



***WindandSea-Research***

**Oceans Energy Environment**

Bringing together diverse technologies to create  
and enhance energy systems

# **Project Management Process**

## Project Management Process

This is typical of the process on a project where we are acting as project manager with a number of sub-contractors. We will provide the **administrative team** that manages the project and reports directly to the customer. In addition we furnish whatever technical personnel are required to fulfill our engineering responsibilities.

The most critical role of the administrative team will be project management. The project management function may be shared among multiple individuals through the course of the project, but there will always be a single, defined, official point of contact who will be responsible for coordinating communications with the Customer. The number of people assigned to the PM function will vary with time, peaking early in the FEED phase and again during the fit-out and test phases. The project management function will always receive the highest priority for resource allocation within the administrative team.

The project management functions will include:

- Daily "morning" reports
- Weekly status reports and GANTT updates
- Coordination of Customer inputs & requirements
- Developing bid packages for major components.
- Managing the Engineering Change process. (ECR, ECO, ECN)
- Scheduling
- Monitoring project status
- Anticipating and mitigating schedule impacts
- Monitoring and controlling costs
- Monitoring progress of major suppliers
- Coordination & scheduling of the other members of the administrative team
- Interface with regulatory authorities

### ❖ Detailed specification

The first phase is a comprehensive system requirements specification which will be prepared in close consultation with the Customer, and serve as the basis for FEED 1.

The specification will be validated by the Customer together with a full and precise scope of work for all subcontractors.

### ❖ Conceptual 3D CAD

A dynamic 3D model of the entire system, including machinery, will be developed as a part of the FEED 1 effort. The model will be used to review the design with the Customer's personnel, and will be available to suppliers as needed to use as the basis for bidding the work. The system will be coupled to a database and used as the primary mechanism for development of the system-wide Bill of Materials (BOM) and document hierarchy.

### ❖ FEED 1 (Front End Engineering Design - Preliminary)

Subsequent to review and approval of the specification by the Customer, a detailed engineering effort that focuses on interface definitions and module requirements will be undertaken. Inputs from potential suppliers will be solicited through an RFI. This phase will be completed before the suppliers for all of the major components are chosen, and it will be done in close cooperation with potential suppliers that are willing to participate in the process with no assurance of subsequent work. The product of this effort will be used to develop bid packages for the various vendors.

### ❖ Supplier selection

Suppliers will be invited to bid on the major components based upon the bid packages (RFQs) developed following FEED 1. The RFQs will include a component of FEED 2 work to be performed by the supplier. At the end of this phase a final project plan that incorporates firm cost and delivery quotes from the suppliers will be perfected and presented for review by the Customer. At this point the project may be suspended or the schedule adjusted to suit the Customer's requirements with minimal wasted cost, and with a coherent documentation package in place.

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### ❖ FEED 2 (Front End Engineering Design – Final)

Once the suppliers have been selected, the final detailed engineering will be completed. Each supplier will be required to complete all up-front engineering and internal project management planning, submit final costs and technical recommendations, and await direction to start work. At the completion of this phase the bulk of the engineering will be complete and the administrative team will compile it and submit it to Customer and regulatory authorities as required. Designs will be released for implementation as soon as all related design work on other components that might impact the design is complete. At this stage all detailed CAD work is completed and subcontractor personnel go through a complete CAD walkthrough of the design.

### ❖ Engineering Change - ECO

A rigorous engineering change management system is put in place to ensure that any subsequent changes to the design go through a properly documented approval process. This approval will include validation against the original system specification and all applicable engineering and regulatory requirements. If approved, changes will be fully documented and revisions made to system documentation and PMS database as required. The ECO system provides the basis for ensuring the system remains in compliance with design specifications.

### ❖ Preventative Maintenance System -PMS

All documentation, PMS requirements, special procedures, audit and survey reports, and BOM information will be maintained in a project database. At the completion of the project the information in the database will be structured and delivered electronically for incorporation into the Customer's IT systems to be used for ongoing management of the system.

### ❖ Documentation & Documentation Control

Technical and operational documentation will be managed under a unified document control system, implemented so as to provide a seamless turnover to the Customer's document management system. A specification of documentation standards will be produced, in consultation with the Customer and the potential major suppliers, early in the project lifecycle to ensure this outcome. Documents (engineering drawings, specifications, manuals, instructions, bills of material, etc.) provided by the major suppliers will be required to conform to the project documentation standard.

The administrative team will generate required documents not provided by the major suppliers, which will include maintenance procedures, operating manuals, engineering drawings, and materials required in electronic tabular format (e.g, bills of material) for import into the Customer's systems.

The team will be responsible for compiling and managing the documents produced by the major suppliers, as well as those produced by the administrative team, and verifying that they conform to the documentation standards.

### ❖ Training and system handover

System performance is verified prior to departure of any sub-contractors and any variances from specification are corrected. Nuances in operation are captured and included in documentation.

Documentation is created in S1000D format with the capability of being published as web browser accessible Interactive Electronic Technical Publication (IETP). This content can also be converted into SCORM compliant modules for e-Learning delivery via a Learning Management System (LMS).

The Customer designated operational staff are involved at startup, and training courses are refined based on their feedback. Individual operators are qualified and an incremental turnover proceeds. Full turnover occurs, and Customer signs off on system.