

Deep Thinking

An interview with EDG

DI: EDG has built up a formidable reputation for itself in deepwater projects. Can you identify where the company has best been able to add value to operators' projects?

EDG: Phillip Myint, Managing Principal

With more than 20 years' experience in the analysis and design of offshore facilities, EDG supports its clients with early involvement in the project life cycle; ie the field development concept selection process and typically extending through FEED and detailed engineering to commissioning and start-up support. Most of our clients also retain our services post-start-up for operations support. This experience now finds us involved in several floating facility and subsea installations. Importantly, our clients respect our ability to add value early, infusing best-practices and lessons learned from many projects and from actual field experience.

In addition, EDG boasts several project managers with oil company background. With recent operating company staff reductions, many of our clients are engaging us as an "extension of their staff" in addition to the traditional engineering tasks, thus allowing us to add value to the total field development life cycle.

Bill Barger, President, Advanced Project Solutions

EDG has made a specific focus to identify ways to differentiate its services. The greatest opportunity to add value to deepwater projects is in early involvement; ie field development concept selection and FEED. We've made a corporate commitment to this phase of a project's development while understanding and truly implementing owner organisations' work processes. Recognising the need to go beyond traditional engineering in these phases, EDG has recruited several senior project managers with oil company background and forming a joint venture enterprise, APS, which provides up-front project management consulting services.

DI: Operators these days appear to treat the conceptual and FEED stages of their projects often as the most crucial part of a deepwater project's life, where they can best maximise its commerciality and avoid spiralling costs

later in the project's life. How does EDG ensure it can deliver what operators are demanding right from a project's inception? Can you give an example of where it has been able to dramatically influence/change an operator's approach to a project at the conceptual/screening/feasibility stage?

EDG: Barger

Industry's best-practices are centered on front-end development of a project. As a result, EDG has recruited early project management consulting and benchmarking expertise to complete basic engineering work while focusing on practices that are statistically linked to adding value to a project.

Mitch Provost, Project Manager

EDG analyses and "frames" projects to clearly identify the scope and objectives. These frames are developed

‘ The contracting community at large has not responded to operators' needs, and that is our fault, not the operators ’

early in the project life-cycle and are continuously reviewed with the operator to ensure that the operator's intended functional scope is maintained. The value in framing a project occurs when an operator decides to take a path different from the original project frame; ie, initiate study on a development option not originally planned. The project frame also assists in identifying work that is outside of the original scope while obligating a decision-making process with the decision review board. The result can change the engineering focus of the project and save the cost of continuing to work options that are longer desirable.

Myint

For example, an operator recently asked us to evaluate several host facilities for its new Gulf of Mexico subsea development. Initially, the team believed that the closest host facility

would be the obvious choice for production flow. After evaluating key flow assurance issues and assessing the market conditions for the oil in question, however, the project team selected another host candidate that actually was more than twice the distance away.

DI: Do you feel operators are becoming too demanding in terms of what they expect of engineering houses such as EDG for scheduling purposes at such an early stage in a project's life, or is that just the evolving nature of the E&P industry? Is it difficult to balance project hours v rewards? Are the lines becoming too blurred between the conceptual, pre-FEED, FEED and Detailed Design stages?

EDG: Barger

Operators are faced with developing complex, first-of-a-kind technology, deepwater projects, and they should be demanding. The contracting community at large has not responded to operators' needs, and that is our fault not the operators. We need to do more, not less, to build skills, expertise and relationships that fill voids in operators' organizations. The one function that has grown the most at EDG over the past two years is project management and controls – areas critical to setting the stage for effectively developing deepwater projects.

Myint

Operators new to deepwater tend to experience the greatest challenges. In any case, we always strive to work together to understand project risks and value added from up-front work and life-cycle cost analysis, keeping lines between the various project phases (pre-FEED, FEED, execution, etc) distinct. In instances, however, where clients are confident in absorbing certain risks, we have modified project management processes.

DI: What technologies does EDG see as being key to enabling deep and in particular ultra-deepwater projects to be brought onstream with better commercial margins? Could you outline some of the challenges and some of the most promising state-of-the-art solutions, as well as perhaps one or two 'blue sky' concepts for the future?

‘ The industry at large has done a terrible job of identifying, managing and mitigating risk management ’

EDG: Barger

Risk Management. That's right: Risk Management. The industry at large has done a terrible job of identifying, managing and mitigating risk management. When benchmarking results presented at OTC suggest that half of all the upstream deepwater projects are disasters, there is a clear message that some of our most challenging problems are not engineering technology, but rather basic project risk management. When are we going to realize that the range of cost uncertainty for a new technology, 10,000ft water depth, platform is not +/-10%! Once this enabling technology is better employed, our next challenge will be communicating the true risks to upper management.

Provost

A good risk-management plan includes the identification, qualification, quantification, response, control and monitoring of risks, with the process continuous throughout a project. EDG provides complete risk-management planning services to complement our project management and engineering consulting. These services include quantitative analyses, such as in-house Monte Carlo studies. Using these tools has helped us in deriving more accurate cost and schedule assignments for projects. Owners/contractors alike would benefit from these risk-management efforts as well. Some of the enabling technologies that will drive deep and ultra-deepwater projects are improved safety systems, materials science, constructability and construction quality. Effective, structured project management is the key component in the successful, commercially attractive application of these technologies. The challenge to successfully complete these types of projects safely, on time and under budget is the development of a dynamic and experienced project team, in particular, project leadership and management.

DI: Floating production versus Subsea - is there a long-term favourite here for deepwater developments of the future? Or is the answer, perhaps as usual, somewhere in between?

EDG: Myint

Yes, we believe the answer is somewhere "in between". The reason is real simple. In the Gulf of Mexico, for example, new deepwater floating facilities are being proposed or installed every year. With this new infrastructure present, including export markets, subsea development will continue to be proposed for marginal reserves or early production systems. At the end of the day, it all boils down to net present value.

Provost

Application of either a local host installation or subsea tieback will remain commercial, with technology always available to support either development scenario.

DI: Do you think the 'hub-and-spoke' approach is the best way for oil companies to maximize the reserves potential of an area?

EDG: Barger

The true challenge in the hub-and-spoke concept is getting alignment from the various participants feeding the hub. Consider how much time it takes your company to make a development decision. Then multiply that length of time by the number of producers/operators involved in developing a deepwater hub-and-spoke.

DI: Just how important is it to have internal long-term experience within a company such as EDG to draw upon? Is there a big enough experienced pool of engineers to go around the industry as a whole? Or is there a genuine problem in terms of what is seen as a worryingly ageing workforce? How can this problem, if it is one, be overcome?

EDG: Myint

Experience is certainly a key component to the success of our business. EDG enjoys a balance of staff who are long-term employees; some with more than 15 years with our company. The trick is to pass on best-

practices and lessons learned to new employees, both experienced and new graduates. The information transfer must continue on a regular basis. Industry demographics indicate that there is indeed a shortage of engineers with an experience level of five to 15 years. Longer term, this dilemma means that fewer consulting firms will be able to handle the complete suite of problems posed on a deepwater development. EDG recognizes this trend and has instituted a formal mentor/training process to ensure we prepare young engineers for the challenges of tomorrow.

Barger

Our industry faces a tremendous problem, with little end in sight. We're paying the price of the industry dumb-sizing of the 1980s. The challenge facing all of us in developing today's deepwater projects rests not as much in managing the projects now, but in training and mentoring young staff for the projects of tomorrow. We owe it to the industry to nurture these resources. Here's a thought for senior management: When was the last time you passed on a safety lesson learned to one of your junior staff?

DI: Does the upstream industry give enough thought to the long-term performance of its deepwater assets? Can you highlight any particular problems/challenges it is facing from any existing assets that you have been asked to work on (ie debottlenecking, facility upgrades, etc...), and the likely solutions?

EDG: Barger

Long-term performance? Heck, we don't give enough to short-term performance! Company and industry-wide data clearly demonstrate disappointing operational performance in the early years of the projects' production - or a serious problem in overestimating our initial performance. The problem with performance issues is that they require changes to the existing facilities. Brownfield revamp/modification projects represent unique risks, and we've already highlighted how well the industry does at risk management.

More information about EDG can be found at www.edg.net