



Beck & Partner KG

Innovation & Consulting

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Project Proposal

Hydraulic Turbine for Wavepower

1 Product / Business Idea

1.1 Product and Business Idea

The technology offered consists of the use of several patent applications by the inventor plus involvement in further development for the special use in wave power devices.

The patent applications cover a low-cost hydraulic turbine and a low cost hydraulic pump with built-in hydraulic clutch, to work as a hydraulic transmission system. It allows to adjust the speed in the range of 1:10.

Inventor and Beck&Partner (plus additional capacity and knowledge is required) make up the project team to develop the full-scale application in steps that still have to be determined.

1.2 Customer Benefit

The main advantage consists of the fact that this type of transmission allows the split of mechanical devices and power generating devices. Compared to typical solutions the number of mechanical parts is reduced and the wear-and-tear on materials in transmission and generator is reduced.

Maintenance and service can be simplified by locating generators in easily accessible places.

Under operation the transmission helps to make use of weak currents by adjusting the volume flow and to keep the rate of rpm at a constant level. This way the advantages of a direct transmission and the advantages of an adjustment to different wave power is combined.

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It is possible to combine several hydraulic pumps to feed into one large turbine or to split the hydraulic flow of one pump to several small turbines. This opens options for optimizing the output.

1.3 USP

Although hydraulic transmissions are widely used in trains, trucks and heavy construction equipment, but also in wave power devices. Because of the simple adjustment of the volume flow the transmission can be used to get a longer operating time during low-wave times. The construction allows an installation of most heavy parts (and most service-intensive parts!) on shore or at one shared point for several devices at sea.

1.4 Marketing

At present time exclusivity can still be agreed for a regional market or a range of size and applications.

1.5 References / Pilot Installations

A model of the transmission has to be built to prove the concept under simulation. Then the prototype should be installed using an existing device.

1.6 Status of the Project

- ❖ The patent is pending
- ❖ The theoretical concept was checked
- ❖ Detailed calculations and definition of the requirements for the capacity, mechanical properties and performance have to be done by experts in wavepower
- ❖ The net effect of loss of efficiency due to heat losses in the transmission versus the gain from using low waves and to a more stable rpm has to be assessed by experts in wavepower

2 Market

2.1 Geographically

Worldwide.

2.2 Market Potential

Identical to the potential of the wave power devices.

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2.3 Pricing

The technology should provide significant reduction in material costs, installation cost and operative cost / maintenance. Since the production costs are expected to be lower than for conventional systems this offers the chance for lowering the price of wave power.

2.4 Target Group

Producers of wave power devices that already use hydraulic transmissions or that can benefit from using hydraulic transmissions.

2.5 Competition

Currently there are no direct competitors on the market. The concept of hydraulic transmission may be copied, but the wide range of 1:10 in the variable flow of the hydraulic fluid seems to make the technology unique.

3 Management

3.1 Management Person 1

To be defined by inventor and Beck Partner.

3.2 Management Person 2

To be nominated by the financial/industrial partner (on demand).

4 Enterprise / Legal Unit

To be discussed - depends on type of contract and scope of joint project.

5 Finance

5.1 Status

Up to now the project was financed by the inventor. Management assistance was put in by Beck&Partner at own expense.

5.2 Required Financing

To be analysed following the findings of the experts and their requirements for the transmission.

5.3 Use of Funds

A complete R&D plan has to be drafted (milestones and budget for each phase), possible R&D subsidies have to be checked.

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5.4 Type of Cooperation

The type of cooperation depends on the scope of the project and the involvement in the product development. It has to be defined after clarification of these issues.

5.5 Key Data

N/A

6 Business Plan

To be worked out on the basis of an NDA and LOI in cooperation with the wave power experts.



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