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The Powercorp Group



engineering innovative power solutions for a better world.

DYNAMIC POWER SYSTEMS
POWER CONTROL SYSTEMS

Innovative Power Solutions

... giving you the power to achieve your goals.



Engineering innovations

The Powercorp Group is moving to become a world leader in distributed generation and related grid stabilisation technology. The Company has demonstrated its ability to achieve this by completing numerous commercially viable power systems in remote areas in which variable power generation has been stabilised to utility standards (without the use of battery storage).

1 Automation and control (Intelligent Power Systems IPS technology)

The COMMANDER to control and manage a power station.

MICROLINK for low cost automation by customers with the minimal need for engineering support.

2 Wind diesel power station high penetration technology .

DYNAMIC GRID INTERFACE (DGI), which dynamically adjusts its power consumption depending on frequency and voltage deviations, thereby stabilising the grid.

LOW LOAD DIESEL, a specially prepared diesel generator and DGI combination to provide low cost spinning reserve and grid support to power stations incorporating renewable energy sources.

3 Power quality and grid stabilising

POWERSTORE, a flywheel-based energy storage system. It is able to both absorb and deliver real power very quickly. This enables the technology to completely dampen energy fluctuations on any power line. It is able to do both voltage and frequency control and supply reactive power. It can work in conjunction with conventional SVC type solutions.

GRID STABILISING TECHNOLOGY, stemming from the power electronics research a variety of inverter configurations and component combinations are available to assist the stabilisation of power grids. This complex area requires mathematical modelling of the grid behaviours and for this we have available a POWERSTORE model prepared by an independent certified institution. Reactive power support, voltage control and fault management are available for applications such as compensation for large swinging loads, variable generation including poor step load response, and interface of such technologies as wind farms to utility grids.



Experienced in grid stabilisation

Powercorp was formed in 1988 in Darwin, Australia, to automate the wide variety of diesel generator power stations in Northern Australia for the Power and Water Authority. This program encompassed some 60 communities and work has extended throughout Australia and internationally.

With the success of the automation program came the need to integrate renewable energy for fuel saving. This work and the demand side management capability of the control system led to advanced wind diesel systems in Western Australia for Western Power Corporation. With the winning of a Showcase grant from the Federal Government Powercorp pioneered high penetration wind diesel systems during the late 90's.

The chief problem facing wind diesel systems and indeed any renewable energy fuel saving technology when connected to isolated grids is the instability caused on the grid by power surging. Such surges and frequent loss of power can be caused by wind gusts and lulls or cloud cover in the case of solar systems. It is not possible for conventional generators to cope with these power instability issues and blackouts usually result. Even when the wind flow is low the fluctuations in wind speed can cause unacceptable generator response called "hunting" which uses more fuel and can cause engine damage.

The grid stability issue is seen in many small grids and at the end of long distribution lines. In the mining sector large electrical equipment such as winders and crushers can cause power fluctuations much the same as seen from renewable plant.

PowerStore the company's flywheel inverter system can absorb and deliver power very fast to dampen all instability to maintain the grid specifications to utility standards.

Powercorp developed expertise in inverter technology with specialization in high speed bi-directional control to solve the grid instability problem. With these solutions now a commercial reality Powercorp stands as the most advanced high penetration renewable energy company in the world. This work is expanding to encompass mine sites and industrial complexes.

The company is largely research engineering based with a strong manufacturing capability. It stands ready to serve any customer with grid instability problems.

powercorp

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