Overview Project and Portfolio Management Solution (PPM)

May 2016



Agenda



- PPM History and Background
- PPM Systems Overview
- PPM Workspace
- Project Lifecycle: Project Development
- Project Lifecycle: Monthly Progressing
- Integrated Reporting
- Unifier within PPM
- PPM Success Factors

PPM History and Background

History of PPM



PPM started as a replacement of Peoplesoft and an in-house project management solution with SAP Project Systems

2010	SAP PS and limited BW reporting live
2011	P6 integrated with SAP PS/BW added
2012	PPM Workspace live
2013	Integrated BW executive reporting available
2015	Unifier and Supply Chain Workspace added

PPM Solution components and scope



The PPM Solution is based on three pillars:

- Comprehensive set of practices
- Integrated toolset
 SAP, P6, Unifier, Sharepoint, Business Warehouse
- Processes, procedures, guidelines, and dedicated training material

All Capital Infrastructure projects are managed in PPM:

- Approx. 150 Generation projects
- Approx. 325 Transmission projects
- Small number of larger Distribution capital projects are also managed within PPM

PPM Systems Overview

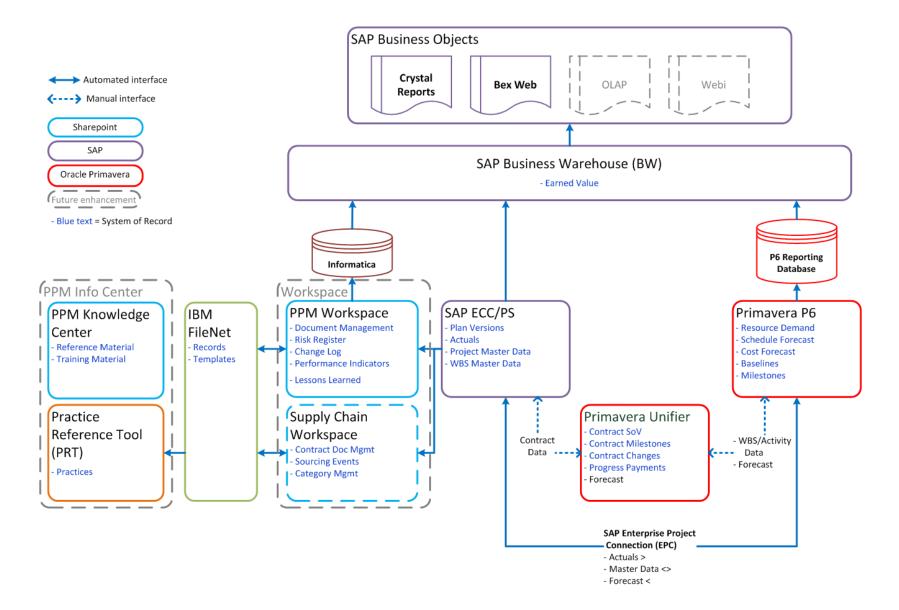
PPM Guiding Principles



- Integrate project scope, schedule, and costs
- Create work packages with clear responsibilities
- Maintain resource loaded schedules
- Baseline, forecast, and track costs and resources at the same level
- Define a System of Record for each data component
- Consolidate and integrate all project management dimensions

PPM Systems overview





SAP – P6 Interface: EPC



The main component for the interface between SAP and P6 is EPC (Enterprise Project Connection).

- Bi-directional data movement
 - Project and WBS level data to P6
 - Activity, Expense, and Resource data to SAP
 - Actuals to P6
- ABAP code to move data in and out of SAP
- Fixed Oracle API's to move data in and out of P6

P6 - BW Interface: P6 Reporting Database



P6 Version 7 includes the P6 Reporting Database (PRD). The PRD is used for:

Making P6 data permanent

Some data in the P6 user interface is calculated on the fly and not available in the database. The PRD makes it permanent so it is available for transfer to the BW

Transforming information

The project structures in SAP PS and P6 are not fully compatible (P6 cannot carry costs on a WBS element; SAP can). The PRD transforms the P6 information so it will fit in the project structure in the BW.

Sharepoint - BW Interface: Informatica



Informatica is the tool used for preparing Sharepoint data for loading into the BW. Informatica is used for:

- Extracting Sharepoint list information into a consolidated dataset across all projects
- Creating csv files for loading into the BW

BW field length is limited to approx. 1,300 characters

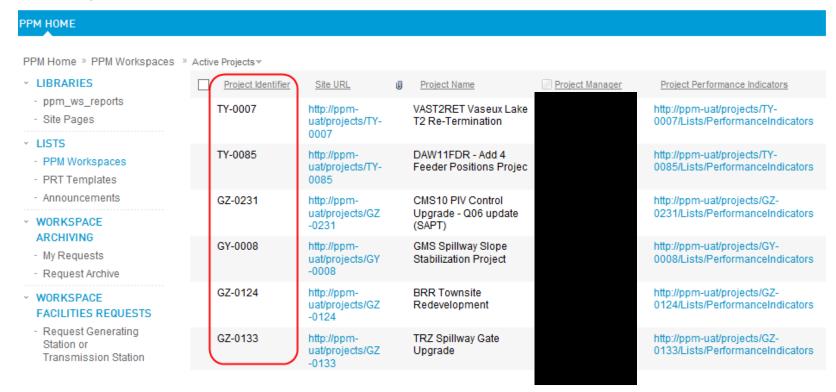
Csv format puts restrictions on the use of certain characters



Every PPM project has an associated PPM Workspace in Sharepoint

PPM HOME

PPM Workspace

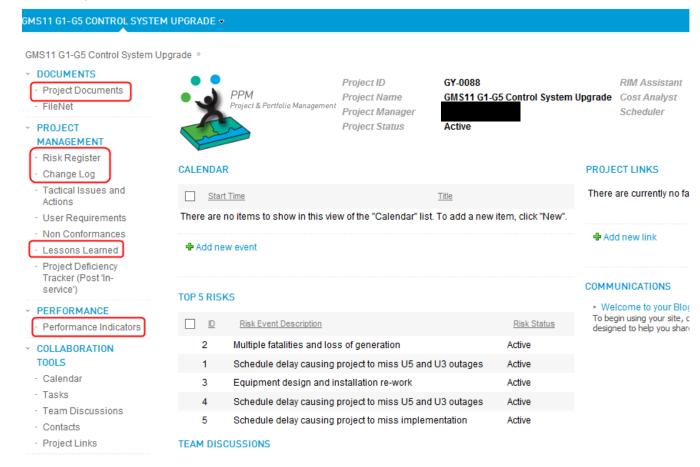




Most important functionality in PPM Workspace:

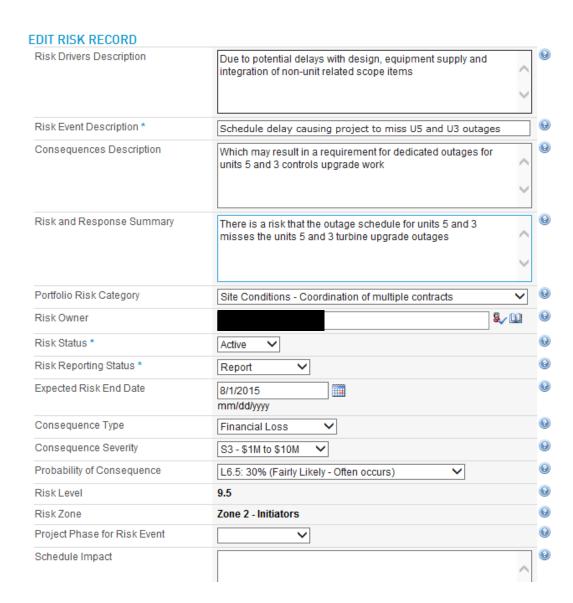
GMS11 G1-G5 CONTROL SYSTEM UPGRADE

PPM Workspace





Risk Register





Change Log

EDIT CHANGE LOG ENTRY

Title *	Unplanned upgrade to generator deluge system	0
Project Phase *	Implementation	0
Change Level *	Work Package Level	0
Funded By	Contingency Draw	0
Change Type *	Cost	0
Change Driver		0
Related Risk		0
Next Actions		0
Description of Change (What)	Transfer \$15K from the Inflation Fund (Activity 4417 in P6) to "Generation Design Engineering - L5 IMP" Work Package	•
Reason for Change (Why)		0
Implementation of Change (How, Who)		0
Impact Assessment		0
Work Package Adjustment(\$)	\$15,000.00	0
Contingency Adjustment(\$)		0
Work Packages Affected	Generation Design Engineering - L5 IMP (GY-0088.4.Z.02.04)	0
Work Package Manager 1		0
WPM 1 Acceptance		0
Work Package Manager 2		0
WPM 2 Acceptance		0
Work Package Manager 3		0
WPM 3 Acceptance		0
Change Status *	Approved	0
Decision Date	5/26/2014	(2)



Lessons Learned

<u>ID</u>	<u>Title</u>	PPM Practice Area	PPM Procedure	Key Equipment	Issue/Opportunity	Recommended Actions	Reporting Status
1	Contract Schedule	Construction & Contract Management	Contract Management	N/A	Do allow contractor to start onsite work without an approved Contract Schedule.	If the Contract Schedule is not submitted ontime, promptly send a letter to the contractor notifying them of the late submission. Remind the contractor that site work cannot start without an approved schedule. Consider telling the contractor that if the Contract Schedule is not submitted with a specific number of days that you will issue a Notice of Delay.	Report
2	Site visit access	Construction & Contract Management	Contract Management	N/A	Ensure that all areas needed for completion of the scope of work have access during the procurement site visit	If areas needed for contruction work are normally inaccessble, make these areas accessible for the site visit.	Report
3	Construction Schedule Critical Path	Construction & Contract Management	Contract Management	N/A	Contractor and BC Hydro could not agree on the critical path activities of the contract schedule. Issue never came up until well after the Contract Schedule was agreed.	Agree to the critical path prior to accepting the Contract Schedule.	Draft for Review
4	Submissions Schedule	Procurement	N/A	N/A	Create a realistic schedule for the list of submissions prior to issuing the contract for tender. Ex. 14 days for a Contract Schedule is not realistic.	The submissions schedule should be developed with input/direction from Construction Management.	Draft for Review

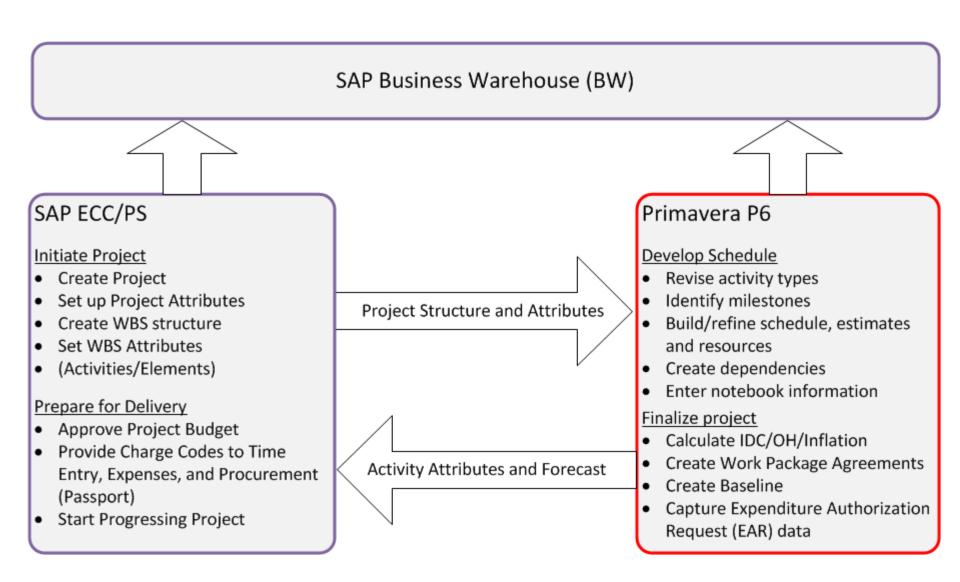


Performance Indicators

Indicator ID↓	Indicator Name	Indicator Value	Comments
26	Operational Issues	N/A	
23	Project Health	Amber	Tranche #1 - Implementation Phase
			Plant LAN extension work is complete. Integration testing of all G5 panels is complete. All G5 panels have been delivered to site. G5 UCB, SIP and RTU panels have been installed. G5 cabling pulling (6km) is 80% complete G5 UCB interpanel termination work has started.
			Tranche #2 - Definition Phase
			Working with site mgmt regarding clarification of GMS GPO role. $\label{eq:classical}$
22	Project Description	N/A	Design, procure, install and commission replacement unit control Units 9 to 10, replacement controls for intake systems, replacem remote operation controls for GMS and PCN.
21	Stakeholders	Green	
16	First Nations	Green	
13	Schedule	Green	Tranche #1 - Implementation Phase
			G5 installation work is in progress - on schedule G3 detailed design work is in progress - on schedule
			Tranche #2 - Definition Phase
			Control room design concept report has been issued. Attachments
12	Cost	Green	Project had budgeted to spent \$2.8M (PV) Project has actually spent \$2.1M (AC) Project has completed \$2.4M worth of work (EV)

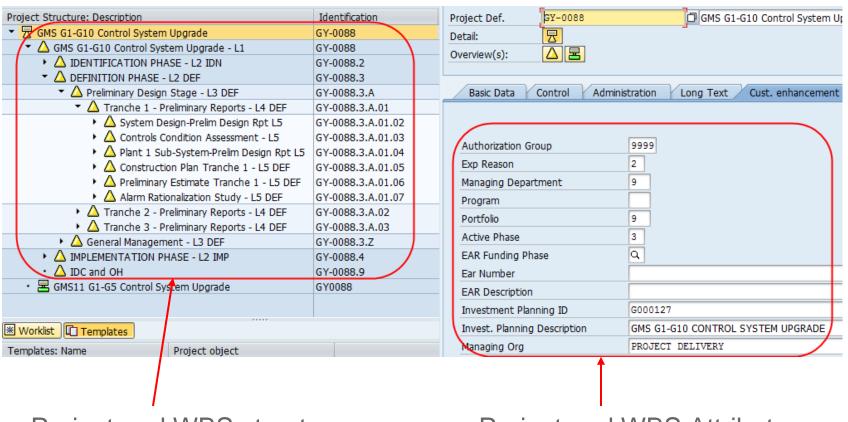








Initiate Project in SAP:

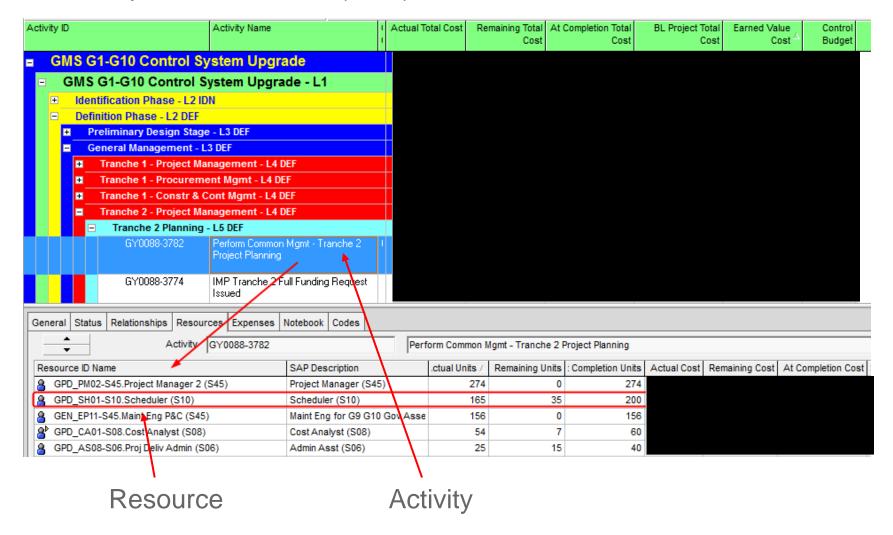


Project and WBS structure

Project and WBS Attributes



Develop Schedule in P6 (Cost):





Develop Schedule in P6 (Dates):





Finalize Project: Interest During Construction (IDC)/Overhead (OH)

Act	ivity	ID	Activity Name	At Completion Total Cost	BL Project Total Cost
-	G	Y-0088 GMS G1-G10	Control System Upgrade		
E	-	GY-0088.GY-0088 GMS	G1-G10 Control System Upgrade - L1		
	+	GY-0088.GY-00882 Identi	fication Phase - L2 IDN		
	+	GY-0088.GY-00883 Defini	tion Phase - L2 DEF		
	+	GY-0088.GY-00884 Imple	mentation Phase - L2 IMP		
	=	GY-0088.GY-00889 IDC at	nd OH		
		Z.2	Z.2 - Identification Phase - L2 IDN		
		Z.2.A.01.01	Z.2.A.01.01 - Project Plan (Seed Funded) F950-L5 IDNO		
		Z.2.D.01.01	Z.2.D.01.01 - Project Plan (Seed Funded) F100 - L5 IDN		
		Z.2.C.01.01	Z.2.C.01.01 - Feasibility Report - L5 IDN		
		Z.2.Z.01.01	Z.2.Z.01.01 - Project Management - L5 IDN		
		Z.2.Z.01.03	Z.2.Z.01.03 - Estimating - L5 IDN		
		Z.2.Z.03.01	Z.2.Z.03.01 - Procurement Management - L5 IDN		
		Z.3.Z.01.01	Z.3.Z.01.01 - Project Management - L5 DEF		
		Z.4.Z.01.01	Z.4.Z.01.01 - Project Management - L5 IMP		
		Z.2.Z.01.09	Z.2.Z.01.09 - Contingency - L5 IDN		
		Z.3.Z.05.01	Z.3.Z.05.01 - Construction Management - L5 DEF		
		Z.3.Z.03.01	Z.3.Z.03.01 - Procurement Management - L5 DEF		

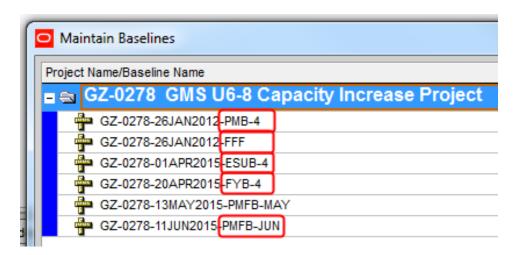


Finalize Project: Work Package Agreement

BChydro 🛭		Work Package Agreement												
Project No: GY-0044]					Date/Time:	May-12	-2015 1:45:52PM			
Project Name: VAR 600v	/ Circuit Breaker & Me	tal Clad		i					Data Date	Apr-01-	2015			
Work Package No. (WBS):	GY-0044.2.Z.01.0	1					Start Date:	Feb 29, 2012	Approv	ed Amou	nt:			
Work Package Description:	Project Managem	ent - L5 IDN					End Date:	May 10, 2018	Agre	ed Amou	nt:	\$0		
Work Package Manager:									_					
Scope: 1. WORK PACKAGE SCOPE Provide Project Management Services to: Monitoring of Work Package progress (ie. monitor scope, cost, schedule and deliverable due dates) Progress Work Package Activities on a monthly basis Coordinate project meetings as required Review Conceptual Design Report ? Review sketches of alternatives. Review Foscibility Design Report Review Procurement Strategy. Review Ontracting Plan. Participate in Constructability Review - Identif Prepare Risk Register Lead the development of the User Requireme Review Safety Management Plan Work Package Agreement														
Prepare Project Hazar Prepare Risk Register Lead the developmen Review Safety Manag	d Log t of the User Requireme ement Plan	BChydro	0					Work Pack	age Agreen	nent				
Prepare Project Hazar Prepare Risk Register Lead the developmen Review Safety Manag Prepare project plan : Construction Management Se Coordination of site v	d Log t of the User Requireme ement Plan and DEF phase documer rvices isits for project team	BChydro	0					Work Pack	age Agreen	nent				
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Prepare Project Hazai Prepare Risk Register Lead the developmen Review Safety Manag Prepare project plan : Construction Management Se Coordination of site v Feasibility Design rev Provide input and ass Scope will be delivered in acc WORK PACKAGE SCHED	t of the User Requireme ement Plan and DEF phase documer rvices isits for project team ewe from a constructabil ist with the DEF and IN ordance with EARG Proj	Activity ID GY0044-2170	(1)	Revise MCA	A schedul			<u>Start</u>	<u>Finish</u> Jan 02, 2015	5 Hours	56	Labor	Expenses Dollars	
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Prepare Project Hazai Prepare Risk Register Lead the developmen Review Safety Manag Prepare project plan : Construction Management Se Coordination of site v Feasibility Design rev Provide input and ass Scope will be delivered in acc WORK PACKAGE SCHED	t of the User Requireme ement Plan and DEF phase documer rvices isits for project team ewe from a constructabil ist with the DEF and IN ordance with EARG Proj	Activity ID GY0044-2170 Resource Scheduler (S10)	•	Network GY0044 Activity Na	NWA 2170	NWAE A035	SAP Description	<u>Start</u> Dec 22, 2014	Finish Jan 02, 2015 Actual Re 56 Finish	Hours maining 0	56 At Completion	Labor	Expenses Dollars	
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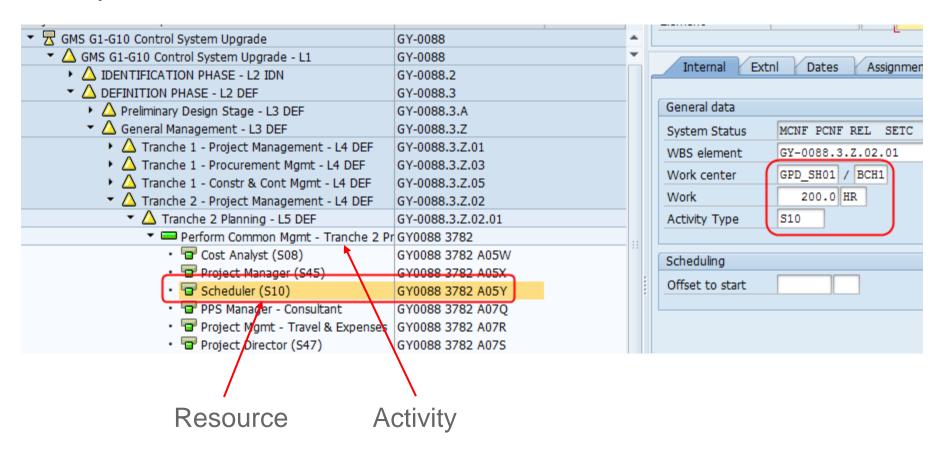
Finalize Project:
Create Baseline



Term	What does it mean	What is it
PMB	Performance Measurement Baseline	The project data (cost and schedule) as it was saved after the latest EAR was approved
PMFB	Prior Month Forecast Baseline	The project data (cost and schedule) as it was saved after the latest project progression
FFF	First Full Funding	Approved project budget the first time the whole project was approved for delivery
FYB	Fiscal Year Baseline	Baseline for fiscal year milestone scorecard performance
ESUB	EAR Submission	Baseline to be used as basis for the approved Plan Version in SAP



Sync Back to SAP:

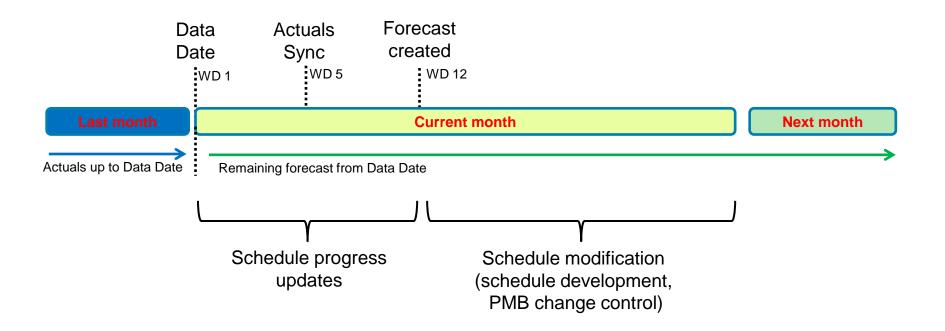


Project Lifecycle: Monthly Progressing

Schedule Progress Cycle - "Work Day 12" Timeline



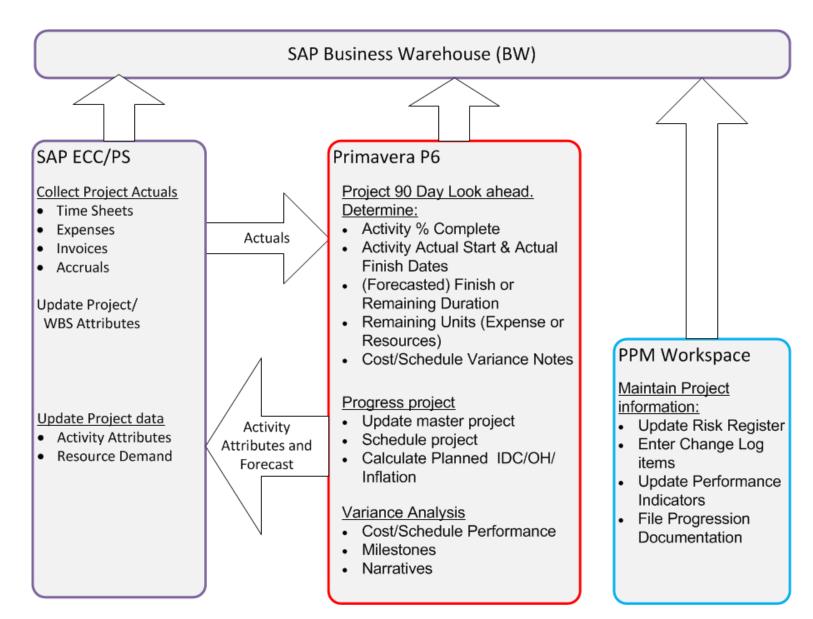
- Progress updated directly in current schedule (no reflections)
- SAP Actuals available by WD3 (Direct Costs) and WD5 (Loaded Costs)
- Forecast finished by end of Work Day 12





Project Lifecycle: Monthly Progressing

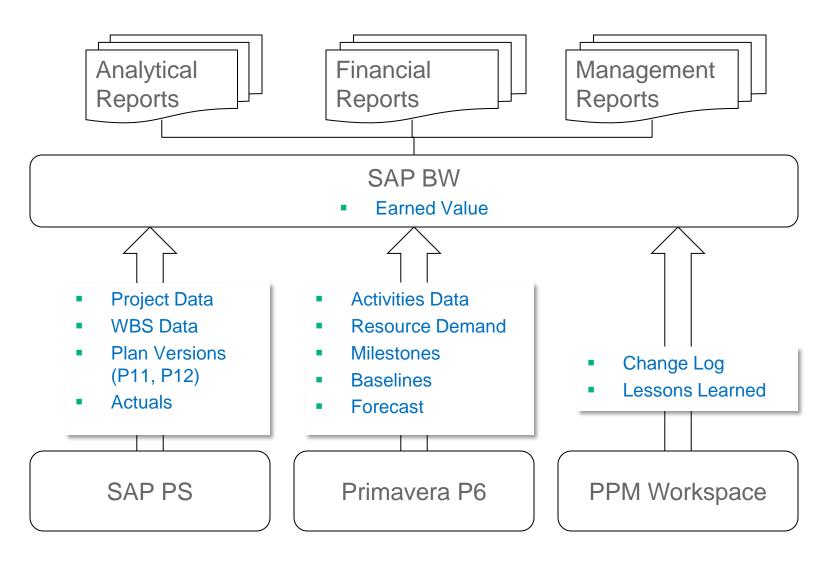




Integrated Reporting

This is where the information comes from

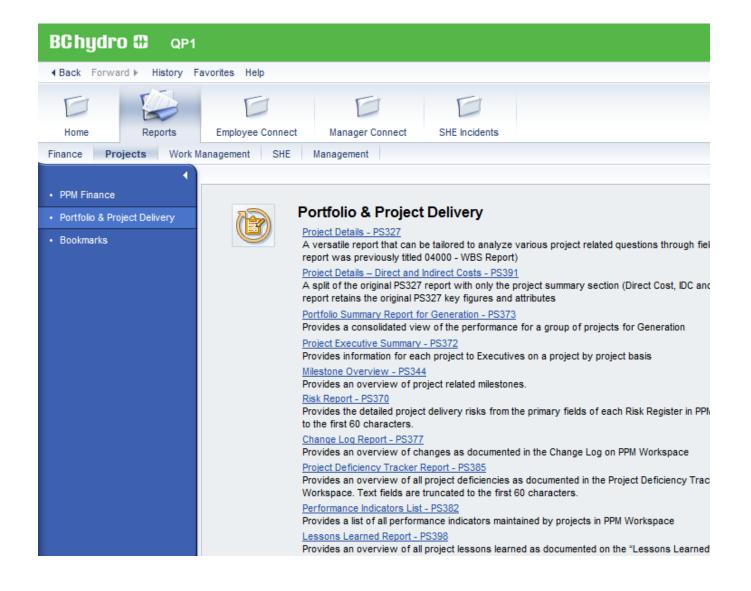






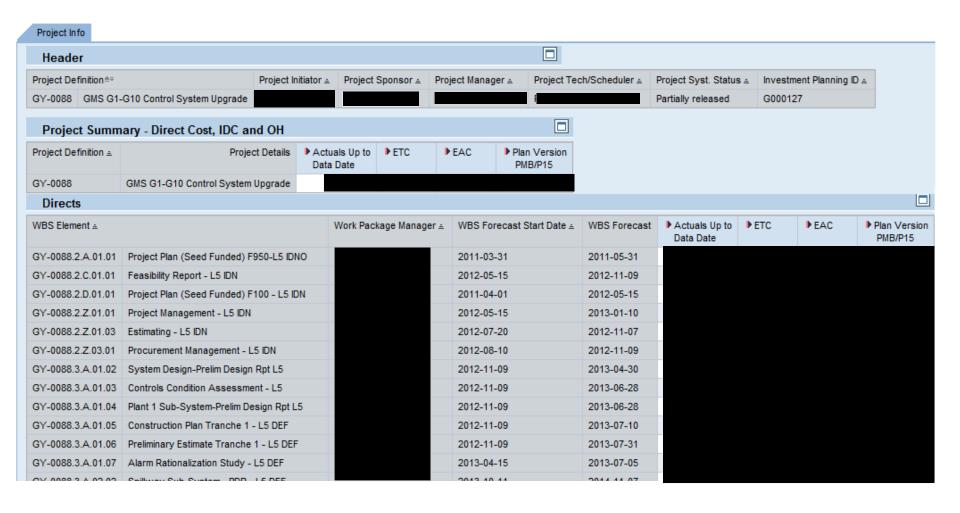
PPM BW – Most important reports





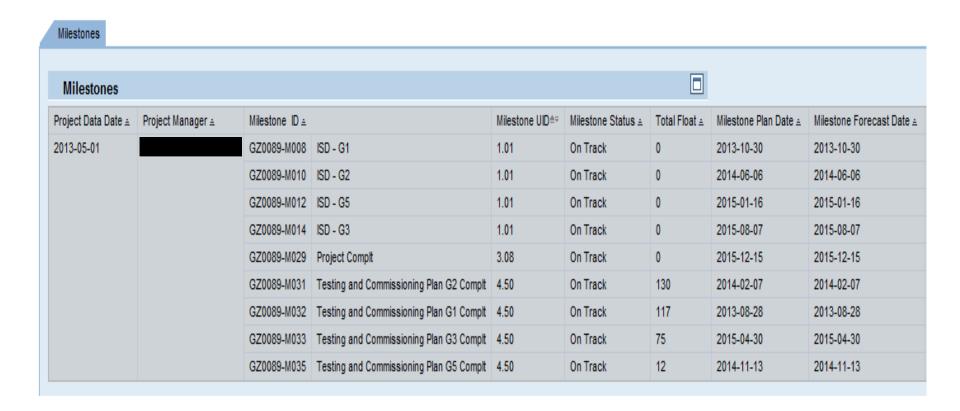
Project Details Report





Milestone Report





Change Log Report



Change Log Change Layout Work Package Contingency Adjustment: Adjustment: Project Definition≜= Title ± Change Level ± Funded By ± Change Status ± GY-0088 GMS G1-G10 Control Additional \$125K of Definition Phase Tranche Project Level EAR Revision Under Review System Upgrade Bernard Liu Rotation at GMS Work Package Level Contingency Draw Forecasted Under Review Change of Quality Mgmt & Assurance WPM Work Package Level Contingency Draw Contingency Adjustment 1 Contingency Adjustme Contingency Increase Approved Contingency Adjustment 2 Contingency Adjustme Contingency Reductio Approved Contingency Draw 1 Work Package Level Contingency Draw Approved Contingency Draw Contingency Draw 3 - Unplanned Expense Work Package Level Approved Contingency Draw 4- Unplanned Expense Work Package Level Contingency Draw Approved EAR Rev 1 Project Level EAR Revision Approved EAR Rev 2 Project Level EAR Revision Approved EAR Rev 3 Project Level EAR Revision Approved EAR Rev 4 Project Level EAR Revision Approved EAR Rev 5 Project Level EAR Revision Under Review EAR0 Project Level EAR Revision Under Review Expense Reduction Work Package Level Work Package Undersp Approved Expense Reduction for CS Labs Contingency Adjustme Contingency Reductio Approved

Lessons Learned Report



Lessons	Learned			
Chang	je Layout			
Project De	finition ±	Title ≞	PPM Practice Area ±	Key Equipment =
GE-0007	Technical Services RFS	Test Lesson	Procurement	N/A
GZ-0004	MCA Unit 5 & Unit 6	Contract Schedule	Construction & Contract Management	N/A
		Site visit access	Construction & Contract Management	N/A

Issue / Opportunity ±	Recommended Actions ±
Testing an issue/opportunity	These are the actions you should take
Do allow contractor to start onsite work without an approved Contract Schedule.	If the Contract Schedule is not submitted ontime promptly send a letter to the contractor notifying them of the late submission. Remind the contractor that site work cannot start without an approved schedule. Consider telling the contractor that if the Contract Schedule is not submitted with a specific number of days that you will issue a Notice of Delay.
Ensure that all areas needed for completion of the scope of work have access during the procurement site visit	If areas needed for contruction work are normally inaccessble make these areas accessible for the site visit

PPM Integrated Executive Reporting



The PPM Executive reports in the BW are integrating the following project management dimensions:

- Scope
- Schedule
- Costs
- Portfolio/Program Structures
- Governance

- Resource Demand/Capacity
- Risk Management
- Project Change Control
- Performance Indicators

Examples:

- Project Executive Summary
- Portfolio Summary

PPM Integrated BW Reporting



Project Executive Summary (PS372) - pdf

Unifier within PPM

P6 – Unifier integration



Main Objectives of using Unifier:

- Capture Contract details
- Facilitate monthly Payment Estimates
- Capture Contract Changes
- Manage Contract Milestones

In P6

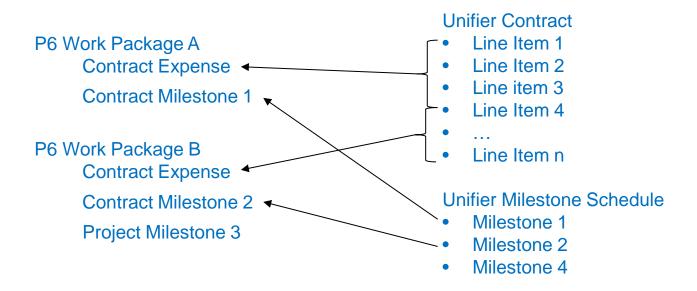
- Manage Work Packages
 - Contract Expense Forecast
 - Contract Actuals
 - Cash Flow profile
- Manage Milestones
 - Plan Date
 - Forecast Date

In Unifier

- Manage Contracts
 - Line Item Forecast
 - Line Item Payments
 - Contract Changes
- Manage Milestones
 - Forecast Date

P6 – Unifier integration





- Multiple Contract Line items in Unifier are related to one Contract Expense in P6 through the P6 Activity ID
- Line item Remaining Forecast is rolled up to the P6 Contract Expense
- Milestones in both Unifier and P6 are linked through the P6 activity ID
- Milestone Forecast date is kept synchronized between systems

PPM Success Factors

PPM Success Factors



Success of PPM is hinging on several factors:

- Clear Practices
- Defined PPM Roles
- Standard Work Breakdown Structure
- Monthly Project Progression Cycle
- Consistent Change Control
- Comprehensive Risk Management
- Integrated Reporting (no manual intervention)
- Well defined Solution Governance
- Active Enhancement program

Questions?



BC Hydro Contact:

, PPM Tools Business Lead