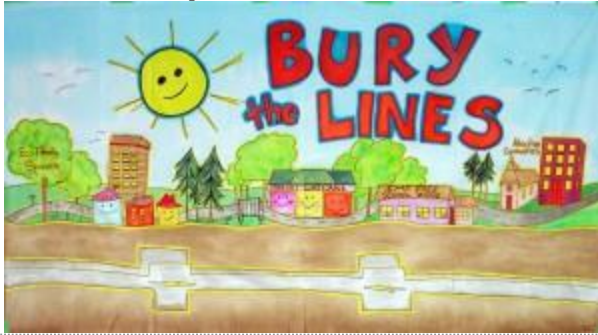


## Underground Power

Posted on 16 March 2010

Underground electricity transmission may be the solution to siting concerns in parts of Alberta. The Alberta Electric System Operator (AESO) just announced the results of a study on the technical feasibility of a 500 kilovolt (kV) underground transmission cable.

The cable would make up 10 to 20 kilometres of the new transmission line connecting the Heartland region (northeast of Fort Saskatchewan) to existing 500-kV transmission facilities. AltaLink and EPCOR are developers on the Heartland Project.



Advocacy group, Responsible Electricity Transmission for Albertans, created posters to campaign in favour of buried lines, saying overhead lines are a health hazard.

AESO's senior planning advisor, Neil Brausen, said an underground cable system is technically feasible but that more testing is needed to see if the cable and its accessories can stand up to Alberta's cold weather conditions.

The AESO commissioned UK-based Cable Consulting International Ltd. (CCI) to analyze the technical feasibility and life-cycle costs associated with burying a 10 to 20 kilometres of the proposed 500 kV double circuit line of the Heartland Project.

"Given limited world operating experience, additional analysis and testing is required to assess the reliability of an underground transmission system," said Brausen, who acknowledged CCI's perspective that worldwide, there are currently no comparable systems of a similar length that operate under similar extreme winter weather conditions as found in northern Alberta.

Conditions aren't the only potential barrier to underground. According to EPCOR's preliminary estimates (based on the specific proposed route), the capital cost of a 20-kilometre underground line with a 3,000 megawatt capacity would be five to eight times the capital cost of an equivalent overhead transmission line.