

# Kourispower Pty Ltd.



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The Kouris Centri Turbine Generator is a non polluting, revolutionary system which harnesses the rotational kinetic energy created by the earth to generate free, abundant hydroelectric energy, other than by currents or tides

## Target Export Markets

Brazil, Norway, New Zealand, Malaysia, India, China, USA, Mexico, Japan and Europe

## Target Export Industries

Power and hydroelectric industries  
rural and irrigation sectors

## Type of Business Sought

Export, Licencing,  
Joint Venture/Partnership

## Specialist Areas of Expertise

Electrical transmission, energy  
storage, hydroelectricity, hydro  
energy, rural and remote utility

## Year Established

2007



## Company Profile

Kouris Power has developed an improved hydroelectric generator using rotational kinetic energy created by the earth. The Kouris Centri Turbine generator (KCT) harnesses the energy produced naturally in a body of water by the forces imposed upon it. This new, revolutionary system provides a source of abundant, free and clean energy with no expected interference to existing hydroelectric systems. Developed to provide a new, safer option to coal or nuclear energy, the KCT generator will not pollute air or water or cause other environmental damage. What distinguishes the KCT generator from other turbines is that it harnesses rotational kinetic energy, i.e. a vortex, as distinct from lineal kinetic energy, i.e. a waterfall where it relies on flow not fall. At its heart is the Coriolis Force, the same force which both fascinates as it swirls the water in a bathtub and terrifies as it drives the winds of a hurricane.

Widespread use of the KCT generator could help protect the environment and address the energy crisis. The multi-purpose unit can be used in a number of medium to large power-generating applications and in simple power production applications for operating well pumps, grain mills and similar equipment on rural properties. The KCT generator can operate independently as a stand alone unit in dams and waterways, or be used in conjunction with a conventional gravity-fed hydroelectric system. It is designed to increase the overall energy output of such a system without damming any more rivers or cutting down any more trees. In other words the KCT generator can produce more electricity with the same water.

## Technologies & Capabilities

The KCT is designed to increase output by simply employing the water more efficiently. The KCT 'Vortex' Concept has been validated by the independent construction of a stand-alone river vortex pilot plant in Austria. Since November of 2005 it has been providing power to the local grid for 14 houses.

Thereafter a domestic KCT Pilot Plant was constructed in Australia that, with only 110 litres/sec and a 2m vortex, < 1m deep, could power a conventional home. Furthermore, it did not interfere with the flow rate. The Kouris Centri Turbine Generator (KCT) is a patented invention that harnesses the rotational kinetic energy contained within a vortex of water in order to generate continuous, emission-free and renewable electrical energy. The system can be used either within:

- A flowing waterway, without interference to the waterway or its flow rate, or
- A dam, whether or not connected to a conventional, hydroelectric plant. Prototype testing reveals that the flow of water to the conventional hydroelectric plant is not impeded or diminished, but is in fact increased

The KCT unit incorporates a cylindrical, elongated turbine which is installed in a vertical orientation to use gravity/Coriolis forces and produce electrical or mechanical power.

## Fields of Commerce

Electricity generation, engineering design, manufacture of products, outsourced manufacture of company IP, product installation, product maintenance and servicing, project management

## Management Team

Paul Kouris, Managing Director

David Sattler, Consulting Engineer

Rob Holland, KCT Manufacturer and Licencee

Chris Thomson, Director

## Certifications and Quality Approvals

- 2007 KCT Nominated for the Wall Street Journal 2007 Technology Innovation Awards by Dr Harry Schaap, Federal Advisor for Renewable Energy
- 2008 Victorian Department of Sustainability and Environment (DSE) Crown Licence granted for Marysville KCT Pilot Plant site
- 2008 KCT Exhibited and Promoted by Victorian Department of Innovation, Industry & Regional Development (DIIRD) at the Australian Pavilion of the Korean International Energy Trade Fair (SWEET 2008)

## Awards

- 2001 Paul Kouris named as one of Australia's Top New Innovators by 'The Australian'
- 2007 KCT receives D.I.I.R.D. Regional Business Invest Ready Program Grant for Preparation of KCT Investor Documentation
- 2007 KCT receives DIIRD Grant for MENTRE Commercialisation & Growth Seminar
- 2008 KCT receives Sustainability Victoria 'Renewable Energy Support Fund' Grant for Marysville Pilot Plant

## Technology or Patent/Ownership

- Patents Granted in the USA, Australia, New Zealand, Brazil, Mexico, Canada, Norway and Japan.
- A further 10 Patents Pending in Europe

The design advantages of the unit are as follows:

- Harnesses spinning motion produced naturally in a body of water by natural forces imposed on it
- Produces abundant, free and clean power with minimal interference to existing hydroelectric systems
- Will not pollute air or water or cause other environmental damage
- Multi-purpose unit can be used in a number of medium to large power generating applications and in simple power production applications for operating well pumps, grain mills, and etc.
- The KCT generator can work independently in a waterway or reservoir, or in conjunction with a standard gravity fed hydroelectric system
- The KCT generator can derive extra energy out of an existing conventional hydroelectric system by incorporating the KCT as a secondary system, generating up to 27% more energy during prototype testing, with output expected to increase exponentially with the size of the vortex
- Ability to be retrofitted to existing hydroelectric schemes at fraction of cost of new scheme

## Company Background

The KCT generator has been in development since the mid 1970s by inventor Paul Kouris. The KCT Engineer had provisionally estimated that a vortex resulting from a two-metre diameter penstock would potentially generate almost one-half megawatt of hydroelectricity. Accordingly, the KCT was theoretically shown to increase energy output by 5%, after adjustments. However a Proof of Concept/Prototype was constructed that provided increases in output of up to 27%. Following this, a KCT pilot plant was constructed and larger KCT plants are ultimately expected to be introduced to waterways throughout Australia.

## International Projects

**George Washington University**, in Washington D.C., USA, with the permission of the inventor, has conducted independent corroborative KCT tests during July and August 2008. These vortex tests confirmed the output potential of the KCT.

## Australian Projects

### University of Ballarat, Victoria

The University undertook small-scale laboratory test work in 2007 and confirmed a 'theoretical minimal energy contribution from the Coriolis Effect' and supports the benefits of the generation of hydropower from the flowing vortex.

### Pilot Plant at Marysville, Victoria

Following a successful proof of concept, Australia's first KCT Pilot Plant was constructed at Marysville, Victoria, in August 2008. The vortex and impeller testing was a spectacular success. This demonstration plant harnesses only 110 litres/sec and a 2m vortex, which is <1m deep. Nevertheless it still generated more than enough electricity for a conventional house viz. >10kwh per day. Discussions are now on foot with Tasmanian Hydro for the installation of a commercial demonstration plant within the Poatina tailrace, near Launceston in Tasmania. Murray Irrigation NSW is also interested in the installation of a plant within the Mulwala Canal.

