PRINCIPLE
renewable energy delivered

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1 Project Information

Offshore wind energy has the potential to contribute significantly to the US domestic energy supply. Approximately 11,200 TWh/yr of primary energy is required to meet total current US electrical demand[1], and this figure is expected to increase by an estimated 35% by 2030[2]. In Europe, offshore wind energy has proven to be cost competitive for highly populated coastal energy markets where other energy sources are generally costly or unavailable. The coastline of the US mandates the development of new technological solutions due to a rapid drop in the continental shelf close to shore, resulting in water depths exceeding 50m, the limit of traditional offshore monopile wind installations. There are currently no commercially viable solutions for offshore wind development in these water depths due to economic and technological limitations. As a result, only a limited area of the US (on the East coast) is suitable for offshore wind development using traditional installation techniques. Therefore, in order for the US to harness the full potential of offshore wind energy, deep water technologies and installations must be developed and deployed.

Principle Power is the developer of the WindFloat, a fully integrated floating support structure with large offshore wind turbines (3.6 MW and greater). We target the emerging offshore wind market segments, of depth of 50 meters and greater, by eliminating current depth limitations with an innovative solution. While maintaining the highest level of environmental stewardship, we partner with developers and utilities to finance and build renewable energy power plants. Principle Power owns the patent-pending WindFloat technology (Figure 1). Innovative features of the WindFloat dampen wave and turbine induced motion, enabling economically efficient installation in water depths exceeding 50m. The WindFloat technology consists of a semi-submersible, column-stabilized hull fitted with horizontal water-entrapment plates at the base of the columns and an asymmetric mooring system. The heave plates and active ballast system reduce the size and cost of the structure while achieving unprecedented platform stability, allowing the use of any commercial offshore wind turbine with minimal modifications.

Figure 1. Artist rendering of WindFloat

[1] "Technology White Paper on Wave Energy Potential on the U.S. Outer Continental Shelf." Minerals Management Service, Renewable Energy and Alternate Use Program, U.S. Department of the Interior. May 2006.
[2] Energy Information Administration, Forecasts and Analyses.

WindFloat technology development has advanced to validated concept design including: development of coupled numerical design tools, wave tank testing, hydrodynamic and structural analysis, and deployment optimization.

Principle Power proposes the installation of a floating deep-water offshore wind facility with a nameplate capacity of 150 MW that enables access to the superior wind resources in Tillamook County. The proposed project is a turnkey engineering, procurement and construction proposal with Principle Power acting as the project designer, initiator and coordinator by attracting a commercial Project Develop and the Project owner, and with TIDE being a Project licensee.

The project is proposed to be developed in two phases - Phase I would entail permitting, grid connection for the full project capacity and installation of two floating integrated offshore wind structures with a combined nameplate capacity of 10 MW to validate energy production of the WindFloat systems. The second Phase will expand the project to its full nameplate capacity of 150 MW. The proposed project has a potential to provide significant contributions to the Tillamook PUD energy portfolio as a renewable energy resource and towards economic development throughout Tillamook County.

The proposed WindFloat development will unite Principle Power with TIDE in: developing and operating an offshore wind installation that provides affordable clean renewable energy to the Tillamook county; soliciting active community participation in project development and operation; promoting economic development and power production through maximizing federal and state tax credits, grants, and other incentives; securing predictable revenues and expenses through development of Power Purchase Agreements and Transmission Agreements; and providing assurance of the protection of ocean resources for future generations.

1.1 2008 Proposal and Memorandum of Agreements with TIDE and TPUD

In 2008 Principle Power submitted a non-solicited proposal to the TIDE Hydrokinetic Energy Project RFP. At the time, the request for proposals did not include offshore wind developments, but nevertheless, TIDE contacted Principle Power for more information about the WindFloat (previously called "MFWind") technology and proposed development. Following this request, some interviews, and subsequent discussions, Principle Power and TIDE signed a Memorandum of Agreement for the phased development of a 150 MW floating offshore wind power plant off the coast of Tillamook County, Oregon. The terms of the MOA called for TIDE support in outreach activities hosted by Principle Power at public meetings and roundtable discussions with state, federal, and local stakeholders as well as environmental agencies, fishermen's associations (such as the Fishermen's Advisory Committee for Tillamook ("FACT")), and commercial and recreational marine users to ensure that all stakeholder interests are considered.

Shortly thereafter, Principle Power and Tillamook PUD also signed a Memorandum of Agreement for the same phased development. The terms of the MOA called for Tillamook PUD and Principle Power to enter into good faith discussions regarding plant location, energy output and safe interconnection to the grid. The utility and Principle Power agreed that they could execute separate Agreements for plant ownership, permitting, community outreach, environmental, energy production, grid-interconnection, installation, deployment, operations, maintenance, and/or other contracts and services as needed.

1.2 Progress since 2008

1.2.1 Outreach in Tillamook

FACT, TIDE and OSU Sea Grant representatives and Principle Power have considered numerous environmental, utility infrastructure, fishing industry and technical criteria to conduct site selection for a the WindFloat offshore power plant. Over the course of 2008-2009 Principle Power conducted discussions and meetings with these agencies in order to achieve consensus on a proposed site. Proper siting is critical to the development of offshore wind energy, and Principle Power since 2008 has been committed to the analysis of the impacts and benefits of various locations of coastal Oregon for offshore wind power plants. During 2008 and 2009, the company met with FACT members individually and at FACT meetings numerous times to discuss how the technology functions at sea, projected infrastructure impacts on the sea floor and to historical fishing grounds while learning from the Oregon fleet about the local and regional fishing industry.

FACT, TIDE and OSU Sea Grant representatives were invited to attend Principle Power's wave tank demonstration of the WindFloat in Berkeley, CA in May 2009. FACT representatives participated in detailed discussions with Principle Power naval architects on the many important issues of WindFloat installations at sea, including navigation plans, anchoring, build-out plans, storms, power output and salvage plans. FACT representatives observed the company's demonstration of a scaled model of the WindFloat. The event allowed both company and FACT fishermen to discuss their industry issues openly.

At the June 2009 FACT meeting, FACT met with Principle Power to consider the "known and expressed criteria" of the technology and site conditions in order to propose a single location to Principle Power for the WindFloat offshore power plant. Previously the crabber, trawler, recreational and other commercial fleet representatives had held internal and proprietary discussions to achieve consensus on a potential site for Principle Power's offshore wind plant. In June, FACT suggested to Principle Power a location off Nehalem as the candidate site.

1.2.2 Technology

In response to the recent economic environment and lack of maturity in the offshore wind permitting regime, Principle Power shifted its priorities to technology development in 2009, so that the WindFloat technology would be poised and ready for implementation once the project was ready for active permitting and fundraising. WindFloat technology development has advanced to validated concept design including: development of coupled numerical design tools, wave tank testing, hydrodynamic and structural analysis, and deployment optimization.

Meanwhile, Principle Power has simultaneously started market development in other regions around the world with easier permitting requirements. In 2009, signed a Memorandum of Agreement and Consortium Agreement with Portuguese utility Energias de Portugal ("EDP") and Portuguese fabricator A Silva Matos ("ASM") to build a first multi-megawatt full-scale prototype development, as the first of a multi-phase build out of a commercial scale offshore wind farm. At the time of submission of this proposal, Principle Power and subcontractors are working on the detailed front end engineering design for this prototype development to be deployed off the coast of Portugal in Spring 2012. Fabrication for the first prototype design will begin this Fall 2010. This detailed design and prototype work has incorporated much engineering and design work that will be applied to the future

build out of multiple WindFloat units. Most of these learnings and design improvements will be applicable to the global design, as the WindFloat technology is continually refined.

In Fall 2009, Principle Power was awarded a $1.5 million grant from the Department of Energy's Advanced Water Program to perform R&D activities to develop the concept design for the WindWaveFloat, a derivative application of the WindFloat, which incorporates additional wave power generation into the standard WindFloat model. This is the first of many types of hybrid applications that are envisioned for the WindFloat, and the concept study is underway. If this project proves to be successful, Principle Power may consider implementing various type(s) of hybrid WindFloat and renewable energy generators to increase clean energy power production and reduce intermittency. However, this would be in later phases, after the initial WindFloat design has been fully developed, refined and implemented.

1.2.3 The 2010 proposal

The following details of this 2010 proposal closely resemble the original 2008 plan. As we continue to refine our WindFloat technology, the proposed project schedules and costs have been updated to reflect the latest management estimates to ensure a successful project.

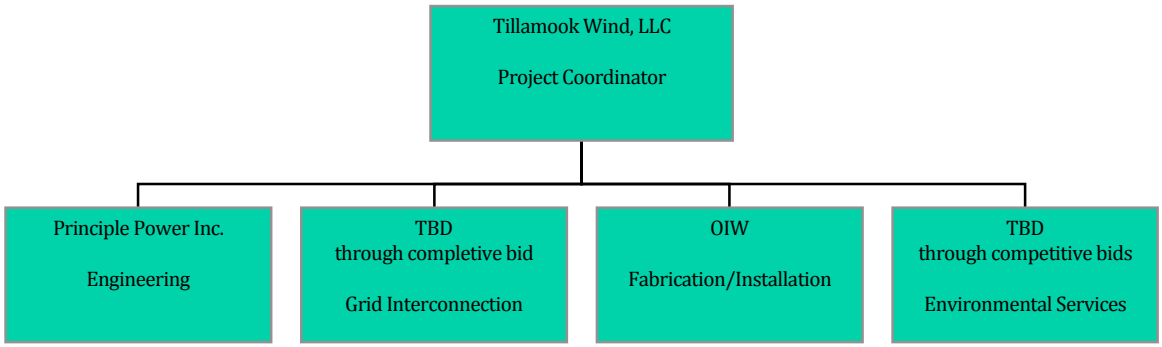
1.3 Business Plan

1.3.1 Project Ownership Entity and Structure

The proposed Project will be executed through a new entity, Tillamook Wind, LLC (TW). TW, an Oregon limited liability company, will develop, own and operate the proposed offshore wind power plant. Principle Power will address front-end project development issues, like resource assessment, cite selection, and permitting, in addition to working to attract a commercial project developer. TW will be the Project owner with TIDE being a Project licensee. Principle Power is open and flexible regarding ownership and operational arrangements with TIDE to assure preservation of municipal preference in the licensing process. This will enable TIDE to retain the authority necessary to ensure responsible development of its coastal and ocean resources, and allow for flexibility in the development, ownership and operation arrangements.

For this pioneering Project, Principle Power has assembled a team of business partners and individuals with extensive track records in their respective fields (outlined further in Section II). Principle Power's team includes the inventors of the WindFloat platform; Oregon Iron Works (OIW), an Oregon based manufacturer, and additional suppliers and vendors to be selected through a competitive bidding process. Alla Weinstein, Principle Power's CEO who has successfully led a prior wave energy project to obtain the first full FERC license in the US, will serve as the overall project manager.

1.3.2 Tillamook Wind, LLC Organization Structure



1.3.3 Project Finance

Principle Power will identify and attract a commercial project developer that would arrange Project financing through the use of equity and debt instruments in the TW. The detailed financing plan entails a variety of debt, equity, tax credits and green asset monetization for the proposed Project. As with any complex project, the partners, terms and agreements of project financing will be selected and negotiated specifically for the proposed Project.

Due to novelty and the future upside potential of the proposed Project, the Phase I of the Project will be more attractive to strategic and equity investors such as industry participants and institutional investors, rather than traditional debt lenders. Equity investors typically have a greater appetite for risk and reward and are interested in leading-edge disruptive approaches. That said, Commerzbank, HVB, Fortis, RBS and NORD/LB are a few of the banks which have had experience successfully financing offshore wind projects with appropriately adjusted debt service coverage ratios. Any debt incurred will be serviced through cash flow derived by TW from the sale of electricity under Power Purchase Agreements (PPA).

As part of the financing strategy, Principle Power plans to take advantage of maximizing all available tax credits. In February 2009, legislation revised the production tax credit by: (1) extending the in-service deadline for most eligible technologies by three years; and (2) allowing facilities that qualify for the production tax credits (PTC) to opt instead to take the federal business energy investment credit (ITC) or an equivalent cash grant from the U.S. Department of Treasury. The ITC or grant for PTC-eligible technologies is generally equal to 30% of eligible costs. Although the in-service deadline for the current 2.1¢/kWh PTC is December 31, 2012, the PTC has historically been renewed and extended a number of times beyond its set expiration date.

In addition, TW LLC will be looking in detail at the 35% Oregon Business Energy Tax Credit for renewable energy resource generation and structuring the project to take full advantage of Oregon's support legislation for renewable energy projects. This rate may be reduced if TW sells its credits to a pass-through partner in return for an upfront lump-sum cash payment. As TW begins to further develop the Project, other grants and local incentives, such as possible DOE grants and the New Markets Tax Credit will be explored.

Furthermore, the TW LLC project financing plan may incorporate the benefits of R&D tax credits, accelerated depreciation for energy property (5 years instead of 15 years), as well as any bonus depreciation, to attract tax equity investors who invest in renewable energy projects to write off passive gains.

Due to the complexity of offshore wind projects, TW LLC will utilize multi-contracting, such that the different components and risks of the Project (eg. turbine supply, construction, interconnection, etc.) are shared between different companies, each responsible for their own service or equipment. An interface agreement within TW LLC will be used to integrate the Project, to connect various suppliers and vendors, to discuss obligations regarding information and co-ordination of tasks, and to enable lender step-in rights, which are typically required for wind projects. Although interface agreements are common in other industries and are relatively new to the wind energy business, they are becoming increasingly popular as wind projects begin to scale with multiple vendors required for larger-scale projects.

Lastly, TW LLC will negotiate service agreements with turbine manufacturers in addition to their manufacturing warranties. O&M contracts for wind projects warrant technical availability, stipulating operational reliability for turbines of approximately 97% in a given year (approximately 354 days). Due to the transportability of WindFloat, any major repairs can be performed quayside, providing significant savings in maintenance costs and greater weather windows, when compared to traditional offshore wind facilities. Obtaining manufacturing warranties and service agreements with the turbine manufacturers provides an economical solution to ongoing O&M.

Through the collective knowledge and past experience in structured finance, Principle Power, and a Project Developer will leverage their network and bring the right partners to the table for all project financing components.

1.3.4 Projected costs

Principle Power proposes to implement the Project in two or more phases to reach the Project nameplate capacity of 150 MW. Phase I will include acquiring installation permits for the Project at full capacity, but will only install two (2) WindFloat structures with 5MW turbines each to reach 10 MW nameplate capacity. Phase II, and if necessary, additional follow-up phases, will add 28 WindFloat structures and offshore wind turbines to reach the full Project nameplate capacity.

There are two reasons for phased development of the proposed Project – a) coastal substations are currently limited to maximum delivery of 25 MW; b) conventional project financing is more easily obtained for project expansion with a demonstrated performance. Furthermore, Phase I financing would most likely be through equity investments in TW, while expansion phases will have access to conventional debt financing instruments.

Principle Power estimates the following costs breakdown for Phase I and the follow-up Phases in Appendix A, Table 1-1.

A long term (15-20yr) Power Purchase Agreement (PPA) will need to be negotiated with Tillamook PUD and other utilities for each phase of the proposed Project. In the case TPUD is unable to purchase all power produced by the Project at full capacity, additional Power Purchase Agreements with BPA and/or offtakers will be negotiated. PPAs will need to be in place prior to start of construction of each phase of the project, as lenders and equity investors require evidence of guaranteed cash flow to meet debt service obligations. The greater certainty of the terms allows "bankability" of the project and access to more favorable terms.

1.4 Location and Size

Principle Power proposes to generate electrical power using energy conversion of offshore wind. The proposed Phase I of the Project will consist of two (2) floating, WindFloat platforms, anchored to the ocean floor approximately nine (9) miles offshore of the coast of Netarts, Oregon. Each WindFloat structure will be outfitted with a 5 MW turbine for a total 10 MW nameplate capacity for Phase I of the Project.

1.4.1 Proposed Project Location

The proposed location for the installation of the first turbine, WindFloat #1, is at 45°28.3N latitude, 124°10'W longitude, with the WindFloat #2 to be located 5 miles south at 45°26.1N latitude, 124°10.36'W longitude (Appendix A, Figure 1-1). There are no ship channels or any significant restrictions to marine activities at the proposed site. The generated power will be brought to shore via submarine cable with landfall in Netarts and tie back directly into the Netarts substation (45°27.4N, 123°50.35'W).

The available wind resource has been derived from historical data collected by NOAA buoys # 46050 and # 46029, as shown in Appendix A, Figure 1-2. The wind resource potential at the location has been calculated with the use of a logarithmic wind profile law, which projects the wind energy resources 100 m above water. The ocean or wave roughness length used in calculations was 0.001, typical of rough seas.[3]

To date, most offshore wind installations have been located in shallow waters less than 40 m. Principle Power's floating WindFloat plant enables access to the best available wind resources located much further offshore in ocean depths greater than 200 m. The technology deployed by Principle Power provides a practical and economic solution for renewable energy production in an environmentally sensitive manner with deep-water wind installations.

1.4.2 Size of Proposed Project Site

Each WindFloat installation will be spaced 5 miles apart. The surface area required for each WindFloat is 150 sq. feet. Appendix A, Figure 1-3 depicts the project area for the full 150 MW installation.

1.4.3 Permitting

The Department of the Interior's (DOI) Minerals Management Service (MMS) has the lead authority for renewable energy projects using offshore wind resources on the outer continental shelf (OCS). The Energy Policy Act of 2005 grants MMS management authority for these types of projects through an amendment to the OCS Lands Act. The Act designates that the coastal states will share in 27 percent of the revenues generated from alternative energy activities within the area extending three nautical miles seaward of a state's submerged lands.

Under the April 9, 2009 agreement between the Interior Department and the Federal Energy Regulatory Commission (FERC), the MMS has exclusive jurisdiction with regard to the production, transportation, or transmission of energy from non-hydrokinetic renewable energy projects, including wind and solar. FERC will have exclusive jurisdiction to issue

[3] Burton T. et al. "Wind Energy Handbook", Wiley, 2001

licenses for the construction and operation of hydrokinetic projects, including wave and current, but companies will be required to first obtain a lease through MMS.

Principle Power proposes to work with TIDE to obtain the necessary installation permits and licenses, while TIDE remains the licensee. Much of the Project will be sited on the OCS under MMS's authority. The Project's energy delivery cable will approach and land on the Oregon coast. The near shore connection to the grid may require interface with FERC under the terms of the expected TIDE FERC license. The Project will be regulated further under the laws of the State of Oregon. MMS, being the leading agency, will coordinate permitting activities with all other agencies including, but not limited to: US Army Corps of Engineers, US Coast Guard, US Fish and Wildlife Service, Oregon Fish and Wildlife, FERC, and Oregon Public Utility Commission. Principle Power is allocating up to 36 months to obtain the necessary installation permits for the proposed project.

Two environmental assessment (EA) studies will be used as a reference by Principle Power: the EA prepared for the Cape Wind, the first US offshore wind project, and the Beatrice offshore wind project in UK that installed two (2) 5 MW REPower turbines 20 km offshore at a 50 m depth.

The Project will include two (2) platforms with two (2) 5 MW turbines connected to a sub-sea cable, delivering total nameplate capacity of 10 MW of renewable electricity to shore. All system components, such as turbines, high integrity moorings, a power conversion unit, online monitoring and telemetry equipment, and maintenance vessels have been used and permitted in marine industries for decades and are approved under many state and federal coastal regulations.

1.4.4 Energy Delivery & Interconnection

Principle Power is proposing to deliver generated electrical power directly to the Netarts substation of the TPUD system. The Netarts substation is located close to the proposed landfall point allowing low-cost interconnection. At the onset of the Project, Principle Power will meet with TIDE and other stakeholders to finalize the offshore and land locations to minimize any potential impact on local use of offshore and land resources. Principle Power plans to work with the local community to solicit early participation of the stakeholders in the Project siting. Members of the Principle Power Project team have prior experience and extensive credentials in siting, permitting and working with local community on ocean energy projects.

No new transmission lines would be required for Phase I of the proposed Project. In Phase II, Project expansion will require transmission lines and substation upgrade to accept 150 MW of the peak power. At that point Principle Power would propose to use the HVDC Light transmission line to bring the power to shore.

1.5 Site Description

Principle Power will study the required marine and terrestrial conditions to establish a baseline and analyze post-construction patterns in the eco-system. A sample list of known marine animal and plant life that exists in the area of the proposed Project is provided below. Final project micrositing will be performed in an effort to minimize any adverse impact on the environment and marine and plant life.

- Bald Eagle (State Threatened)
- Dungeness crab (Priority Species)

- Hard shell subtital clam (Priority Species)
- Marbled murrelet (State Threatened)
- Northern sea otter (State Endangered)
- Rockfish (yelloweye) (State Candidate)
- Palustrine and marine wetland habitat
- Kelp beds
- Harbor seal haulouts

Marine mammals that may potentially be affected by the development of the study area include cetaceans (Gray, Humpback, Minke, Orcas, harbor porpoise), pinnipeds (seals, sea lions), and sea otters. The location of the project relative to the migration route of gray whales will be studied, based on the historical data at the study site. Data for the current year will be included in the evaluation. Baseline information regarding the presence in seabirds and fish species in the project area will be summarized.

Based on the environmental assessment studies performed for Cape Wind (US)[4] and the Beatrice project (UK)[5], the proposed offshore wind installation will have little or no adverse environmental impact to nearby residents.

- The plant will be visually unobtrusive due to its offshore location. Appendix A, Figure 1-5 (left) shows a view of the platform for a 6-foot tall observer standing on the beach, if he or she was 10 miles away from the target location on a very clear day. Appendix A, Figure 1-5 (right) shows a view of the platform 5 miles offshore on a clear day.
- The proposed Project will be accomplished in a manner consistent with coastal regulations.
- The proposed Project is a clean and competitively priced energy solution that offsets the production of carbon dioxide, nuclear waste, land degradation, aviary loss, soil erosion, water pollution, eutrophication, and other environmental hazards associated with other methods for energy generation.

Toxic pollution from conventional power plants is a significant contributor to air pollution and Green House Gases on the planet. The proposed Project will help reduce carbon emissions by offsetting fossil fuel generation. Carbon dioxide (CO2) emissions will be reduced through commercialization of clean energy power plants such as the proposed Project.

The proposed 10 MW pilot offshore wind energy plant will displace an estimated 1,226 tons of CO2 annually.

[4] Cape Wind MEPA Certificate on the Final Environmental Impact Report, 2007
[5] Talisman Energy, "Beatrice Wind Farm Demonstrator Project Scoping Document", 2007

1.6 Project Capacity

1.6.1 Nameplate Capacity

Each of the two (2) WindFloat installations will be outfitted with a 5 MW turbine for a total 10 MW nameplate project capacity. Twenty eight (28) additional WindFloat structures with 5 MW turbines each will be added during the expansion Phase(s) to reach the full Project nameplate capacity of 150 MW. The projected annual energy output after the first year is 23,805 MWh for Phase I and 357,703 MWh at full capacity.

1.6.2 Minimum Production Levels

Wind patterns in the Pacific Northwest are generally much stronger in the winter months due to weather patterns that bring southwest winds to the area. Minimum production levels are expected during the summer months.

1.6.3 Monthly Projected Production Levels for One Year

Appendix A, Tables 1-2 and 1-3 provide the projected hourly power delivery profile for a one-year period for Phase I and for the plant at full capacity.

1.7 Offshore Wind Technology

The proposed floating offshore wind installation has two distinct components: a) a wind turbine, and b) the floating structure to support the mast and the turbine.

1.7.1 Wind Turbines

The wind turbines for the proposed Project are commercially available off-the-shelf units and are specifically designed for offshore wind installations.

One of the potential turbine suppliers is REPower (Germany). The REPower wind turbines have been previously used in an offshore project off the coast of Northern Scotland. They are specifically designed and have been approved for use in fixed offshore applications. The REPower product brochure is provided in Appendix B. The final selection of the turbine suppliers for the proposed project will be made during the design phase of the project on a competitive basis from qualified suppliers. Principle Power does not foresee significant degradation of the output beyond the guaranteed performance of the turbines in accordance with the manufacturers specifications.

1.7.2 The WindFloat Platform

In 2009, Principle Power acquired the WindFloat technology from Berkeley-based Marine Innovation & Technology LLC, the original inventors of the WindFloat. The WindFloat platform represents a new application of existing platform technology used in the offshore Oil & Gas industry.

There are two primary advantages of the WindFloat platform over other floating installation concepts – first, its stability performance which provides for very low pitch and yaw characteristics, and second, its size which allows for the overall structure assembly and wind turbine installation to be performed on shore.

The WindFloat system is a semi-submersible offshore platform fitted with horizontal heave plates at the base of the columns. The presence of the plates is key to reducing the platform size and cost, while achieving excellent, practically pitch and yaw free performance in the

offshore environment. Unprecedented platform stability, resulting from the active ballast system, allows existing wind turbines approved for use in fixed offshore applications to be suitable for floating offshore applications, with minimal modifications required.

The ability of the overall structure to be assembled onshore and towed to its location allows for offshore wind plant installation in Oregon waters that would not otherwise be possible. At the present time all offshore wind installations are installed on site, and are restricted by available sea conditions, as safe offshore operations requires less than 2ft seastate. Assembly and outfitting of the overall structure on shore and then towing to the final location, enables much larger installation windows, an ability to bring the structure back to shore for repairs – all are resulting in reduced operational costs.

Over the past seven years, MI&T has been developing the WindFloat predecessor, MiniFloat (MF), to support a variety of applications. Through this past work, MI&T engineers that are now part of Principle Power, bring to the team:

- A thorough understanding of the behavior and performance of the WindFloat in various sea states.
- A series of numerical tools developed specifically for the global design of the WindFloat, independent of the end-user application, but specific to its sizing, given a target allowable motion performance.

Principle Power engineers have many years of experience in the development of offshore systems. They have been involved in global designs of offshore oil and gas platforms, including semi-submersibles and tension leg platforms (TLPs) now in operation, in design and qualifications of large liquid natural gas (LNG) tankers, and many new offshore floating platforms for various applications. Through these multiple projects, MI&T has become an expert in offshore floating support, from early concept development to detail design, installation and commissioning. Principle Power's engineering strength resides in their understanding of the challenges associated with placing large structures in the ocean for significant periods of time.

Three model tests have been performed on the MF design and a number of peer-reviewed papers have been published[6],[7,8] over the last 7 years. Semi-submersible platforms are very common in the offshore Oil & Gas industry. The horizontal heave plates have been used successfully on truss spars. The combination of these two technologies enables reduction of the platform size and strongly supports the viability and economics of power production from offshore wind resources.

The WindFloat platform enables offshore wind development that has been hindered thus far by the lack of practical and cost effective installation methods.

The main components of the WindFloat platform are briefly described: there are three vertical circular columns interconnected by horizontal tubular members and bracing. A

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[6] Alexia Aubault, Christian A. Cermelli, Dominique G. Roddier , Parametric Optimization of a Semi-Submersible Platform With Heave Plates, Procs. of OMAE'07, 26th International Conference on Offshore Mechanics and Arctic Engineering, San Diego, USA 11-16 June 2007

[7] C. A. Cermelli, D.G. Roddier, Experimental and numerical investigation of the stabilizing effects of a water-entrapment plate on a deepwater minimal floating platform , Proc. 24th International Conference on offshore Mechanics and Arctic Engineering, Halkidiki, Greece, June 2005

[8] C. A. Cermelli, D.G. Roddier and C.C. Busso, MF: A novel concept of minimal floating platform for marginal field development, Proc. 14th Int. Offsh. & Polar Engrg. Conf., Toulon, France, May 2004

water-entrapment plate is supported at the base of each column and extends horizontally outward. It is fixed to the column base and supported by vertical bracings connecting the outer edge of the plate to the columns. The water-entrapment plate increases the platform's added-mass and damping. It is a key component of the platform's hydrodynamic performance. The turbine tower is supported by one of the columns. The turbine rotor and nacelle are fixed to the top of the tower with an approximate hub height of 80m.

An active ballast water system is installed in the platform to transfer water between columns. This ballast compensates for the change in overturning moment due to mean wind speed or direction. The ballast system has no piping connection to the environment (closed loop) to minimize risks associated with malfunction of ballasting equipment. The ballast system is designed to compensate for turbine induced mean overturning moment. Up to 200 tonnes of ballast water can be transferred in approximately 30 minutes using two independent flow paths with redundant pumping capability. One active ballast compartment is located in the upper half of each column.

The bottom half of each column contains a permanent water ballast tank. Each tank is filled to lower the platform to its operating draft, where the heave plates are hydrodynamically efficient. In transit, the permanent ballast tanks remain empty, permitting use of ports for assembly and commissioning of the system.

The proposed mooring system consists of 4 mooring lines composed of chain with a clump weight at the top, rope in the intermediate section and a section of chain at the bottom attached to a drag-embedment anchor. Two lines are connected to the column supporting the wind turbine, as it is subject to higher loads than the other two columns.

A medium voltage (approximately 34 kv) dynamic electrical cable is daisy-chained from one floating turbine to another one. A lazy-wave configuration is adopted to reduce strain on the electrical cable.

1.8 Scheduling and Timelines

Once selected by TIDE, the proposed Project will commence with four main activities – a) solicitation of a Project Developers and arrangement of project financing, b) negotiation of the PPA with TPUD and determination of other power offtakers, c) Project preliminary design and d) nomination application submittal to MMS for the project location.

The proposed schedule allocates three and a half (3.5) years to obtain installation permits that includes environmental assessment, location NEPA, followed by the Project NEPA with MMS for the full 150 MW capacity. The permitting regime has progressed to a stage where we believe that this timeline is realistic and achievable. TIDE will be the licensee applicant, while Principle Power will perform the necessary tasks to obtain required installation approvals. The permitting process and its timing is the critical path of the proposed Project.

Expansion Phase of the Project will commence in a minimum of 12 months following the commissioning of Phase I. Expansion Phase will mainly consist of upgrading the transmission lines and adding additional WindFloat structures with turbines to the Project infrastructure.

1.9 Emergency Response

Principle Power will have a formal emergency response protocol for approval by the Project regulators. The protocol will include an appropriate emergency response plan, oil spill prevention, control and recovery plan, emergency response vessel plan, and others as

required. The protocols (actions and responses) to be followed in the event of emergency or intervening factors, which mandate deviation from routine procedures will be documented and submitted to regulators. The objectives of emergency procedures are to prevent potential threats to personnel and the environment, limit damage to equipment, and correct the cause. As an example, Appendix A, Table 3-1 provides an overview of expected emergency procedures and a short description of the actions taken. In general, the emergency procedures place the plant in a safe condition when fire, flooding, or other catastrophic events threaten the plant.

1.10 Decommissioning

Principle Power will develop and implement a decommissioning plan for the removal of the Project facilities from the offshore site at the end of the service life for the project. Typically, sixty (60) days before the start of project removal, plans and specifications will be submitted and finalized, which detail the decommissioning procedures, sequence of activities, and safety and quality control measures which the plant owner will take during removal operations. The project removal plan will be filed with government regulators at least 120 days before starting on-site Project removal.

The decommission plan would include the following main procedures:

- Deactivate Platform Equipment
- Remove the Platform Equipment
- Tow the Platform into Harbor
- Lift equipment onto shore station.
- Transport equipment as appropriate.
- Remove horizontal cable from seafloor.
- Remove the interconnection equipment and station.

2 Proposer Qualifications

The proposed Project will be implemented by a consortium of companies and professionals with proven track records in their respective fields: Principle Power - a technology and project developer with extensive experience with WindFloat, which will act as the main Proposer and Project coordinator with a team of dedicated professionals with high level of expertise in marine and offshore engineering that developed the WindFloat platform, the enabling technology for the deep-water offshore wind development, and Oregon Iron Works - an innovative small business providing a globally recognized Marine Division with a wide range of advanced accomplishments from custom design and prototype development to large-scale production, outfitting, and testing under rigid Quality Control.

Full resumes for the core Project team are provided below. In addition to the core team, Principle Power will be contracting services of the outside specialty firms. Subcontracts will be selected according to the following guidelines:

- The selection will be based on the best value for money given the quality of the service proposed (best price-quality ratio);
- Participants will ensure to provide equal opportunity for competitive tender participation to qualified small and local business;
- The procedure will ensure conditions of transparency and equal treatment.

2.1 Team Resumes

Principle Power Inc.

Name	**Alla Weinstein**
Profession	Electrical Engineer
Position in Firm	President & Chief Executive Officer
Career Summary	
2007 – present	Principle Power Inc., Chief Executive Officer
2006 – 2007	Finavera Renewables Inc., Director and General Manager
2001 – 2006	AquaEnergy Group Ltd., Co-founder, CEO & President,
1998 – 2001	Global Business Alliances, LLC, Principle
1997 – 1998	Honeywell, Homes & Building Control, General Manager
1991 – 1997	Honeywell, Commercial Aviation, Director, New Business Development
1985 – 1991	Honeywell, R&D Centre, Program Manager
1977 – 1985	Honeywell, Military Avionics, Program Manager, Development Engineer

Key Experience

Alla Weinstein, Principle Power's CEO, will act as the lead for the sponsor team and manage all aspects of the project. Ms. Weinstein brings over 30 years of industry experience in general management, business development, strategic planning, marketing, program management and engineering to bear on the proposed offshore wind installation. Ms. Weinstein is an engineer and a business professional with extensive knowledge in working with emerging technologies, international markets, energy policies and governments. She possesses vast experience in developing start-up initiatives, both domestic and international, in renewable energy, energy conservation, aerospace, and semiconductors. This experience has been translated into long involvement with federal agencies such as the US Departments of Energy and Defense, and the Bonneville Power Administration.

In 2008, Ms. Weinstein co-founded Principle Power. As a CEO of Principle Power, she oversees all aspects of the business, combining her lifelong interests and experience in science, technology and climate change with her successful business expertise.

Ms. Weinstein also serves as the first President of the European Ocean Energy Association, an organization dedicated to promoting and bringing public awareness to the potential benefits of Ocean Energy. She is well known in the Ocean Energy arena on both sides of the Atlantic. Prior to Principle Power, Ms. Weinstein co-founded AquaEnergy Group Ltd., a wave energy technology, project development and independent power producer company. Ms. Weinstein served as CEO & President of AquaEnergy until the company was sold to Finavera Renewables, a TSX-V listed public company, in 2006.

Ms. Weinstein served on the board of Finavera Renewables Inc. and was the General Manager of the Ocean Wave division, where the company successfully contracted a multi-megawatt scale ocean wave power purchase agreement with PG&E and obtained FERC license for a wave plant.

Education and Professional Status

MBA in International Management, Thunderbird, The Garvin Graduate School of International Management, Phoenix, AZ, 1997
BE in Electrical Engineering, Stevens Institute of Technology, Hoboken, NJ, 1977

Principle Power Inc.

Name	**Mary Jane Parks**
Profession	Energy Executive
Position in Firm	Senior Vice President

Career Summary

2008 – present	Principle Power Inc., SVP, Seattle, WA.
2006-2008	Finavera Renewables, Inc., SVP, Vancouver, Canada.
2001-2006	AquaEnergy Group, Ltd., VP, Mercer Island, WA.
2000-2001	City of Anaheim, Calif., Public Utilities, Renewable Manager.
1999-2000	Intelligent Technologies, Brisbane, Australia, US Business Manager.
1997-1999	New Energy/AES, Los Angeles, CA, Information Manager.
1992-1997	City of Azusa, Calif, Public Utility, Conservation Officer.

Key Experience

Mary Jane Parks has over 20 years of experience in public utility and private energy companies in California, Australia and Canada. Most recently serving as Senior Vice President for Finavera Renewables, where she successfully negotiated a power purchase agreement with PG&E for a utility-scale ocean wave energy facility. Part of her work included achieving FERC licensing for the company's projects. As a senior executive, Ms. Parks has managed renewable energy projects and business development in the US and Canada. Prior to Finavera Renewables, Ms. Parks worked as Vice President for AquaEnergy Group, Ltd. from 2001 until it was merged with Finavera Renewables, Inc. in 2006.

Ms. Parks serves as the chairperson of the current Board and is a founding board member of Canada's Ocean Renewable Energy Group. From 1997-2000, Ms. Parks worked in various energy retail, sales, and integrated systems positions with New Energy, Inc./AES, and as US Business Manager for Intelligent Technologies of Brisbane, Australia. Formerly, she chaired the renewable energy and resource efficiency committees for the California Municipal Utility Association, while holding a management position with City of Anaheim Public Utility. She earned an AB degree from Occidental College and a Masters Degree from the University of Chicago. Ms. Parks is a US Coast Guard licensed mariner.

Education and Professional Status

AB, Occidental College
Masters Degree, University of Chicago
Licensed Mariner, US Coast Guard

Principle Power Inc.

Name	**Dominique Roddier**
Profession	Naval Architect
Position in Firm	CTO

Career Summary

2003-present	Marine Innovation & Technology, Berkeley, CA, Vice-President
2002-2003	ExxonMobil, Upstream Research Company, Senior Research Engineer
2000-2002	ExxonMobil, Upstream Research Company, Research Engineer
1995-2000	UC Berkeley, Computer/System manager, Graduate Student researcher (GSR), graduate Student Instructor (GSI), Lecturer
1993-1994	University of Hawaii, Graduate Student Assistant (GSA)

Key Experience

Dominique Roddier is a co-founder of Marine Innovation & Technology. He is a Naval Architect specializing in complex hydrodynamic problems ranging from wave energy production to liquid natural gas (LNG) sloshing. Previously, Mr. Roddier worked in Houston in the offshore division of ExxonMobil's Upstream Research Company. He obtained his doctorate in Naval Architecture from UC Berkeley.

Mr. Roddier has been involved in a large variety of offshore projects and is an expert in floating structures. His research interests are in spar vortex induced vibrations, LNG sloshing in large carriers, and wave energy converters.

Mr. Roddier has written over 20 technical publications, is a reviewer for Ocean Engineering and ISOPE, is a session organizer for OMAE, and is currently the chair of SNAME Northern California Section. He is also an avid sailor, winner in his class of many regattas, including the San Francisco Big Boat Series and is a US Coast Guard licensed mariner.

Education and Professional Status

Doctor of Philosophy in Naval Architecture and Offshore Engineering, University of California, Berkeley, May 2000
Master of Science in Ocean Engineering, University of Hawaii at Manoa, May 1994
Bachelor of Science in Aerospace Engineering, University of Arizona, Dec 1991

Principle Power Inc.

Name	**Christian Cermelli**
Profession	Naval architect
Position in Firm	Chief Engineer

Career Summary

2003-present	Marine Innovation & Technology, Berkeley, CA – President
1998-2003	Shell International E&P, Houston, TX - Senior Research Engineer, Floating Systems Team Leader
1995-1997	Technip, Paris, France - Pipeline Engineer
1992-1995	Naval Architecture & Offshore Engineering Dept, U.C. Berkeley, Berkeley, CA - Research Assistant
1990-1992	Coflexip, Rio de Janeiro, Brazil – Research Engineer

Key Experience

Christian Cermelli is a co-founder of Marine Innovation & Technology (MI&T). Previously, he led the Floating Systems team of the Shell International R&D division in Houston. He has also worked with Technip in France and Coflexip in Brazil on many offshore projects. Mr. Cermelli holds a PhD in Naval Architecture and Offshore Engineering from UC Berkeley, and is a Registered Professional Engineer in Texas.

With 20 years of experience designing some of the most challenging offshore systems, Mr. Cermelli has become an expert in developing offshore structures from early feasibility to installation and commissioning. He specializes in mooring systems, metocean criteria, wave loading/structural response interface and marine operations. He is the developer of TimeFloat, MI&T's state-of-the-art time-domain software used to predict floating vessels motion in waves. Mr. Cermelli has acquired a vast experience in the design of numerous floaters, such as TLP's, spars, semi-submersible platforms and FPSO's.

Education and Professional Status

PhD in Naval Architecture & Offshore engineering, U.C. Berkeley, 1995

Registered Professional Engineer (PE) in Texas

Principle Power Inc.

Name	**Karen Ho**
Profession	Professional Accountant
Position in Firm	Financial Controller

Career Summary

2008 – Present	Principle Power, Inc., Financial Controller
2005 – 2008	CRC Results Inc., Senior Program Manager
1999 – 2005	PricewaterhouseCoopers LLC, Manager in Audit and Advisory Business Services

Key Experience

Karen Ho joins Principle Power as Financial Controller with extensive expertise in accounting, finance, and business risk assessment and project management. Prior to Principle Power, Ms. Ho served as a Senior Project Manager at CRC Results, successfully leading and managing financial consulting projects for public clients in the semiconductor, technology and retail & distribution industries. Concurrently, Ms. Ho also provided independent consulting services to startups in the Bay Area. Ms. Ho began her career at PricewaterhouseCoopers LLP, where she served as an Audit Manager, performing financial audits and Sarbanes-Oxley attestations for multi-national clients in telecommunications, retail & distribution, pharmaceuticals, and industrial manufacturing.

Ms. Ho is a Certified Public Accountant, a Chartered Accountant (from Canada), and holds a Masters of Accounting and a Bachelor of Honors Mathematics from the University of Waterloo in Canada.

Education and Professional Status

Masters of Accounting, University of Waterloo, Canada

Bachelor of Honours Mathematics, University of Waterloo, Canada

Oregon Iron Works

Name	**David Gibson**
Position in Firm	Renewable Energy Program Manager Ground Based Missile Defense Deputy Program Manager

Career Summary

2001 – Present	Oregon Iron Works, Renewable Energy Program Manager / Ground Based Missile Defense Deputy Program Manager
1980 – 2001	Mark Steel, Project Management, Pressure Vessels

Key Experience

David Gibson started with Oregon Iron Works, Inc. in 2001 as Project Manager in the commercial division working with water bypass systems and clamshell gates for the hydroelectric industry. Management activities included establishing and maintaining job budgets and schedules, administrating all aspects of contracts (including billing, change orders, submittals), managing shop operations and assuming full responsibility for final delivery and financial outcome of projects.

In 2002, Mr. Gibson was promoted to Deputy Program manager for Ground Based Missile Defense, which is an ongoing project. This project hardware includes Missile Silos, Silo Closure Mechanisms, Silo Launch Control Vaults (Hydraulic, electrical, HVAC and pneumatic) and Missile Support Systems. Management activities include managing a staff of Project Managers, Shipping, Purchasing, Shop Operations and Office Support Staff.

In 2005, Mr. Gibson accepted the role of Renewable Energy Program Manager in a business development capacity. He assisted Oregon State University with their linear test bed and wave energy program. He led the OIW team in fabrication and integration of the Finavera AquaBuOY 2.0 project and the Ocean Power Technology PB40 Power Take Off design and fabrication. Mr. Gibson was a member of the Oregon wave energy team that presented before the Governor's Innovation Council to obtain $4.2 M for support of Wave Energy in Oregon.

Education and Professional Status

Business & Engineering Major, University of Utah

2.2 Prior Experience

The selected consortium members bring vast amounts of technical expertise, experience and industry knowledge to the proposed project.

Through their prior experience at AquaEnergy Group Ltd., Alla Weinstein and Mary Jane Parks bring management skills, experience in energy project permitting and development, and numerous strategic alliances. Their successful record includes shaping AquaEnergy to become a leading ocean energy technology company and project developer, which, at the time, was the first company to file and receive a conditional installation permit from FERC for an offshore power plant in the United States. Through this project, Ms. Weinstein and Ms. Parks gained extensive experience in working with federal, state, local and tribal governments. In addition to the lengthy studies and environmental permitting that were required and performed, AquaEnergy held and conducted roundtable discussions with state, federal and tribal national resource and environmental agencies, fisherman's associations, and commercial and recreational users of the land and water areas to ensure that all stakeholders were being considered. Similarly for all future projects, Principle Power aims to exhibit social responsibility, environmental awareness, and integrity in all of our actions. Principle Power's project management team has extensive experience working with local stakeholders as well as project partners and suppliers.

Christian Cermelli and Dominique Roddier bring a large set of offshore engineering skills to the team. They understand the design challenges associated with placing large structures in the ocean, as well as the difficulties related to keeping them fully operational at sea for many years. Their broad expertise and understanding of the marine issues have been assets to many project teams. Their combined experience encompasses the following industries: offshore oil and gas, marine transportation, navy, offshore renewable energies, and sailing.

Oregon Iron Works (OIW) integrates design, logistics, manufacturing, installation and maintenance for a wide variety of projects. Principle Power's staff has worked with OIW in the past, resulting in great outcomes. With OIW's integrated approach to all phases of projects, from specialized prototype products to high-volume production runs, the most experienced team of managers and highly skilled craftsmen in the business are brought to bear on new opportunities. OIW has a unique combination of experience that reaches across multiple industries and disciplines to streamline projects, enabling them to anticipate and resolve project challenges before they occur. They are a state of the art fabrication facility capable of supporting all operations.

Principle Power's team has extensive experience in US project development, including the regulatory process and stakeholder involvement. Individuals in the Principle Power team have conducted stakeholder processes in California, Oregon, Washington State, Massachusetts, Europe and Canada. Involving stakeholders is critical to the successful development of renewable energy projects and involves communication with the public, environmental groups, fishermen, marine recreational and commercial user groups, government agencies and policy-makers. Principle Power will conduct public meetings early in the process to develop appropriate environmental measures to be studied and included in the environmental assessment phase. Stakeholder meetings will be conducted under standard communication protocols.

The Principle Power team includes individuals who have demonstrated pioneering stakeholder involvement in ocean energy including on the Makah Bay, WA wave energy licensing process.

2.3 References

The following references are provided for confirmation of the qualifications of Principle Power and its partners.

Principle Power Inc.

Reference	Contact Info	Cost of Project
Clallum County PUD	Fred Mitchell 2431 E. Highway 101 Port Angeles, WA 360-452-9771, ext. 235 fredm@clallumpud.net	Projected cost of $8.0 M for the pilot wave energy plant.
WA State Dept of Natural Resources	Elizabeth Ellis POB 47027 Olympia, WA 98507 360-9021974 elizabeth_ellis@dnr.wa.gov	Projected cost of $8.0 M for the pilot wave energy plant.
US Fish and Wildlife Service	Sally Butts, Biologist 510 Desmond Dr. St 102 Lacey, WA 98503 360-753-5832 sally_butts@fws.gov	Projected cost of $8.0 M for the pilot wave energy plant.
WA State Governor's office	Sally Toteff POB 47775 Olympia WA 98507 360-4076957 sally.toteff@ora.wa.gov	Projected cost of $8.0 M for the pilot wave energy plant.
AeroVironment, Inc.	Denis Letourneau 1960 Walker St. Monrovia, CA 91016 626-357-9980	Estimated project budget: $3 Million MI&T's budget: $35K
Chevron Energy Technology Co.	Dean Adkins 6001 Bollinger Cyn. Rd. L-4296 San Ramon, CA 94583-2324	Estimated project budget: $500 Million Engineering Design Budget $1.5 Million MI&T's budget: $250K

	925-842-8058	
MBARI	Andy Hamilton 7700 Sandholdt Road Moss Landing, CA 831-775-1861	Pre-engineering Proposal: $5 Million MI&T budget: $50K

Oregon Iron Works

Reference	Contact Info	Cost of Project
Bechtel National Inc., Ground Based Missile Defense	Mike Hayner, Program Director 100 Research Blvd. Madison, AL 35758-2016 (256) 461-9080	$193 Million to date
Finavera Renewables	Kevin Banister 107 SE Washington St, Suite 620 Portland, OR 97214 (503) 922-0820	$1.1 Million

2.4 Financial, Insurance and Bonding capability

Principle Power was incorporated in late 2007 with a dedicated team to commercialize clean technologies. Company co-founders have selected the WindFloat technology because of its unique characteristics and the market potential.

In Spring 2008, the Company raised a $2.3 million as initial funding. In Fall 2009, the Company began generating ongoing revenues from the WindFloat prototype development in Portugal. In early 2010, Principle Power was awarded a $1.5 million grant from the Department of Energy's Advanced Water Program to perform R&D activities to develop the WindWaveFloat, a derivative application of the WindFloat, which incorporates additional wave power generation into the standard WindFloat model. The Company will be seeking additional project financing from other project developers, industry participants, and other sources to fund the Project, as discussed in Section I. Principle Power has sufficient funds for the project's initial financial, insurance and bonding needs.

3 Project Management

3.1 Project management

The overall Project plan will be developed and implemented with the participation of the major Project partners – TIDE, Principle Power, OIW, a Project Developer, and additional vendors selected through a competitive bidding process. Principle Power will act as the project coordinator, with Alla Weinstein, Principle Power's CEO, acting as the overall Project Manager who will assess, analyze and assign pertinent tasks, managing the detailed schedule and costs for each task. The structure of the consortium is provided in the Business Plan discussed in Section I "Project Information" of this proposal.

3.2 Project management structure

Our project organizational structure has been designed to ensure that work will be carried out efficiently according to the scope of work through clearly defined responsibilities as well as specific schedules and budgets requirements.

The overall management structure is provided in Appendix A, Figure 3-1.

Principle Power will act as the overall Project Coordinator, with Alla Weinstein, acting as the overall Project Manager and bringing her broad industry expertise:

- As CEO of Principle Power with over 20 years of project and general management experience, Ms. Weinstein holds a BS in electrical engineering and a MBA in international management. Ms. Weinstein was formerly a general manager at Honeywell, where she managed large, complex, international projects with budgets over $250M.
- As a former CEO of AquaEnergy Group Ltd. Ms. Weinstein led the permitting effort of the wave energy demonstration project in the Makah Bay, WA, which resulted in the issuance of the first US FERC permit in November 2007.
- As a former General Manager of Finavera Renewables Ocean Energy Ltd., Ms. Weinstein lead the design, fabrication and installation of the AquaBuOY in New Port, OR on September 1, 2007.
- The Project Coordinator will provide contractual interface to TIDE in carrying out the overall responsibility for Project execution and will perform all day-to-day financial and administrative management tasks:
- Establishing a project management system to provide open communications and regular progress reporting with TIDE.
- Organizing progress meetings, including kick-off meetings, progress reviews and final meetings to coordinate, mobilize and manage working teams.
- A dedicated Project Office will be established to assist the Project Manager in optimizing the implementation and performance of the project.

3.3 Data management and communication

Contract performance and successful completion of the project will require a high-level of commitment and broad communications among Project partners. Because Project partners are located in various locations, regular communications and monthly program reviews conducted via Internet, email, and telephone will form the core of Project partner-wide

communications. All Project partners will receive immediate updates on all major aspects of project development, status and decisions via project wide distribution email lists. Project partners will use secure Internet capabilities to ensure real-time communications and access to project information on a dedicated secure web site.

3.4 Quality assurance

Quality assurance procedures will be implemented through the use of project directives to ensure acceptable quality at all levels:

- Engineering and design
- Fabrication, manufacturing and construction
- Acceptance and commissioning
- Outside Vendors and Subcontractors
- Outside consultants, associates, and subcontractors will be brought in as required throughout Project phases.
- Overall Project management, coordination, financing and energy sales will be the responsibility of the TW LLC and the Project Developer partner.
- Principle Power will carry out the top level and the detailed design of the installation and will oversee fabrication and installation.
- OIW will fabricate, assemble and install the offshore structure, which may involve hiring trusted and reputable outside installation contractors selected though a bidding process.
- Principle Power will contract the preparation of the environmental assessment to a qualified environmental consulting firm, such as Devine Tarbell and Associates, the company that prepared the environmental assessment for the Makah Bay project.
- TW LLC will contract a cable laying company to install the offshore cable.
- Principle Power will work closely with TPUD and TIDE to determine the best method to interconnect the power brought to shore to the Netarts substation and will contract a qualified contractor selected through a bidding process.
- TW LLC will obtain services of a person or firm, acceptable to TIDE, that will be responsible for creating meaningful opportunities for stakeholder involvement and for negotiating settlement agreements, if any.

3.5 Staff Availability

TW LLC will establish a local office and hire local staff to perform on-site project management and contracting that will be implemented and managed by the Project Partners. These local staff will be 100% dedicated to the Project.

Each selected member of the consortium of Project Partners has proven track records in their respective fields. Detailed resumes, qualifications and prior experience are discussed in Section II Proposer Qualifications for each of the key players: Principle Power and Oregon Iron Works.

Having demonstrated their experience and expertise with managing renewable energy generation projects at AquaEnergy Group Ltd., Alla Weinstein and Mary Jane Parks bring management skills, experience in energy project permitting and development, and numerous strategic alliances. They will be assigned to the Project for 80% of their time.

Principle Power's project management team has vast experience working with partners and suppliers in marine engineering, fabrication, installation, infrastructure and field data collection.

Christian Cermelli and Dominique Roddier bring a large set of offshore engineering skills to the team and have an in-depth understanding of solving engineering challenges in the marine environment. During the design, fabrication and installation phase, they will be 100% dedicated to the proposed Project.

TW LLC and the Project Developer's structured finance team will be executing a plan that entails a variety of debt, equity, tax credits and green asset monetization tools for the Project. The project finance team will be 100% assigned to the Project during the project-financing period.

OIW integrates design, logistics, manufacturing, installation and maintenance for a wide variety of projects across multiple industries and disciplines. They are a state of the art fabrication facility capable of supporting all operations and will establish a local Project team with the necessary skilled personnel. OIW will assess the feasibility of establishing a local assembly site in close proximity to the proposed Project location and will manage the site.

3.6 Approach for Stakeholder Collaboration and Settlements

From prior direct experience, Principle Power understands very well the importance of the close communications with local stakeholders. Prior to filing the initial site nomination with MMS, Principle Power will hold meetings with TIDE and the local public to outline the proposed Project's objectives, plans, timeline and potential benefits to the local community. Throughout the permitting, design and installation process, Principle Power will hold periodic stakeholder and public meetings in support of obtaining the required installation license from MMS.

Principle Power favors an open and upfront consensus-based approach, rather than having to deal with unaddressed issues later in the Project. The Company plans to collaborate with the stakeholders throughout the process to achieve required settlements.

4 Other

4.1 Accomplishment of TIDE's policy objectives

4.1.1 Preserve coastal and ocean resources for the benefit of all citizens

The introduction of offshore wind energy into Tillamook County's energy portfolio directly addresses the goals set forward by the TIDE in the RFP. In particular, Oregon's offshore wind represents an abundant resource. The proposed project aims to demonstrate a practical and cost effective energy conversion of deep-ocean offshore wind resources.

The energy generated from the offshore wind resources is fuel independent, and thus it is immune to market volatility. With an ability to predict wind resources on a 24-hour basis, the generated energy becomes predictable and reliable. This, coupled with the fact that wind does not carry a market-driven price tag, assures stable and predictable energy prices for residents and businesses in the Tillamook region.

Principle Power has already conducted a number of stakeholder meetings to identify and define the best offshore location, onshore location and shoreline crossing for the proposed Project. By being able to locate the proposed project further offshore, the facility will not only able to access stronger and more consistent wind resources, but also avoids the "not-in-my-back-yard" issue of visual impact along the coastline. In addition, with input from recreationalists and commercial fishermen, Principle Power can site the plant location out of the path of heavily trafficked areas, to the benefit of local citizens and businesses.

As in previous projects, environmental concerns will be addressed. Studies will be performed and consideration will be given to different designs that will avoid disruption to existing marine and bird life in the region as much as possible. For example, different platform designs will be considered to avoid creating tempting perches for seabirds and sea lions. Cable and mooring paths will be examined to study the impact on the "benthic community" – the marine life on the ocean floor and those that dwell in bottom sediments.

Energy generated from offshore wind eliminates and displaces harmful pollutants caused by energy generated from fossil fuels and ultimately leads to the improvement and protection of public health. The displacement of emissions directly improves environmental quality. By reducing or eliminating pollutants in our environment, we can reduce our exposure to pollutants, subsequently avoiding disease, and thereby reducing the social economic health impact of energy production.

In addition to the abovementioned environmental and health benefits, the construction, ongoing operations and maintenance of the proposed project bring economic benefits to the Tillamook County. Skilled engineers, construction and installation crews will be required at the onshore facility throughout installation and operations, thereby creating employment and business opportunities for the Tillamook area.

4.1.2 TIDE's retention of the authority

Principle Power proposes to have continuous involvement of TIDE in the development of the proposed Project. TIDE may choose to become an advisor of the TW LLC, the proposed subsidiary of Principle Power. Principle Power envisions that TIDE will be able to retain its position as the license applicant, for the purposes of obtaining installation permits from MMS. Principle Power plans to provide regular updates to TIDE on the progress of the proposed Project to assure that TIDE retains its authority over the Project and is able to ensure responsible development of its coastal and ocean resources.

4.1.3 Community participation

Since 2008, Principle Power has involved TIDE and members in the community with the relevant aspects of project development. Local residents and communities know their land and waters the best. It is our view that with the cooperation and collaboration of these parties, we will be able to leverage their experience and deep knowledge of the area and build an even more successful project that will address the needs and concerns of all.

The proposed Project not only creates renewable energy and secures regional energy supply for coastal communities while addressing environmental and community concerns, but it also creates business and employment opportunities for the Tillamook community. By locating the renewable energy facility off the coast of Tillamook County, Principle Power will be attracting medium and highly skilled labor jobs to the area. With a population of 24,000 people and an average household income of $34,300 (based on 2000 census data), more jobs and good pay will be welcome. In addition, the opportunity for involvement of

local vocational and educational programs throughout construction as well as improvements to port infrastructure to support construction go beyond labor benefits. Whether resulting in wages from direct involvement or from "halo effect" income, Principle Power's offshore wind facility will provide paychecks to qualified local workers and paying customers to local services in the Tillamook area.

4.1.4 Flexibility in the Development, Ownership and Operation

As we have not yet started to develop the Project, Principle Power is open to discussing development, ownership and operational arrangements of the proposed Project with TIDE. We view our projects as partnerships with the local community, and support is welcome, whether through the means of added resources, capital, or even just good publicity. Principle Power is prepared to enter into discussions with TIDE to achieve the desired flexibility in the development, ownership, and operational arrangements.

4.1.5 Municipal Preference in the Licensing Process

At the onset of the Project discussions with MMS, Principle Power will strive to achieve preservation of the municipal preference in the licensing process. Under the April 9, 2009 agreement between the Interior Department and the Federal Energy Regulatory Commission (FERC), the MMS has exclusive jurisdiction with regard to the production, transportation, or transmission of energy from non-hydrokinetic renewable energy projects, including wind and solar. FERC will have exclusive jurisdiction to issue licenses for the construction and operation of hydrokinetic projects, including wave and current, but companies will be required to first obtain a lease through MMS.

4.1.6 Federal and State Tax Credits, Grants and Incentives

Principle Power plans to take advantage of federal and state tax credits, grants and other incentives, as these only add to the economic feasibility and attractiveness of the proposed project. The strategy highly considers tax credit investors who may participate as pass-through partners for lump-sum cash payments. Please refer to “Project Finance” in Section 1 for a detailed discussion on the tax credits, grants and initiatives that will be used to finance the installation.

4.1.7 Power Purchase Agreements and Transmission Agreements

Through our team’s past experience and expertise in renewable energy projects, we have developed and negotiated Power Purchase Agreements and Transmission Agreements successfully with utilities. Immediately following submission of the nomination license for the identified location, TW LLC will work with the TPUD to establish a PPA to sell the output from the proposed Project. If TPUD will be unable to purchase all energy from the proposed Project, Principle Power will enter into discussion with BPA and/or other end users.

4.2 Proposed Additional or Alternative Contractual Terms

Principle Power has no additional or alternative contractual terms or conditions proposed at this time.

4.3 Ownership Plan and/or Transfer of the Renewable Energy Credits

The ownership, transfer, or combination of both of the RECs will be negotiated with TIDE at the onset of the proposed Project. Principle Power is ready to discuss flexible ownership arrangements of the Renewable Energy Credits.

4.4 Annual Administrative

During Project contract negotiations, Principle Power and TIDE would agree on the amount and timing of the administrative fee.

4.5 Work to be performed by TIDE

Principle Power envisions that TIDE would provide the following services during the Project:

- Work with Principle Power to continue the licensing and permitting processes required
- Lead public and stakeholder meetings
- Work jointly with Principle Power and Oregon state legislators
- Oversee public outreach and media relations activities

As discussed above, it is our view that stakeholder involvement is very important to a successful project. The strong support of TIDE will assist us greatly in forging strong relationships and open communications with our stakeholders.

5 Contact

Alla Weinstein, *CEO*
PRINCIPLE POWER | 93 S. Jackson St. #63650 | Seattle, WA 98104
p 425 430 7924| f 425 988 1977

allaw@principlepowerinc.com | www.principlepowerinc.com

Table 1-4 Overview of Principle Power Emergency Procedures

	Emergency Procedure Description
Fire	Isolate equipment electrically from the plant. De-energize or secure systems and shut down plant as necessary. Dispatch emergency vessels to extinguish fire, and inspect plant equipment. Review equipment parameters prior to fire. Assess damage and determine recovery action. Note: Electrical systems present the most potential as sources of fire danger.
Flooding	Shift bilge pump to continuous operation. Isolate flooded equipment electrically from the plant. De-energize or secure systems. Shut down plant, if necessary. Dispatch emergency vessels to install emergency de-watering equipment and/or flotation. Inspect equipment when stabilized. Review equipment parameters prior to flooding. Assess damage and determine recovery action.
Mooring System	Track platform position using GPS signal and shut down plant. Dispatch emergency vessels to capture equipment and tow to temporary mooring. Note: This procedure assumes a catastrophic event such as a vessel collision with the plant or significantly severe weather (beyond design safety factors). Mooring system failure will likely be a progressive sequence of events during which platform movement outside of this operating position would be detected and an alert sent to the plant engineer, who would take immediate action.

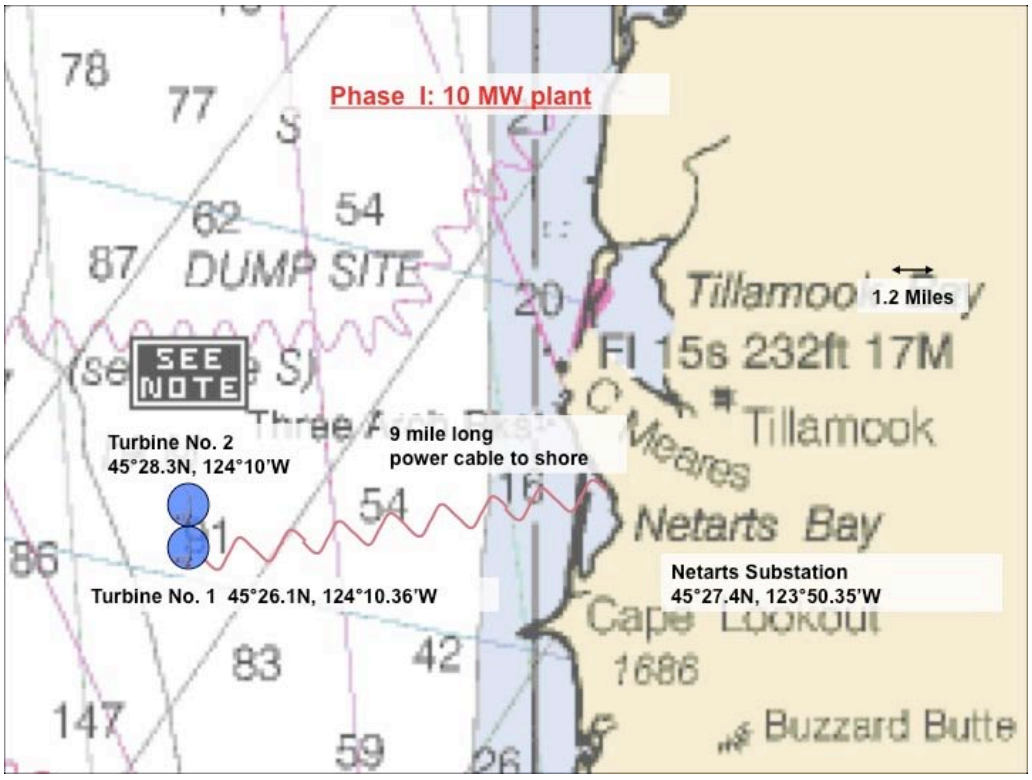

Figure 1-1 – Phase I site dimensions

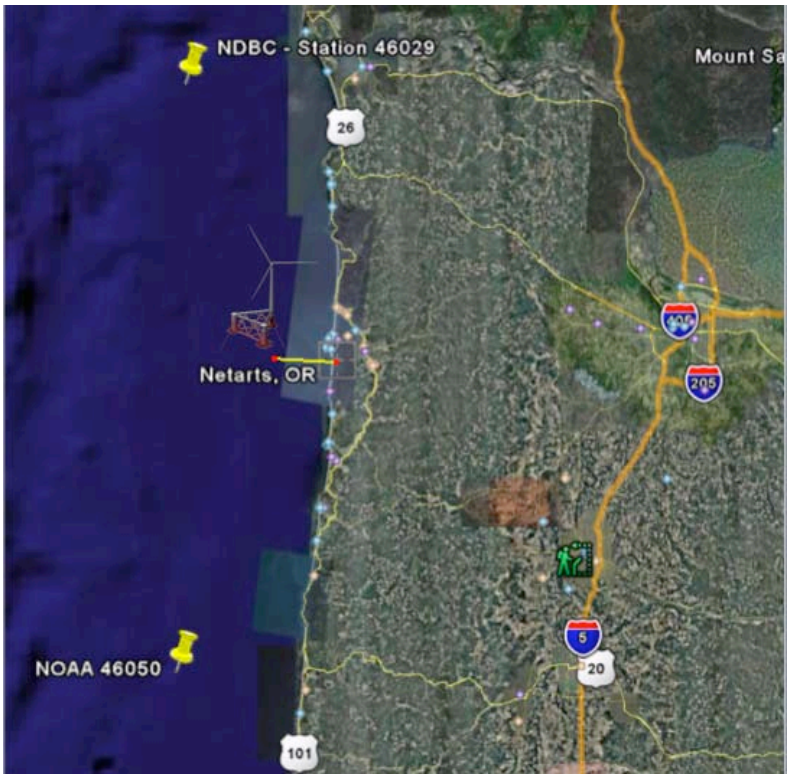

Figure 1-2 - NOAA Buoys used for wind resource assessment

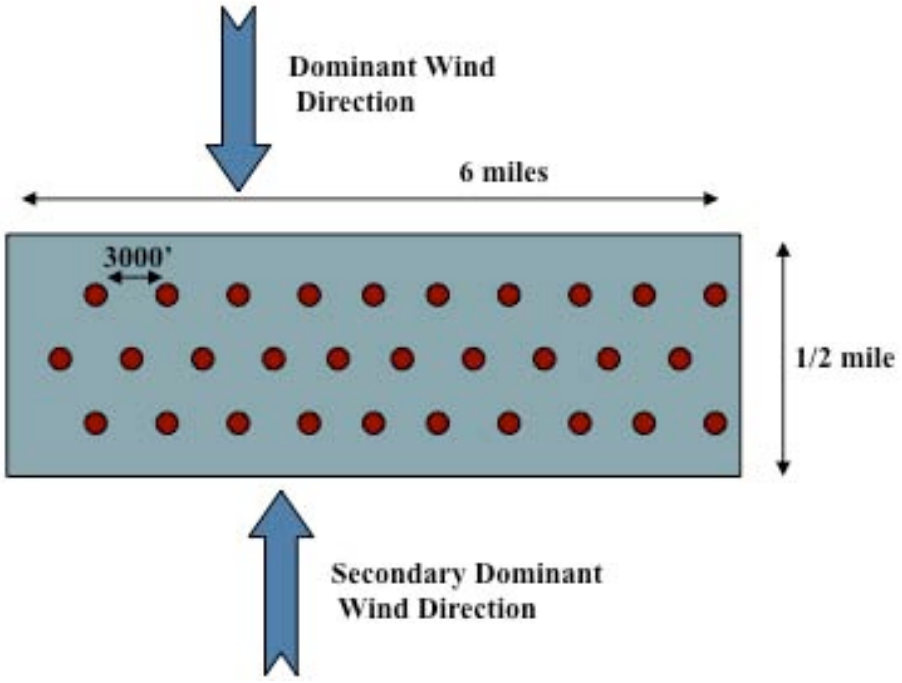

Figure 1-3 - Project area at full capacity

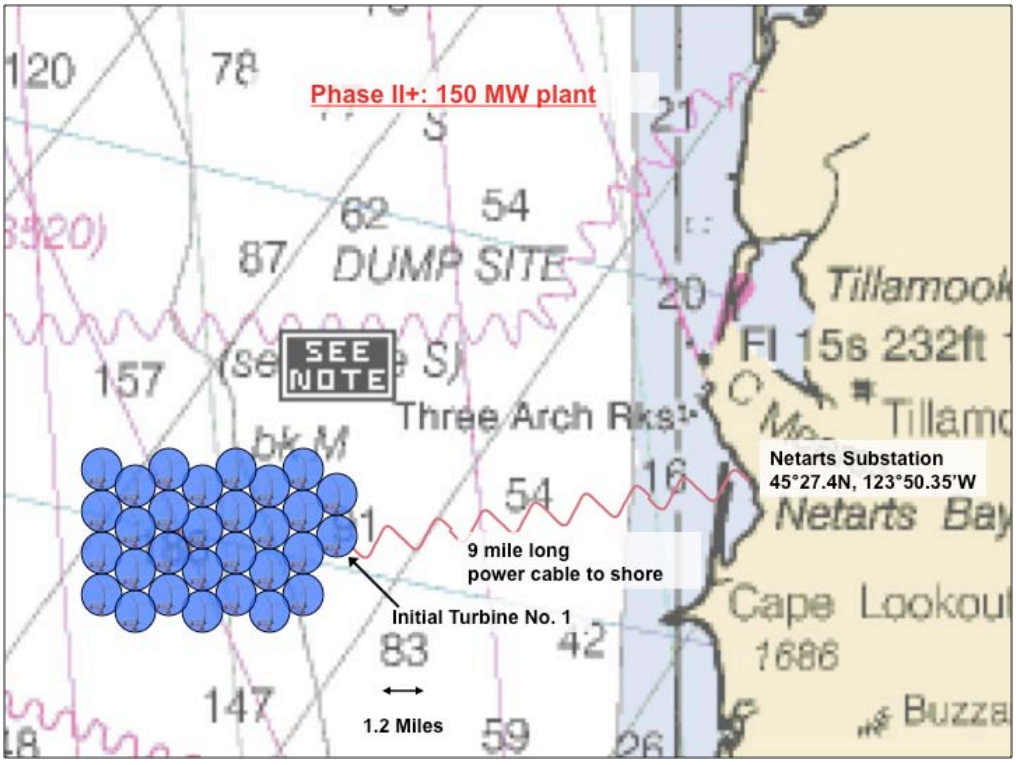

Figure 1-4 - Phase II+ plant footprint

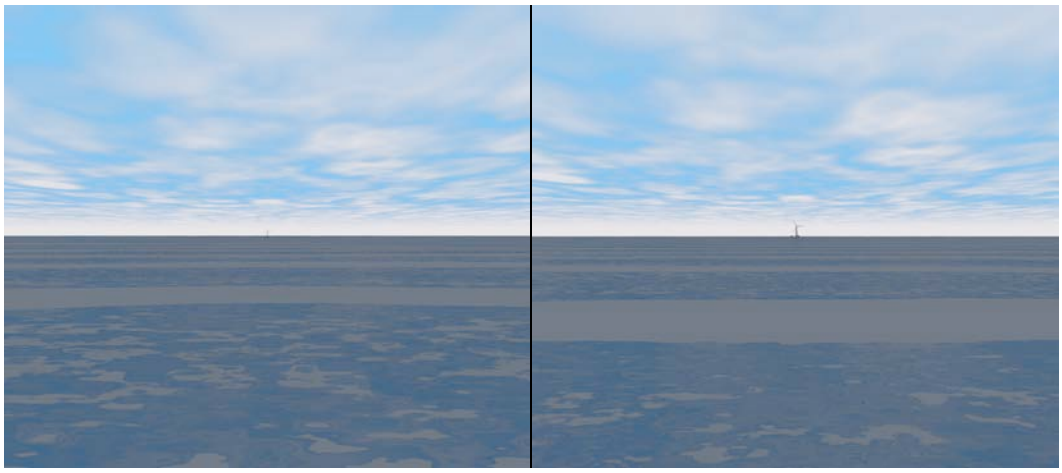

Figure 1-5 - WindFloat view from the beach 10 miles (left), 5 miles (right)

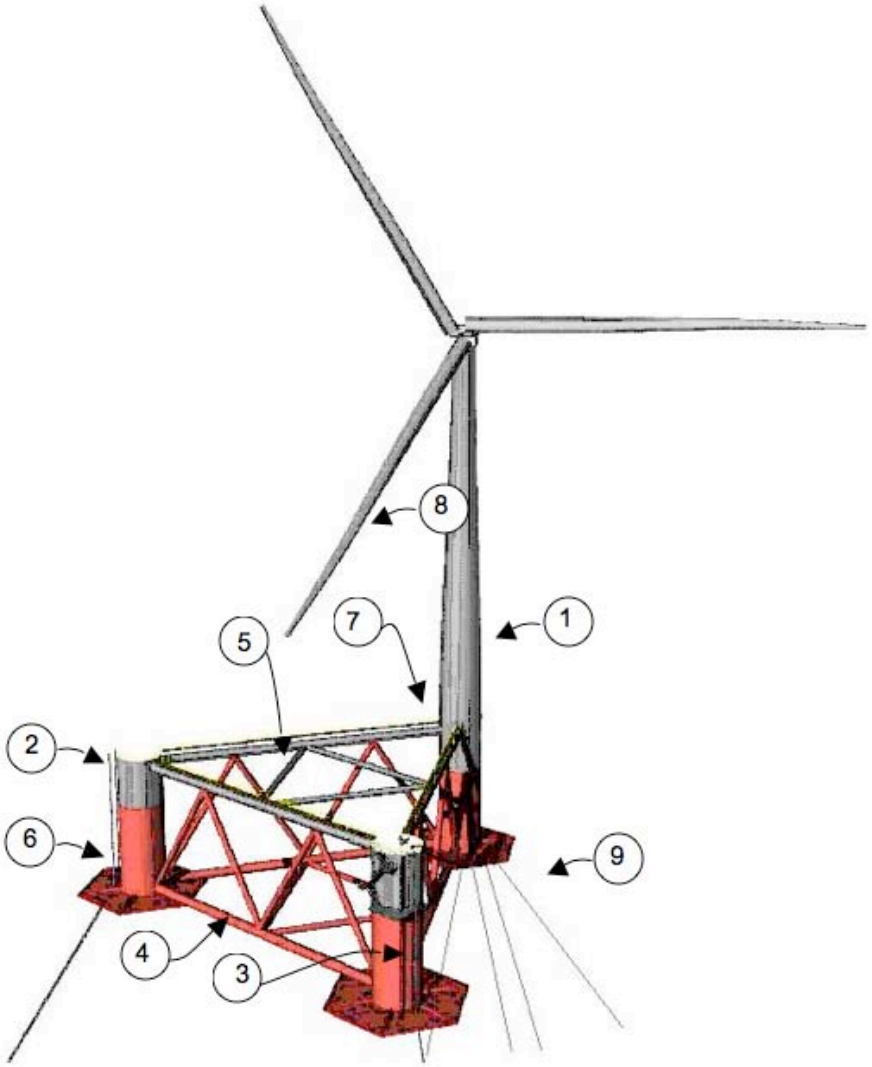

Figure 1-6 - WindFloat integrated with 5MW turbine

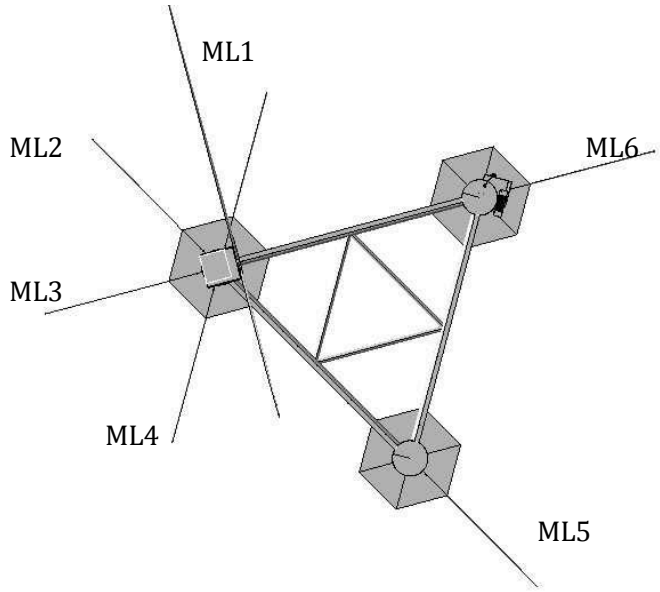

Figure 1-7: top view of the MF-Wind offshore wind turbine platform

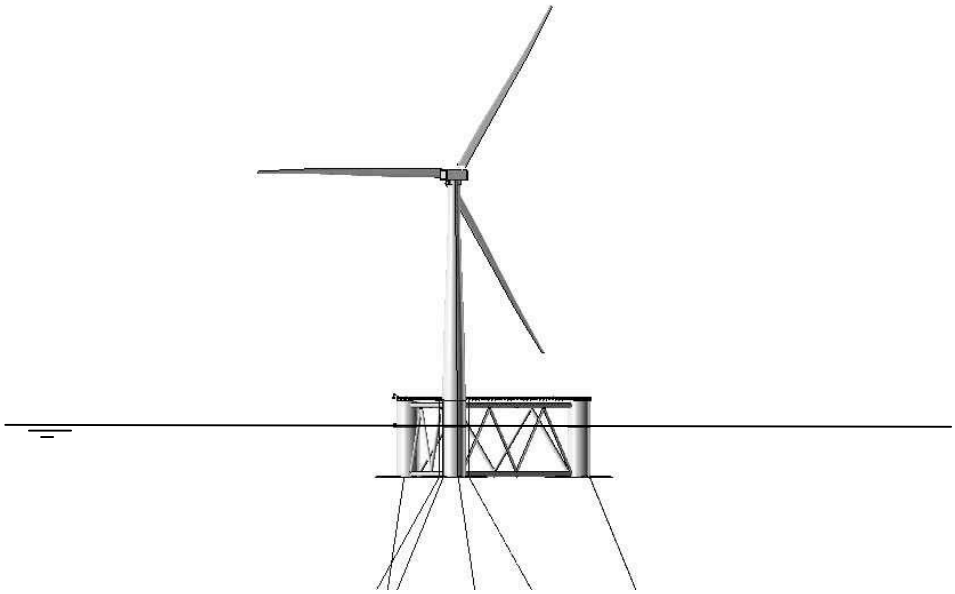

Figure 1-8: elevation of the MF-Wind offshore wind turbine platform

ID	Task Name	Start
1	Phase I Go-Ahead	Mon 1/3/11
2	PPA with TPUD	Mon 1/3/11
3	Environmental assessment	Mon 1/17/11
4	Location lease NEPA w/MMS	Mon 12/19/11
5	Project Plan NEPA w/MMS	Mon 11/19/12
6	Project Financing	Mon 7/4/11
7	Preliminary Design	Mon 1/31/11
8	Detail Design	Mon 5/5/14
9	Turbine selection, certification , delivery	Mon 12/5/11
10	Fabrication	Mon 6/30/14
11	Platform/turbine 1 installation	Mon 6/1/15
12	Platform/turbine 2 installation	Mon 7/27/15
13	Cable/tie-in	Mon 6/15/15
14	Commissioning	Mon 9/7/15
15	Phase I Operations start	Fri 10/2/15
16	Phase II Go-Ahead	Fri 2/17/17

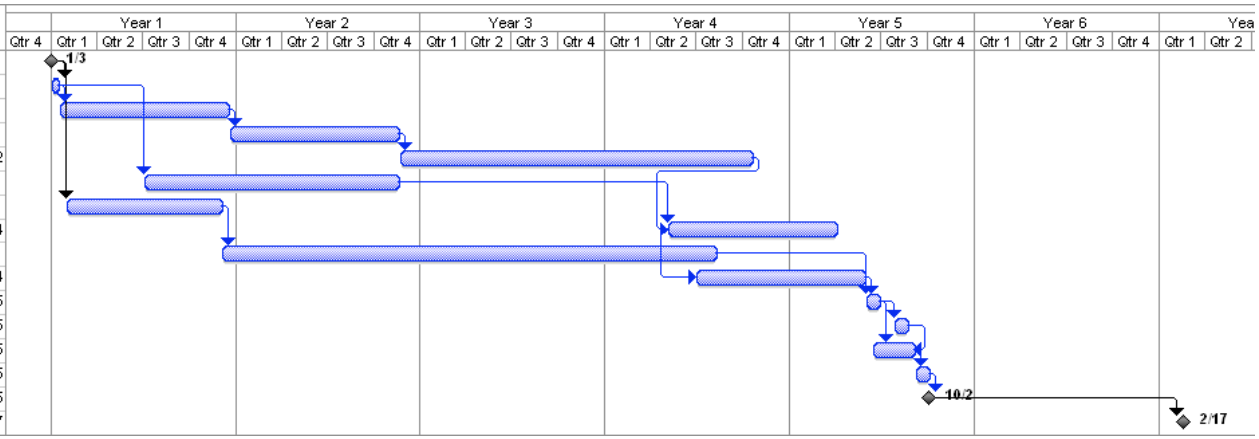

Figure 1-9 Project Schedule

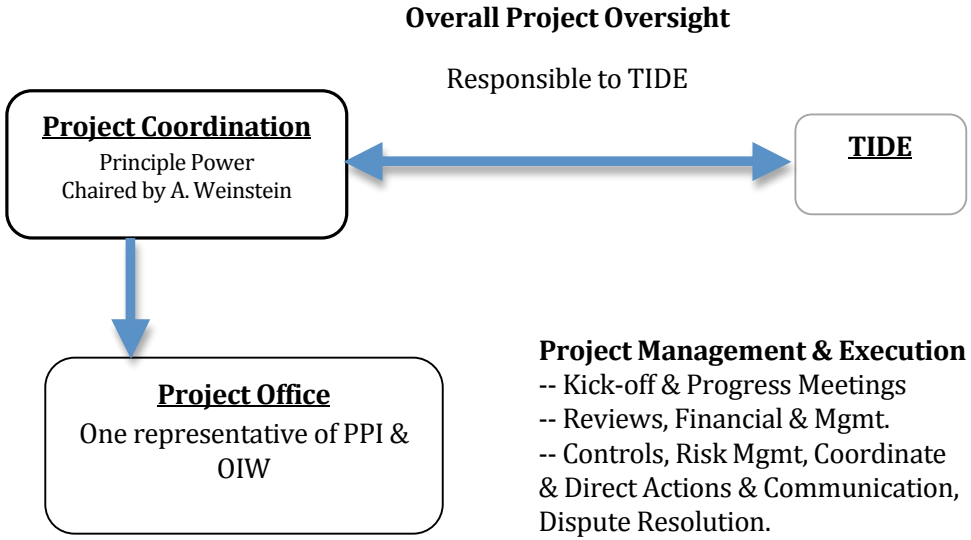

Figure 1-10 Project oversight diagram

7 Appendix B – REPower 5M Wind Turbine Specs

5M

Technical data

Design data

Rated power	5,000 kW
Cut-in speed	3.5 m/s
Rated wind speed	13.0 m/s
Cut-out speed	25.0 m/s onshore 30.0 m/s offshore
Wind zone	up to DIBt 3
Type class	up to IEC Ib / GL offshore type class I

Rotor

Diameter	126.0 m
Rotor area	12,469 m^2
Rotor speed	6.9 – 12.1 rpm (+15.0 %)

Rotor blade

Length	61.5 m
Type	GFC/CFC shell construction with epoxy, pre-bent

Yaw system

Type	Externally geared four-point bearing
Drive system	Gear motors with multi-disc brakes
Stabilisation	Disc brake with hydraulically operated brake shoes

Gear system

Type	Two helical planetary stage and one spur gear stage
or(optional)	helical planetary step-up gear with one spur gear step
Transmission ratio	i = approx. 97

Electrical system

Generator type	Double-fed asynchronous generator, 6-pole
Rated power	5,000 kW
Rated rotor voltage	660 V
Rated stator voltage	950 V
Rated speed	670 – 1,170 rpm (+15.0 %)
Generator protection class	IP 54
Converter type	Pulse-modulated IGBTs

Power control

Principle	Electrical blade angle adjustment - pitch and speed control

Tower

Type	Steel tube
or	concrete tower or concrete/steel hybrid construction
Hub height	100 / 117 m onshore approx. 90 m offshore (depending on site conditions)

Foundation

Onshore	Reinforced concrete foundation, depending on site conditions
Offshore	Substructure suitable for actual site

Safety system

- Individually adjustable blades (electrically controlled) - fail-safe system
- Extensive temperature and speed sensing system including built-in redundancy
- Fully integrated lightning protection
- Automatic fire protection system
- Shielded cables protecting people and machinery
- Rotor holding brake with soft-brake function