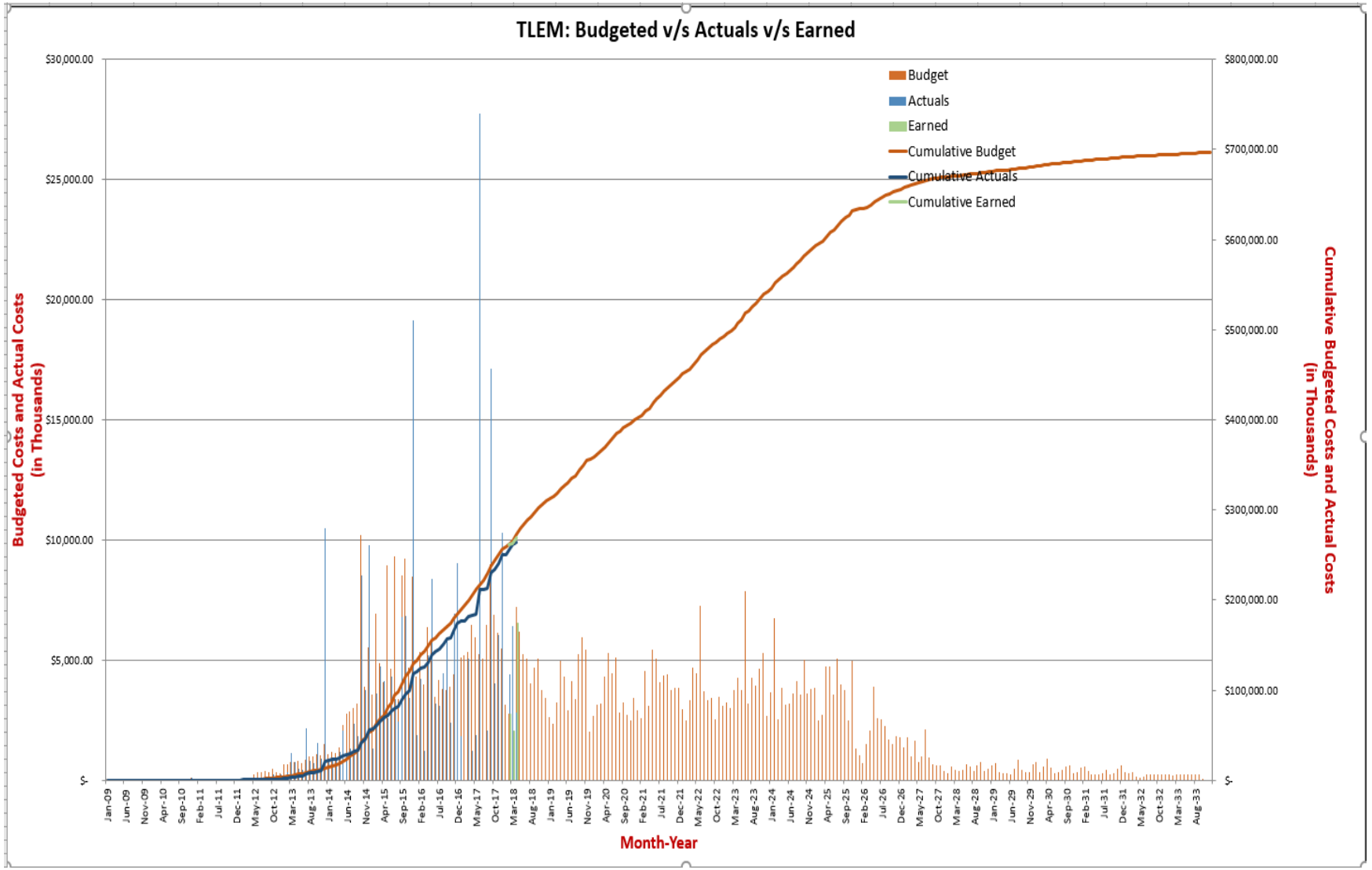
DESCRIPTION	PLANNED BUDGET TO DATE (PB)	EARNED VALUE TO DATE (EV)	ACTUAL COST TO DATE (AC)	COST VARIANCE (CV)	SCHEDULE VARIANCE (SV)	TOTAL AUTHORIZED BUDGET (TAB)	ESTIMATE AT COMPLETION (EAC)	VARIANCE AT COMPLETION (VAC)	% COMPLETE (EV/TAB)
Enterprise									
New York Power Authority									
Transmission									
Life Extn & Modernization Program	$ 276,750,758	$ 272,642,434	$ 266,850,830	$ 5,791,604	$ (4,108,325)	$ 696,241,896	$ 696,359,816		39.16%
Niagara	$ 69,177,695	$ 68,370,840	$ 76,998,405	$ (8,627,565)	$ (806,856)	$ 224,147,563	$ 224,147,563		30.50%
CPR 553	$ 51,305,810	$ 50,496,855	$ 58,974,623	$ (8,477,768)	$ (808,954)	$ 191,838,383	$ 191,838,383		26.32%
CPR 209	$ 17,871,886	$ 17,873,985	$ 18,023,782	$ (149,797)	$ 2,099	$ 32,309,179	$ 32,309,179		55.32%
Clark Energy Center	$ 17,458,340	$ 15,745,258	$ 13,658,488	$ 2,086,770	$ (1,713,082)	$ 39,226,290	$ 39,226,290		40.14%
CPR 557	$ 17,458,340	$ 15,745,258	$ 13,658,488	$ 2,086,770	$ (1,713,082)	$ 39,226,290	$ 39,226,290		40.14%
Massena	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
CPR 558	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
St Lawrence	$ 64,602,769	$ 64,293,888	$ 58,788,183	$ 5,505,705	$ (308,880)	$ 251,971,513	$ 251,971,513		25.52%
CPR 700	$ 52,118,609	$ 53,339,119	$ 51,815,555	$ 1,523,565	$ 1,220,510	$ 156,578,118	$ 156,578,118		34.07%
CPR 1162	$ 5,914,154	$ 4,644,845	$ 4,321,235	$ 323,611	$ (1,269,309)	$ 63,703,451	$ 63,703,451		7.29%
CPR 1163	$ 6,570,005	$ 6,309,924	$ 2,651,394	$ 3,658,530	$ (260,081)	$ 31,689,943	$ 31,689,943		19.91%
Blenheim Gilboa	$ 4,235,585	$ 3,755,233	$ 3,501,040	$ 254,194	$ (480,352)	$ 10,997,660	$ 10,997,660		34.15%
CPR 1161	$ 4,235,585	$ 3,755,233	$ 3,501,040	$ 254,194	$ (480,352)	$ 10,997,660	$ 10,997,660		34.15%
Other	$ 121,276,369	$ 120,477,214	$ 113,904,714	$ 6,572,500	$ (799,155)	$ 169,898,871	$ 170,016,790		70.91%
CPR 1164	$ 3,983,574	$ 4,070,302	$ 3,165,889	$ 904,413	$ 86,728	$ 37,583,457	$ 37,583,457		10.83%
CPR 604	$ 22,461,116	$ 22,801,416	$ 20,927,219	$ 1,874,198	$ 340,300	$ 25,334,907	$ 25,334,907		90.00%
CPR 804	$ 13,584,914	$ 13,571,329	$ 13,026,240	$ 545,089	$ (13,585)	$ 13,584,914	$ 13,584,914		99.90%
CPR 460/1527	$ 39,642,820	$ 38,593,446	$ 34,981,096	$ 3,612,349	$ (1,049,374)	$ 43,217,026	$ 43,217,026		89.30%
CPR 1019	$ 2,623,954	$ 2,460,729	$ 2,692,247	$ (231,518)	$ (163,225)	$ 2,958,121	$ 2,958,121		83.19%
CPR 895	$ -	$ -	$ -	$ -	$ -	$ -	$ -		0.00%
CPR 1134	$ -	$ -	$ -	$ -	$ -	$ 8,240,453	$ 8,240,453		0.00%
CPR 675	$ 2,417,906	$ 2,417,906	$ 2,502,806	$ (84,899)	$ -	$ 2,417,906	$ 2,502,806		100.00%
CPR 792	$ 548,424	$ 548,424	$ 548,424	$ -	$ -	$ 548,424	$ 548,424		100.00%
CPR 1138	$ 230,624	$ 230,624	$ 230,624	$ -	$ -	$ 230,624	$ 230,624		100.00%
CPR 793	$ 813,176	$ 813,176	$ 827,287	$ (14,111)	$ -	$ 813,176	$ 813,176		100.00%
CPR 29	$ 385,787	$ 385,787	$ 385,787	$ -	$ -	$ 385,787	$ 385,787		100.00%
CPR 799	$ 3,374	$ 3,374	$ 3,374	$ -	$ -	$ 3,374	$ 3,374		100.00%
CPR 36	$ -	$ -	$ -	$ -	$ -	$ -	$ -		0.00%
CPR 1137	$ 31,905,015	$ 31,905,015	$ 31,938,036	$ (33,020)	$ -	$ 31,905,015	$ 31,938,036		100.00%
CPR 1136	$ 2,675,686	$ 2,675,686	$ 2,675,686	$ -	$ -	$ 2,675,686	$ 2,675,686		100.00%

★ This report does not include CPR 558.

CPI	SPI
1.02	0.99

Project Controls EXPO
Washington, DC - USA

PROGRAM COST CURVE

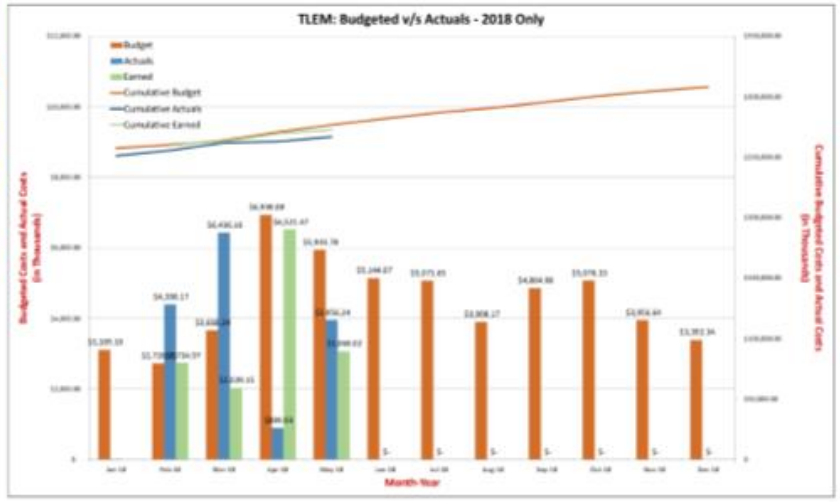


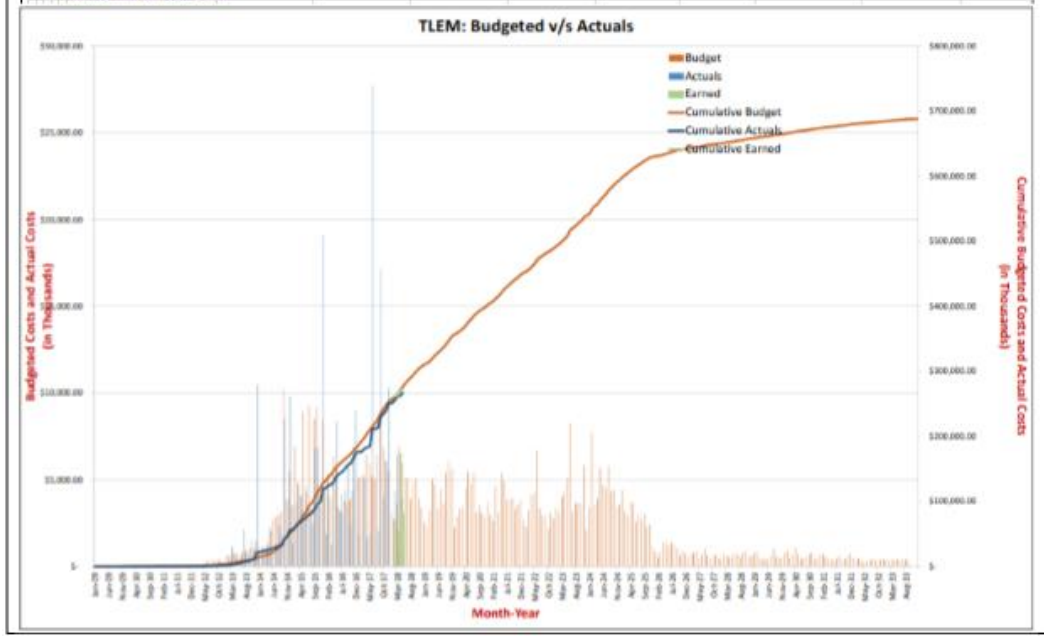
Project Controls EXPO
Washington, DC - USA

PROGRAM DASHBOARD

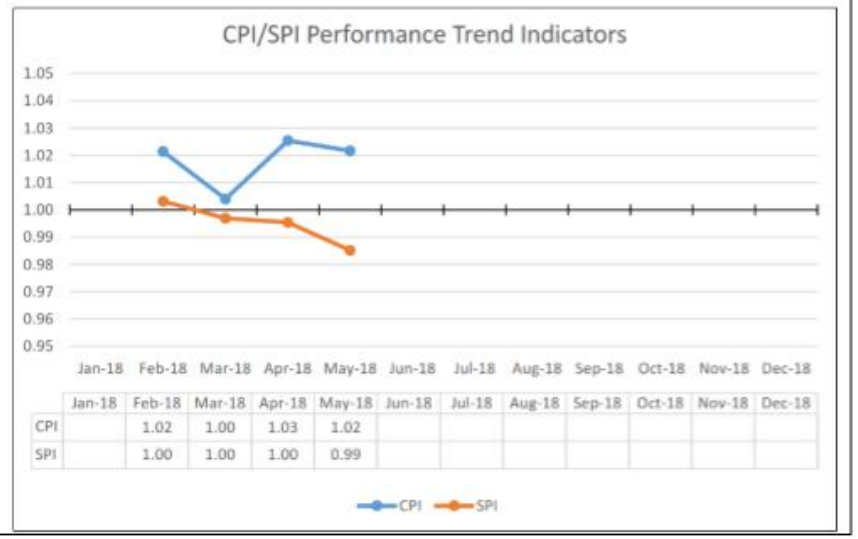
DESCRIPTION	PLANNED BUDGET TO DATE (PB)	EARNED VALUE TO DATE (EV)	ACTUAL COST TO DATE (AC)	COST VARIANCE (CV)	SCHEDULE VARIANCE (SV)	TOTAL AUTHORIZED BUDGET (TAB)	ESTIMATE AT COMPLETION (EAC)	VARIANCE AT COMPLETION (VAC)	% COMPLETE (EV/TAB)
Enterprise									
New York Power Authority									
Transmission									
Life Extn & Modernization Program	$ 278,759,758	$ 272,643,434	$ 269,850,830	$ 2,792,604	$ (6,116,325)	$ 296,191,866	$ 296,308,816		92.10%
Niagara	$ 69,177,695	$ 68,370,840	$ 76,998,405	$ (8,627,565)	$ (806,856)	$ 224,147,563	$ 224,147,563		30.50%
CPR 553	$ 51,305,810	$ 50,496,855	$ 58,974,673	$ (8,477,818)	$ (808,956)	$ 191,838,383	$ 191,838,383		26.32%
CPR 209	$ 17,871,886	$ 17,873,985	$ 18,023,732	$ (149,747)	$ 2,099	$ 32,309,179	$ 32,309,179		55.32%
Clark Energy Center	$ 17,658,340	$ 15,745,258	$ 13,658,488	$ 2,086,770	$ (1,713,082)	$ 39,226,290	$ 39,226,290		40.14%
CPR 557	$ 17,658,340	$ 15,745,258	$ 13,658,488	$ 2,086,770	$ (1,713,082)	$ 39,226,290	$ 39,226,290		40.14%
Massena	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
CPR 558	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
St Lawrence	$ 64,602,769	$ 64,293,880	$ 58,788,183	$ 5,505,705	$ (308,889)	$ 251,871,513	$ 251,871,513		25.53%
CPR 700	$ 52,118,609	$ 53,339,119	$ 51,815,555	$ 1,523,565	$ 1,220,510	$ 156,578,118	$ 156,578,118		34.07%
CPR 1162	$ 5,814,154	$ 4,644,845	$ 4,321,235	$ 323,611	$ (1,169,309)	$ 63,703,451	$ 63,703,451		7.29%
CPR 1163	$ 6,670,005	$ 6,309,924	$ 2,651,394	$ 3,658,530	$ (260,081)	$ 31,689,943	$ 31,689,943		19.91%
Kenilworth Gilboa	$ 4,235,585	$ 3,755,233	$ 3,501,040	$ 254,196	$ (480,352)	$ 10,997,660	$ 10,997,660		34.15%
CPR 1161	$ 4,235,585	$ 3,755,233	$ 3,501,040	$ 254,196	$ (480,352)	$ 10,997,660	$ 10,997,660		34.15%
Other	$ 121,276,309	$ 120,477,214	$ 113,864,714	$ 6,612,500	$ (799,095)	$ 169,898,871	$ 170,016,790		70.91%
CPR 1164	$ 3,983,575	$ 4,070,302	$ 3,302,888	$ 804,413	$ 86,728	$ 37,583,457	$ 37,583,457		10.83%
CPR 604	$ 22,461,116	$ 22,801,416	$ 20,877,218	$ 1,874,198	$ 340,300	$ 25,334,907	$ 25,334,907		90.00%
CPR 808	$ 13,584,914	$ 13,571,209	$ 13,026,240	$ 545,068	$ (13,705)	$ 13,584,914	$ 13,584,914		99.90%
CPR 460/1527	$ 39,643,830	$ 38,593,646	$ 34,881,096	$ 3,612,549	$ (1,049,376)	$ 43,217,026	$ 43,217,026		89.30%
CPR 1019	$ 2,623,954	$ 2,460,729	$ 2,692,247	$ (231,518)	$ (163,225)	$ 2,958,121	$ 2,958,121		83.19%
CPR 895	$ -	$ -	$ -	$ -	$ -	$ -	$ -		0.00%
CPR 1134	$ -	$ -	$ -	$ -	$ -	$ 8,240,453	$ 8,240,453		0.00%
CPR 675	$ 2,417,906	$ 2,417,906	$ 2,502,806	$ (84,899)	$ -	$ 2,417,906	$ 2,502,806		100.00%
CPR 792	$ 548,424	$ 548,424	$ 548,424	$ -	$ -	$ 548,424	$ 548,424		100.00%
CPR 1138	$ 230,624	$ 230,624	$ 230,624	$ -	$ -	$ 230,624	$ 230,624		100.00%
CPR 793	$ 813,176	$ 813,176	$ 827,287	$ (14,111)	$ -	$ 813,176	$ 813,176		100.00%
CPR 29	$ 385,787	$ 385,787	$ 385,787	$ -	$ -	$ 385,787	$ 385,787		100.00%
CPR 799	$ 3,374	$ 3,374	$ 3,374	$ -	$ -	$ 3,374	$ 3,374		100.00%
CPR 36	$ -	$ -	$ -	$ -	$ -	$ -	$ -		0.00%
CPR 1137	$ 31,905,015	$ 31,905,015	$ 31,938,036	$ (33,021)	$ -	$ 31,905,015	$ 31,938,036		100.00%
CPR 1136	$ 2,675,686	$ 2,675,686	$ 2,675,686	$ -	$ -	$ 2,675,686	$ 2,675,686		100.00%

This report does not include CPR 558.





May 2018	CPI	SPI
	1.02	0.99



	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
CPI		1.02	1.00	1.03	1.02							
SPI		1.00	1.00	1.00	0.99							

FISCAL BUDGETS

By WBS

		YEAR																
WBS	Totals	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Pre-Engineering	$ 1,657,078.02	$ -	$ -	$ -	$ 282,915.76	$ 703,247.74	$ 670,914.52	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering	$ 16,784,612.43	$ -	$ -	$ -	$ -	$ 649,456.32	$ 1,725,811.34	$ 2,722,134.67	$ 1,427,621.38	$ 1,090,427.08	$ 1,146,706.00	$ 996,224.13	$ 1,316,866.88	$ 908,630.22	$ 2,570,020.48	$ 1,772,476.43	$ 458,237.50	$ -
NYPA	$ 12,893,526.48	$ -	$ -	$ -	$ -	$ 477,007.10	$ 403,698.55	$ 395,411.49	$ 1,358,296.76	$ 1,090,408.36	$ 1,146,248.58	$ 996,224.13	$ 1,316,866.88	$ 908,630.22	$ 2,570,020.48	$ 1,772,476.43	$ 458,237.50	$ -
Consultant	$ 3,891,085.95	$ -	$ -	$ -	$ -	$ 172,449.22	$ 1,322,112.79	$ 2,326,723.18	$ 69,324.62	$ 18.72	$ 457.42	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Procurement	$ 56,314,506.65	$ -	$ -	$ -	$ -	$ -	$ 10,700,291.43	$ 1,066,603.40	$ 411,867.23	$ 1,396,158.66	$ 3,702,822.60	$ 17,659,881.93	$ 5,433,808.09	$ 4,771,968.36	$ 5,813,413.96	$ 4,514,573.90	$ 843,117.09	$ -
Construction	$ 110,879,547.14	$ -	$ -	$ -	$ -	$ 859,999.72	$ 7,930,944.42	$ 4,358,523.36	$ 7,023,725.22	$ 6,861,249.40	$ 9,412,334.94	$ 15,043,747.57	$ 14,828,178.57	$ 8,785,326.74	$ 7,600,707.10	$ 14,667,581.31	$ 13,461,564.19	$ 45,664.60
NYPA	$ 5,158,784.95	$ -	$ -	$ -	$ -	$ -	$ 393,541.08	$ 359,145.82	$ 267,814.72	$ 223,475.27	$ 491,182.74	$ 179,747.34	$ 267,184.92	$ 682,752.00	$ 1,169,424.58	$ 540,757.15	$ 538,094.73	$ 45,664.60
Contractor	$ 105,720,762.19	$ -	$ -	$ -	$ -	$ 859,999.72	$ 7,537,403.34	$ 3,999,377.54	$ 6,755,910.50	$ 6,637,774.13	$ 8,921,152.20	$ 14,864,000.23	$ 14,560,993.65	$ 8,102,574.74	$ 6,431,282.52	$ 14,126,824.16	$ 12,923,469.46	$ -
Direct	$ 16,825,064.91	$ -	$ -	$ -	$ 313,114.02	$ 778,311.98	$ 778,311.97	$ 778,311.96	$ 1,047,595.24	$ 1,225,238.00	$ 1,225,238.00	$ 1,844,763.05	$ 2,026,443.54	$ 1,634,873.77	$ 1,663,382.23	$ 1,838,968.12	$ 1,670,513.03	$ -
Indirect	$ 13,747,423.99	$ -	$ -	$ -	$ 322,855.87	$ 802,527.44	$ 802,527.43	$ 615,116.49	$ 827,936.80	$ 968,331.67	$ 968,331.67	$ 1,457,955.52	$ 1,601,541.47	$ 1,292,075.56	$ 1,314,606.41	$ 1,453,375.65	$ 1,320,242.01	$ -
Total	$ 216,208,233.26	$ -	$ -	$ -	$ 918,885.64	$ 3,793,543.20	$ 22,608,801.20	$ 9,540,690.00	$ 10,738,745.78	$ 11,541,404.84	$ 16,455,433.23	$ 37,002,572.16	$ 25,206,838.51	$ 17,392,874.64	$ 18,962,130.23	$ 24,246,975.42	$ 17,753,673.81	$ 45,664.60

By Phase

YEARLY COST DISTRIBUTION

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	TOTAL
Phase #1	$1,109,355.00	$4,365,491.00	$20,853,795.00	$11,150,942.00	$1,344,534.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$38,824,117.00**
Phase #2	$0.00	$0.00	$1,007,484.00	$2,418,676.00	$9,703,932.00	$12,415,677.00	$9,702,655.00	$46,714.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$35,295,138.00**
Phase #3	$0.00	$0.00	$63,936.00	$143,128.00	$551,903.00	$741,862.00	$4,524,561.00	$17,835,498.00	$13,786,336.00	$51,093.00	$0.00	$0.00	$0.00	$0.00	**$37,698,317.00**
Phase #4	$0.00	$0.00	$0.00	$21,960.00	$518,759.00	$460,117.00	$0.00	$932,644.00	$2,744,074.00	$18,152,823.00	$14,601,435.00	$62,478.00	$0.00	$0.00	**$37,494,290.00**
Phase #5	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$19,662.00	$13,023.00	$95,284.00	$2,633,576.00	$25,344,115.00	$15,861,329.00	$8,433.00	**$43,975,422.00**
TOTAL	**$1,109,355.00**	**$4,365,491.00**	**$21,925,215.00**	**$13,734,706.00**	**$12,119,128.00**	**$13,617,656.00**	**$14,227,216.00**	**$18,834,518.00**	**$16,543,433.00**	**$18,299,200.00**	**$17,235,011.00**	**$25,406,593.00**	**$15,861,329.00**	**$8,433.00**	**$193,287,284.00**

MONTHLY COST DISTRIBUTION

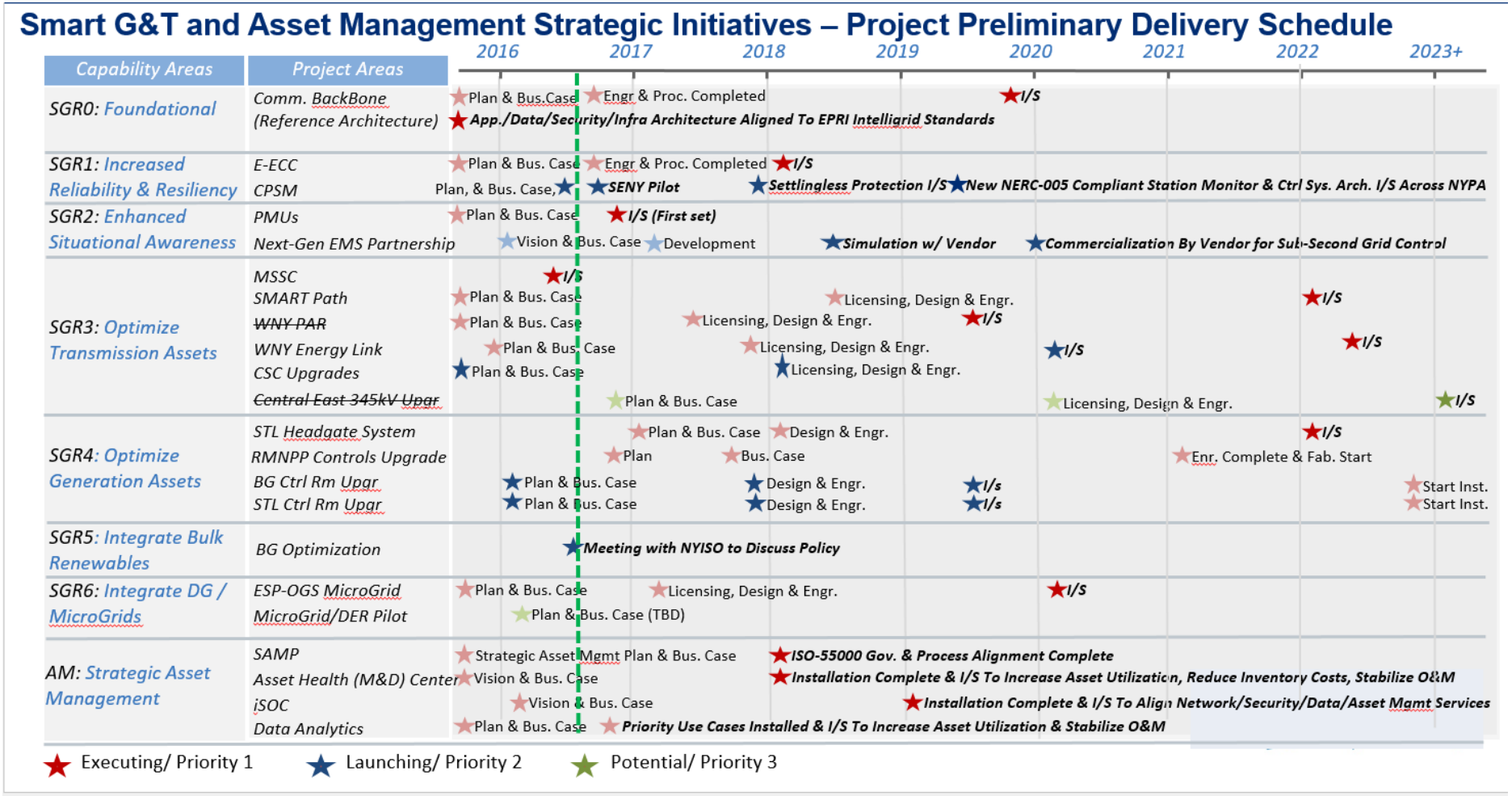
	2013	2013	2013	2013	2013	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014
	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14
Phase #1	$232,436.00	$211,305.00	$243,002.00	$200,741.00	$221,871.00	$243,002.00	$230,910.00	$270,191.00	$277,182.00	$293,128.00	$294,297.00	$279,833.00	$273,935.00	$277,869.00	$321,908.00	$748,883.00
Phase #2	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Phase #3	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Phase #4	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Phase #5	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL	**$232,436.00**	**$211,305.00**	**$243,002.00**	**$200,741.00**	**$221,871.00**	**$243,002.00**	**$230,910.00**	**$270,191.00**	**$277,182.00**	**$293,128.00**	**$294,297.00**	**$279,833.00**	**$273,935.00**	**$277,869.00**	**$321,908.00**	**$748,883.00**

Project Controls EXPO
Washington, DC - USA

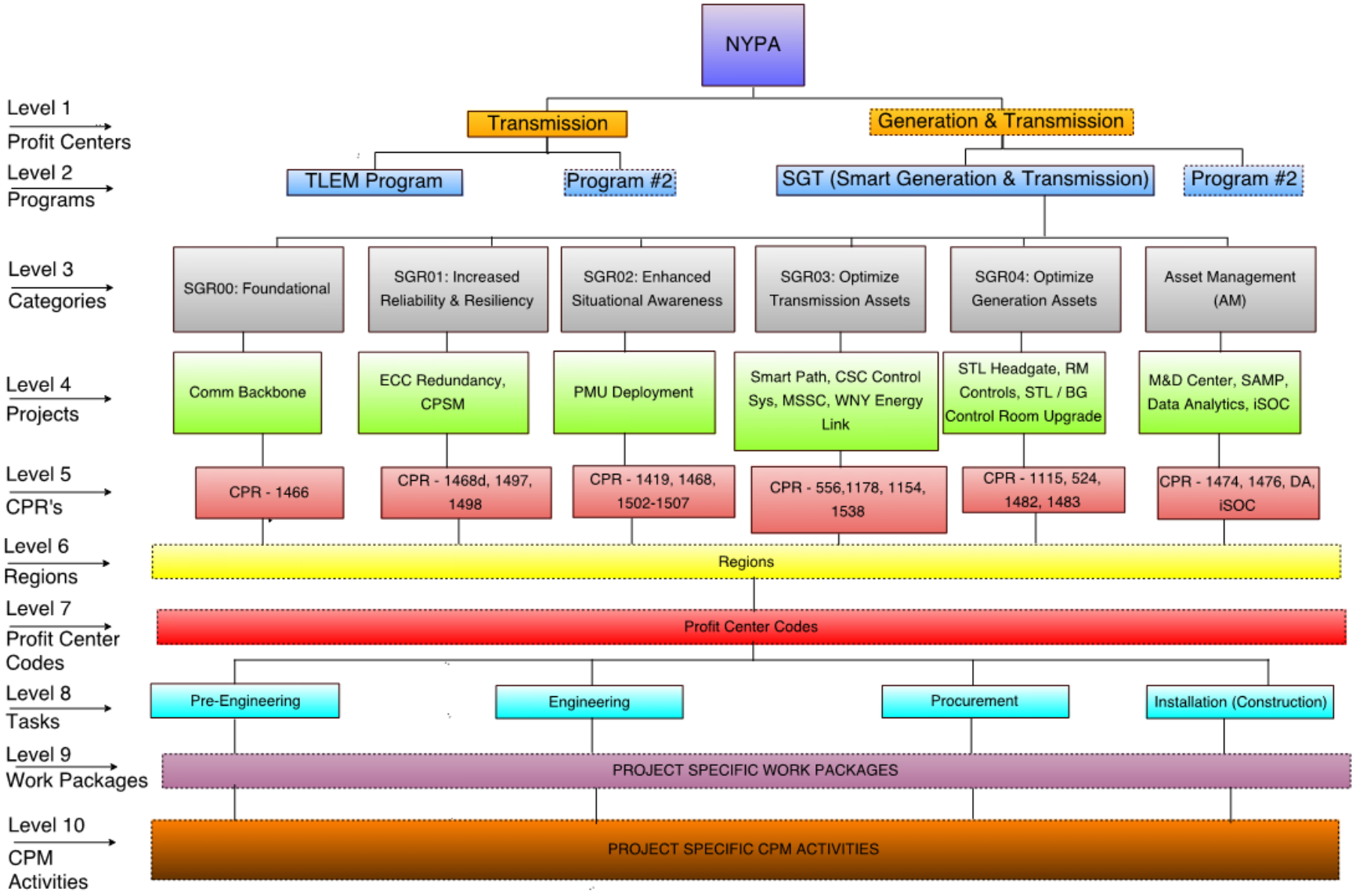
PROGRAM 2

- Success on TLEM program led us getting involved in Program 2
- Program 2 was essentially designed to realize agency's long-term goal of developing agile, flexible, responsive and fully digitized Grid. Budget: $1.2 billion
- On-going program
- Accounted Cost and Resources
- Developed Fiscal Budgets and FTE Requirements

PROGRAM OUTLINE

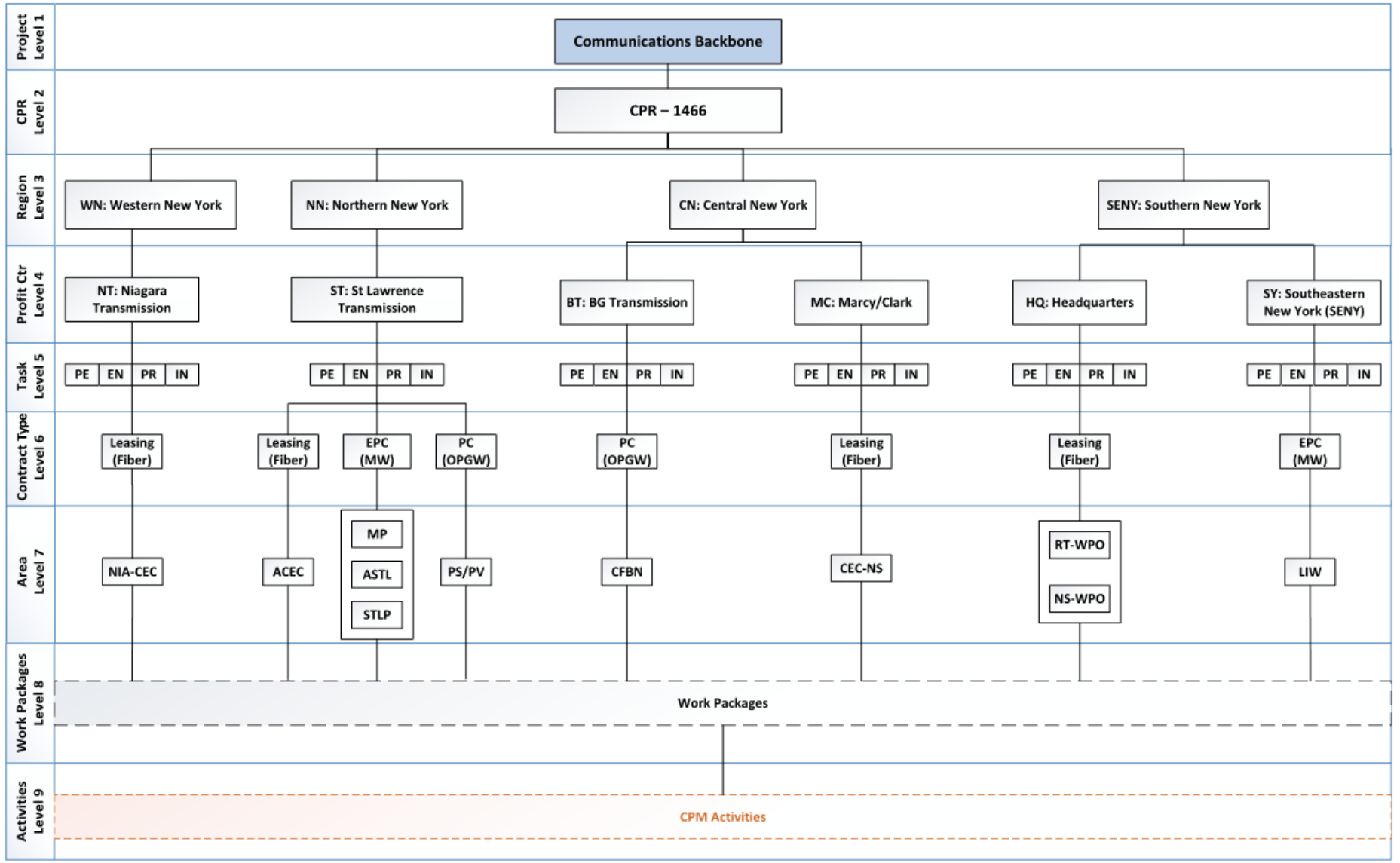


ENTERPRISE PROGRAM STRUCTURE (EPS)

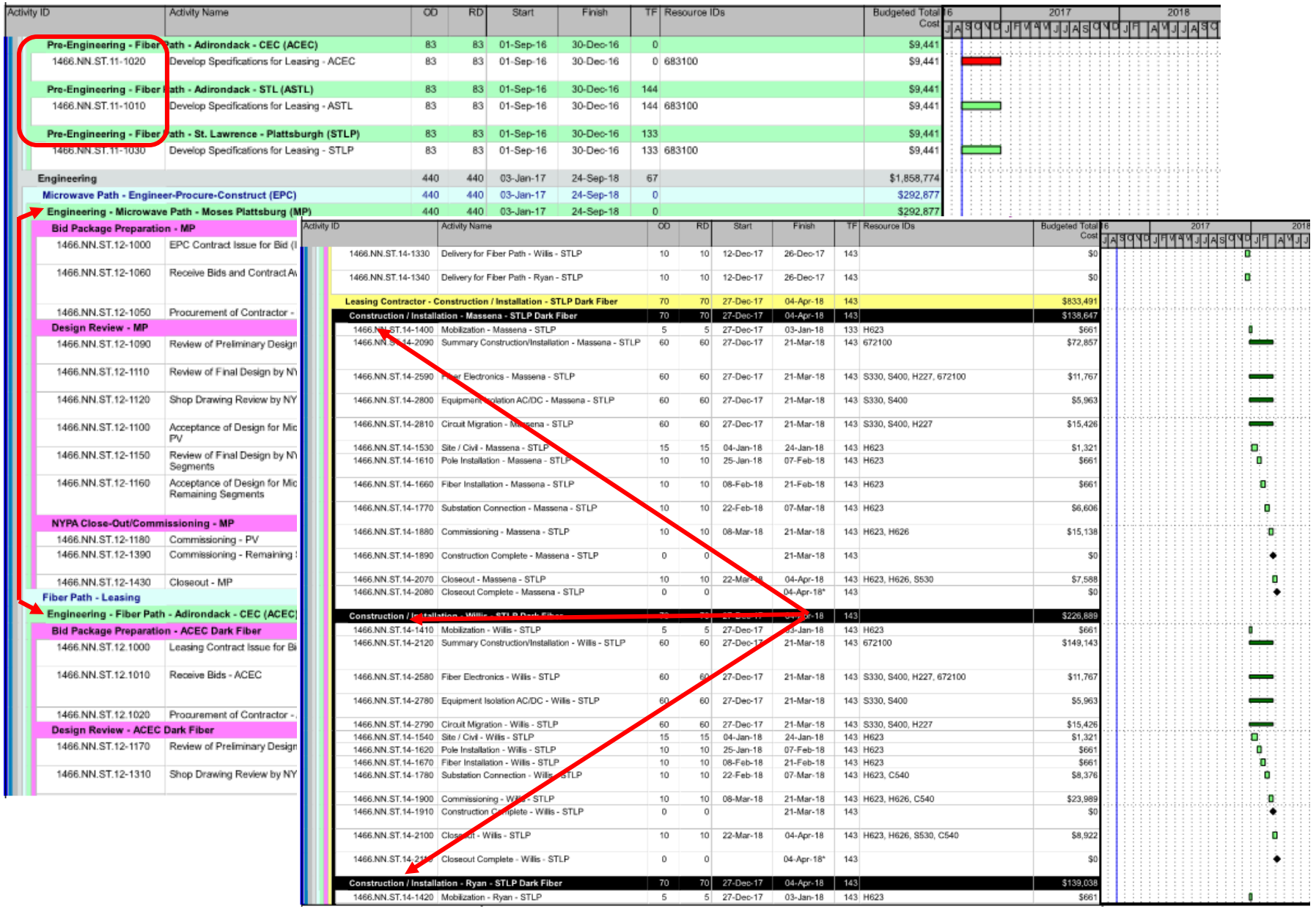


Project Controls EXPO
Washington, DC - USA

PROGRAM WORK BREAKDOWN STRUCTURE



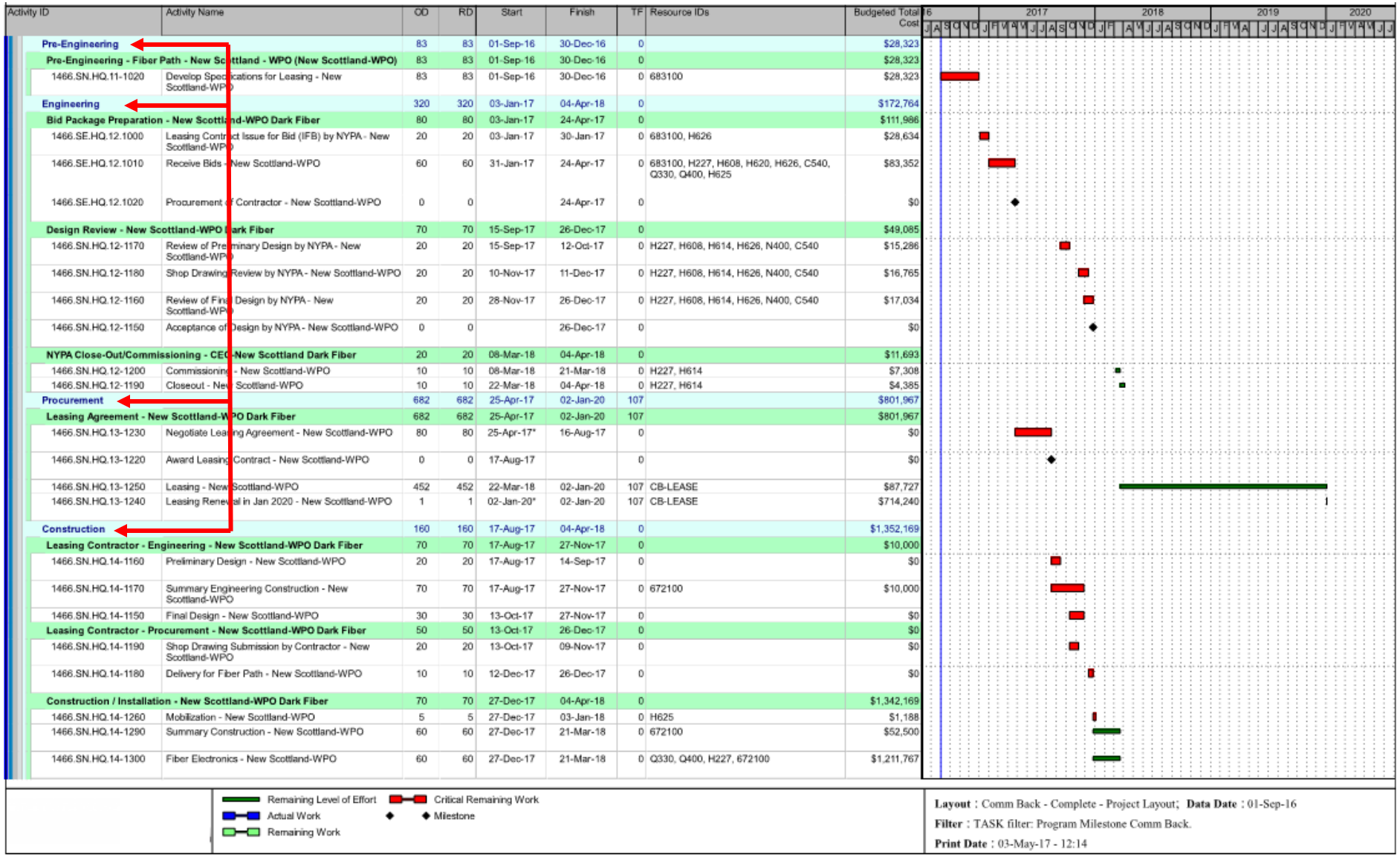
WBS LAYOUT



Activity ID	Activity Name	OD	RD	Start	Finish	TF	Resource IDs	Budgeted Total Cost
	Pre-Engineering - Fiber Path - Adirondack - CEC (ACEC)	83	83	01-Sep-16	30-Dec-16	0		$9,441
1466.NN.ST.11-1020	Develop Specifications for Leasing - ACEC	83	83	01-Sep-16	30-Dec-16	0	683100	$9,441
	Pre-Engineering - Fiber Path - Adirondack - STL (ASTL)	83	83	01-Sep-16	30-Dec-16	144		$9,441
1466.NN.ST.11-1010	Develop Specifications for Leasing - ASTL	83	83	01-Sep-16	30-Dec-16	144	683100	$9,441
	Pre-Engineering - Fiber Path - St. Lawrence - Plattsburgh (STLP)	83	83	01-Sep-16	30-Dec-16	133		$9,441
1466.NN.ST.11-1030	Develop Specifications for Leasing - STLP	83	83	01-Sep-16	30-Dec-16	133	683100	$9,441
Engineering		440	440	03-Jan-17	24-Sep-18	67		$1,858,774
Microwave Path - Engineer-Procure-Construct (EPC)		440	440	03-Jan-17	24-Sep-18	0		$292,877
Engineering - Microwave Path - Moses Plattsburg (MP)		440	440	03-Jan-17	24-Sep-18	0		$292,877
Bid Package Preparation - MP								
1466.NN.ST.12-1000	EPC Contract Issue for Bid (I							
1466.NN.ST.12-1060	Receive Bids and Contract Aw							
1466.NN.ST.12-1050	Procurement of Contractor -							
Design Review - MP								
1466.NN.ST.12-1090	Review of Preliminary Design							
1466.NN.ST.12-1110	Review of Final Design by NY							
1466.NN.ST.12-1120	Shop Drawing Review by NY							
1466.NN.ST.12-1100	Acceptance of Design for Mic PV							
1466.NN.ST.12-1150	Review of Final Design by NY Segments							
1466.NN.ST.12-1160	Acceptance of Design for Mic Remaining Segments							
NYPA Close-Out/Commissioning - MP								
1466.NN.ST.12-1180	Commissioning - PV							
1466.NN.ST.12-1390	Commissioning - Remaining S							
1466.NN.ST.12-1430	Closeout - MP							
Fiber Path - Leasing								
Engineering - Fiber Path - Adirondack - CEC (ACEC)								
Bid Package Preparation - ACEC Dark Fiber								
1466.NN.ST.12.1000	Leasing Contract Issue for Bi							
1466.NN.ST.12.1010	Receive Bids - ACEC							
1466.NN.ST.12.1020	Procurement of Contractor -							
Design Review - ACEC Dark Fiber								
1466.NN.ST.12-1170	Review of Preliminary Design							
1466.NN.ST.12-1310	Shop Drawing Review by NY							

Activity ID	Activity Name	OD	RD	Start	Finish	TF	Resource IDs	Budgeted Total Cost
1466.NN.ST.14-1330	Delivery for Fiber Path - Willis - STLP	10	10	12-Dec-17	26-Dec-17	143		$0
1466.NN.ST.14-1340	Delivery for Fiber Path - Ryan - STLP	10	10	12-Dec-17	26-Dec-17	143		$0
Leasing Contractor - Construction / Installation - STLP Dark Fiber		70	70	27-Dec-17	04-Apr-18	143		$833,491
Construction / Installation - Massena - STLP Dark Fiber		70	70	27-Dec-17	04-Apr-18	143		$138,647
1466.NN.ST.14-1400	Mobilization - Massena - STLP	5	5	27-Dec-17	03-Jan-18	133	H623	$661
1466.NN.ST.14-2090	Summary Construction/Installation - Massena - STLP	60	60	27-Dec-17	21-Mar-18	143	672100	$72,857
1466.NN.ST.14-2590	Fiber Electronics - Massena - STLP	60	60	27-Dec-17	21-Mar-18	143	S330, S400, H227, 672100	$11,767
1466.NN.ST.14-2800	Equipment Isolation AC/DC - Massena - STLP	60	60	27-Dec-17	21-Mar-18	143	S330, S400	$5,963
1466.NN.ST.14-2810	Circuit Migration - Massena - STLP	60	60	27-Dec-17	21-Mar-18	143	S330, S400, H227	$15,426
1466.NN.ST.14-1530	Site / Civil - Massena - STLP	15	15	04-Jan-18	24-Jan-18	143	H623	$1,321
1466.NN.ST.14-1610	Pole Installation - Massena - STLP	10	10	25-Jan-18	07-Feb-18	143	H623	$661
1466.NN.ST.14-1660	Fiber Installation - Massena - STLP	10	10	08-Feb-18	21-Feb-18	143	H623	$661
1466.NN.ST.14-1770	Substation Connection - Massena - STLP	10	10	22-Feb-18	07-Mar-18	143	H623	$6,606
1466.NN.ST.14-1880	Commissioning - Massena - STLP	10	10	08-Mar-18	21-Mar-18	143	H623, H626	$15,138
1466.NN.ST.14-1890	Construction Complete - Massena - STLP	0	0		21-Mar-18	143		$0
1466.NN.ST.14-2070	Closeout - Massena - STLP	10	10	22-Mar-18	04-Apr-18	143	H623, H626, S530	$7,588
1466.NN.ST.14-2080	Closeout Complete - Massena - STLP	0	0		04-Apr-18*	143		$0
Construction / Installation - Willis - STLP Dark Fiber		70	70	27-Dec-17	04-Apr-18	143		$226,889
1466.NN.ST.14-1410	Mobilization - Willis - STLP	5	5	27-Dec-17	03-Jan-18	143	H623	$661
1466.NN.ST.14-2120	Summary Construction/Installation - Willis - STLP	60	60	27-Dec-17	21-Mar-18	143	672100	$149,143
1466.NN.ST.14-2580	Fiber Electronics - Willis - STLP	60	60	27-Dec-17	21-Mar-18	143	S330, S400, H227, 672100	$11,767
1466.NN.ST.14-2780	Equipment Isolation AC/DC - Willis - STLP	60	60	27-Dec-17	21-Mar-18	143	S330, S400	$5,963
1466.NN.ST.14-2790	Circuit Migration - Willis - STLP	60	60	27-Dec-17	21-Mar-18	143	S330, S400, H227	$15,426
1466.NN.ST.14-1540	Site / Civil - Willis - STLP	15	15	04-Jan-18	24-Jan-18	143	H623	$1,321
1466.NN.ST.14-1620	Pole Installation - Willis - STLP	10	10	25-Jan-18	07-Feb-18	143	H623	$661
1466.NN.ST.14-1670	Fiber Installation - Willis - STLP	10	10	08-Feb-18	21-Feb-18	143	H623	$661
1466.NN.ST.14-1780	Substation Connection - Willis - STLP	10	10	22-Feb-18	07-Mar-18	143	H623, C540	$8,376
1466.NN.ST.14-1900	Commissioning - Willis - STLP	10	10	08-Mar-18	21-Mar-18	143	H623, H626, C540	$23,989
1466.NN.ST.14-1910	Construction Complete - Willis - STLP	0	0		21-Mar-18	143		$0
1466.NN.ST.14-2100	Closeout - Willis - STLP	10	10	22-Mar-18	04-Apr-18	143	H623, H626, S530, C540	$8,922
1466.NN.ST.14-2110	Closeout Complete - Willis - STLP	0	0		04-Apr-18*	143		$0
Construction / Installation - Ryan - STLP Dark Fiber		70	70	27-Dec-17	04-Apr-18	143		$139,038
1466.NN.ST.14-1420	Mobilization - Ryan - STLP	5	5	27-Dec-17	03-Jan-18	143	H623	$661

PROJECT LAYOUT



Activity ID	Activity Name	OD	RD	Start	Finish	TF	Resource IDs	Budgeted Total Cost
Pre-Engineering		83	83	01-Sep-16	30-Dec-16	0		$28,323
Pre-Engineering - Fiber Path - New Scottland - WPO (New Scottland-WPO)		83	83	01-Sep-16	30-Dec-16	0		$28,323
1466.SN.HQ.11-1020	Develop Specifications for Leasing - New Scottland-WPO	83	83	01-Sep-16	30-Dec-16	0	683100	$28,323
Engineering		320	320	03-Jan-17	04-Apr-18	0		$172,764
Bid Package Preparation - New Scottland-WPO Dark Fiber		80	80	03-Jan-17	24-Apr-17	0		$111,986
1466.SE.HQ.12.1000	Leasing Contract Issue for Bid (IFB) by NYPA - New Scottland-WPO	20	20	03-Jan-17	30-Jan-17	0	683100, H626	$28,634
1466.SE.HQ.12.1010	Receive Bids - New Scottland-WPO	60	60	31-Jan-17	24-Apr-17	0	683100, H227, H608, H620, H626, C540, Q330, Q400, H625	$83,352
1466.SE.HQ.12.1020	Procurement of Contractor - New Scottland-WPO	0	0		24-Apr-17	0		$0
Design Review - New Scottland-WPO Dark Fiber		70	70	15-Sep-17	26-Dec-17	0		$49,085
1466.SN.HQ.12-1170	Review of Preliminary Design by NYPA - New Scottland-WPO	20	20	15-Sep-17	12-Oct-17	0	H227, H608, H614, H626, N400, C540	$15,286
1466.SN.HQ.12-1180	Shop Drawing Review by NYPA - New Scottland-WPO	20	20	10-Nov-17	11-Dec-17	0	H227, H608, H614, H626, N400, C540	$16,765
1466.SN.HQ.12-1160	Review of Final Design by NYPA - New Scottland-WPO	20	20	28-Nov-17	26-Dec-17	0	H227, H608, H614, H626, N400, C540	$17,034
1466.SN.HQ.12-1150	Acceptance of Design by NYPA - New Scottland-WPO	0	0		26-Dec-17	0		$0
NYPA Close-Out/Commissioning - CEC-New Scottland Dark Fiber		20	20	08-Mar-18	04-Apr-18	0		$11,693
1466.SN.HQ.12-1200	Commissioning - New Scottland-WPO	10	10	08-Mar-18	21-Mar-18	0	H227, H614	$7,308
1466.SN.HQ.12-1190	Closeout - New Scottland-WPO	10	10	22-Mar-18	04-Apr-18	0	H227, H614	$4,385
Procurement		682	682	25-Apr-17	02-Jan-20	107		$801,967
Leasing Agreement - New Scottland-WPO Dark Fiber		682	682	25-Apr-17	02-Jan-20	107		$801,967
1466.SN.HQ.13-1230	Negotiate Leasing Agreement - New Scottland-WPO	80	80	25-Apr-17*	16-Aug-17	0		$0
1466.SN.HQ.13-1220	Award Leasing Contract - New Scottland-WPO	0	0	17-Aug-17		0		$0
1466.SN.HQ.13-1250	Leasing - New Scottland-WPO	452	452	22-Mar-18	02-Jan-20	107	CB-LEASE	$87,727
1466.SN.HQ.13-1240	Leasing Renewal in Jan 2020 - New Scottland-WPO	1	1	02-Jan-20*	02-Jan-20	107	CB-LEASE	$714,240
Construction		160	160	17-Aug-17	04-Apr-18	0		$1,352,169
Leasing Contractor - Engineering - New Scottland-WPO Dark Fiber		70	70	17-Aug-17	27-Nov-17	0		$10,000
1466.SN.HQ.14-1160	Preliminary Design - New Scottland-WPO	20	20	17-Aug-17	14-Sep-17	0		$0
1466.SN.HQ.14-1170	Summary Engineering Construction - New Scottland-WPO	70	70	17-Aug-17	27-Nov-17	0	672100	$10,000
1466.SN.HQ.14-1150	Final Design - New Scottland-WPO	30	30	13-Oct-17	27-Nov-17	0		$0
Leasing Contractor - Procurement - New Scottland-WPO Dark Fiber		50	50	13-Oct-17	26-Dec-17	0		$0
1466.SN.HQ.14-1190	Shop Drawing Submission by Contractor - New Scottland-WPO	20	20	13-Oct-17	09-Nov-17	0		$0
1466.SN.HQ.14-1180	Delivery for Fiber Path - New Scottland-WPO	10	10	12-Dec-17	26-Dec-17	0		$0
Construction / Installation - New Scottland-WPO Dark Fiber		70	70	27-Dec-17	04-Apr-18	0		$1,342,169
1466.SN.HQ.14-1260	Mobilization - New Scottland-WPO	5	5	27-Dec-17	03-Jan-18	0	H625	$1,188
1466.SN.HQ.14-1290	Summary Construction - New Scottland-WPO	60	60	27-Dec-17	21-Mar-18	0	672100	$52,500
1466.SN.HQ.14-1300	Fiber Electronics - New Scottland-WPO	60	60	27-Dec-17	21-Mar-18	0	Q330, Q400, H227, 672100	$1,211,767

PROJECT REPORT DASHBOARD

Project Summary

The Communication Backbone Program is part of NYPA's Smart Generation & Transmission ("SG&T") Strategic Initiative and will implement a robust, secure, and scalable communications network that will allow NYPA to:

1. Replace NYPA's legacy point-to-point circuits.
2. Deploy intelligent end-point devices ("IEDs") through the SG&T initiative.
3. Establish a backbone network for the objectives associated with NYPA's larger Strategic Vision.

Work this Month (July)

- Kick-off meeting held with Michaels for GNS-1 OPGW Project.
- Issued NNY Dark-Fiber spec and RFP for NYPA's review and approval.
- Internal interviews conducted for NNY Microwave Project.
- Fiber Electronics POR issued to AECOM for detailed engineering and IT/Operations staffing plan.
- Detailed engineering for OPGW in progress.

Next Month Plan (August)

- Award NNY Microwave Proposals
- NNY Dark Fiber out to Bid
- Award NNY Microwave
- Advance OPGW and Fiber Electronics designs
- Submit WNY-WPO Dark Fiber RFP and out to Bid

Project Performance

CPR 1466 - Communications Backbone - Earned Value Report #8 as of 07.31.17

DESCRIPTION	PLANNED BUDGET TO DATE (PB)	EARNED VALUE TO DATE (EV)	ACTUAL COST TO DATE (AC)	COST VARIANCE (CV)	SCHEDULE VARIANCE (SV)	TOTAL AUTHORIZED BUDGET (TAB)	ESTIMATE AT COMPLETION (EAC)	VARIANCE AT COMPLETION (VAC)
CPR 1466	$ 5,011,382	$ 3,475,420	$ 3,476,853	$ (261,430)	$ (1,535,760)	$ 39,835,350	$ -	$ -
Pre-Engineering	$ 2,338,172	$ 2,251,866	$ 2,422,598	$ (170,732)	$ (86,706)	$ 2,366,895		
NYPA	$ 325,000	$ 325,000	$ 443,301	$ (118,301)	$ -	$ 325,000		
Consultant	$ 2,013,172	$ 1,926,866	$ 1,979,297	$ (52,431)	$ (86,706)	$ 2,041,895		
Engineering	$ 1,839,814	$ 803,874	$ 1,054,305	$ (250,431)	$ (1,035,877)	$ 5,764,928		
NYPA	$ 993,825	$ 236,221	$ 273,202	$ (36,981)	$ (757,604)	$ 3,293,500		
Consultant	$ 846,026	$ 567,653	$ 781,103	$ (213,450)	$ (278,373)	$ 2,471,428		
Procurement	$ 1,499	$ -	$ 17,125	$ (17,125)	$ (1,499)	$ 2,954,979		
NYPA	$ 1,499	$ -	$ 17,125	$ (17,125)	$ (1,499)	$ 2,954,979		
Construction	$ 30,483	$ -	$ 31,237	$ (31,237)	$ (30,483)	$ 23,232,518		
NYPA	$ -	$ -	$ 26,688	$ (26,688)	$ -	$ 1,937,283		
Contractor	$ 30,483	$ -	$ 4,549	$ (4,549)	$ (30,483)	$ 21,295,235		
Indirect (NYPA)	$ 291,462	$ 152,787	$ 152,787	$ -	$ (138,675)	$ 1,713,960		
Contingency	$ 509,511	$ 267,095	$ -	$ 267,095	$ (242,416)	$ 2,999,775		

CPI	SPI
[illegible]	0.69

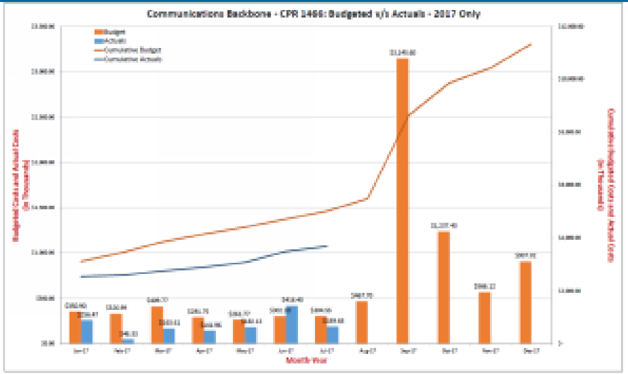
- Includes OPGW Accruals of $60,000 for June.
- Includes GNS1 Actuals from Jan to Mar and GNS1 Accruals from May till July. Also, includes AECOM Support Services Accruals till July. In addition, includes OPGW Accruals for July of $76,177.44 and SEQRA Accruals for July of $22,000.

Notes: Dark Fiber Packages are behind schedule, which is cause of low SPI. Plan to focus on these packages in September.

Project Milestones

Description	Plan	Forecast	Notes
NYPA Engineering Review Of GNS-1 Design Package	5/31/17	3/30/2017(A)	Completed on 3/31/17
Issue GNS1 RFP for Construction	4/15/2017	3/24/17(A)	Issued on 3/24/17
M.W P EPC Contractor to Submit Shop Drawings for Review	9/15/2017	9/15/2017	
NYPA Engineering to Review M.W P Shop Drawings	10/15/2017	10/15/2017	
A/E Firm Design for GF5-35 For Review	9/30/2017	9/30/2017	
NYPA Engineering to Review GF5-35 Design Package	10/15/2017	10/15/2017	
GNS1 Line OPGW Installation	11/30/2017	11/30/2017	

Project Cash flow



Project Risk

Risk Title	Status	Mitigation Activity
GNS-1: Delivery of OPGW by 9/15	Mitigate	Work with AFC and Michaels
Outage Scheduling and Approval based on system loads	Mitigate	Work with Michaels and stakeholders
Dark Fiber Procurement	Mitigate	Work with Procurement to expedite onboarding and bidding

Project Controls EXPO
Washington, DC - USA

FISCAL BUDGETS

COST

Resource ID	Resource Name	2016	2017	2018	2019	2020	TOTAL
672100	Communications Backbone Cost Resource	$ -	$ 3,978,046.23	$ 10,180,564.22	$ 592,155.38	$ 6,544,469.01	$ 21,295,234.84
683100	Consultant Engineering Services	$ 1,210,809.74	$ 1,247,770.39	$ 350,247.95	$ 43,140.00	$ 34,126.00	$ 2,886,094.08
689100	Consultant Management Services	$ 872,120.98	$ 219,838.64	$ 220,707.57	$ 220,707.56	$ 93,844.15	$ 1,627,218.90
B330	Electrical Maintenance	$ -	$ 25,804.64	$ 10,625.44	$ 3,794.80	$ 14,420.24	$ 54,645.12
B400	Instrument & Control	$ -	$ 40,791.16	$ 19,755.36	$ 3,658.40	$ 23,413.77	$ 87,618.69
B530	Design & Drafting	$ -	$ 2,875.60	$ 2,875.60	$ -	$ 2,875.60	$ 8,626.80
C330	Electrical Maintenance	$ -	$ 531.27	$ 10,094.16	$ -	$ -	$ 10,625.43
C340	Line Maintenance	$ -	$ 30,935.52	$ 42,482.88	$ -	$ 10,264.32	$ 83,682.72
C400	Instrument & Control	$ -	$ 629.58	$ 11,962.10	$ -	$ -	$ 12,591.68
C530	Design & Drafting	$ -	$ -	$ 3,450.72	$ -	$ -	$ 3,450.72
C540	Technical Services	$ -	$ 216,747.67	$ 68,893.09	$ 13,387.69	$ 8,187.51	$ 307,215.96
CB-LEASE	Communication Backbone Lease Cost	$ -	$ -	$ 677,510.25	$ 120,140.08	$ 2,143,108.17	$ 2,940,758.50
H227	IT Project Management	$ -	$ 216,637.46	$ 344,038.74	$ 46,699.05	$ 26,746.81	$ 634,122.06
H530	Design & Drafting	$ -	$ -	$ -	$ 5,751.20	$ -	$ 5,751.20
H605	Protection & Control	$ -	$ 20,291.20	$ 15,218.40	$ -	$ -	$ 35,509.60
H608	System / Civil / Geological / Hydro Engine	$ 27,525.49	$ 573,801.34	$ 105,846.91	$ 37,110.95	$ -	$ 744,284.69
H614	Operation Technology	$ -	$ 72,230.25	$ 122,379.76	$ 22,230.45	$ 7,185.60	$ 224,026.06
H620	Cost & Scheduling	$ -	$ 49,203.90	$ 10,775.74	$ 4,754.00	$ -	$ 64,733.64
H622	Western NY PM	$ -	$ 2,542.15	$ 20,612.00	$ -	$ -	$ 23,154.15
H623	Northern NY PM	$ -	$ 65,695.86	$ 308,284.53	$ -	$ -	$ 373,980.39
H624	Central NY PM	$ -	$ 54,187.03	$ 72,492.84	$ 27,390.24	$ 41,085.36	$ 195,155.47
H625	Southeast NY PM	$ -	$ 6,650.11	$ 82,413.89	$ 45,125.76	$ -	$ 134,189.76
H626	Transmission PM	$ -	$ 483,799.93	$ 341,603.19	$ 64,523.25	$ 19,197.00	$ 909,123.37
H638	Smart Generation & Technology	$ 40,299.86	$ 159,790.78	$ 134,734.38	$ 123,327.29	$ 57,397.97	$ 515,550.28
N330	Electrical Maintenance	$ -	$ 2,340.13	$ 19,732.96	$ 8,348.56	$ -	$ 30,421.65
N400	Instrument & Control	$ -	$ 19,541.95	$ 29,084.29	$ 16,188.42	$ -	$ 64,814.66
N530	Design & Drafting	$ -	$ -	$ 1,725.36	$ 1,725.36	$ -	$ 3,450.72
NYPA-R	NYPA Resources	$ 612,798.82	$ 877,266.36	$ 1,219,553.77	$ 1,635,648.48	$ 695,472.58	$ 5,040,740.01
Q210	Control Room	$ -	$ -	$ -	$ 523.76	$ -	$ 523.76
Q330	Electrical Maintenance	$ -	$ 4,326.25	$ 32,105.37	$ 17,456.82	$ -	$ 53,888.44
Q400	Instrument & Control	$ -	$ 4,353.50	$ 31,498.83	$ 24,145.44	$ -	$ 59,997.77
Q530	Design & Drafting	$ -	$ -	$ 2,875.60	$ -	$ -	$ 2,875.60
S210	Control Room	$ -	$ -	$ 1,571.28	$ -	$ -	$ 1,571.28
S330	Electrical Maintenance	$ -	$ 55,176.78	$ 170,243.85	$ -	$ -	$ 225,420.63
S400	Instrument & Control	$ -	$ 128,357.31	$ 213,337.24	$ -	$ -	$ 341,694.55
S530	Design & Drafting	$ -	$ 11,502.40	$ 18,403.84	$ -	$ -	$ 29,906.24
S609	Design & Drafting	$ -	$ -	$ 2,400.48	$ -	$ -	$ 2,400.48
	Total	$ 2,763,554.89	$ 8,571,665.39	$ 14,900,102.59	$ 3,077,932.94	$ 9,721,794.09	$ 39,035,049.90

FISCAL MAN-HOURS

Man-Hours

Resource ID	Resource Name	TOTAL MH 2016	TOTAL MH 2017	TOTAL MH 2018	TOTAL MH 2019	TOTAL MH 2020	TOTAL MH
B330	Electrical Maintenance	0	272	112	40	152	576
B400	Instrument & Control	0	446	216	40	256	958
B530	Design & Drafting	0	40	40	0	40	120
C330	Electrical Maintenance	0	6	106	0	0	112
C340	Line Maintenance	0	434	596	0	144	1174
C400	Instrument & Control	0	8	144	0	0	152
C530	Design & Drafting	0	0	48	0	0	48
C540	Technical Services	0	1959	623	121	74	2777
H227	IT Project Management	0	2009	3190	433	248	5880
H530	Design & Drafting	0	0	0	80	0	80
H605	Protection & Control	0	160	120	0	0	280
H608	System / Civil / Geological / Hydro Enginee	205	4267	787	276	0	5535
H614	Operation Technology	0	965	1635	297	96	2993
H620	Cost & Scheduling	0	414	91	40	0	545
H622	Western NY PM	0	25	200	0	0	225
H623	Northern NY PM	0	796	3734	0	0	4529
H624	Central NY PM	0	475	635	240	360	1710
H625	Southeast NY PM	0	45	555	304	0	904
H626	Transmission PM	0	4536	3203	605	180	8524
H638	Smart Generation & Technology	325	1289	1087	995	463	4158
N330	Electrical Maintenance	0	25	208	88	0	321
N400	Instrument & Control	0	214	318	177	0	709
N530	Design & Drafting	0	0	24	24	0	48
Q210	Control Room	0	0	0	4	0	4
Q330	Electrical Maintenance	0	46	338	184	0	568
Q400	Instrument & Control	0	48	344	264	0	656
Q530	Design & Drafting	0	0	40	0	0	40
S210	Control Room	0	0	12	0	0	12
S330	Electrical Maintenance	0	582	1794	0	0	2376
S400	Instrument & Control	0	1403	2333	0	0	3736
S530	Design & Drafting	0	160	256	0	0	416
S609	Design & Drafting	0	0	24	0	0	24
	Total	530	20621	22814	4212	2013	50189

FULL TIME EQUIVALENT (FTE)

FTE's

Resource ID	Resource Name	Avg. FTE 2016	Avg. FTE 2017	Avg. FTE 2018	Avg. FTE 2019	Avg. FTE 2020
B330	Electrical Maintenance	0	0	0	0	0
B400	Instrument & Control	0	0	0	0	0
B530	Design & Drafting	0	0	0	0	0
C330	Electrical Maintenance	0	0	0	0	0
C340	Line Maintenance	0	0	0	0	0
C400	Instrument & Control	0	0	0	0	0
C530	Design & Drafting	0	0	0	0	0
C540	Technical Services	0	1	0	0	0
H227	IT Project Management	0	1	2	0	0
H530	Design & Drafting	0	0	0	0	0
H605	Protection & Control	0	0	0	0	0
H608	System / Civil / Geological / Hydro Enginee	0	2	0	0	0
H614	Operation Technology	0	1	1	0	0
H620	Cost & Scheduling	0	0	0	0	0
H622	Western NY PM	0	0	0	0	0
H623	Northern NY PM	0	0	2	0	0
H624	Central NY PM	0	0	0	0	0
H625	Southeast NY PM	0	0	0	0	0
H626	Transmission PM	0	2	2	0	0
H638	Smart Generation & Technology	0	1	1	1	0
N330	Electrical Maintenance	0	0	0	0	0
N400	Instrument & Control	0	0	0	0	0
N530	Design & Drafting	0	0	0	0	0
Q210	Control Room	0	0	0	0	0
Q330	Electrical Maintenance	0	0	0	0	0
Q400	Instrument & Control	0	0	0	0	0
Q530	Design & Drafting	0	0	0	0	0
S210	Control Room	0	0	0	0	0
S330	Electrical Maintenance	0	0	1	0	0
S400	Instrument & Control	0	1	1	0	0
S530	Design & Drafting	0	0	0	0	0
S609	Design & Drafting	0	0	0	0	0
	Total	**0**	**11**	**12**	**2**	**2**

SOCIAL ENGINEERING

Decide what not to change

Change in Agency's Organization Structure. Challenge of indoctrinating new Program Management team

Involvement of Corporate Consultant

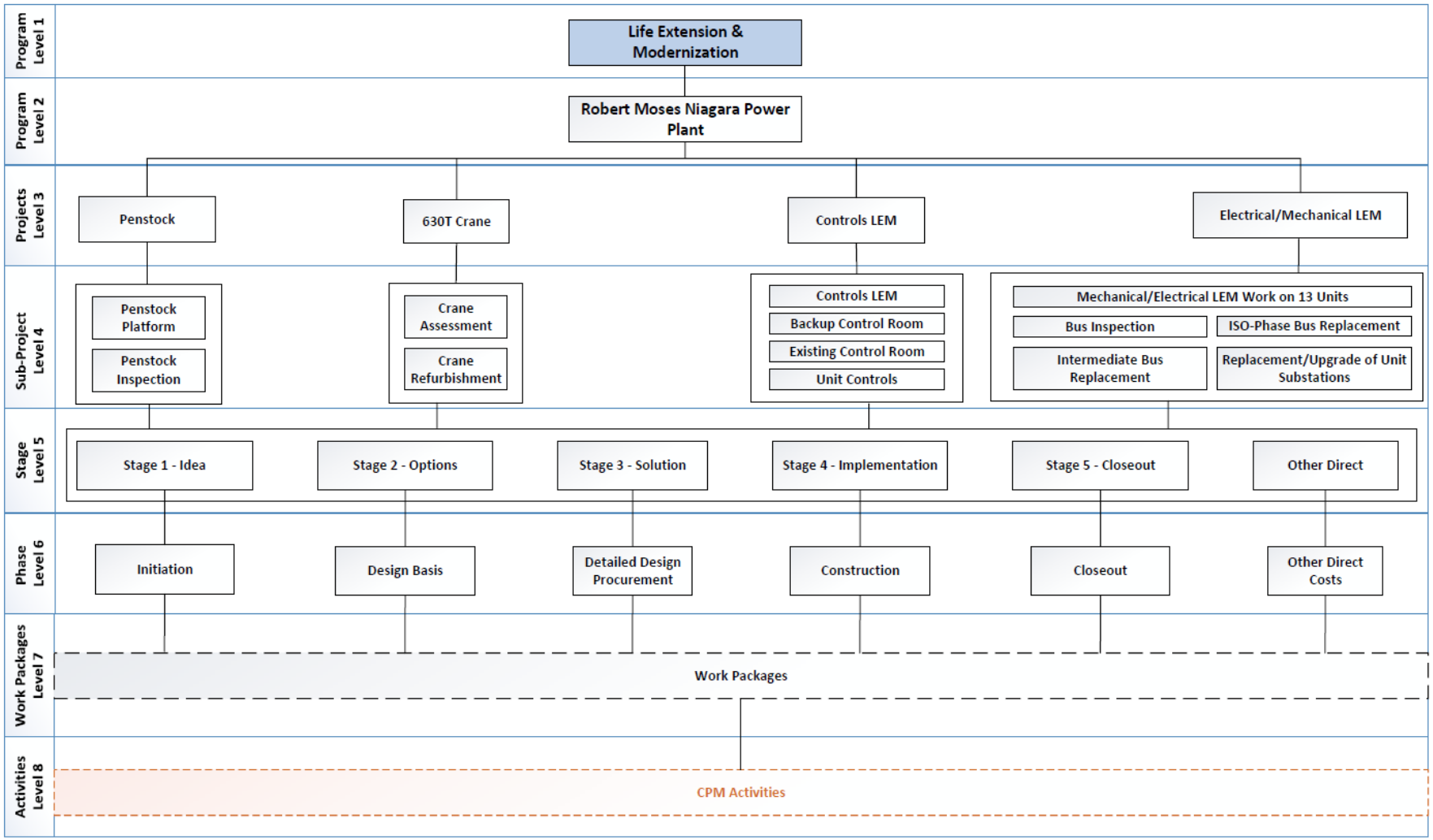
PROGRAM 3

- Program 3 involved Life Extension & Modernization of a large Hydro Electric Power Plant. Budget: 1.0 billion.
- Success on previous two programs allowed the agency to start setting up a standard Project Controls process.
- The previous two programs were on-going.
- This third program implemented the project controls procedure since inception.
- This allowed us to establish WBS codes and integrate schedule, estimate (budget) and financial accounting system. This enabled seamless Earned Value Management with schedule, cost and accounting system singing and dancing together.

WORK BREAKDOWN STRUCTURE

Stage	Phase	Major Capital WBS	Description
Stage 1 - Idea	Initiation	CNG-ABC-11-PRE1[1]	Captures all charges associated with the project kick off, initial identification of Stakeholders and any other items to proceed through Stage 1. The costs associated with this stage should be minimal.
Stage 2 - Options	Design Basis	CNG-ABC-12-ENG1	Captures engineering charges associated with project scoping.
Stage 3 - Solution	Detailed Design	CNG-ABC-13-ENG2	Captures charges associated with Engineering. This includes deliverables for alternative analysis, detailed design and scope documents and construction oversight.
	Procurement	CNG-ABC-13-MAT1	Captures all charges for purchasing of equipment or material or charges from materials delivered from the warehouse.
Stage 4 - Implementation	Construction	CNG-ABC-14-CON1	Captures all charges associated with implementation, i.e. construction, testing and commissioning. Inclusive of site labor direct charges.
Stage 5 - Closeout	Closeout	CNG-ABC-15-CLO1	Captures all charges with closing out the project including D&D, and site related costs.
Other Direct	Direct	CNG-ABC-18-ODC1	Captures all other owner direct charges except for engineering and site labor which are captured in the in their respective stages. (e.g. project management, environmental, health and safety, construction management, program management, etc.)

Work Breakdown Structure (WBS) Chart



WBS CODES

Project	Project Notation	WBS Code Count
Penstock	CNG-PBR	20
630T Crane	CNG-PBQ	6
Controls	CNG-PBN	24
Unit LEM	CNG-PBP	141
TOTAL		**191**

LEGEND:

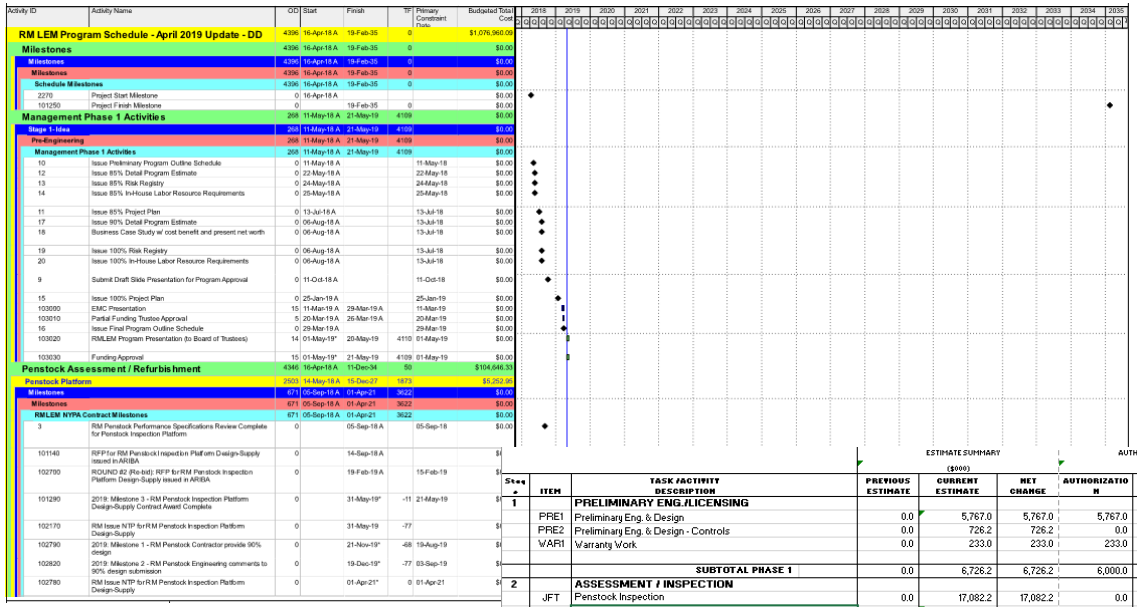
Under "Unit" Column:

0 = Common for all units

A:M = Units 1:13

				Project Notation:	CNG-PBN		
RM	Stage	Unit	Asset Class	Asset Type	WBS Code	Count	Comments
CNG-PBN-	11-	0	L	PRE1	CNG-PBN-11-PRE1	1	OLD CODE - Move to CNG-PBN-11-OLKM - Prelim Eng for Backup Control Room, Main Control Room, & Unit Controls
CNG-PBN-	11-	0	L	PRE2	CNG-PBN-11-PRE2	1	OLD CODE - Move to CNG-PBN-11-OLKM - Prelim Eng for Backup Control Room, Main Control Room, & Unit Controls
CNG-PBN-	11-	0	L	KM	CNG-PBN-11-OLKM	1	NEW CODE - Prelim Eng for Backup Control Room, Main Control Room, & Unit Controls
CNG-PBR-	11-	0	L	WAR1	CNG-PBR-11-WAR1	1	Warranty Code
CNG-PBN-	13-	0	L	KM	CNG-PBN-13-OLKM	1	NYPA Eng for Backup Control Room, Main Control Room, & Unit Controls
CNG-PBN-	14-	0	L	KM	CNG-PBN-14-OLKM	1	Construction/Installation - NYPA Site Labor
CNG-PBN-	14-	A	L	KM	CNG-PBN-14-ALKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	B	L	KM	CNG-PBN-14-BLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	C	L	KM	CNG-PBN-14-CLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	D	L	KM	CNG-PBN-14-DLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	E	L	KM	CNG-PBN-14-ELKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	F	L	KM	CNG-PBN-14-FLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	G	L	KM	CNG-PBN-14-GLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	H	L	KM	CNG-PBN-14-HLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	I	L	KM	CNG-PBN-14-ILKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	J	L	KM	CNG-PBN-14-JLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	K	L	KM	CNG-PBN-14-KLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	L	L	KM	CNG-PBN-14-LLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	M	L	KM	CNG-PBN-14-MLKM	1	Construction/Installation - Controls (by unit)
CNG-PBN-	14-	N	L	KM	CNG-PBN-14-NLKM	1	Construction/Installation - Backup Control Room
CNG-PBN-	14-	O	L	KM	CNG-PBN-14-OLKM	1	Construction/Installation - Main Control Room
CNG-PBN-	15-	0	L	KM	CNG-PBN-15-OLKM	1	NYPA Closeout - Backup & Main Control Room and All Units
CNG-PBN-	18-	0	K	GJ	CNG-PBN-18-OKGJ	1	OLD CODE - Move to CNG-PBN-18-OLKM - NYPA Direct for Backup & Main Control Rooms & Unit Controls
CNG-PBN-	18-	0	L	KM	CNG-PBN-18-OLKM	1	NEW CODE - NYPA Direct for Backup & Main Control Rooms & Unit Controls
				TOTAL # OF WBS CODES (EXCLUDE REPEATS)		24	

CPM SCHEDULE



BUDGET / ESTIMATE

			ESTIMATE SUMMARY ($000)			AUTHORIZATION SUMMARY ($000)		
Step	ITEM	TASK / ACTIVITY DESCRIPTION	PREVIOUS ESTIMATE	CURRENT ESTIMATE	NET CHANGE	AUTHORIZATION	CURRENT REQUEST	BE AUTHORIZED
1		**PRELIMINARY ENG./LICENSING**						
	PRE1	Preliminary Eng. & Design	0.0	5,767.0	5,767.0	5,767.0	0.0	0.0
	PRE2	Preliminary Eng. & Design - Controls	0.0	726.2	726.2	0.0	726.2	0.0
	WAR1	Warranty Work	0.0	233.0	233.0	233.0	0.0	0.0
		SUBTOTAL PHASE 1	0.0	6,726.2	6,726.2	6,000.0	726.2	0.0
2		**ASSESSMENT / INSPECTION**						
	JFT	Penstock Inspection	0.0	17,082.2	17,082.2	0.0	0.0	17,082.2
	09OC	630T Crane - Refurbish/Replace - Study	0.0	1,071.3	1,071.3	0.0	750.0	321.3
		Contingency 21%	0.0	3,851.7	3,851.7	0.0		3,851.7
		SUBTOTAL PHASE 2		22,005.1	22,005.1	0.0	750.0	21,255.1
3		**ENGINEERING / PROCUREMENT**						
	0KGJ	LEM - Mechanical / Electrical Engineering	0.0	29,610.5	29,610.5	0.0	0.0	29,610.5
	0LKM	Controls - incl. HGates & Control Rooms Engineering	0.0	9,870.2	9,870.2	0.0	0.0	9,870.2
	0JFT	Penstock Platform / Inspection Engineering	0.0	4,486.4	4,486.4	0.0	0.0	4,486.4
	09OC	Crane Engineering	0.0	897.3	897.3	0.0	0.0	897.3
	KQA	Head Covers and Wicket Gates	0.0	129,872.6	129,872.6	0.0	0.0	129,872.6
	KQD	New Turbine Shafts	0.0	11,565.4	11,565.4	0.0	0.0	11,565.4
		Contingency 21%		39,528.3	39,528.3	0.0	0.0	39,528.3
		SUBTOTAL PHASE 3	0.0	225,830.7	225,830.7	0.0	0.0	225,830.7
4		**CONSTRUCTION / INSTALLATION**						
	9OC	630T Crane Refurbish/Replace - EPC	0.0	9,118.1	9,118.1	0.0	0.0	9,118.1
	JFT	Penstock Repairs	0.0	52,734.5	52,734.5	0.0	0.0	52,734.5
	KGJ	General Hydro	0.0	186,938.9	186,938.9	0.0	0.0	186,938.9
	KGP	Governor Hydraulic Systems Refurbishment	0.0	1,211.0	1,211.0	0.0	0.0	1,211.0
	KGY	Unit Cooling Water	0.0	777.2	777.2	0.0	0.0	777.2
	KPX	Rotor Repairs	0.0	40,574.4	40,574.4	0.0	0.0	40,574.4
	KQA	Head Covers and Wicket Gates	0.0	23,672.6	23,672.6	0.0	0.0	23,672.6
	KQC	Servo Motors	0.0	15,398.0	15,398.0	0.0	0.0	15,398.0
	LKG	Intermediate/ISO Phase Bus Refurbish/Replace	0.0	37,402.9	37,402.9	0.0	0.0	37,402.9
	LKM	Controls - Units/Head Gates plus Control Rooms	0.0	123,407.6	123,407.6	0.0	0.0	123,407.6
	LPY	New Stators & Sensors	0.0	83,779.2	83,779.2	0.0	0.0	83,779.2
		Contingency 21%	0.0	122,002.5	122,002.5	0.0	0.0	122,002.5
		SUBTOTAL PHASE 4	0.0	697,016.9	697,016.9	0.0	0.0	697,016.9
5		**NYPA CLOSEOUT EXPENSE**						
	0KGJ	NYPA Close out LEM - Mechanical / Electrical	0.0	817.3	817.3	0.0	0.0	817.3
	0LKM	Rooms	0.0	272.4	272.4	0.0	0.0	272.4
	0JFT	NYPA Close Out Penstock Platform / Inspection	0.0	123.8	123.8	0.0	0.0	123.8
	09OC	NYPA Close Out Crane	0.0	24.8	24.8	0.0	0.0	24.8
		Contingency 21%		262.8	262.8	0.0	0.0	262.8
		SUBTOTAL PHASE 5	0.0	1,501.1	1,501.1	0.0	0.0	1,501.1
8A		**NYPA DIRECT EXPENSE**	0.0					
	0KGJ	NYPA Direct LEM - Mechanical / Electrical	0.0	40,049.2	40,049.2	0.0	2,600.0	37,449.2
	0LKM	NYPA Direct Controls - Incl. HGates & Control Rooms	0.0	13,349.7	13,349.7	0.0	442.6	12,907.1
	0JFT	NYPA Direct Penstock Platform / Inspection	0.0	5,241.9	5,241.9	0.0	100.0	5,241.9
	09OC	NYPA Direct Crane	0.0	980.8	980.8	0.0	100.0	880.8
		Contingency 22%	0.0	12,874.8	12,874.8	0.0	43.1	12,831.7
		SUBTOTAL PHASE 8A	0.0	72,596.3	72,596.3	0.0	3,285.7	69,310.6
8B		**NYPA INDIRECT EXPENSE** 5%	0.0	51,283.8	51,283.8	0.0	238.1	51,045.7
		SUBTOTAL PHASE 8B	0.0	51,283.8	51,283.8	0.0	238.1	51,045.7
		PROJECT GRAND TOTAL		1,076,960.2	1,076,960.2	6,000.0	5,000.0	1,065,960.2

ACTUALS

ID Number (All)

Sum of Value TCur				Column Labels									
				2016	2017	2018	2019	2019	2019	2019	2019	2019	Grand Total
Row Labels	ParCost.	Cost Elem.	Cost element name	Offset. acct name				Jan	Feb	Mar	Apr	May	Jun	
CNG-PBN-11-PRE1				$141,173.02	$2,066,787.82	$2,135,878.40	$97,004.29	$78,952.73	$238,013.73	$41,371.55	$85,927.91	$98,827.14	$4,983,936.59
CNG-PBN-11-PRE2						$46,233.37	$5,938.70	($1,249.29)	$4,557.42		$3,090.66	$346.47	$58,917.33
CNG-PBN-11-WAR1					$17,331.26	$214,259.25							$231,590.51
CNG-PBN-14-0LKM						$1,165,348.77	$169,781.05	($0.00)	($262,230.03)	$587,892.65	$386,425.58	$35,692.88	$2,082,910.90
CNG-PBN-18-0KGJ												$4,440.98	$4,440.98
Grand Total				$141,173.02	$2,084,119.08	$3,561,719.79	$272,724.04	$77,703.44	($19,658.88)	$629,264.20	$475,444.15	$139,307.47	$7,361,796.31

DASHBOARD

AECOM

Cost and Schedule Performance Report

Client

pril 2019
Report Month

4/16/2018
NTP Date

5/15/2019
Updated

Project	PLANNED BUDGET TO DATE (PB)	EARNED VALUE TO DATE (EV)	ACTUAL COST TO DATE (AC)	COST VARIANCE (CV)	SCHEDULE VARIANCE (SV)	BASELINE BUDGET (BB)	ESTIMATE AT COMPLETION (EAC)
Robert Moses Life Extension and Modernization	**$7,070**	**$6,495**	**$6,747**	**($334)**	**($575)**	**$1,076,960**	**$1,076,960**
1 - Penstock Assesment/ Refurbishment	$322	$221	$232	($10)	($100)	$104,646	$104,646
2 - 630T Crane Assesment/ Refurbishment	$55	$72	$0	($10)	$17	$17,015	$17,015
3 - Controls LEM	$870	$690	$1,716	($1,026)	($180)	$217,045	$217,045
4 - Mechanical & Electrical LEM	$5,823	$5,512	$4,799	$713	($311)	$738,253	$738,253
Total	**$7,070**	**$6,495**	**$6,747**	**($334)**	**($575)**	**$1,076,960**	**$1,076,960**

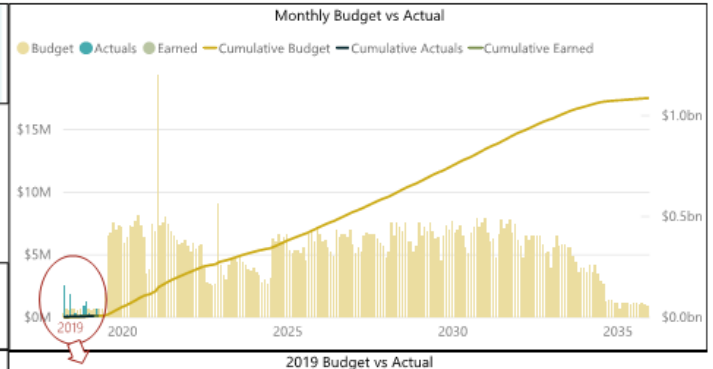
CPI	SPI
0.96	0.92

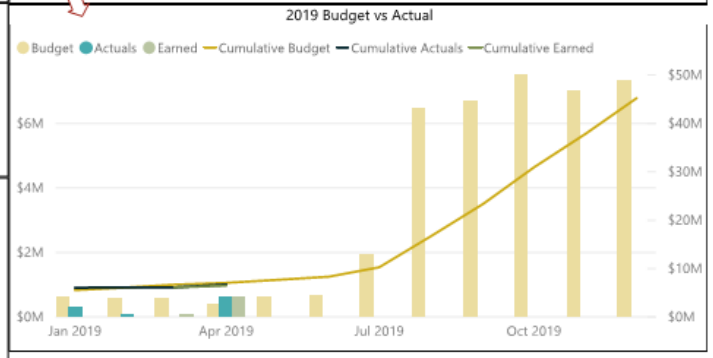
*All the Costs indicated above are in Thousands

Projects	Schedule % Complete	Physical % Complete
1 - Penstock	6%	0%
2 - 630T Crane	27%	5%
3 - Controls LEM	7%	0%
4 - Mechanical /Electrical LEM	6%	1%

379
Days Elapsed

Time Elapsed %
0% 6% 100%





KPI Trend

As an industry standard practice, this table will be developed after 4 to 5 iterations after the Earned Value reporting process is streamlined.

Safety

Description	Number	Comments
Major Incidents	0	
Minor Incidents	0	

Work Performed Last Month

1. Penstock Platform: Bidders continue to develop Bids. Site walk completed with bidders
2. Controls LEM: Bidders continue to develop Bids for rebid.
3. 630T Crane: Crane assessment underway
4. Mech/Elec LEM: Shaft specification issued

Work Planned for Next Month

1. Penstock Platform: Bids are due from vendors 4/05/2019
2. Controls LEM: Bids are due from vendors 4/15/2019
3. 630T Crane: NDE Inspection, Phase 1 Completed, draft of comprehensive report received. Crane shutdown due to structural deficiencies
4. Mech/Elec LEM: Establish if RFQ for LEM is required

Milestone Status

Project/Activity ID	Activity Name	Planned	Actual/Forecast
1 -Penstock			
101290	RM Penstock Inspection Platform Design-Supply Contract Award Complete	21-May-19	31-May-19*
102790	RM Penstock Contractor provide 90% design	19-Aug-19	21-Nov-19*
102820	RM Penstock Engineering comments to 90% design submission	03-Sep-19	19-Dec-19*
2- 630T Crane			
101310	RM 630T Crane Refurbishment Contract Award (except weld repairs)	15-Aug-19	11-Jun-20*
102490	RM 630T Crane Refurbishment - Eng. Issue Scope of Services for Recommended Upgrades (SOS developed)	30-May-19	24-Jan-20*
102640	Engineering comments to Crane Assessment Submission	01-Mar-19	22-Nov-19*
3 - Controls LEM			
101350	RM Controls LEM Contract Award / Request Initial Program $$ Authorization to Trustees	30-Jul-19	30-Jul-19*
102710	RM Controls LEM Bids due	15-Apr-19	15-Apr-19 A
102720	RM Engineering Technical Evaluation / Recommendation of Controls Bid	03-Jun-19	28-Jun-19*
102750	RM 65% design submission from Controls Vendor	01-Nov-19	19-Feb-20*
102760	RM Engineering comments to 65% Design submission	16-Dec-19	18-Mar-20*
4 - Mech. & Elec. LEM			
102290	RM Bus Assessment Work Complete	01-Oct-19	21-Jun-19*
102450	RM Performance Specifications Review Complete for RM Mechanical LEM RFP	17-Dec-19	13-Dec-19*
102470	RM Performance Specifications Review Complete for RM Electrical LEM RFP	17-Dec-19	13-Dec-19*
102770	RM Engineering comments to ISO Phase/ Intermediate Phase bus Assessment	20-Dec-19	30-Aug-19*
102800	RM Wicket Gate Specs Due	28-Feb-19	28-Feb-19 A
102810	RM Shafts Specs Due	29-Mar-19	28-Feb-19 A

Project Risks

Description	Initial Risk Level	Rank	Risk Owner	Targeted Risk Level (Residual)	Rank (Residual)
Risk 1-001: Given the size and magnitude of this project, the presently used processes/procedures may need to be tailored to the project. If the processes/procedures (e.g. Change Order Process) currently used by the project team are not tailored to the project as desired, this may delay key decisions and the project as well	C, 4	●	Peter Rooney	B, 3	●
Risk 1-004: An increasing demand of time and effort to provide support to the project. The uncertainty of staffing requirements to manage the design, construction, testing and commissioning can result in less staff than needed, incurring delays and cost overrun. (NYPA Resources)	D, 4	●	Evan Yager	TBD	
Risk 2-001C: If work scope for plant controls is not defined early in the project and not effectively managed in the implementation phase, this could lead to delays in design and additional cost.	E, 4	●	Asif Khokhar	B, 3	●
Risk 2-009: If NYPA has not made available all Programmatic Impacts - drawings, manuals, maintenance procedures, operating procedures, annunciator response procedures, surveillances, fire protection, security, emergency plans, training, etc. that affect the design this could result in re-design and associated delays and additional cost	D, 4	●	Asif Khokhar and Dave Dulanski	TBD	
Risk 5-002: Long-lead Items - Unit LEM. If the project is not effectively planned for long-lead items, this could delay the project. (e.g. Head covers 2 years, shafts 1.5 years).	D, 4	●	Peter Rooney and Jennifer Travis	B, 4	●

KEY ELEMENTS FOR SUCCESSFUL IMPLEMENTATION OF EARNED VALUE MANAGEMENT SYSTEM

- Involvement and support of Executive Management
- Overall Implementation and Strategy
  - Understand the issues that the Client is facing
  - Understand the requirements – Example: Different types of reports
  - Apply creativity
- Explore with Pilot Project – Do separate implementation without interfering with the existing system
- Design Reporting based on different layers
- Do not expect Project Controls to 'Wash your Car' & 'Walk your dog'
  - No system can deliver all your needs
  - Be prepared to do some "offline" analysis
- Effectiveness of Project Controls Engineer
  - Open daily dialogue with the project team
  - Act as Facilitator
  - Perform an Intellectual Interrogation
  - Big Picture to Executive Management
- Social Engineering / Human Element
  - Be cognizant of what is working for the organization
  - Bureaucracy

THANK YOU

- Questions?

- Contact E-mail: rohan.mutha@aecom.com

Project Controls EXPO
Washington, DC - USA