

Article

PCS100 RPC - Improving power quality and reducing the cost of energy to the ski center La Parva in Chile

Forty-one kms east of Santiago, the La Parva ski center is one of the premier resorts in Chile. ABB has provided a power protection solution designed to improve the power factor and reduce harmonics produced by the DC variable speed motor drives powering the, "Alpha" and "Aguila" ski lifts. With over 200,000 visits per season, it is essential that all operations, such as the ski lifts, are available throughout the season.

The ski season runs from June to late September, and on a good year can extend into October. At the heart of the Andes the village is at 2750m with the ski lifts rising from there. Poor power factor and harmonics produced by DC motor drives can be difficult to correct, and contribute to voltage drop and distortion along with loss and reduced headroom in upstream power distribution.

Although picturesque, the remote location had the downfall of a relatively weak electrical supply connection to the ski center. When this was combined with poor power factor and harmonics created by the ski lifts, problems were identified that needed correction. After discussions between ABB and the ski center operator, a solution was selected that actively filtered the current drawn by two of the ski lifts. ABB provided two PCS100 RPCs which measure the current drawn by the lifts and inject compensating current to cancel some of the 5th and 7th harmonics along with 50 Hz reactive current draw. This will reduce system loss, voltage drop and harmonic voltage distortion on the ski center electric supply.

By reducing the system losses, enhanced energy efficiency can now be achieved. La Parva's Operations Manager, Marcelo Scheihing commented on the performance already seen by installing one of ABB's PCS100 RPCs. "We have installed one of the two PCS100 RPCs, ... there have been no failures, so we can think that the solution installed is working." Marcelo further commented on the service and support that ABB has provided so far, "it was decided that the solution proposed by ABB was the most desirable in addition to providing support in the process of installing the system offered."

The PCS100 RPC is rated for applications from 100 kVA to 2,000 kVA and uses high-speed IGBT inverter technology to control reactive power flow into the AC network. The inverter technology employed means the compensation is stepless, unlike many other solutions, which minimizes disturbances and ensures seamless power conditioning. The highly reliable modular redundant design means the system is scalable and can be easily expanded as the resorts power needs grow. In addition, if one of the power modules fails, the system will not trip, but will continue to operate at reduced capacity. Because the granularity is small, La Parva ski center can get full redundancy at very low cost. This level of reliability at such low cost is unique in the industry



La Parva

The smallest of the three Valleys resorts (Valle Nevado and El Colorado), La Parva ski resort has great skiing from beginner to expert, with a huge swathe for intermediates and advanced-intermediates, a decent terrain park, and amazing access to the Andes backcountry. La Parva's terrain park is being fully redesigned for 2014 and will host a mix of features and jumps (airbag jump), aimed to give skiers and riders the ability to improve. The resort consists of 20 runs and 14 ski lifts and has an elevation of 2,670 m to 3,630 m.

Download ABB's PCS100 RPC brochure [here](#).

Watch the PCS100 RPC product video [here](#).

To find out more about ABB's PCS100 RPC range, please visit: www.abb.com/pcs100-power-converters.

