

Exponent®
Engineering & Scientific Consulting

Winnie Hung, P.E., LEED AP

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Professional Profile

Ms. Hung is a Practice Director and Principal Engineer in Exponent's Construction Consulting practice. With 25 years of industry experience, she specializes in construction advisory, portfolio development and management, construction management, and business consulting services to help clients improve delivery success and efficiency of their project portfolios. She has extensive knowledge in all phases of the construction project lifecycle, ranging from multi-year portfolio and program development and management, project management and controls, process improvement, risk management, change control, data management, and dispute resolution.

For years, Ms. Hung has been leading teams of program managers, project managers, and project controls analysts in the skillful planning, execution, and management of complex and high-profile construction programs and projects. To help clients meet organizational business goals, she develops effective, repeatable processes and automated tools that produce executable multi-year portfolios. She is experienced in implementing enterprise-wide solutions to enhance cost and schedule management, process and governance controls, information systems and data pipeline automation, change governance, and performance metrics development and monitoring. Additionally, she has led multi-disciplinary teams in performing lifecycle cost analysis, scenario planning and resource balancing, data analytics and performance reporting, probabilistic risk assessment, and root cause analysis.

Ms. Hung's experience in construction dispute resolution includes performing detailed analysis of project issues, delays, and costs on claims submitted by owners, designers, and contractors. She has developed daily as-built schedule database and data conversion automation that create Primavera P6 schedules. Also, she has participated in mediations and arbitrations.

Ms. Hung has worked on a variety of construction projects including electric and gas utilities, data centers, wastewater treatment plants, water pipelines, performing arts centers, hospitals, historical monument seismic upgrades, university housing, offices, hotels, and retail. Her clients include corporate entities, public agencies, contractors, and architectural and engineering firms.

Prior to joining Exponent, Ms. Hung worked as a project manager at one of the largest general contractors in the U.S., managing commercial construction projects in the San Francisco Bay Area.

Academic Credentials & Professional Honors

M.S., Civil and Construction Engineering, Stanford University, 1998

B.S., Civil Engineering, Stanford University, 1997

Fellow, Project Management College of Scheduling

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Licenses and Certifications

Professional Engineer Civil, California, #64456

Prior Experience

Project Manager, Swinerton Builders, San Francisco

Professional Affiliations

Association for the Advancement of Cost Engineering (AACE International)

Construction Management Association of America (CMAA)

American Society of Civil Engineers (ASCE)

Languages

Cantonese Chinese

Publications

Presentations

Hung W, Leung T, Anderson S, Cooke S, Panwar S. Career Advisory Panel. Association of Advanced Cost Engineering, San Francisco, CA, May 2024.

Hung W, Evins T, Hakam S. Managing Construction Industry Challenges Through Information Management. Western Winter Workshop Capital Projects Conference, Indian Wells, CA, March 2024.

Hung W, El Didi L, Stefanaki A. Effective Strategies to Mitigate Common Construction Project Risks and Unique Challenges of Project, Program, and Portfolio Management. Sustainable Design & Construction Seminar, Civil Engineering Department, Stanford University, Palo Alto, CA, September 2022.

Hung W, Ayers A, Techangam M. Decision-Making Approach: Making the Best Calls When It Matters. Western Winter Workshop Capital Projects Conference, Indian Wells, CA, March 2020.

Hung W. Early Warning Analytics. Association of Advanced Cost Engineering Project Controls Podcast, June 2019.

Hung W, Tyndall V. How to Increase Project Delivery Success. Denver Water Department Seminar, Denver, CO, June 2018.

Hung W, El Didi L. Benchmarking and Predictive Analytics to Improve Estimates, Forecasts, and Performance Evaluation. Construction Management Association of America, Denver, CO, March 2018.

Hung W, Much A. How to Get to “One Source of Truth” on Large Programs. Association of Advanced Cost Engineering Conference, Indian Wells, CA, February 2018.

Hung W, Mintzer T. How to Effectively Develop and Manage a Large-Scale, Multi-Year Project Portfolio. Association of Advanced Cost Engineering Conference, Indian Wells, CA, March 2017.

Hung W, Ritti J. How to Manage a Troubled Project. Electric Utility Transmission and Distribution Project Management Conference, Los Angeles, CA, April 2015.

Hung W. Portfolio Development and Management. Project Management Institute, San Francisco, CA, February 2015.

Hung W, Ritti J. Common Construction Project Issues and Project Portfolio Management. UC Berkeley Engineering Master's Program Seminar, Berkeley, CA, April 2012.

Hung W, Ritti J. Schedule Clauses in Construction Contracts and Technological Advances in Scheduling. UC Berkeley Engineering Master's Program Seminar, Berkeley, CA, March 2008.

Project Experience

Utility

Assisted one of the largest U.S. electric utility companies in improving its financial performance and delivery of capital projects and programs. Assisted client with developing a multi-year, multi-billion-dollar transmission and distribution project portfolio investment plan that aligns with corporate asset strategy and refined it into an executable work plan, all to improve the portfolio's forecasting accuracy and achievement of annual budgets. Defined key performance indicators and project- and portfolio-level reporting framework to facilitate stakeholders communication and collaboration, evaluation of work progress, identification of execution risks, and development of mitigation strategies. Developed and implemented a set of new, repeatable process and procedures, enhanced change controls and data management and reporting system to monitor and ensure executability of portfolios. Led the development of over 3000 resource-loaded project schedules that provided forecasting and risk transparency, and also led portfolio scenario planning, resource balancing, risk assessment, and unit cost and schedule benchmarking.

Developed a user-friendly and interactive tool for a utility to manage its transmission and substation project portfolios. The database tool gathers data from multiple disparate sources, including offline spreadsheet, SharePoint sites, existing SQL databases, and systems of record (e.g., SAP and P6), to provide a centralized, transparent source of truth for stakeholders to collaborate and make timely data-driven decisions. The views and tables developed in the tool are key inputs to the organization's reporting that provided leadership with instantaneous performance status and updates. Led the development of the improved processes, workflows and change management governance that were built in the tool.

Developed a unit cost benchmarking tool for electric transmission and substation projects by compiling an actual cost database that captures project scope, cost categories, and project specific factors and building a unit cost database for use as an estimate benchmarking tool. The client uses the tool to provide estimates for future projects in its long-range portfolio planning, check estimates for inflight projects, cost forecast and contingency amount validation, and a benchmark for bid evaluations and change order evaluations. The tool also provides insights into cost drivers, trends, and opportunities for efficiencies.

Led a multidisciplinary team and supported the development and management of an electric transmission infrastructure maintenance program management office (PMO). Developed roles and responsibilities required, identified sources of the required resources, and created an organizational structure. Defined key performance indicators (KPIs) and monitoring and reporting of performance against the KPIs in a structured reporting that the team also designed and stood up. Performed a life-cycle analysis and developed a decision tree to guide asset management decisions of the infrastructure. Evaluated PMO's data management IT tool options, made recommendation to client, and managed the selected IT tool vendor's work progress and assisted vendor in gathering requirements, developing workflows, and implementing and rolling out the tool to PMO team members.

Lead a number of multi-year electric transmission and substation programs for a major utility client. Managed and oversaw teams of program managers, project managers, project controls analysts, and construction managers in delivering construction projects of various scopes and sizes, leading

discussions and coordination with external program stakeholders, and be responsible for programs' financial performance and project delivery success. Develop process improvements and automated monitoring and reporting that streamline process workflows, mitigate risks, monitor governance compliance, and promote quality assurance and metrics visibility. Develop standardized actionable reports to assist stakeholders and portfolio managers in financial planning and risk assessment, and also internal training and continuous improvement initiatives to support teams. Utility programs and projects include the following: electric generation interconnection; large load interconnection; infrastructure replacement; infrastructure relocation, installation, and upgrades; optical ground wire relocation, wildfire safety improvement program, SCADA replacement; infrastructure maintenance; and capital transmission overhead and underground line and substation projects.

Performed executive-level project health assessment on multi-million-dollar electric transmission and substation projects and proposed improvement and mitigative strategies to utility client. Analyzed complex resource-loaded schedules and cost forecasts, performed earned value analysis on project progress, evaluated monthly cashflow and labor resource utilization, reviewed change orders and contingencies, and assessed issues, risks, and mitigations.

Performed root cause analyses on an infrastructure inspection process matter and construction excavation delay. Performed data collection and comparison of requirements to actual events. Identified and analyzed contributing and root causes and recommended corrective actions to utility client.

Supported rate case filings with reviewing records, gathering responses, and verifying project information in response to data requests.

Technology and Data Centers

Improved financial forecasting and invoice approval process for a data center client through setting up a new data pipeline and automation. Created a standardized and access-controlled forecasting template with coding embedded in the file that eliminates data errors, improves data accuracy, streamlines reviews and approvals, and centralizes data storage in a secure database.

Provide program management office (PMO) support to a technology company's corporate net zero program. Support strategy development and implementation and their operationalization, cross-functional stakeholder coordination, task dependency management, program cost and schedule controls, and executive-level reporting and corporate communications development.

Perform bid analysis and estimating services to assist a data center client in its bid evaluations and negotiations with vendors, providing millions of cost savings. Development of standardized and updated bid form templates, bid analysis automated dashboard, and bid data consolidation Python script enable client to have a centralized database and easy access to historical bid data. Development and regular updates of local wage rate and productivity factors improve accuracy of site-specific estimates for bid analysis use.

Developed, maintained, and managed program-level schedules for data centers across the globe. Collaborating closely with cross-functional partners to develop and align on schedule forecasts with accelerated standard schedule durations, and performing extensive scenario modeling resulted in increased data capacity delivery for technology client.

Provided rollout and change management support on organizational-wide implementation of a new project management information system that improved system adoption and enhanced continuous user feedback and improvement engagement. Developed and managed detailed rollout plans and appropriately timed communications and training to users and stakeholders. Developed standardized training templates and topics to ensure users and stakeholders understand and embrace the objectives, background, goals, and uses of the new tool.

Provided global engineering program management support on a data center client's engineering projects. Work included design consultant management, design team coordination, design development process improvement, program progress tracking, sourcing and contract administration, and vendor invoicing approvals.

Led a multi-disciplinary team to provide data science services to technology client. Developed future-proof python programming scripts to ingest estimating, bidding, and cash flow forecasting documents into datastores.

Heavy Civil and Infrastructure

Wastewater Treatment Plant — Analyzed a general contractor's delay claim on behalf of the design engineer on a $104 million wastewater treatment plant in Phoenix, Arizona. Developed a detailed daily-specific as-built schedule and database and evaluated critical project delays and their causes. Analyzed contractor's cost overruns and procurement/buyout process and determined project status at termination.

Pipeline — Performed CPM schedule analysis and productivity analysis on behalf of a contractor for a delay and cost overrun claim on the construction of a 13,000 lineal feet-long, large-diameter water pipeline in San Francisco, CA. Evaluation included the development of a daily as-built production schedule, and quantification and allocation of critical delays through schedule and issue analyses.

Petrochemical Facility — Provided project advisory services to an energy company in managing a conversion program of eight terminals to handle ethanol-blended products. Assisted with plan development, risk identification and development of risk mitigation plans. Established and facilitated implementation of a reporting process among internal and external project stakeholders. Performed schedule updates and comparative schedule analysis and reported on schedule statuses.

Oil Platform — Developed an as-built project database to capture and report key project events for a delay and cost overrun claim on behalf of a subcontractor on an engineering, procurement, construction/fabrication, and installation contract. The project consists of a floating production, storage and offloading vessel (FPSO) and a floating storage and offloading vessel (FSO) fabricated in Malaysia and Singapore that are located off the coast of Brazil.

Institutional

Performing Arts Center — Analyzed a $90+ million design errors and omissions claim on behalf of an internationally renowned design firm. The project is a new 250,000 s.f. premier performing arts facility in Southern California. Assisted in deposition preparation, detailed change order review, and determination and allocation of damages values.

Hospital — Analyzed a $80+ million claim on behalf of an internationally renowned design firm. The project is a top university research hospital located in Southern California. Worked with a multi-disciplinary team from Exponent's engineering practices to provide architectural and engineering analysis of the technical issues associated with the claims, address standard of care allegations, evaluate schedule delay and lost productivity and lost revenue claims.

Commercial

Residential/Mixed-Use — Assisted general contractor in preparation of a delay claim on a $90 million, four-building university housing complex in San Francisco, CA. Prepared issue analyses and identified and quantified claim costs. Participated in multiple mediation sessions and meetings with mediator, opposing party, insurance companies, design consultants, and architectural experts.

Casino Hotel — Analyzed a $5 million delay and disruption claim submitted by a concrete subcontractor on behalf of the general contractor on a large casino hotel in Las Vegas, NV. Performed damages analysis and detailed change order evaluation.

Residential — Performed CPM schedule analysis and productivity analysis of subcontractor scopes on behalf of the general contractor on the construction of a $190M high-rise condominium tower in San Francisco, CA.