

Sustainable Energy Certificate Program

Project Summary:

The following document provides a basic outline for the Sustainable Energy Certification Program. This is a work in progress and is expected to evolve over time through collaboration with school, government and industry stakeholders. The title was selected to encompass the necessary synergy between energy efficiency and renewable energy. (Transitioning to a lower carbon economy requires that we produce energy from clean sources and use it more efficiently

https://web.archive.org/web/20150111000420/http://www.paenergyfuture.psu.edu/pubs/aceee_reports/aceee2007sustainable.pdf

Vision Statement:

Students will develop energy awareness/literacy and competencies across a variety of energy categories. The program is designed with both school and industry-based experiences. Participation requires a high level of independent student initiative. The successful conclusion of this multi module learning will be a credit based level 1 Sustainable Energy Certification with the option of specializing in an area of energy for a 2nd level of certification. Initially the program will be developed within Edmonton Public Schools with the hope of expanding across all Alberta Education high schools.

Rationale (need/benefit for province)

Current economic and political interests of Albertans include developing sustainable energy to mitigate climate change and to diversify our job market. Two areas of growth are energy management and renewable energy technologies. Management of energy includes conserving resources, reducing operational costs and lowering carbon emissions while meeting the needs of a consumer. Renewable technologies such as solar, wind and geo-exchange are developing rapidly with widespread applications. Educational institutions must respond by offering programming for students to develop knowledge and skills that connect them to career pathways in emerging energy sectors.

Sustainable Energy Certification (SEC) is a program that can be offered to Albertan high school students that will assist in educating youth about energy career options, in creating a competent labour-force, in generating new business and in supporting innovation to keep our province competitive alongside global trends. SEC supports environmental and economic directives set out by the province while simultaneously normalizing the energy transitions process. The more people who enter this livelihood and contribute to the development of sustainable energy, the more diverse jobs and the economy will become.

Youth will benefit from having opportunities to develop skills, earn wages and discover career pathways while earning high school credits. Alberta's economy will benefit as students acquire competencies that are transferable to diverse energy careers. Industry will co-create the hand-on training and help develop the work-force they require. Business, government and non-governmental organizations will gain access to more skilled and knowledgeable employees in sustainable energy. SEC will stimulate an interest in post-secondary institutions that offer further training in this area of study. Pre-requisite courses will prepare students for enrollment in post-secondary institutions such as NAIT, SAIT, Lakeland college and universities. Certification will ensure greater enrollment and graduation. High Schools will offer more diverse, 21st century learning opportunities enmeshed in community partnerships which will provide students with greater supports. Such a program can foster the development of a sustainable energy culture with mindsets deeply rooted in environmental stewardship.

Goal

The Sustainable Energy Certificate (S.E.C.) program will work with industry and expertise to develop a level one training certification with the option of level 2 specializations. Such partnerships will set certification benchmarks based on evolving needs and industry standards and will play an integral part in assessing hands-on competencies. A needs assessment will be conducted to determine program delivery and requirements for regions with less access to industry training. Industry will inform and advise on evolving certification to match changing technologies. They will also provide training within their facilities or at schools and test students in hands-on skill development of energy auditing, solar, wind, biofuel and geo-exchange.

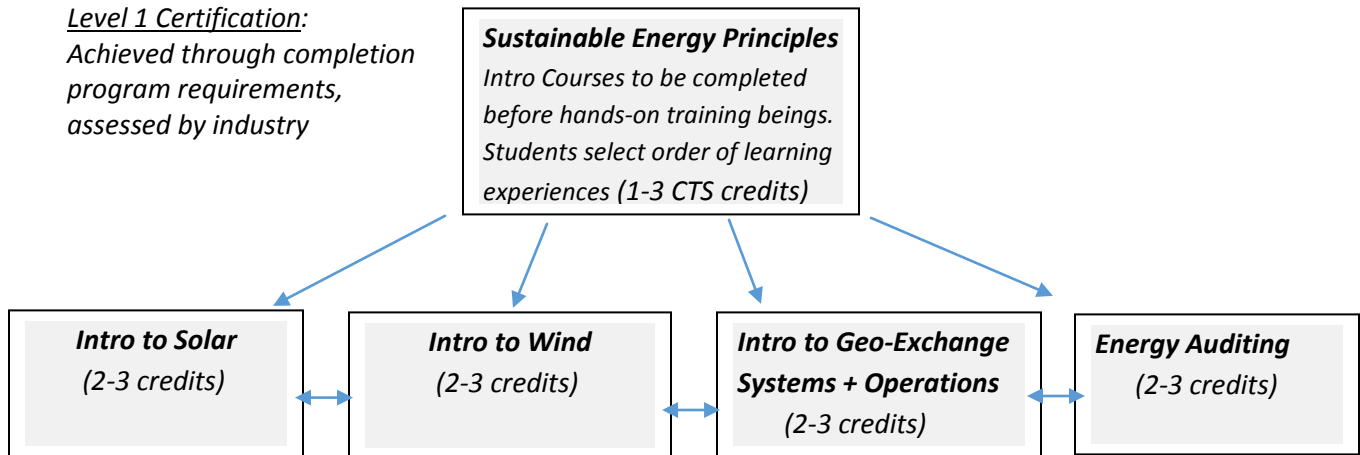
SEC is meant to be flexible so that students can work at their own pace (over 3 years or less) and earn 15 or more high school credits. There will be a possibility of 2 types of delivery in schools.

- 1. Work experience coordinators will deliver the programs and approve work placements for students. Students will meet other curricular objectives through online formats. Once they complete a general certification process, they may choose to specialize in areas through more industry training. Below is a diagram outlining a potential certification process.*
- 2. Specialized CTS Program – delivered as a course in schools in a classroom setting. Volunteer experts visit the school to provide training.*

1. Work Experience Route:

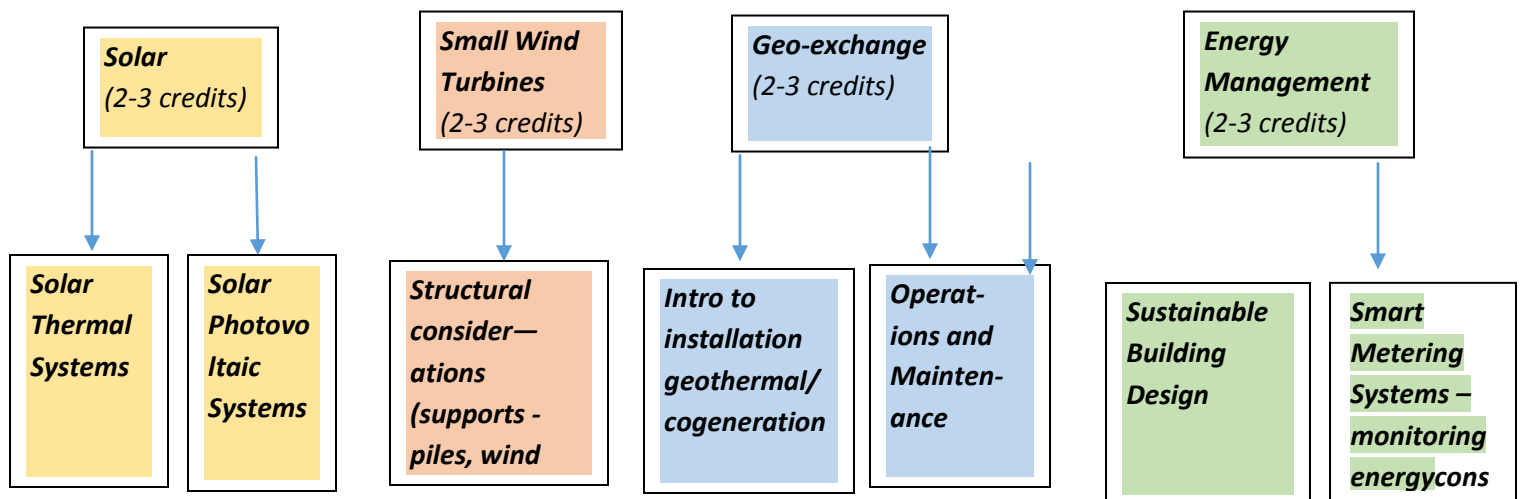
Level 1 Certification:

Achieved through completion program requirements, assessed by industry



Level 2 Specialization:

Students select an areato specialize skill sets or consider entering RAP program to develop greater skill development.



2. Course Route

Similar to work experience but learning and training occur in schools. Experts may volunteer to do “**training days**” in schools. A focus on a particular specialization may be offered based on access to resources (technologies, staff, experts, etc...) Energy Management, for example, is readily available for training students province wide as smart metering systems are accessible online. Data analytics can be taught remotely.

Background

Alberta is known for its oil and gas energy production. The Oil sands is the driving force of the economy but its continued development comes at a great cost to environmental sustainability. The threat of climate change has spurred global efforts to reduce our reliance on non-renewable sources of energy that produce greenhouse gases. Current energy needs are being met more readily through clean, renewable technologies. The shift has put a strain on the Albertan economy but has become an incentive to develop innovative approaches to power generation and to reducing carbon emissions. For this economic transition to be resilient and sustainable, Albertans' require opportunities for education, skill development and incentives to co-create new livelihoods within energy sectors.

*In the 1970s, Alberta Education created the "Green Certificate" program to respond to a growing need for skilled labor in careers connected to agriculture. Technological advances were changing food production methods. An educational response to today's economic shift is to develop a **Sustainable Energy Certificate** program that offers high school students training in renewable energy and energy efficiency. Youth will be more readily able to embrace energy-demand changes if they can access programming to develop sets of knowledge, skills, competencies and attitudes that are transferable to the labor market.*

A preliminary needs assessment is being conducted through conversations with industry, municipal government, post-secondary institutions, students, and teachers. Industry has articulated a need for skilled labour to service the growing demand for sustainable energy. ENMAX, for example, would like to see a greater pool of workers who are competent in conducting energy audits, installing solar panels and assessing inefficiencies in buildings to achieve net zero. Several companies have an interest in helping to develop certification based on industry standards and are willing to provide the hands-on training for students.

The City of Edmonton's energy transitions team would like to engage youth in mitigating climate change at a local level. Post-Secondary institutions that offer alternative energy training, such as NAIT and Lakeland College, are looking for ways to help high school students' transition to their programs and to careers in energy efficiency. Many high school students are interested in pursuing livelihoods in sustainable energy but they need access to education that guides them to such career pathways. Teachers involved in CTS and work experience believes that Alberta needs to provide students with increased opportunities for energy education.

For more information, contact Aaron Dublenko at innovate@epsb.ca or 780-267-4677

