



29 April, 2016

Companies Announcement Office  
ASX Limited  
Exchange Centre  
Level 4, 20 Bridge Street  
Sydney, NSW 2000

### **Cortical Dynamics Ltd - USA Patent Issued for BAR Monitoring System**

Please find attached a patent announcement from BPH Energy Ltd (**ASX: BPH**) investee company Cortical Dynamics Ltd.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "D Ambrosini".

Deborah Ambrosini  
Company Secretary



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## US Patent issued for BAR Monitoring System

Cortical Dynamics Ltd (“**Cortical**”) is pleased to provide the following patent update on its patent portfolio.

The United States Patent and Trademark Office has granted a patent relating to the BAR monitoring system. This is Cortical’s fourth granted patent from the United States, a region that has been estimated to hold approximately one third of the worldwide EEG/EMG/ brain function monitoring market. The patent is entitled, ‘Brain function monitoring and display system’ and is valid until September, 2031.

Cortical has developed an extensive patent portfolio encapsulating the BAR monitoring system and its physiologically based algorithms, with a total of twenty two patents granted throughout Australia, New Zealand, the United States, Japan and the People’s Republic of China.

### About the BAR Monitor

The Brain Anaesthesia Response (BAR) monitoring system measures a patient’s brain electrical activity, the electroencephalogram (EEG), in order to indicate how deeply anaesthetised a patient is during an operation via an adhesive sensor applied to the forehead. The BAR monitor is designed to assist anaesthetists and intensive care staff in ensuring patients do not wake unexpectedly, as well as reducing the incidence of side effects associated with the anaesthetic.

Yours sincerely,

David Breeze  
Chairman

### About Cortical

Cortical is an Australian based medical device technology company that has developed a next generation Brain Function Monitor. The company is focused on commercialising the intellectual property developed at Swinburne University. The core-product the Brain Anaesthesia Response (BAR) monitor has been developed with the objective of better detecting the effect of anaesthetic agents on brain activity, aiding anaesthetists in keeping patients optimally anaesthetised.

The BAR monitor improves on currently used electroencephalogram (EEG) technologies by incorporating the latest advances in our understanding of how the brain’s rhythmic electrical activity, the electroencephalogram (EEG), is produced. The approach used is fundamentally different from all other devices currently available in the market in that its underlying algorithm produces EEG indexes which are directly related to the physiological

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state of the patient's brain.

The global brain monitoring market in 2012 was valued at \$1.08 billion and is poised to grow at a CAGR of 8.6% to reach \$1.63 billion by 2017. The global brain monitoring devices market is broadly segmented into three categories based on its product, application, and end-user. Fueling market growth is the various technological advancements which are leading to high functionality, lower costs, ease of operation, and miniaturization of devices.

Initial marketing in will focus on TIVA (Total Intravenous Anaesthesia), a method of inducing and maintaining general anaesthesia without the use of any inhalation agent. This is becoming more widely accepted, particularly in Western Europe.

Cortical's technology has a versatility that goes beyond depth of anaesthesia and may be applied to other EEG based markets, such as Neuro-diagnostic, drug discovery, drug evaluation and the emerging Brain Computer Interface (BCI) market.

There are considerable opportunities offered by subsequent expansion of the company's core technology through developing the product to carry out additional functions including neuro-diagnostics of changes in brain and memory functions to provide early warning of degenerative diseases, pain response and tranquiliser monitoring for trauma patients in intensive care units.

The BAR monitor is protected by five patent families in multiple jurisdictions worldwide consisting 22 granted patents.

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