

design a mine, her main design criteria are tonnage, or production capacity or safety, and so on. Energy is not a primary design criteria. What we're suggesting in this "new world" of energy efficiency, having mines measured, taxed and possibly penalized based on energy intensity, is that energy efficiency should become



a design criteria on the table from the beginning."

Western Coal's Bob Bays agrees this will be a challenge. But he says it's worth it:

"Environmentally friendly companies are viewed much more favorably," he says. "[The baseline audit] is just good business and responsible business practice, so there's no real downside to it. Even if there's a cost associated with the initial application of technologies, it appears to us that long term it provides a financial benefit, so it's just something you need to reconcile yourself with and budget as any normal business expense."

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Heavy production equipment should be included in a mine's energy audit.

# Power is key

By Tonia Jurbin

BC Hydro's Columbia Valley Transmission Project is a 112 km, 230kV line that is in the final stages of design. All survey layout of critical structures has begun, and barring any unexpected occurrence, the line will be in service in the fall of 2012.

The new transmission line starts at the existing Invermere substation, roughly follows the west side of the Columbia River Valley in the heart of the Purcell Mountain range and terminates at the soon-to-be-built Kicking Horse Substation (KHS).

From KHS, a new 3 km, 69kV transmission line will cross the Columbia River and end at the existing substation in Golden. Considerable modifications at the Invermere and Golden substations will also be required. The total estimated cost for this work is \$154 million.

The new line is required to meet the growing demand in the Golden area, and it will also serve the important purpose of improving reliability in the Upper Columbia Region, which is currently served by one heavily loaded, aging 69kV transmission line that is becoming more difficult to maintain. Outages are difficult to schedule as there is only one feed, and some line maintenance procedures cannot be done live.

Some clearing was carried out in the early 1980s in the area when BC Hydro was in the midst of a building boom, but by the mid-1980s the poor economy and mass lay-offs at BC Hydro resulted in this activity dropping off the radar until about five years ago when the former British Columbia Transmission Corporation (rejoined with BC Hydro in July 2010) made an application for CVT to the BC Utilities Commission (BCUC). On September 3, 2010 the BCUC granted the project a Certificate of Public Convenience and Necessity. Some permits and BC Hydro board approval are still outstanding, but these

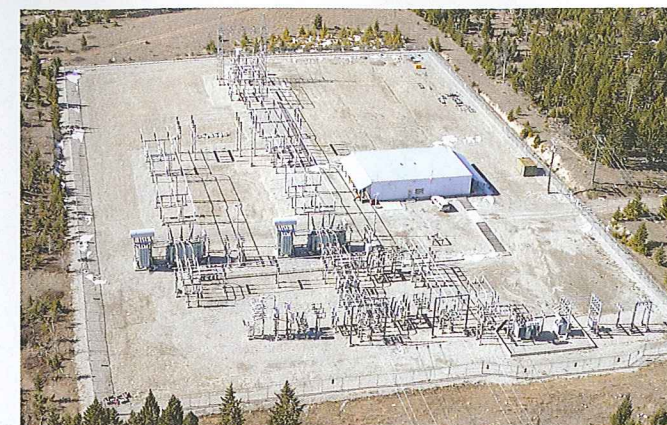
approvals are expected.

Consultation is a major part of any major BC Hydro undertaking. Deepak Anand, Project Manager for CVT, explains how a good program can keep a project moving forward.

"My impression is that the majority of people in the area are in favour of the new line, as it offers a significant benefit to the people of the Columbia Valley, especially in the north; however, there was some opposition from environmental groups when it looked like transmission line construction near a mountain goat salt-lick area near the Invermere substation would impact the population. We redesigned the line route to avoid the area and managed to keep everyone happy," said Mr. Anand.

All stakeholders must be satisfied or at least informed for a project to move along. First Nations, property owners, provincial, municipal and regional regulatory bodies are all included in the consultation process. The Columbia Valley is a very habitable area; it is known that First Nations have occupied the valley for centuries, the archaeology teams have just started their sweeps, but so far they have not encountered any valuable artifacts.

Anand continues, "Since much of the R/W was cleared 25 - 30 years ago, our designers are trying to use as much of the original clearing areas as we can. Of course much of the vegetation has grown back, but this time we will only be cutting down younger trees instead of mature growth. We still have to clear all the areas, but it will be much easier now because we are able to use the previous access and keep our road building to 50 to 100 metre spurs." Even with the existing access there will still be a need for a considerable volume of quality aggregates for KHS



and access roads; sourcing aggregate will be left to the successful contractor.

One of the biggest technical challenges on this project is the narrow existing R/W at the Columbia River and a few major water crossings. Anand continues, "The Columbia River crossing (near Golden), as well as some of the other major river crossings are challenging because we have to minimize disruption of riparian habitat on a line that crosses many watercourses and several wetland areas that must all be taken into consideration."

Anand concludes, "This project will help to bring prosperity and growth to the people and local enterprises of the Columbia Valley for the next 30 years."

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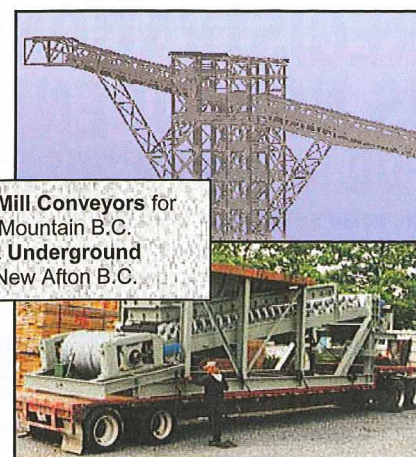
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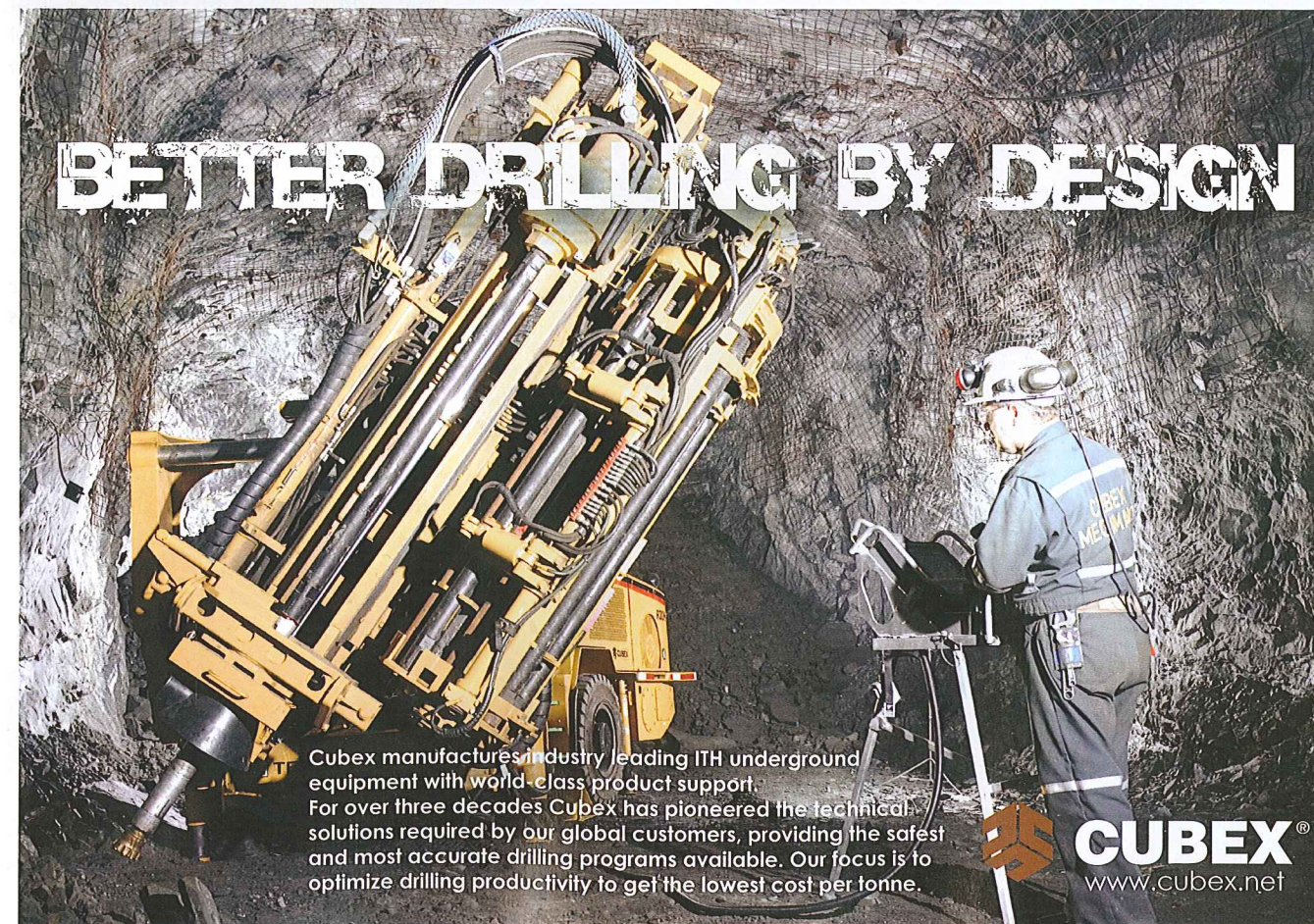


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