Submission No: 72

HOUSE OF REPRESENTATIVES INQUIRY INTO DEVELOPING AUSTRALIA'S NON-FOSSIL FUEL ENERGY INDUSTRY

SUMBISSION BY PAUL S. KOURIS, INVENTOR AND PROPRIETOR OF THE KOURIS CENTRI TURBINE GENERATOR (KCT)

1. Terms of Reference

The House of Representatives Standing Committee on Industry and Resources is conducting a comparative study examining the relative state of development of selected renewable energy sectors in Australia. The study will examine the prospects of these sectors for economically viable electricity generation, storage and transmission.

2. Selected Renewable Energy Sectors

The Committee's comparative study is of the following renewable energy sectors: solar, wave, tidal, geothermal, wind, bioenergy and hydrogen.

It is noted that hydroelectricity is prima facie represented by tidal energy. Hydroelectricity in all its forms is crucial to any study of renewable energy. It in fact accounts for 65% of all renewables. Hydroelectricity represents approximately 11% of the Energy produced in Australia, with mini hydro schemes growing by 8% annually. Mini Hydro is very important to Australia as a means of supplementing hydroelectric output.[1] Obviously it can also play a very big part in the solution to the environment/energy crisis.

This submission embraces hydroelectricity via the **KCT**, which is a revolutionary means of creating it at all levels...either in salt or fresh water.

3. Summary of KCT Submission

Hydroelectricity has not run its race. It may be a mature industry, but as the development of 'tidal energy' demonstrates, there is room for innovation. Hydroelectricity has now witnessed a more recent development, the harnessing of 'rotational kinetic energy'. This development is at the cutting edge of hydro technology for the new millennium.

The **KCT** is the world's first patented all purpose 'Rotational Kinetic Energy' Hydroelectric Turbine, which generates electricity from the spin, as distinct from the fall of water. The **KCT** harnesses the energy in a vortex. Drawing from the Coriolis force it promises to supplement conventional hydroelectricity to produce clean green renewable energy; *see New Product Submission Brochure attached to this submission.*

Manufacturers of existing turbines, harness lineal kinetic energy and thereby operate on a completely different principle to the **KCT**. Existing turbines are promoted as having achieved

[1] Source: Hydro Tasmania/SEAV Victorian Hydro Resource Assessment Project Technology Report of April 2004

maximum efficiency, but they don't harness rotational kinetic energy. For this reason new product introduction had reached a stalemate..until now.

Existing hydroelectric schemes exclusively use 'lineal kinetic energy' turbines, most frequently Francis turbines, to generate electricity from a reservoir. These turbines are placed in the power plant, often kilometres away from the reservoir. They are an 'in the power plant' system.

The **KCT** is the first patented 'in the reservoir' system. Accordingly it is not in competition with these turbines but works in conjunction with them. The **KCT** can also be a stand alone unit in bays, lakes and waterways which have flow but little fall, unlike conventional turbines. In short the **KCT** can utilise 'tidal flow' to trigger rotational kinetic energy.

4. The KCT Concept: Non Polluting Free Abundant Energy for the New Millennium

The **Kouris Centri Turbine Generator (KCT)** also known as The Hydraulic Turbine Assembly, is indeed the world's first 'Rotational Kinetic Energy' Turbine. It is now patented in the U.S., Brazil, Mexico, Australia and New Zealand, with a further 13 International Patents pending for which grant is expected in late 2007/early 2008.

The U.S. Patent was allowed on 3 September, 1998, but for reasons of confidentiality, the patent specifications were not published globally until 27 April, 2000. The granted U.S. Patent was published on 5 September, 2000. Applications for International Patents were filed through the Patent Co-operation Treaty (P.C.T.) in each nominated country of the industrialised world on 21 April, 2001.

The **KCT** is a revolutionary hydroelectric turbine, which generates electricity from the spin, as distinct from the fall of water. The **KCT** thereby harnesses the energy in a vortex of water, wherever it is created. In so doing, it draws from the **Coriolis force** and thus promises to supplement the energy generated from conventional gravity fed generators. The **KCT** concept has already been independently validated by the construction of a vortex pilot plant in Austria; *see the photographs attached to this submission.*

Hydroelectricity represents approximately 19% of world electricity requirements; around 23% is nuclear, 41% is coal, gas and oil are each approximately 8%[2]. The world presently consumes approx 2,600 billion-kilowatt hours of hydroelectricity per annum[3]. This represents an expenditure of roughly $AUS690 million per day. Hydroelectricity is the world's leading form of renewable energy. Large installations generate most of the world's hydroelectricity, with small 'micro' or 'mini' hydro schemes growing but restricted in output due to the restriction of conventional technology. Small hydro schemes can serve a small community or medium sized industry. A 10% increase of small hydro operations in Australia would generate $310million annually.

The **KCT** is designed to increase the output without cutting down any more trees or adding to the environmental impact. It can produce more electricity with the same water and is environmentally friendly. This is of course a particularly relevant problem in Australia, which obtains only 11% of its power from hydroelectricity and 79% from coal[4]. The **KCT** Engineer has provisionally estimated that a vortex resulting from a two metre diameter pipe will

---

[2] Source : BP Statistical Review of World Energy
[3] Source: Energy Institute of America 1991-2004 Statistics
[4] Source : Tasmanian Hydro Electric Corporation publication: Water Power

potentially generate almost ½ megawatt of hydroelectricity; when one remembers that 1 metre^3 of water has a tonne of weight, the reason for this becomes obvious.

Once it is realised the nation's bays, lakes, dams and waterways could incorporate the **KCT**, the commercial significance of the **KCT** is obvious. Its potential is enormous and lies in both **conventional and non-conventional** hydroelectric applications. It can be retrofit to existing schemes as it is complimentary to the existing system. It can be a stand-alone unit in 'mini' and 'micro' hydroelectric applications wherever the geography or a body of water, prohibits a conventional gravity fed system. The **KCT** can provide energy for towns, agriculture and machinery beyond what is conventionally available. Furthermore, there is now some suggestion that the **KCT** may also have an application in powering desalination plants, opening up additional exciting possibilities!

What has been patented is not a better mousetrap but a different mousetrap!

5. KCT Milestones & Validation to Date

A **Proof of Concept** for the **KCT** has now been constructed which exceeds all expectations providing increases in output of up to 27%. It demonstrates conclusively that a 'rotational' kinetic turbine when operated in conjunction with a 'lineal' kinetic turbine, generates more energy that the latter alone – that 1+1 = 2! **In fact the KCT even appears to increase the output of the conventional 'lineal turbine'. This remarkable outcome is explained in the 'Proof of Concept Report' by the KCT Managing Specialist Consultant Engineer, Mr. David Sattler;** *see Abridged Proof of Concept Report attached to this submission.*

In essence, the **Proof of Concept** has now proven what hitherto was thought to be only theoretical... a commercially significant increase in output is possible by harnessing rotational kinetic energy!

The **KCT** is now at a commercial stage of development. How well it succeeds will ultimately depend upon the Governments, Investors and Engineers who champion the **KCT** for Australia and the world. The **KCT** has the potential to provide non-polluting free abundant energy for the New Millennium. The **KCT** may hold the key to both the environmental and energy crises. This is my vision.

Now that a working '**Proof of Concept**' has been built, funds are required for a '**Commercial KCT Pilot Plant**'. Australia's first **KCT Pilot Plant** is planned for **Ballarat** with financial support from the **City of Ballarat**. **The University of Ballarat** is also supportive of the project, engaged in experimentation, research and development. To this end the University has reproduced the **KCT** Prototype in its fluid dynamics laboratory. Indeed the **KCT** has been incorporated into its Masters Program, and is also intended to form part of a PhD. Thesis.

The **KCT** was presented at the University of Ballarat **Futures Forum** on 1st May, 2007 by the Inventor. The forum was conducted in the University's Technology Park and attended by representatives of Industry, Government and the financial community. The **Lal Lal Reservoir** is being considered to showcase the Pilot Plant. Alternatively the **Ballarat Goldfields** and the de-commissioned hydroelectric scheme at historic **Ercildoune** are also deemed suitable to demonstrate the **KCT**. **William Buck**, financial and business consultants of Melbourne, are attending to the Capital Raising.

The State Government Department of Industry, Innovation and Regional Development (DIIRD) has provided a grant to the **KCT** through its Regional Business Investment Ready Program (RBIRP) to secure the corporate advisory investment services of BSI Capital Ltd. Pursuant to the program, the **KCT** on 31st May was presented to private and institutional investors at the 'Unlocking Hidden Treasures' Investor Forum in Melbourne.

As was mentioned earlier in this submission, the **KCT** concept has been independently validated by the construction of a river vortex pilot plant in Austria. Since November of 2005 it has been providing power to the local grid for 14 houses.

The **KCT** has been nominated for the prestigious Wall Street Journal 2007 Technology Innovation Awards, by **Dr. Harry Schaap**, Federal Advisor for Alternative Energy; *see Dr. Schaap's Letter of Support and abridged C.V. attached to this submission.*

6. **List of KCT Selected Publicity to date following U.S. Patent Grant**

(1) ABC – Breaking Story 2/7/2000 "Hydro-electric patent granted to Melbourne lawyer":
(2) NEOS KOSMOS (English Supplement) 3/7/2000 "The Kourian Eureka";
(3) The Weekend Australian: Science and Technology Section 19/8/2000 "Inventor tries to generate cash";
(4) The Sunday Herald Sun: Business Feature 1/10/2000 "Lawyer's new spin on power supply";
(5) The Australian Lawyers Weekly 13/10/2000 "Lawyer puts new twist on energy resources";
(6) The Mansfield Courier: Real Estate, Commerce and Rural News Section 8/11/2000 "Generator harnesses energy";
(7) The Weekend Australian: Weekend Focus Feature 3/2/2001 "Backyard Inventions – Our top New Innovators – Inspiration then perspiration";
(8) The Australian Lawyers Weekly 16/3/2001 "*Spin* doctor";
(9) The Monash University Magazine Issue 7 Autumn/Winter 2001 "Alumni News";
(10) Who's Who in the 21st Century (First Edition, January 2002) I.B.C. Cambridge, England
(11) Law News – Monash University Volume 5 Issue 4, December, 2002 "Alumni Profile: Paul Kouris"
(12) The Ballarat Courier 15/11/2004 "Inventor to test water project at Ercildoune"
(13) The Age: Business Section 14/6/2005 "Hydro breakthrough leaves Inventor without cash power"
(14) Ballarat Courier 15/6/2005 "Inventor determined to power into action"
(15) NEOS KOSMOS (English Supplement) 4/7/2005 "Eureka! Same Water, More Power"
(16) Ballarat Courier 6/9/2005 "Energy inventor pleased to gain city's support"
(17) ABC Radio Website: Feature Story 19/9/2005 "The Aussie Invention harnessing the Earth's spin for electricity"
(18) The Ballarat Courier 26/4/2006 "Imagine what the future holds"
(19) The Age: Business Section 26/6/2006 "Momentum builds for vortex energy"
(20) The Weekend Australian: Business Section 23/9/2006 "Water Whirl: Aussie's Powerful Patent"
(21) The Age: Business Section 1/5/2007 "Ballarat Uni in the whirlpool"
(22) Ballarat Courier 4/5/2007 "Harnessing our water"

Copies of these **articles** together with copies of articles published by the Greek Press in Australia and Greece are available upon request.
Details of **live television** and **radio interviews** both in Australia and Greece are also available on request

7. **Conclusion**

The **KCT** has the capacity to re-juvenate Australia's hydro-electric industry. It is premature to limit any analysis of hydroelectricity strictly to tidal energy. The **KCT** has the means of returning Australia to the cutting edge of hydroelectric production by harnessing the energy in a vortex – wherever it is found.

The only limits to hydroelectricity are those we place upon it ourselves.

To quote Thomas Edison "Nothing is stronger than an idea whose time has come"

More detailed information regarding the **KCT** and its patent specifications can be found at www.kourispower.com

Dated: 14 June, 2007

PAUL KOURIS
Barrister at Law
Inventor and Proprietor
The Kouris Centri Turbine Generator
Member of the Australian Institute of Energy
Member of the Royal Society of Science (Victoria)