



FOR IMMEDIATE RELEASE:

### **ERLPhase Power Technologies Announces S-PRO Sub-Harmonic Protection Relay**

Winnipeg, Canada, Jan 25, 2011 – ERLPhase Power Technologies, a provider of easy-to-use protection relays and digital fault recorders, today announced the S-PRO Sub-Harmonic Protection Relay. Solutions, like the S-PRO, that help control harmonic oscillations are especially valuable in wind farm applications.

“The S-PRO was installed at a wind farm substation in Trimont, Minnesota to detect subharmonic oscillations occurring at adjacent wind farms connected to the series compensated line,” said Pratap Mysore, Consulting Engineer at Xcel Energy. “In tests so far, the unit has performed well and the relay has been designed well to detect and protect against sustained harmonics from the wind turbines.”

Since wind farms are generally located far away from load centers, power flow is increased using series capacitors to compensate for transmission line reactance. Unfortunately series capacitors can interact with the wind system, creating undamped sub-harmonic current oscillations that can cause serious damage to wind turbine controllers and also to conventional generators. The wind turbine's own mechanical system interactions (tower-to-blade) can also generate sub-harmonics, which are detrimental to induction generators, transformers, and may cause resonance at the point of common coupling in the electrical grid. By isolating the healthy grid from sub-harmonic generation sources, damage to the electrical interconnection can be prevented.

The S-PRO 4000 relay provides real-time processing of voltage and current signals with sub-harmonic monitoring at 1 Hz intervals between 5 and 25 Hz (5 Hz, 6 Hz, 7 Hz... 23 Hz, 24 Hz and 25 Hz). It protects the grid from sub-harmonic oscillations at the point-of-common-coupling every 1 second, with additional user-configurable delays. Like all ERLPhase relays, the S-PRO is easy-to-use with intuitive settings and analysis software. The



S-PRO has already been installed with a lead customer and will begin full production shipment in Q1 2011.

“Our sub-harmonic protection relay (S-PRO) is the first advanced microprocessor-based relay with 10 second high speed recording capability. It can also be used for detecting Sub Synchronous Resonance (SSR) frequencies,” commented Krish Narendra, Vice President of Technology and Quality at ERLPhase.

ERLPhase has a history of pioneering innovative protection and monitoring solutions including transformer loss-of-life monitoring in the T-PRO Transformer Protection Relay, dynamic swing recording in the L-PRO Transmission Line Protection Relay, the use of low impedance current inputs in the B-PRO Bus Protection Relay, and dynamic swing record capture with cross triggering in the TESLA Power System Recorder. All these innovations now find wide spread industry application.

Link to [S-PRO 4000 product info](#).

Link to high resolution S-PRO photos for download both [with windfarm background](#), and [without windfarm background](#).

### **About Xcel Energy**

Xcel Energy (NYSE: XEL) is a major U.S. electricity and natural gas company with regulated operations in eight Western and Midwestern states. Xcel Energy provides a comprehensive portfolio of energy-related products and services to 3.4 million electricity customers and 1.9 million natural gas customers through its regulated operating companies. Company headquarters are located in Minneapolis.

### **About ERLPhase Power Technologies**

ERLPhase Power Technologies is ERL's (Easun Reyrolle Limited) worldwide center of excellence for transmission-level protection, monitoring and control. Our best-in-class technology provides smart, easy-to-use solutions for our customers' needs.



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