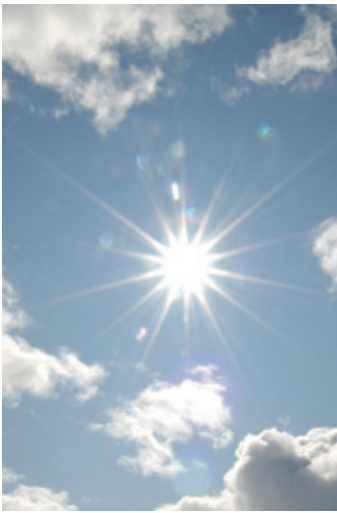


## WHAT'S THE CHALLENGE?



In spite of the continued availability of fossil fuels and new methods of extraction, it is inevitable that the supply of this finite source energy will diminish over time with resulting continuous price increases; moreover, concerns remain about the environmental impacts of continued dependency on these sources. Large and small communities,

usually using one of several sources of renewable energies, are implementing clean technologies<sup>1</sup>. It may seem a paradox that Canada's most energy-rich province should be the place to lead innovations in renewable energy. It is not. In fact, Canada needs us. Our rich, diverse, renewable energy sources provide a unique situation to conduct the critical research and development on energy systems management, and for students to learn through their involvement.

### Other challenges

- Northern, rural, Aboriginal, and resource-based communities need opportunities for economic diversification to retain their populations.
- Aboriginal communities want to be involved; energy autonomy is one component of self-determination.



## THE OPPORTUNITY

Intelligent systems are needed that optimally combine and utilize the renewable energy resources specific to



given locations that will provide sustainable, firm and renewable energy. These systems must be developed now, not when our fossil fuel-based energy sources reach critically low levels. Fossil fuels can shift from being a primary to a secondary source of energy. Graduates of our training will be leaders in the inevitable emergence of renewable energy systems design and management as the basis for fueling our future. This shift toward a place-based combination of renewable energy sources will also contribute to job creation and thus to the enhanced prosperity of communities and the Province.

## COMMUNITY-BASED RESEARCH WITH PRIVATE SECTOR INVOLVEMENT

Northern British Columbia provides a range of communities that would benefit from sustainable, firm and renewable energy systems. Northern BC is home to many innovative companies in the renewable energy sector. We believe that local companies and communities should be involved from the beginning. Several First Nations communities might be ideal for hosting lead projects.



<sup>1</sup> Solar, wind, tidal, hydro (incl. run of river, hydrokinetic), geothermal, biomass

## RESEARCH-BASED EXPERIENTIAL LEARNING

Developing and implementing place-based renewable energy systems requires multidisciplinary, community-based research. We will advance this with a Masters-level Engineering program in renewable energy systems. Undergraduate curricula will be developed based on learning outcomes relevant to our students and our communities. Leadership will be provided first by an outstanding researcher who will assist in spearheading this program. We will recruit expertise in the private sector through adjunct professorships. We see this initiative involving a wide range of disciplines in an interactive and collaborative manner.

## WHY UNBC?

UNBC was created by Northerners “for the North”. We have supported northern communities through the delivery of education and through our research. We are investing in this initiative through allocation of one of our Canada Research Chairs to renewable energy systems, and are actively exploring ways

to add additional expertise in this area. We have expertise for maintaining and managing our forests, a key component in sustaining the supply of bioenergy resource. We excel in community-based research and have strong ties with First Nations communities. We have implemented a bioenergy project that is unique in Canada and recognized internationally. Our campus infrastructure was designed for multiple energy systems serving a district energy system, an excellent platform for practice-based learning and research.

## MOVING FORWARD

This initiative to develop place-based renewable energy systems knowledge is vital to the local communities that work with us, and to British Columbia and Canada. Because our current quality of life depends on inexpensive fuels, future prosperity will depend on our ability to implement sustained, firm and renewable energy systems. Please join us in this important journey, it is important to all of us.

