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Heavy Oil
Controlled Document

Quest CCS Project

Project Control Plan

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1. OVERVIEW & OBJECTIVES :

The objective of the Project Control Plan (PCP) for the DEFINE (FEED)and Execute phases is to provide a specific plan, in line with Shell's guides and project control procedures (PSM-I-U-001182-FA-0003), that identifies the project controls methods, tools and techniques that will allow identification of potential budget and schedule deviations at an early stage, in a consistent manner, enabling PLT (Project Leadership Team) to make decisions that mitigate potential negative cost and schedule impacts.

This plan will take into consideration the knowledge and learning lessons of Scotford Upgrader Expansion 1. The Project Control Team will also develop project specific Leading Indicators (LI) to be utilized for high-level progress and performance analysis and for reporting of early warning signs of cost and schedule variances.

A dedicated Shell Project Control team will be responsible for managing the Contractors & alliance contractor project control teams and subsequently responsible for overall project controls for the Quest project. This team will work with the Contractors organizations during the DEFINE (FEED) phase in order for them to develop project specific procedures and reporting systems that comply with this PCP.

The current contracting strategy pursues separate Contractors for sub-projects (CO2 Capture facilities, Pipeline & Sequestration/Well Delivery) with one Project control team for all 11 areas to be established to manage the QUEST project:

- A - Common
- B- HMU
- C – CO2 Capture Facilities (Greenfield)
- D - Utilities
- E - Offsites (Brownfield)
- F- Reservoir
- G-Wells
- H-Logistics
- I – MMV
- J-Pipeline
- K – Wellsite/Hook up

a. PCP during DEFINE (FEED):

Upon setting of overall cost and scheduling targets of the Quest project by the Project team and after PM's approval, the Shell's P&T Project Control team, assisted by Heavy Oil – Onshore Project Services will be responsible for the application of project control functions in order to achieve the following goals:

- Directing the Contractors efforts in the development of integrated Contractors' schedules for the Execute Phase.
- Participate and provide guidance in the development of the Contractors ' budget estimates

- Management of Change along with the compilation of changes log, and PLT involvement.
- Participate with the Heavy Oil/P&T Core Group estimation department in the preparation of Owner's costs, Contingency, etc and check estimates.
- Development of project specific PLIs (Project leading Indicators) that will be used for control and reporting in Execute phase.
- Continued cost and schedule control of DEFINE (FEED) budget and baseline schedule as per project standards 06.
- Reporting and analysis of DEFINE (FEED) performance to PLT in an Earned Value context.
- Final configuration of scope to allow preparation of budget estimate.
- Delivery of budget estimate including Cost and Schedule Risk Analysis at the end of DEFINE (FEED)
- Agreement with contractors on all project control systems, reports and data DEFINE (FEED) back during the Execute phase.

During this phase, Shell's Project Control team will have presence in the Contractors' offices in order to closely monitor the contractors' performances, provide immediate support and directions, as needed, and commence the team building process in order to ensure a smooth transition into the Execute phase.

The project control team will ensure that the execution of DEFINE is executed with close attention to the followings:

- Tight control of Management of Change in order to minimize any negative cost and schedule impacts.
- Leveraging of the knowledge acquired during the execution of SU Expansion 1 as similar Scotford site.

b. PCP during Execute Phase: (Preliminary)

Key activities during DEFINE (FEED) phase is to develop robust and detailed Project Control Plan for Execute phase. This PCP for execute phase is preliminary and to be developed further with associated project specific project control procedure. The same processes and tools identified in this PCP will be followed during the Execute phase. During the DEFINE (FEED) phase, the Project Control Team will work with the selected Contractors to set up their systems to be in line with the requirements of this PCP. The PCP requirements are at high-level, hence, the contractors systems at lower levels are kept as aiming to minimize the need for modifications and the contractors will be conform to Shells' Work Breakdown Structure as outlined in Quest WBS procedure. This approach is in line with Shell's approach of working with the contractors' systems rather than demanding changes whilst maintaining its minimum standard on project control and reporting.

The goals of PCP for the Execute phase are to deliver as promised the budget and schedule targets (or better) and this will be pursued with close attention to the followings:

- Monitoring of Leading Indicators (LIs) performances for recognition and mitigation of early warning signs

- Robust Management of Change especially for changes in forecast related to forecasting due to performance

2. PROJECT CONTROL ORGANISATION & RESPONSIBILITY

The Overall Quest Project Control organization & responsibilities for Define phase is developed and summarize as follows. During Define phase, project control team will update the project control organizations organization and roles & responsibilities to be developed for team.

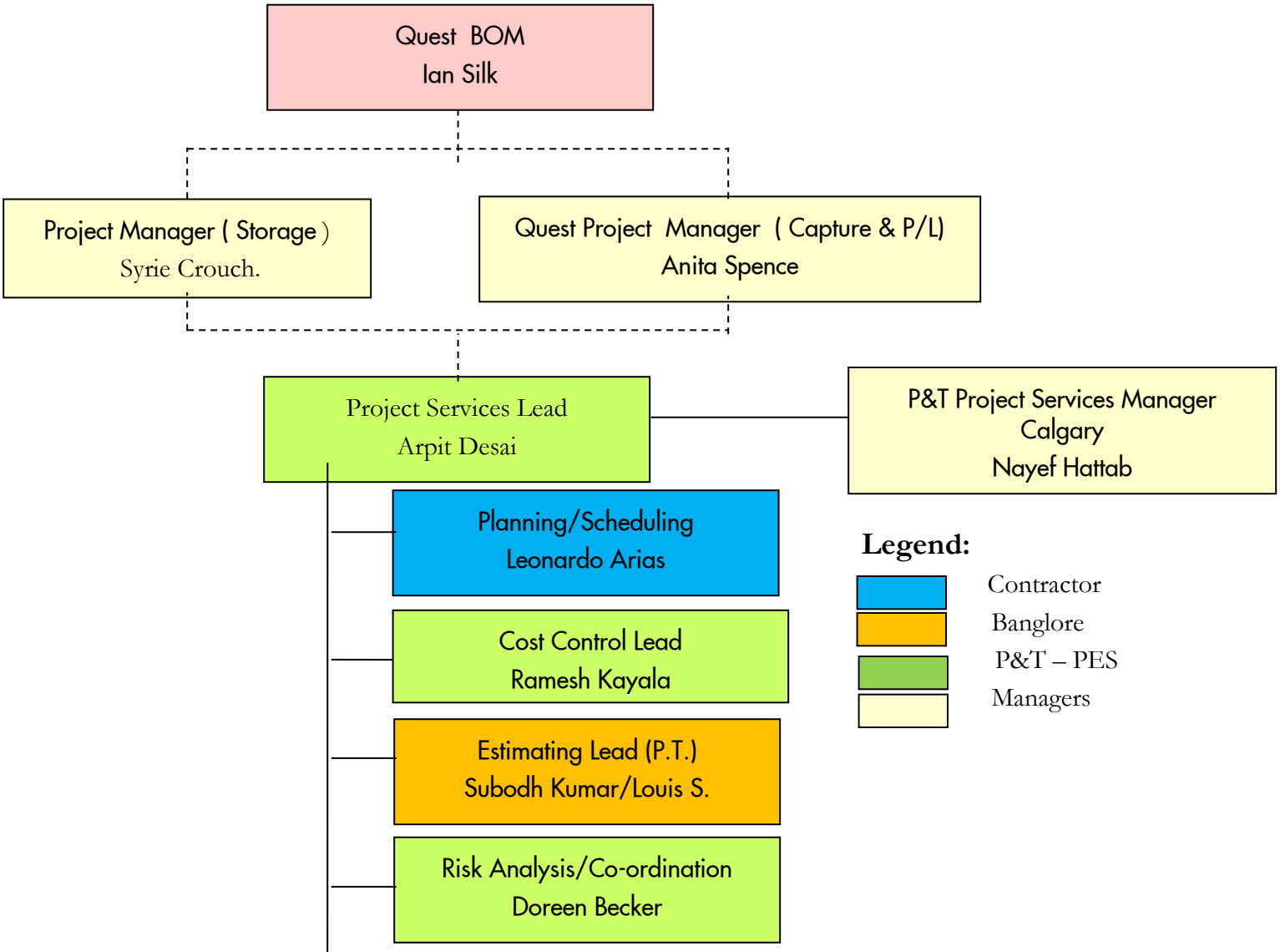
The QUEST Project Services Lead will directly report to P&T Project Services Manager – Calgary and indirectly report to Quest Project Manager. QUEST Project Services lead is member of QUEST Project Leadership team and reporting cost and schedule related project data to QUEST Project Manager and Business Opportunity manager for Quest Venture.

The QUEST Project Services lead has overall accountability of managing cost & schedule, collection, analyzing and reporting of project data relating to planning, scheduling, cost control, change management, estimating, progress management and information management (until appropriate transition to other group). Project Services lead is also accountable for the Risk co-ordination and reporting and assisting Project Manager and BOM.

A major transfer from JDE to SAP Blueprint is anticipated to occur before FID. Global Cost management tool Dassian will also implemented in 2012 timeframe (before or after FID). The Project Services Lead will be responsible for managing JDE to SAP Blueprint as well as PRISM to Dassian smooth transfer with minimal impact to the project.

2.1 Project Services/Control Organization :

Figure 2: Project Service/Controls Organization Chart



*: Estimating lead from P&T Bangalore office plus some supervisory support from Onshore Projects estimating team as needed

2.2 Roles & Responsibility :

The responsibilities of the Quest Project Services team for Define phase is developed and as follows. Roles & Responsibilities for Execute phase will be further developed during Define phase for the Execute phase.

A. <u>Project Services Lead – Define Phase</u>

Project Services Lead is responsible for the overall project control function during DEFINE (FEED) phase.

- Provide overall total project management to ensure that the **Define Phase** of the project is carried out within the allocated budget and schedule parameters.
- Accountable for Reporting Project Performance via Project Monthly Report.
- Accountable for all Project Services deliverables.
- Update and maintain the Project Controls Plan for Define Phase. Develop and prepare the Project control plan for Execute phase.
- Participate in the PLT, VLT and other project meetings, as appropriate.
- Work closely with Finance, C&P and Construction Leads to ensure continuity and effective resolution of interface issues.
- Evaluate, monitor, and analyze Contractos' progress and performance
- Participate and accountable for developing and review for in-house Type 2 estimate preparations of the Execute phase.

Responsibilities specific to EPCM Contractor

- Review and participate in the preparation of EPCM contractors estimates.
- Identification of reporting structures required from Contractors.
- Ensure EPCM contractors compliance with WBS
- Provide guidelines to Contractor for the preparation of schedule activities to be in line with the WBS structure.
- Identify the activities metrics (physical quantities and deliverables) for execute phase that will be used as the basis for progress reporting.
- Review and evaluate Contractors' key project control personnel for technical capability and experience.
- Maintain a continuous evaluation and interpretation of the sub-contractors project cost and schedule statuses and forecasts versus the established budget and schedule baselines.
- Review and approve the sub-contractor's project cost code of accounts and assist in mapping to Quest Code of Accounts in PRISM .
- Evaluate the Contractor's project cost and schedule procedures, reporting programs, and cost systems and recommend improvements, if required.
- Monitor, analyze and interpret man-hour expenditures and forecasts against planned baselines by major discipline and in total.
- Monitor, analyze and interpret status, progress actual and forecasts against established baseline for total expenditures and commitment reports.
- Monitor, analyze and interpret status, progress, actuals and forecasts against established baselines for the following on a periodic basis:
    a. Progress Curves
    b. Manpower costs, based on earned value
    c. Manpower productivities, based upon earned quantities.

d. Manpower rates.

- Monitor schedule updates and deviations from the established baseline schedule
- Continuous analysis and monitoring of the Schedule Critical Path.

B. Cost Engineer – Define Phase

- Compile and produce monthly cost reports and Project Monthly Report.
- Maintain Forecast.
- Interface with contractors to ensure consistent cost reporting.
- Maintain interfaces between cost control and accounting systems
- Maintain WBS and interface with Heavy oil Finance Department.
- Prepare and maintain Define Phase Cost Plan
- Maintain resource plan and CTR's for Define phase.
- Cost probablity analysis input to assist/determine EAC.
- Implement project standard processes, as necessary.
- Develop and prepare the project specific "Cost Management" procedure in line with Shell PCSP for execute phase.
- Develop and Implementation of process/procedure for Dassian tool and smooth transition from JDE to SAP Blueprint during before FID.

C. Planner/Scheduler – Define Phase

- Maintain the Quest Level 3 Project Integrated Schedule based on baseline schedule.
- Analyze Critical Path and monitor Key Milestones.
- Adhoc review and audit contractors physical progress and schedule updates.
- Integrate various sub-projects physical progress and provide Progress S-Curve
- Provide input and support for Earned Value report.
- Coordinate and produce all required monthly planning reports
- Implement project standard processes, as necessary.
- Develop and prepare the Quest Level-3 integrated schedule with schedule basis for Execute phase and support in probabilistic schedule risk analysis.
- Develop and prepare the project specific "Schedule Management" procedures in line with Shell PCSP for execute phase.

D. Cost Estimator – Define Phase

- Development of Shell Type 3 bottom's up cost estimate with significant technical input from contractors.
- Review, guide, defining basis of estimate, negotiation and support during the DEFINE (FEED) phase to subproject's contractors for Type 3 estimate (budget estimate) preparation.
- Support in probabilistic cost risk analysis.

2.3 Key Interfaces :

The project controls team key interfaces during Define phase are: Venture Leadership team, Capture & Pipeline Project Leadership, Storage project Leadership, Regulatory and Stakeholder management team, Capture EPCCM contractor, Pipeline EPC Contractor, Scotford Site project group, Tie –in implementation contractor, JV partners for various reviews/assurances, C&P, Finance.

2.4 Resource Plan :

The Quest Project control team resource plan for Define phase covers all resources and support for the Quest Venture, Capture & Pipeline & Storage team in the Calgary office. The detailed plan for the project control resources is developed and attached in CTR. During Define phase, project services lead in discussions with Project Services manager – Calgary will develop the overall project control resource plan for the execute phase including site, module yard, home/engg. office etc.

3. COST CONTROL :

Cost control during any phase of a project comprises the setting up of the cost procedures and systems and the monitoring and the reporting of the actual project expenditure and commitments against the approved project budget. The early identification and registration of deviations together with the following of trends enables project management to control the project.

Regular reporting of the Value of Work Done, Commitments and assessment of the cost of work remaining should detect any potential over or under expenditure in good time for proper management action. Project progress is continuously monitored, in physical and financial terms. In addition to these primary objectives of cost control throughout the various phases of a project, it should provide data for:

- Capital expenditure phasing reflecting the anticipated progress of the Value of Work Done
- A breakdown of the value of the final fixed assets
- Future estimating and planning purposes

Cost control on this project will be accomplished by the implementation of the project control processes and tools described in the following sub-sections.

a. Work Breakdown Structures

The Work Breakdown Structure (WBS) is a hierarchical subdivision of a project work scope to be controlled by the project team. The WBS allows cost, resources and schedule control to be exercised.

The WBS shall be consistently applied in all planning and schedule documents, progress control, cost control and reporting documents.

The WBS for Quest is developed and maintained in accordance with the project-specific WBS procedure. - 07-0-FA-5792-0001 Rev. 02

b. Cost, Time, and Resources (CTR) Catalog

A Cost, Time and Resource (CTR) catalogue consists of a number of individual CTR sheets that break down the project scope into identifiable work activities. A CTR sheet is a document that defines those requirements to complete an activity. Each WBS element will comprise of one or more CTR sheet(s).

The CTR catalog for Quest for Define phase (2011 & up to FID 2012) is developed already and will maintained during Define phase. Project-specific CTR Catalog procedure for Execute phase will be developed during Define phase and maintained in accordance with the CTR Catalog procedure.

c. Value of Work Done (VOWD)

VOWD is defined as an estimate of "the cost of goods and services received, at a point in time expressed in monetary terms, regardless of whether they have been paid for" and shall be calculated in the local currency of the contract / work.

VOWD is the summation of:

- Value of invoices received and paid excluding excess payments due to pre-funding.
- Value of posted internal charges.
- Value of entries made into the ERP system to make provision for goods & services received but not yet paid.

VOWD is a key financial measure of the project costs because it is consolidated and published in the Group financial results, which are subject to external regulation (including Sarbanes Oxley or other new applicable regulations).

VOWD will be calculated, recorded, and reported each month in accordance with the RDS VOWD procedure PSM-I-U-001182-FA-6180-0022. During Define phase project team will develop the project specific VOWD procedure for the project.

d. Commitment Management

Commitment status will be reported as part of the monthly project management report which includes the comparison of Total commitments and forecast commitments against Planned commitment and approved budget/funds.

Commitment is the value of any contract, purchase order or other agreement between the project and a supplier of goods and/or services, including agreed changes as they are approved and shall be recorded in the transactional currency of the agreement**.**

The Commitment process defines leading information to identify if, and when, corrective action is needed to complete deliverables on time and within budget.

Commitments will be authorized, recorded, and reported each month in accordance with the RDS Commitments procedure – PSM-I-U-001182-FA-6180-23

e. Management of Change

The Management of Change process consists of the following steps:

- Identifying and recording change
- Evaluating and approving change
- Reporting change

Management of Change will be accomplished in accordance with the project-specific Management of Change procedure, - 07-0-AA-6015-0001.

Fluor (Capture Facilities EPC contractor) and Tri-Ocean (Pipeline Contractor) will manage their scope's TIC during the define phase and each month report the define phase budget and overall TIC cost. Any changes to the scope and subsequent impact on TIC will be manage through Quest Management of Change process.

f. Earned Value Analysis

Earned Value Management (EVM) is a project control tool for performance monitoring and analysis. Corrective or recovery actions based on EVM are key to the project success. Quest EVM is a project management control tool that will integrate scope of work with both cost and schedule. The EVM method will measure project performance and includes Earned Value Analysis (EVA) and Earned Schedule (ES).

The EVA process combines both cost and schedule based on analyzing the variances between actual earned and planned cost of work performed.

The ES process is only applicable to schedule and is based on analyzing the variances between the actual time and the planned time taking to reach the earned value.

The results of Earned Value Management supports early warning, cost earned, forecast, communication and objective assessment.

Earned Value Analysis will be performed during Define phase, Capture sub-project EPC contractor will performed EV process as per agreed physical progress measurement and cost phasing of the contract and will report monthly. Pipeline sub-project EV process will be performed by Shell cost engineer. Storage sub-project is excluded for EV analysis during Define phase of the project. Overall integrated EV will be reported by Shell cost engineer on monthly basis will provide early warning to project/venture leadership team.

Earned Value Analysis project specific procedure for the execute phase will be developed by end of the Define phase based on Type 3 cost and L3 schedule estimates in accordance with the RDS Earned Value Management procedure – PSM-I-U-001182-FA-6180-000?

g. Cost and Cash Forecasting

A critical part of the monthly cost control process is the forecasting of the Estimate at Completion (EAC). The EAC is the current estimate, at the reporting period cut-off, of the final cost of the project including the Base Cost Forecast and the P50 Contingency Forecast. The Base Cost Forecast should consider the latest information on both external and internal commitments, including changes and performance trends, and also the latest estimates for uncommitted cost items. The P50 Contingency Forecast should consider the remaining contingency (original contingency minus contingency transfers to date) and an assessment of whether the remaining contingency is adequate to cover the remaining project risks and uncertainties.

The resulting EAC is compared to the project budget to determine if corrective actions and/or supplemental budget funds are required.

During Define phase based on Define phase CTR, cost engineer will monitor the FEED phase contractor's cost, Owner's cost and other misc. contracts cost and forecast and report the overall Quest project cost for DEFINE (FEED) phase. Cost and Cash Forecasting will be accomplished in accordance with the RDS Cost and Cash Forecasting procedure – PSM-I-U-001182-FA-6180-0026.

Cost and Cash Forecasting project specific procedure for the execute phase will be developed by end of the Define phase based on Type 3 cost and L3 schedule estimates in accordance with the RDS Cost and Cash Forecasting procedure – PSM-I-U-001182-FA-6180-0026.

h. Manual of Authorities and Delegation (MoA)

Delegated authorities are documented in the MoA Tool, included are MoA for organization that deal with the Organizational Authorities and MoAs for legal entities covering the Corporate Authorities, These Authorities are relevant for projects and cover both types of MoAs. Manuals of Authorities ensures that actions in the key business processes are taken with appropriate Authority. It also ensures, through single point accountability, that it is always clear who is accountable for a decision.

Controlled systems may grant approval rights to users. The approval rights that delegates have in the systems are already based on a controlled delegation process that is consistent with the MoA at a higher level. The system allows for specific approvals without listing the delegates for those approval rights in the MoA. However, MoA always takes precedence.

Within Shell there are already documents that list specific staff and process of MOA authority and there is no value added to relist those individuals or processes in a project specific document.

Quest project will adhere to Shell Canada – Heavy Oil – Manual of authorities for Project which is based on AOSP JV partner agreements. Manual of Authorities and Delegation will be accomplished in accordance with current heavy oil MoA process. Quest project's specific manual of authorities is under discussions/development and will finalize in 1Q-2011.

i. Cost Management Tools

The Quest Project will use the JDE system in which all project finance details and transactions are held or recorded during the DEFINE (FEED) phase. The Work Breakdown Structure (WBS) adopted for the project is reflected in PRISM cost management tool. The SERP system will be used for E&P time writing and expenses. The

Cost Management Tool (PRISM) will capture cost from EPC Contractors and JDE and SERP. PRISM will also be used for maintaining plans, phasing and project reporting.

Currently Shell Canada – Heavy Oil is implementing SAP Blueprint and implementation is planned for January 01' 2012. During Define phase, with support from Quest project control team and SAP Blueprint implementation team will develop the PRISM, SERP & SAP Blueprint interface for smooth transition to Execute phase and which will replace the Shell Canada JDE ERP tool for financial management. During Define phase, project leadership team will also make decision around implementing Global cost management tool Dassian during execute phase or continue with the PRISM tool during execute phase depending upon the Dassion tool implementation timeline.

During Define phase, project control team will make decision on implementing the Pipeline Group Financial system "Luminon" and C&P tool "Pipework" will interface with SAP Blueprint for financial details and reporting for execute phase.

Budget control

j. Project Budget

The current approved Budget for the Define phase of Quest Project is the total of the Original Budget as recorded in the JDE & PRISM and any approved changes. Where Co-Venturer requirements, legal requirements and Group annual capital ceilings require an annual budget, see Section 4.2.

The Quest Projects approved Define phase Budget will be distributed to the various scopes of work defined in the CTR Catalog to ensure that there is a clear understanding of the budget associated with each scope of work and clear ownership of the budget by the budget holders defined in the CTR Catalog.

The Quest Project approved Budget will be entered in UA's – Heavy Oil - JDE system in accordance with their normal budget management process. This allows tracking and reporting of commitments, expenditures, and Estimate at Completion (EAC) relative to the budget that is distributed to the summary level WBS elements.

Quest Capex Budget Management for the execute phase after FID will be accomplished by developing the project-specific Budget Management procedure during Define phase.

k. Annual Budget

The Annual Budget is used to delegate the authority to spend a defined part of the total approved Quest expense on Capital (Feasex) Budget in the applicable year. Co-Venturer requirements, legal requirements and Group annual capital ceilings are the main reasons for the use of an annual budget.

Annual expenditures will be tracked and reported to allow stewardship of expenditures versus the annual budgets of Shell and Co-Venturers/JV Partners.

4. INTEGRATED PLANNING AND SCHEDULE

An Integrated Master Schedule (Level 2) and underlying Detailed Define phase Schedule (Level 3) have been developed for the Quest project. The schedules have been developed using the Shell approved planning software, Primavera P6. The Detailed Schedule (Level 3) will serve as the control schedule for DEFINE (FEED) the project. It includes the entire scope of the project and is detailed enough to understand the regulatory, assurance activities, HSE, Contracting & Procurement across Quest venture, primary design, procurement, construction, and commissioning activities for the various sub-project of the Quest venture. Key milestones and interfaces between the sub-components are included. The schedule is logically linked such that the critical path and near-critical activities are visible and understood. Schedule risk analysis has been performed using the Shell approved schedule risk analysis software, Pertmaster, and the resulting schedule contingency has been reflected such that the schedule yields a P50 sustained operation (CO2 injection – Government of Alberta) milestone.

Each sub-project contractor (excluding storage) has prepared Define phase L3 schedule and Level 2 schedule for execute phase. Shell planning/scheduling lead in discussions with Storage team developed storage Select phase Level-3 schedule and Define & Execute phase Level-2 schedule. Shell planning/scheduling lead in discussions and buy in developed the Quest project Level-2 Commissioning and start up schedule. Overall integrated Quest Define phase Level-3 schedule is developed by Shell planning/scheduling lead including scheduling basis. During Define phase, each sub-project contractor (Fluor EPCCM for Capture & Tri-Ocean for Pipeline) will update their level-3 Define (FEED) schedule and approved updated schedules native primavera .XER file send to Shell. Shell planning/scheduling lead will update monthly Quest Venture, storage schedule and integrate each sub-projects updated schedule monthly. Each month Shell planning/scheduling review the updated schedule and analyse overall Quest project schedule.

Schedule management will be accomplished in accordance with the RDS Integrated Project Planning procedure PSM-I-U-001182-FA-6180-0010.

During Define phase, Shell planning/scheduling will developed the project specific integrated planning procedure.

5 PROGRESS MANAGEMENT

Progress measurement is the assessment of the proportion of actual work accomplished towards completion of specific project deliverables. Detailed agreed upon rules of credit for the measurement of physical progress on each relevant activity, including evidence required, is already agreed with the Capture EPCM Contractor and to be agreed upon with Pipeline contractor. During Define phase (Storage – is still in Select phase), project team will assess physical % progress by milestone for the storage sub-project. Storage schedule will be monitor via monitoring key milestones. Eg. "Integrated Reservoir modeling Gen 4", FDP Complete etc.

Shell planning/scheduling lead will integrated Capture, Pipeline & Storage projects agreed upon rules of credit and weighing factor physical % progress and report overall Quest project physical progress in the monthly report. Shell planning/scheduling lead will also monitor contractors productivity and forecast the schedules and provide early warnings to project manager.

Progress should be measured for all progress earning activities. If additional progress earning activities/changes are encountered, they should be added to the base scope of work and measured consistent with the progress management strategy.

Progress measurements will be carried out such that physical progress of the work can be related to both the WBS and Level 2 Integrated Master Schedule. To ensure data consistency, each level of schedule should be coded to enable roll-up and summary to higher levels. S-Curve reporting as per Appendix B is necessary with actual and forecast plotted against planned progress for the required duration

Progress Management for execute phase will be accomplished by preparing project-specific Progress Management procedure at the end of Define phase.

6. PROJECT CALENDAR

The purpose of the project calendar is to provide clarity of key dates across the Project. Typically the key dates comprise, but are not limited to project, contract and financial cut-off and reporting dates; important project meetings; key project milestones (progress and contractual) and holidays.

The Quest Project Team has established a Project Calendar and it is available in livelink.

Maintenance and use of the Project Calendar will be by Shell project services lead in accordance with the Project Calendar procedure – PSM-I-U-001182-FA-6180-00013.

7. REPORTING

7.1 Monthly Project Management Report

The Define phase progress of Quest project will be reported using single page pre-FID report. Sample attached. Fluor and Tri-ocean will use Shell project standard Monthly Project report – PSM-I-U-001182-FA-6180-0001 Monthly project management report for reporting progress.

7.2 Reporting Considerations for Partners and Other Key Stakeholders

The Monthly Project Management Report will be used for reporting to Partners the status of the project. The report will be reviewed for material appropriate for Shell only, updated in PDF format and circulated to Partners.

7.3 PROMIS Reporting

Quarterly, the UA's Projects Prioritization Coordinator (PPC) will request detail information on the projects status. The report is updated by the Project Finance Manager and reviewed by the BOM & Project Manager. The report is then uploaded into PROMIS by the PPC.

8. COST ESTIMATING :

The Project Control Team will be heavily involved with the contractors estimation departments, in the review, guiding, defining basis of estimate, negotiation and support during the DEFINE (FEED)estimate (budget estimate) preparation The Project control Team will also participate with the Heavy Oil/P&T Project Control Group in preparation of Check Estimates and estimates of other costs outside the Contractors Scopes like Owner's costs, etc.

The estimate will be structured in accordance with the Project WBS.

The estimates preparation steps are explained in the following subsections:

- **Introduction**

  At the end of DEFINE (FEED)a Level III Budget Authorization Estimate will be completed as part of the DEFINE (FEED)deliverables to support Final Investment Decision (FID). The estimate will be based on a minimum requirement of a 30% model review to support estimate definition. It will be expected that in order to support a 30% model review, a certain amount of detailed engineering will be required to be completed. The Contractor, and Shell will agree upon the level of detail engineering required to complete the estimate, prior to developing the estimate. The final estimate accuracy range shall be determined after the risk analysis has been completed.

  It should be noted that during the DEFINE (FEED)phase, the Shell cost estimators will be preparing a Check Estimate in parallel with the Contractor estimate. All MTO's, and technical data used by the Contractor to develop their estimate, will also be used by the Shell estimators to develop their Check Estimate. All documents to be used in the development of the DEFINE (FEED)estimate, shall be stamped "Issued for Estimate", and deposited into Livelink. The Shell Project team will also develop estimates for items outside of the Contractors scope, such as Owners Costs, and Operation Capital.

  The Contractor shall follow the Estimating Guidance Document within the RFP, this document will help guide the Contractor as to what Shell's expectations are for the Execute Budget Control estimates.

- **DEFINE Estimate Plan**

  The major estimating deliverable in DEFINE will be the Level III Budget Authorization estimate. The Owner will use the budget authorization estimate to support the Final Investment Decision (FID). The estimate will be a "bottoms-up", material take-off (MTO) based estimate.

Early in DEFINE (PRE-FEED/FEED), the - contractor will follow Shell's Estimate Guidance Document, to develop an overall estimating plan for the DEFINE (FEED) estimate. The estimating plan will outline the engineering deliverable requirements needed and contain a schedule of estimating activities with completion dates. The schedule should also contain the planned scope, and estimate review dates. The Contractor will invite members of the Shell Project Management Team (PMT) to participate in specific joint scope & estimate reviews. The estimate plans will be reviewed by and approved by the Shell QUESTProject Management Team

The DEFINE (FEED)estimate will be made up of all the MTO quantities available in the design at the time of the estimate deliverable cutoff, and any allowances required to cover future design growth. Equipment and Bulk material pricing will be based on new budget quotes and historical data, which will be escalated to Real Terms (todays value). Labour rates will be based on the latest labour agreements. Engineering home office costs will be based on the latest Contractor information available.

The Shell PMT estimators will also develop an Estimate Plan, and a Check Estimate. The Estimate Plan shall include for scope and quantity reviews with the Contractor, as well as an estimate reconciliation exercise. It is important that the estimate reconciliation exercise be used to align the estimates as close as possible, and any areas where costs are outside of the estimate accuracy will be investigated, and a variance analysis to be completed. It is standard practice that the Shell estimators, prior to final release, check all contractors' estimates.

- **Escalation :**

  The QUEST Projects' "DEFINE Control estimate" to be prepared at the end of Define phase in "then current" $CAD and escalated in line with project schedule and escalation rates to be applied as per the RDS Project Services group guidelines (Market guidance letter) and to be approved by Heavy Oil/P&T senior management.

- **Estimate Risk Analysis**

  Once all the estimates are complete, they will all be subject to one detailed estimate risk analysis. The results of the risk analysis will be used to set the contingencies and accuracy range for the estimate of the project.

  The Contractors should perform his own risk analysis, and the Shell PMT will also complete a separate risk analysis. The contractors risk analysis will be based on the scope of the project from their perspective, and the Shell PMT risk analysis will be from an Owners perspective as an overall Questproject. The Owners perspective will include items such as Owners costs, regulatory risks, technical , environmental risks and Commissioning, and Start-Up. The detail Estimate/Cost Risk analysis philosophy, methodology and output is described in subsequent section.

9. PROJECT CONTROLS TOOLS :

The following tools will be used for Project Control functions and reporting:

- Cost Estimating – CapCo$t an in-house estimating software (Define Phase only)
- Planning & Scheduling – Primavera P5/P6
- Cost Risk Analysis - @Risk
- Schedule Risk Analysis – Pertmaster Risk Expert 8.1
- Cost Management/Control - PRISM^{PM} :

  Shell Canada SAP Blueprint implementation team is developing PRISM to SAP Blueprint interface so data flow from Contractor to PRISM to SAP Blueprint.
- Current OASYS and JDE for financial management.
- Future SAP Blueprint & SERP Tool for financial management , business planning and Time writing.

10. PROBABLISTIC RISK ANALYSIS :

Cost Risk Analysis :

General :

Formal, quantitative cost risk analysis will be performed at FID and in Execute phase to analyse the variables and uncertainties present in the base cost.

The results of the risk analysis will assist with the following :

i. Forecasting the most likely outcome of project costs by recommending appropriate levels of contingency.
ii. Identifying the elements of uncertainty that have the greatest impact on overall project cost and relevant appropriation of contingency.
iii. Quantifying the chance of achieving performance targets.

- Methodology :

Each element of the base cost will be analysed to determine uncertainty ranges. The ranges will be quantified as minimum, most likely and maximum cost.

The analysis will consider potential impact to the estimated values arising from uncertainties in scope, duration and productivity along with the impact of technological, environment, market conditions, and statutory requirements and experience factors.

Following establishment of uncertainty ranges the cost model will be analysed using Monte Carlo simulation with specialist risk analysis software (@Risk).

- Output :

The results of the risk analysis will include the following output.

- Confidence level in achieving base cost.
- Most likely project cost forecast.
- Forecast cost for confidence level 0% to 100%.
- Ranking of activities by uncertainty level. (Tornado diagram)

- Frequency :

Cost risk analysis will be carried out on the following basis :

- In Execute phase, ad Hoc analysis as required per significant change in risk environment of the project , eg market condition change significantly, major scope changes, significant performance deviation from plan etc. as per RDS CSRA procedure PSM-I-U-001182-FA-6180-0090 .

The cost risk analysis will be performed by Shell P&T as an outsider of the project team with significant input from QUEST Project Control team.

Quest project will follow RDS approved "Cost & Schedule Risk Analysis procedure – PSM-I-U-00182-FA-6180-0090.

Schedule Risk Analysis :

- **General :**

  Formal, quantitative schedule risk analysis will be performed at FID and in Execute phase to analyse the variables and uncertainties present in the base schedule.

  The results of the risk analysis will assist with the following :

  iv. Forecasting the most likely outcome of project completion by recommending appropriate levels of contingency.
  v. Identifying the elements of uncertainty that have the greatest impact on overall project schedule.
  vi. Quantifying the chance of achieving performance targets.
  vii. Providing possible CAPEX phasing ranges for use in economic sensitivity analysis.
  viii. Critical Path, Opportunity and Threats.

- **Methodology :**

  The risk analysis will utilise the Level –2 base schedule generated by the contractor/Shell from Primavera software.

  Each element of the base schedule will be analysed to determine uncertainty ranges. The ranges will be quantified as minimum, most likely and maximum duration.

  The analysis will consider potential impact to the estimated values arising from uncertainties in scope, duration and productivity along with the impact of technological, environment, market conditions, and statutory requirements and experience factors.

  Following establishment of uncertainty ranges the cost model will be analysed using Monte Carlo simulation with specialist risk analysis software like Pertmaster.

- **Output :**

  The results of the risk analysis will include the following output.

- Confidence level in achieving base schedule.
- Most likely project timing.
- Forecast completion for confidence level 0% - 100%.
- Ranking of activities by uncertainty level. (Tornado diagram)
- Criticality índices.

- **Frequency :**

  Schedule risk analysis will be carried out on the following basis :

  - In Execute phase, ad Hoc analysis as required per significant change in risk environment of the project , eg market condition change significantly, major scope changes, significant performance deviation from plan etc. as per RDS CSRA procedure PSM-I-U-001182-FA-6180-0090 .

The schedule risk analysis will be performed by Shell P&T as an outsider of the project team with significant input from QUEST Project Control team.

Quest project will follow RDS approved "Cost & Schedule Risk Analysis procedure – PSM-I-U-00182-FA-6180-0090.

11. PRISM – OASYS – CONTRACTORS DATA FLOW (TYPICAL):

- **General :**

The scope and purpose of this document is to define the tasks and roles of the QUESTProject Services Lead on a project that uses PRISM Project Manager.

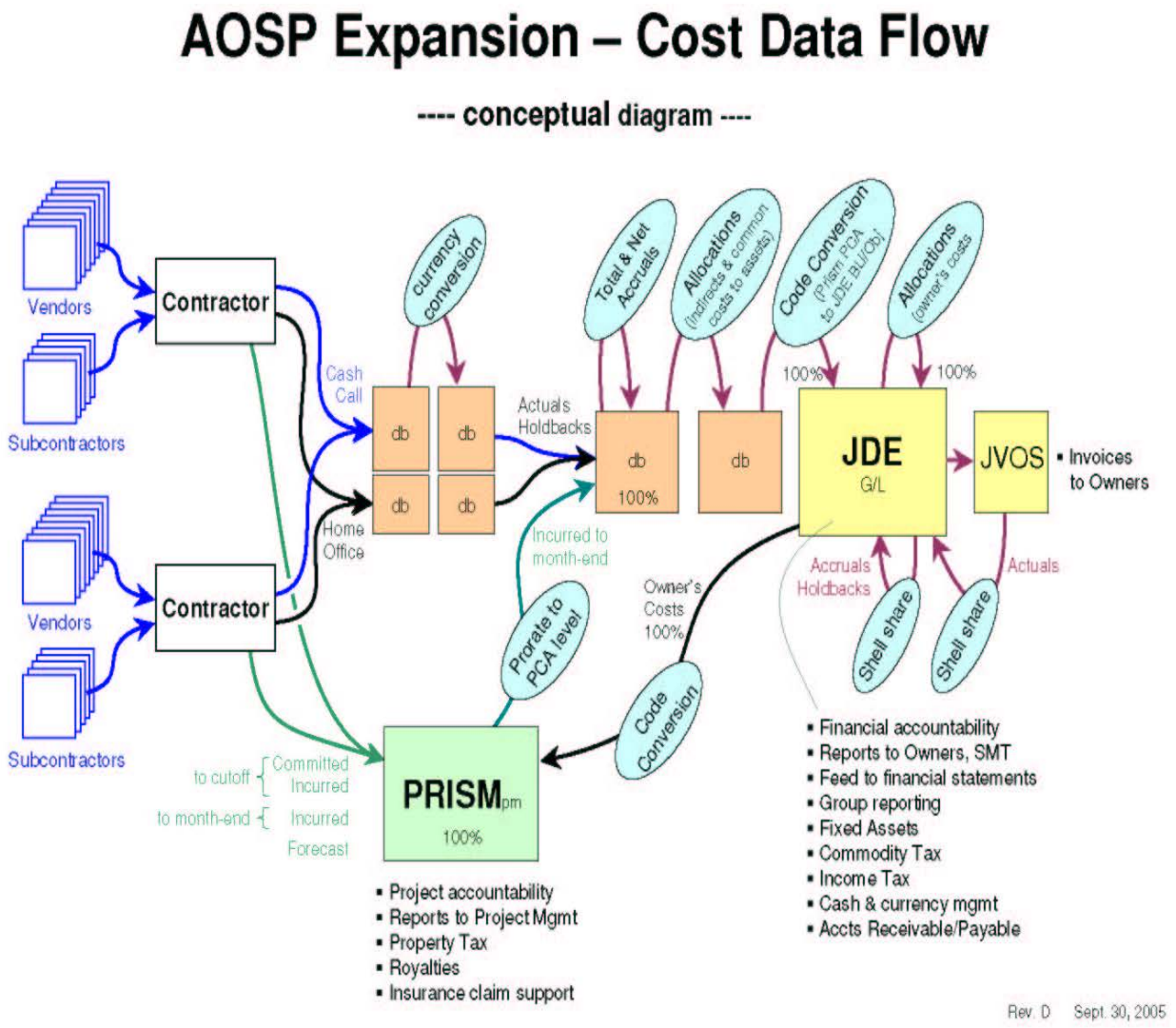
PRISM Project Manager integrates information from multiple sources including project cost estimates, (including changes and revision estimates), schedules (baseline and current), incurred costs, and physical progress measurements. PRISM may include data regarding contracts, purchase orders, engineering progress, document control, equipment and materials management, and incident reporting.

The PRISM-specific role of the Project Services Lead relates to the management or coordination of all of the above noted information. He/She must enable the inclusion of all of this data into PRISM and initiate the calculations in PRISM that integrate the data. To perform his/her task adequately he/she must be well informed of the status of the project as a whole and of the individual data sources. He/She must coordinate the input of all the information. He/She must provide timely reports for project management. The tasks required can be divided into initial tasks and periodic tasks.

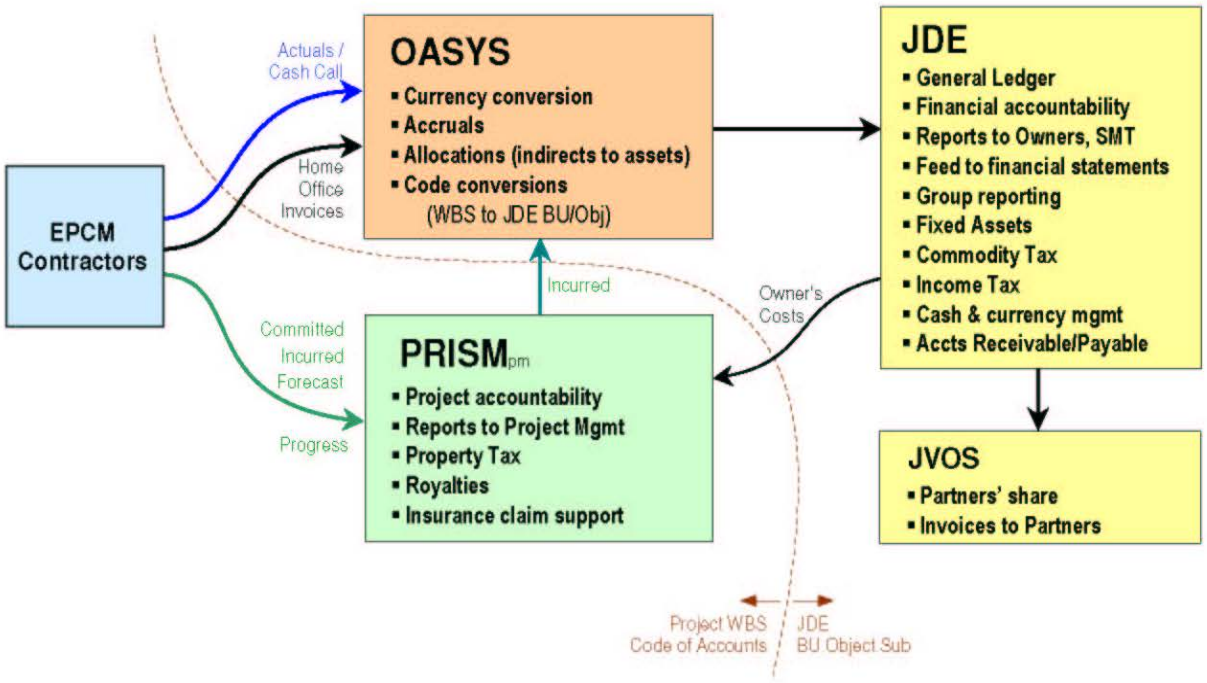
The initial tasks must be performed at the start up of the PRISM project. The document "PRISM Project Execute Plan" details these tasks. In brief they are as follows:

- Establish and implement coding structures and codes that enable integration of all sources of data.
    1. Initiate the creation of the PRISM project files and set up of the basic project parameters – project name, dates, code tables, cost elements and etc.
    2. Establish persons responsible to obtain and enter data.
    3. Initiate training of personnel in PRISM.
    4. Coordinate input of baseline estimates.
    5. Coordinate input of original schedules.
    6. Calculate the project baselines.
    7. Confirm results with the project team and publish to others.
    8. Archive data.
- The periodic tasks are similar to the initial tasks but repeated on a monthly or other periodic basis.
    1. Coordinate periodic input of data – changes, incurred costs, physical progress, updated schedules, and other data that may include engineering progress, purchase orders, contracts, documents, or incidents.
    2. Calculate integrated data.
    3. Confirm and report earned value performance results.
    4. Archive data.

PRISM[PM] , contractor and Shell Finance data flow is as per the below figures Fig 5 & 6. The data flow coding requirement is as per the attached PRISM requirement document.



AOSP Expansion – Cost Data Flow



12.0 REFERENCES :

The PCP processes and the Quest project-specific project control procedures are in accordance with the following project process procedures:

Ref. Shell Project Processes - Procedure;

- *PSM-I-U-001182-FA-6180-0001 Monthly Project Management Report*
- *PSM-I-U-001182-FA-6180-0002 Management of Change*
- *PSM-I-U-001182-FA-6180-0004 Glossary of Terms*
- *PSM-I-U-001182-FA-6180-0005 Project Services and Finance Handover*
- *PSM-I-U-001182-FA-6180-00010 Integrated Project Planning*
- *PSM-I-U-001182-FA-6180-00011 Progress Management*
- *PSM-I-U-001182-FA-6180-00012 Job Pack Management*
- *PSM-I-U-001182-FA-6180-00013 Project Calendar*
- *PSM-I-U-001182-FA-6180-0020 Project Cost Reporting*
- *PSM-I-U-001182-FA-6180-0021 Cost Contingency*
- *PSM-I-U-001182-FA-6180-0022 Value of Work Done*
- *PSM-I-U-001182-FA-6180-0023 Commitment (Assigned Budget)*
- *PSM-I-U-001182-FA-6180-0024 Work & Cost Breakdown Structures (WBS)*
- *PSM-I-U-001182-FA-6180-0025 Earned Value Analysis*
- *PSM-I-U-001182-FA-6180-0026 Cost & Cash Forecasting*
- *PSM-I-U-001182-FA-6180-0028 Cost Time Resources (CTR) Catalogue*
- *PSM-I-U-001182-FA-6180-0029 Project Finance Procedure: Cost Breakdown Structure (CBS)*
- *PSM-I-U-001182-FA-6180-0040 Cost Recovery*
- *PSM-I-U-001182-FA-6180-0041 Budget Management*
- *PSM-I-U-001182-FA-6180-0043 Manual of Authorities and Delegation*
- *PSM-I-U-001182-FA-6180-0044 Invoice Management*
- *PSM-I-U-001182-FA-6180-0045 Project Cost Allocation*
- *PSM-I-U-001182-FA-6180-0046 Exchange Rate Application*
- *PSM-I-U-001182-FA-6180-0060 Data Collection*
- *PSM-I-U-001182-FA-6180-0070 Cost Management of Contracts*
- *PSM-I-U-001182-FA-6180-0090 Project Cost & Planning Risk Procedure Cost & Schedule Risk Analysis*

ACRONYMS

AENV – Alberta Environment
AUC – Alberta Utilities Commission
CCP1 - Carmon Creek Project Phase 1
CPF – Central Processing Facility
CSU – Commissioning and Start Up
DG - Decision Gate
DG & C – Distribution, Gathering, and Corridor Construction
DRB – Decision Review Board
EIA – Environmental Impact Assessment
EP – Exploration and Production
EPEA – Environmental Protection and Enhancement Act
ERCB – Energy Resource and Conservation Board
ESAR – Estimate and Schedule Assurance Review
ESD – Emergency Shutdown
FID – Final Investment Decision
GIP – Group Investment Proposal
GTG – Gas Turbine Generator
HRSG – Heat Recovery Steam Generator
IPS – Integrated Planning Session
LT – Leadership Team
MAC – Main Automation Contractor
MC – Mechanical Completion
OIC – Order in Council
OPMG – Opportunity and Project Management Guide
ORM – Opportunity Realisation Manual
OPS – Operations
OR&A - Operations Readiness and Assurance
OTSG – Once Through Steam Generator
PCS – Process Control Systems
PDA – Pre-Disturbance Assessment
PRC – Peace River Complex
PO – Purchase Order
RFSU – Ready for Start-Up
SCM – Supply Chain Management
SDI – Sustainable Development Integration
SEIA – Socio-Economic Impact Assessment
TOR – Terms of Reference
VAR – Value Assurance Review
VIE– Value Improvement Exercise