LONG INTERNATIONAL

WAYLON T. WHITEHEAD

Mr. Whitehead is a Cost & Schedule Risk Analysis Partner affiliated with Long International. He has conducted numerous schedule assessments and risk analyses, focusing on quantifying the risks and their implications for project cost and schedule. Mr. Whitehead has focused for more than 20 years on project execution, quantitative schedule risk analysis, integrated cost-schedule risk analysis, and project scheduling best practices. He also co-pioneered the Risk Driver Method for driving simulations and the iterative simulation approach to prioritize projects for risk mitigation using Monte Carlo simulation of project cost and schedule. He has participated firsthand as a project team member and performed quantitative risk analysis on the Brass LNG, Darwin LNG, QatarGas LNG, Australia Pacific LNG, and Mozambique LNG projects. Additionally, Mr. Whitehead has performed risk analysis for the potential Australian Browse and Sunrise LNG developments. He has pioneered the extension of quantitative modeling techniques into legal, arbitration, and mediation processes where he uses the techniques to provide clients with probabilistic distributions for claim outcomes and an understanding of the factors that influence results.

EDUCATION

Certificate, Global Energy Leadership, Rice University, May 2021
B.S., Economics, University of Houston, 1994
B.S., Political Science, University of Houston, 1994

PROFESSIONAL AFFILIATIONS

AACE International
Project Management Institute

TECHNICAL EXPERIENCE

Representative quantitative cost and schedule risk analysis experience includes:

- Understanding project objectives and parameters, participants, and environment within which it is conducted.
- Evaluating the project schedule against industry-accepted best scheduling practices to ensure accuracy in Monte Carlo simulation.
- Supervising the application of summary-level resources costed without padding for risk to schedule activities.
- Interviewing project participants and other knowledgeable SMEs to derive candid and unbiased risk information including the identity of risks not already included in the Risk Register, the probability that the risk will affect the project cost and schedule, the impact if it occurs on activities' durations and costs (*e.g.*, burn rate per day), and the activities that will be impacted (usually project phases such as construction, piping, and commissioning).
- Using data discovered during interviews to make modifications to the cost or schedule portions of the model.
- Employing modern Monte Carlo simulation software (Pertmaster, Polaris, Safran, Deltek Acumen Fuse), to derive consistent integrated cost and schedule results that can demonstrate the possibility of finishing on

time and on budget following the current plan and how much contingency of cost and time are needed to achieve a given level of certainty.

- Facilitating risk mitigation workshops with the project team to develop a strategy that will improve project prospects for finishing dates and cost at completion. Stimulating the post-mitigation scenario to assess the workshop's work.
- Advising clients early in the legal, arbitration, or mediation processes concerning the possible outcomes for dispute resolution. More specifically, by using the same techniques deployed on quantitative risk analysis to develop a probabilistic distribution to provide an early frame as an input to strategy.

PROJECT EXPERIENCE

Mr. Whitehead has provided cost and schedule risk analysis on major onshore and offshore LNG projects as well as refinery and chemical projects. Representative projects include the following:

Liquified Natural Gas Plants

- Provided cost and schedule risk analysis regarding a potential LNG plant to be constructed in Mozambique by Anadarko Petroleum. This facility is to commercialize an offshore gas deposit with offshore wells and piping to initially process onshore with 2-trains of LNG facilities using APCI's LNG technology. Export facilities require a jetty to be constructed. This project is fast approaching final investment decision (FID).
- Performed risk analysis services for the Australia Pacific LNG project. The project is a coal seam to LNG facility built on Curtis Island in Queensland, Australia for ConocoPhillips. It is a 2-train development, which produces greater than 9 MPTA of LNG using ConocoPhillips Optimized Cascade process. The contingency level established for the project contributed to the project finishing within 1.5 percent of its original FID budget.
- Executed cost and schedule risk analysis for the QatarGas LNG project. The project is comprised of a large-scale LNG facility in Ras Lafan, Qatar. The LNG facility was built at a time of rapid industrialization in Ras Lafan, and was fed by approximately 18 offshore wells from Qatar's north field. It included storage and load-out facilities. The original risk work predicted the schedule outcome within three months (55-month total duration), and the cost within 10 percent of the funded budget.
- Performed risk analysis services for the Darwin LNG project. The project was a single-train LNG development built in Darwin, in the Northern Territory of Australia. It was fed by gas from the Bayu Undan field and had marine facilities, storage tanks, and load-out facilities concurrently developed with the liquefaction plant. Darwin LNG finished within its originally funded budget and schedule goals.
- Provided cost and schedule risk analysis for the Brass LNG project. The project was a large-scale, 2-train LNG development built in the Niger Delta Region of Nigeria. The site posed significant geotechnical challenges, and the marine environment also warranted special consideration. The facility was built employing the APCI Liquefaction process.

Offshore Natural Gas Production Platform

- Executed cost and schedule risk analyses for an offshore natural gas production platform project. The project included pipelines to shore in south-east Asia for Petronas, the national oil company of Malaysia. The analysis included modeling exceptional weather impacts on the success of the schedule.

Offshore Drilling & Production Platforms

- Engineering, Design, Procurement, and Fabrication of several different types of fixed and floating offshore platforms installed in West Africa and the Gulf of Mexico. These platforms were installed in water depths ranging from 1,100–7,500 feet, and ranged in production from 50,000 BOPD up to 250,000 BOPD.

Yanbu Export Refinery

- Provided cost and schedule risk analysis of the 400,000 barrel-per-day YANBU export refinery in the Western Province of Saudi Arabia for ConocoPhillips, then a partner with Saudi Aramco. ConocoPhillips withdrew from this project.

YANPET – Polyethylene, Ethylene, Ethylene Glycol, and Utilities and Offsets, Yanbu, Saudi Arabia

- Lived onsite for two years during the project. Served in a construction role with responsibility for site temporary buildings, and seawater/freshwater/cooling water intake and distribution.

Orica – Ammonium Nitrate

- Currently assisting a manufacturer of explosive grade ammonium nitrate with a project repairing a facility in Karratha, Western Australia. Mr. Whitehead provides strategic advice on likely arbitration outcomes and quantitative risk analysis to help determine appropriate contingency levels.

PROFESSIONAL EXPERIENCE

Long International, Inc.
Houston, Texas (May 2019 to Present)

Mr. Whitehead is a Cost & Schedule Risk Analysis Partner affiliated with Long International. He has conducted numerous schedule assessments and risk analyses, focusing on quantifying the risks and their implications for project cost and schedule. Mr. Whitehead performs project cost and schedule risk analyses and evaluates project schedules against industry best scheduling practices.

Hulett & Associates, LLC
Los Angeles, California (2008 to Present)

Mr. Whitehead is an Associate with Hulett & Associates, LLC and has focused for more than 20 years on project execution, quantitative schedule risk analysis, integrated cost-schedule risk analysis, and project scheduling best practices. His clients include national oil companies (Aramco in Saudi Arabia and Petronas in Malaysia), numerous private energy companies (Anadarko, ConocoPhillips, Chevron), petrochemical developments, and recently, law firms and clients engaged in disputes in Australia. Along with Dr. David Hulett, he co-developed the Risk Driver method for driving simulations and the iterative simulation approach to prioritize projects for risk mitigation using Monte Carlo simulation of project cost and schedule. He has worked with Dr. Hulett to ensure that evolving simulation engines (*e.g.*, Safran, Polaris, Acumen and JACS) have this methodology built in.

Yara Pilbarra
Karratha, Western Australia

As a Legal/Arbitration Manager and Quantitative Risk Analysis Consultant, Mr. Whitehead provided input to the legal group and provided advice regarding arbitration expert strategy. More specifically, he developed process flow for structuring project data (scope and defect notices) and controls (cost structures) to enhance

arbitration outcomes. In addition, Mr. Whitehead generated quantitative modeling of project, legal, and arbitration costs. He prepared quantitative risk analysis of project cost and schedule and performed periodic updates to project economics. He was also responsible for all day-to-day project risk management. Mr. Whitehead developed Risk Management Procedure, and formulated and assured quality of both the Risk Register and standard risk reporting metrics and tools. He further facilitated all risk sessions and communicated risks to all levels, from field project team to the Board, by using written, verbal, presentation methods.

Anadarko Petroleum Corporation
Houston, Texas (December 2017 to October 2018)

Mr. Whitehead served as Project Risk Manager for the Mozambique LNG project. He was responsible for all day-to-day project risk management, including all project functions: marketing, shipping, finance, offshore and onshore. He also facilitated risk sessions with all levels of personnel including "Blue Sky" experts. Mr. Whitehead streamlined communication concerning risk and conduct for all levels of organization, and developed corporate Risk Management tools and processes. Additionally, he conducted a Quantitative Risk Analysis to support FID and performed periodic updates during execution to project economics. Mr. Whitehead developed Risk Management Procedure, and formulated and assured quality of both the Risk Register and standard risk reporting metrics and tools.

ConocoPhillips
Houston, Texas (December 2015 to October 2017)

As Functional Lead: Planning, Progress, and Quantitative Risk, Mr. Whitehead provided Expert Quantitative Risk Analysis across the entire portfolio. He forecast accurate progress and completion dates for troubled projects, and performed extension of time analysis to negotiate claims with contractors. In addition, he served as a non-op representative for projects in Malaysia and the Gulf of Mexico and was involved in internal funding processes for same. Mr. Whitehead further assisted the non-op partner with forecasting, schedule development, and progress and manpower assessments. He assimilated resources, scheduling, technical, logistics, manpower, contracting, and risk assessment to contribute to the development of financial inputs. Moreover, he worked with Origin Energy as a partner on mediation and arbitration strategies and conducted modeling of arbitration outcomes in comparison to legal costs.

ConocoPhillips
Houston, Texas and Brisbane/Gladstone Queensland, Australia (February 2004 to December 2015)

During his employment with ConocoPhillips, Mr. Whitehead served in the following roles and was involved in the following projects:

APLNG – (May 2009 to December 2015)

As Risk and Integration Planning Manager, Mr. Whitehead was assigned from FEL1 through the start-up of T1 to prepare primary documents for funding gates, which ultimately went to the Board of Directors for approval of the US$11 billion Australia Pacific LNG project. The project was recognized as the fastest LNG plant to be built in Australia in the last decade with project completion within five percent of original P50 budget. Mr. Whitehead was handpicked to ensure that asset-based planning systems and processes were in place to support the project. In addition, he assimilated resources, schedules, technical issues, logistics, manpower, contracting structure and issues into risk assessments contributing to the formulation of probabilistic inputs to financial models. He also performed strategic schedule analysis, cost analysis, and

modeling on three separate formal processes for change orders and claims over US$100 million. Mr. Whitehead further eliminated risk exposure through the utilization of forensic planning and partnered in developing the mitigation strategy to eliminate contract risk.

Yanbu Export Refinery (May 2006 to May 2009)

Mr. Whitehead served as Project Risk Manager and led four risk coordinators and a consulting team responsible for risk analysis and planning, quantitative risk modeling, project risk management and strategic plan development for a US$13 billion refinery project in Saudi Arabia. He introduced integrated cost/schedule risk analysis to Saudi Aramco, the COP partner. Mr. Whitehead also initiated a risk-based contingency assessment that provided a unique structure to establish cost and schedule provisioning, mitigate probable technical, cost, contract and schedule risks associated with project execution, and ensure consistency in the development of contingency reserves for risk mitigation.

QatarGas LNG (February 2004 to May 2006)

As Project Risk Analyst, Mr. Whitehead facilitated full value LNG assessments in the Middle East, Africa, Australia and the Artic regions to support large refineries and upstream development programs. He developed quantitative risk analysis for the joint asset development team for QG3, a US$7.5 billion joint venture between ConocoPhillips and Qatar Gas. In addition, he performed cost and schedule risk analysis and established the project procedure to establish contingencies for cost and schedule. Mr. Whitehead also introduced Pertmaster software that significantly improved efficiencies and generated considerable savings for ConocoPhillips.

SGF Global
Houston, Texas (2003 to 2004)

Mr. Whitehead served as Master Scheduler. He established summary level schedule and risk assessment processes and developed contingency strategies for Chevron's subcontractor schedules. Moreover, he performed quantitative risk assessment on fabrication facilities in Corpus Christi and Okpo, South Korea. Mr. Whitehead also reviewed cash flows to establish annual project budgets and financial forecasts and developed monthly reports for project team and business unit partners.

Mustang Engineering
Houston, Texas (2001 to 2003)

As Project Controls Manager/Senior Project Controls Coordinator, Mr. Whitehead managed a project controls team of five involved in the construction and installation of the Marathon Alba project in Equatorial New Guinea. He established budget and initial schedule, cost and schedule reporting, periodic risk analysis, coding structure and update procedures. Additionally, he formulated an initial project timeline that was assessed for risk and contingencies before being incorporated into the detailed schedules. Mr. Whitehead was subsequently seconded to Oxy to lead project control activities for the Hobbs CO_2 Reinjection project for Oxy Permian. His duties included estimating, cost, planning, bid evaluation, changes orders, progress reporting and cash draw down modeling for business unit budgets. Mr. Whitehead was also assigned to BP as its integrated lead planner for the PMT over Thunder Horse, Atlantis, and Mad Dog, and Holstein platforms in the Gulf of Mexico. In this role, he performed risk modeling and assessments, developed coding structures and provided a summary schedule for risk analysis and resource assessment.

Atlantia Offshore LTD.
Houston, Texas (1999 to 2001)

As Senior Team Lead – Project Controls, Mr. Whitehead led a project controls group on the construction of the Chevron Typhoon TLP. He developed the initial project schedule and updated the master project schedule using subprojects to analyze data to identify critical path issues and advised the Chevron team on risk mitigation. Mr. Whitehead also negotiated change orders and participated in bid evaluation and milestones for major subcontracts. For his work on the project, Mr. Whitehead earned a group award from Chevron for fastest project from contract award to sail away for a platform of 50,000 BOPD.

Fluor
Houston, Texas (1992 to 1998)

Mr. Whitehead served as Field Project Controls Manager/Lead Project Scheduler. In this role, he scheduled and executed the pre-commissioning, commissioning, and startup phases for the Shell Rayong project in Thailand. Additionally, he formulated the punch list database and resolution procedure that was adopted into the "lessons learned" database for Fluor. Mr. Whitehead was assigned to the Mobil Yanpet project in Yanbu, Saudi Arabia to support the full project lifecycle, from estimating and detailed engineering through field construction. He partnered in the risk assessment and development of a summary schedule to establish key project milestones for the Mobile Jose FEED. He also received the first perfect grade from IPA given to a FEED schedule. Mr. Whitehead was selected for the "Marketing Associates'" program (business development) and rotated through estimating, project controls, procurement, business development, and construction management on several international assignments.

PUBLICATIONS AND SPEAKING ENGAGEMENTS

"Cost and Schedule Risks Interact in Megaprojects," with Dr. David Hulett, AACE International Annual Conference in New Orleans, 2019.

"The Monte Carlo Method for Modeling and Mitigating Systemic Risk," with Dr. David Hulett, Cost Engineering Journal, July/August 2017.

"The Monte Carlo Method for Modeling and Mitigating Systemic Risk," with Dr. David Hulett, AACE Annual International Conference in Toronto, 2016.

"Integrated Cost-Schedule Risk Analysis using Monte Carlo Simulation and a CPM Schedule," Recommended Practice – Update to 57R-09, AACE International, 2011. (*Update is in AACE International peer review*).