Energy Efficiency Advisory Panel

Schools Stakeholder Engagement Session

Record of Conversation – MASTER COPY

Friday, September 16, 2016; 12:00 – 4:00pm
Edmonton

TABLE 6

List of educational practices in energy efficiency, community generation/renewables, and conservation that haven't been mentioned	Which are most important (*)
Modernization of buildings – lightings, sensors Think about energy efficiency in guidelines with considering retrofits Start a discussion about it.	*Capacity *Funding *Lack of partnership opportunities
Be solar ready	
Additional grants – e.g. BP grant for energy initiatives	
Energy monitoring	
Energy efficiency conference, youth summit - To share info and spark interests	
Develop relationships with construction industry and trades industry - Get students opportunities to do apprenticeships (e.g. working with wind turbine) - Get guidance from trades industry - Link with career pathways	
Support Social justice projects: -e.g. living wall gardens supplying good banks - community garden plots	
Curriculum is the most important tool - Keep the links to energy and environment in the curriculum as the curriculum gets re-vamped - Branch climate change out into other parts of the curriculum (e.g. health, social, etc), in flexible schedules - Professional development for teachers (teachers convention, others) – spread too thin - Assess students on how to collaborate, be creative – how does this happen	
Work with Alberta Teachers Association – allow for more flexibility for teachers for professional development, etc.	
Have a person within the school as a resource	
Show TED talks in school	
Have flexibility within the school day to teach/learn, not just within the time for the	

course.	
Provide central resources – filter to other districts - Central database for courses being developed (e.g. Local development courses (LDCs))	
Student leadership to come up programming	
-Research Papers	
-Holistic Education	
-Society aspects	
- Providing market information to teachers and educators	
- Field trips and overcoming financial constraints	
-Showing people how to write grants, providing capacity	
- Encouraging partnership opportunities	
-Enhancing science curriculum, communities	
-Additional curriculum	
-Utilizing and leveraging pilot projects (light sensors, new technology)	
-Integrating teacher/public engagement	
a. ***Hands on projects - Student led*** – enabling students to take the decision-making reigns i. Utilizing engaging tangible technology that students will use – do things that they want to do 1. They have to use these methods every days ii. Tie in with the lifestyle of the students iii. Inside Education and other teacher resources used for iv. ***Career and Technology Foundations*** – new options program, where you can focus on natural resources- Built a garden that grew some food 1. Flower beds 2. Aquaponics 3. Composting and recycling 4. Indoor gardening v. Being able to hear from other jurisdictions/school boards Enables you to know the large-scale nature of climate change	
b. Combining grades/ages i. Safe and caring learning environment ii. Parents had some fear that iii. Incorporating parents/community members as well c. In acknowledging which practices are the most important – make sure they are student-led and hands-on i. Measurement before they start and after they finish ii. Giving them room and space to make mistakes. Providing them support so that there is ownership over the process – what do they want to figure out Ensure that there are actual outlets for creativity	
d. Make it flexible to appeal to each students individual desire to learn Also enable them to get recognition with their parents – which will drive future engagement	
Fundraising for solar panels, credits, creating a club – re funding going back into schools – what does the funding look like so that the autonomy - without funding coming back 'too prescribed'. Recognize the uniqueness of each school and district. Eg cant put a prescribed solar program in place when there are too many trees or the roof is too old and not strong enough. Create a program that not one size fits all and that there are opportunities for local decision making. Ensure a wide range in the programs offered by the agency.	
Students have to show up during 'flex'. Geothermal . Don't just focus on solar but what about wind and water – hydro….look at more options and expand our thinking on approaches. Energy effectiveness, value of a method as a teaching tool. What would be the criteria for the various tools – criteria and weighting…are needed. Beclear on your outcome and pick the right tool.	

Other considerations besides strict energy savings. Is it a good teaching tool – learning should not suffer. Innovation attention vs learning opportunity.	
Generate learning across schools - analysze at the Board level – maximum shared learning and diversity of learning opportunities…. Look a the best learning and tech value for the money. A range of interventions at the Board level.	
Among highschools there can be competition. But look more at elementary and kinder – and highschools – creates a greater community. Gets you out of your comfort zone – creates friendships and mentoring. Include more than the environment.	
If the school board has a braoder plan, then it allows schools to be more flexible.	
• Have ways to make the 'less flashy' ideas a learning tool tool • Conditioning and re-enforcing - get outside rather than the doom and gloom – getting outside A lot of what we saw today was extracurricular, learning about in hands on – in class learning – real world projects – IN CLASS – integrated across all curriculum – make it part of the curriculum, not extra. • Connected energy conservation with the units in the curriculum – helps teachers to check off boxes, and yet students still have those real life problems/experiences. – hit that sweet spot. • Industry expert feedback • Took my students to Mars – how do we generate the energy we need – bikes generating energy, domes in the gym, Herman Chang – Hillview Schools • Give illustrative examples and leave it open to the teacher – make pickles with the kids – from growing cucumbers. • Eg. Mock election with kids 'made my mom vote' • Kids brought home stickers for ecostation items • Make it like remembrance day – everyone does s aproject – age appropriate • Integrate and weave this topic through all aspects of the curriculum – math, gym, everything. - The Company Program – build a company – and put in all these incentives to be as green as possible – in the end we all get paid. – and you have to donate charity. -	
Bring back the programs that get elementary students get outside and seeing nature in the community i.e. outdoor education. With more funding for them.	
Put windows in the buildings that can open and are energy efficiency and bring in natural light. More funding or light sensors.	
Students need to feel connected to nature and get outside. Do more field trips	***
Introducing environmental literacy courses in grade 12 is too late – introduce it in the curriculum earlier on, as well electricity.	
Make sure all schools are given funding to keep it fair for energy efficiency education and programming so all the kids get the same opportunities.	
Climate change specific related outcomes in the environment curriculum	
Professional development for teachers should include the many values and cases for energy efficiency – more sharing among teachers	**
PD should be meaningful and quality – use a consultant and make it practical to share what is going on and how to implement projects – make it more integrated learning and outcomes – don't talk/present to teachers and leave	*
QE should be a leader and model how other schools can be green – help the teachers become more knowledgeable about the subject matter	
"Living classrooms" – Outdoors spaces that use the natural environment for instruction.	
Installing renewable generation that can run basic functions in schools. For example,	

a small solar panel that runs a water fountain.	
Student-created proposals for potential longer term projects – 5 years.	
Building upgrades such as motion sensors for lighting.	
Using the building itself as an instructional tool.	
Incorporate energy efficiency into the curriculum.	
Government grants for projects.	
Allowing students to monitor the energy use of their schools. Examples: placing the meter in a public space, smartphone applications.	
Included energy efficiency in professional development.	
More flex time for teachers to allow them to take on energy efficiency instruction.	
Educating schools boards regarding energy efficiency.	
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What are the barriers to achieving the vision in which schools' energy efficiency practices and community energy systems technology – and student learning, competencies, and actions – are interwoven?

What bridges must be built to overcome these barriers?

How might Energy Efficiency Alberta help?

Barriers	Bridges	EEA Role
Information transfer Teacher Buy-in	Central kits for a particular unit that can be borrowed - lots of kits already out there	Repository of information (pulling from multiple places, teachers conventions, etc.) – maybe not. There are a lot of repositories Inspire teachers to use the kits (e.g. Inside Education programs) – make it meaningful
Planning time for staff		
Inflexibility in the schedule	Changes to the curriculum - compentency, creativity based, etc.	Get involved in the curriculum re-design. Link in with Advanced Education (there are stakeholder consultations occurring)
Project based learning is difficult for junior and high schools, in larger schools	Changes to the curriculum	Get involved in the curriculum re-design. Link in with Advanced Education (there are stakeholder consultations occurring)
Financing – it gets pushed to teachers, school system	Funding for innovative projects or for projects within the curriculum, equipment Funding for building modernization – visible projects in communities that can be used for education purposes	
Private funding	Teachers can access for funding	
	Coordinator to coordinate across	

	schools	
Infrastructure challenges	Retrofits Audits Link it to student involvement	Provide energy audit toolkit to every school
Red tape/internal bureaucracy	Allowing more autonomy in at the school level	Providing programs that can provide direct funding to schools
Energy efficiency/renewable technology is not visible enough	Utilize webcams/ education resources	Ensure capacity is available to support educational opportunities/school level capacity
Lack of Professional Development for Teachers	Provide grants/funding for professional development	Ensure financial support is available for school system
Lack of funds to support school programs	Provide direct funding for teachers to participate in programs.	Ensure resources are made available
Lack of capacity	More collaboration between government and education sector	Ensure capacity is in place to support school programs/technology deployment
Curriculum is overloaded and putting a barrier on students and parents	***PD for teachers*** – Energy Efficiency Alberta could come out to professional development conferences	
b. A curriculum that incorporates all subjects and allows flexibility is essential, and should allow students to graduate. These should be interest-based student centred program – less siloed class structure. You could still provide a all-encompassing science class that addresses the connections to post-second. Timetabling and university entrance is still a factor.	a. ***Using existing forums and using conditional grants***, support the following i. ATA AB Regional Learning Consortium	
a. Keeping up to date and current Exceptional amount of information makes it impossible to keep it current	b. The Agency could utilize an outreach role in schools and communities to help measure energy consumption and prop up small scale renewables	
Knowledge BC Climate Exchange – started in 2002/03 that empowers students to actually learn on their own with technology Provides frameworks so that students can learn on their own Inside Education and Green Learning.ca Learning for a sustainable future	c. Agency could work with students and facilities – where behavior change is front-loaded in implementation	

Cost – funding is always an issue so that students are able to accomplish their work. Sometimes just getting computers is difficult – let alone specific equipment ▪ Exploring ways that are viable to identify funding that are available in a sustainable way ▪ The savings from the students initiatives could be redistributed ▪ A teacher that is a project coordinator who has a ½ FTE would be able to carry this through to completion. This could help teachers collaborate and share ideas within a school devision • Alberta initiative for schools improvement was a relic of how this funding model worked.	d. Programming should be sustainable and long-term ii. Multi-year programs are typically more long-lasting and effective Should have strict requirements – some portion of those industrial school facility savings should go back into student-led programming	
2) Time to collaborate a. Some districts can apply for release time, but that makes students b. Summertime PD could be useful as most teachers already volunteer their time. i. An opportunity to collaborate with other teachers during this time would be helpful c. Students have another matriculation priority classes University entry requirements are a factor – some institutions don't recognize these innovative classes	***3) Knowledge bank for resources and information*** a. What other schools are doing	
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	Have grant application programs that you apply to based on what. Have programs be accessed optimally by schools. A Committee or something to triage	**A specific piece of the budget for education and outreach – societal benefit – engaging.** **Each program has an educational component – so there are 2 ways to access funds to advance Env/Energy Efficiency education.**
Solar panel damage, maintenance and the costs of replacing. So expensive		**Practical areas of funding by the agency.**
Overloaded curriculum and maybe not much room to take on time consuming projects. No time for this in our 'regular' classes.		**The agency should have a youth advisory council.** **Students need to be better informed. Good speeches, speakers, presentations, posters -** **Students need to communicate with students.**
Attitudinal – teachers may say 'that's not part of my subject' – overcoming the mental block of this		
Each district has different policies eg risky play. Some are more flexible, relaxed. This impacts what projects and opportunities can be done. Can we streamline some of these cumbersome policies – how to work around/through/streamline.	**School boards putting their heads together. Shadowing others who are less risk averse and how that works. How did they get to that point.**	
Apprehension around liability. Field trips. Bureaucracy.		
Every student thinks in different ways – need to see what they've done and their progress – IN THE WAY THEY NEED TO SEE IT. LOCAL AND GLOBAL TOO. **Another: Barrier is more apparent in elementary school than highschool. Making sure the parents are aware and knowledgeable – is more of challenge** **Contending priorities.** **Look at the relationship**	**A dashboard that shows all schools. Knowing where you are able to improve.** **Solution is partnerships and it takes a village.**	

between the green funding raising methods – eg bottle drives. **Adoption of tech and practices in all schools – maintance, custodial…all these staff need support. Not everyone is an EE expert.**		**Have a support group from the agency – loan specialists into institutions.** **Embed someone .**
Funding for programs – having to rely on parents, PACS	**Creating a funding body**	**Certain % gets sets aside for outdoor education programs for schools that are under funded**
Using the money in classrooms instead – immersive curriculum	**Reallocation of funding**	**School boards are encouraged to look at classrooms for where the money can be allocated – work with teachers.** **Look at funding and getting teachers to understand energy efficiency**
The word climate change has a negative connotation	**Change to environment sustainability**	**Tie energy efficiency education to the values of the audience**
Liability, security and transportation to achieving out of classroom experiences	**Have a standard fund or insurance and security plan for students**	**Special insurance fund established for school boards** **Help the school boards flush out the risk of taking students outdoors.** **Need a special allocation for transportation – tie it back to insurance.**
Curriculum is too heavy for teachers to be free to do more discovery	**needs to be more discovery learning than delivery -**	**Need to change the curriculum to include sustainable development and include energy efficiency**
Access to expertise and funding for teachers	**Create a database of experts resources and access to project coordinators and consultants (they should be teachers) that can deliver EE courses**	**Work with ACEE and Inside Ed to create and manage this and let folks know the info is there**
Teachers don't need to be experts – just facilitators	**Allow them more time to explore this – work with outside consultants who work in this area. – leverage existing expertise (Innovate, Telus Spark)**	**Work with school boards.**
Alberta Teacher's Association is largely reactive in their approach.	-Sustainability policy. -Long term planning.	Educative function to increase awareness.
School boards don't understand the whole picture of energy efficiency.		Provide support to school boards.

-Students don't recognize the implications of their energy use. -Student energy efficiency literacy.	-Energy audits at schools. -Students should have the opportunity to create energy. -Student participation.	
At the school board level—funding. It's difficult to ask for energy efficiency learning content if other content would need to be sacrificed.		
Lack of qualified teachers.	-Professional development that incorporates energy efficiency.	
Teachers lack flex time that could be used on instruction or project prep.		
Information transfer Teacher Buy-in	Central kits for a particular unit that can be borrowed - lots of kits already out there	Repository of information (pulling from multiple places, teachers conventions, etc.) – maybe not. There are a lot of repositories Inspire teachers to use the kits (e.g. Inside Education programs) – make it meaningful
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SUMMARY FROM EVERYONE

- keep autonomy of schools
- get more done without limitations, barriers
- hands-on learning experiences for students – field trips and projects, building, doing
- pilot projects – geothermal, solar. They can then be an example
- make energy use visible to students – have a webcam on the energy metre
- professional development for all teachers, that is meaningful
- dedicated flex time in morning to work on environmental projects. Doesn't take away from day-to-day curriculum
- reconnecting with nature and environment, motivate from a positive point, not guilt
- make it easy for the teacher
- energy literacy needs to start early
- make energy literacy a part of the core curriculum
- establish a fund for teachers, consider equal opportunities
- model ee in our schools by dealing with infrastructure, things that are visual (monitoring, solar panels)
- funding to support setting up panels (back end)
- funding for coordinators
- funding for projects – driven by students, champions, teachers
- make sure EEA has a seat at the table when re-designing curriculum
- curriculum
- sustainable funding

-Participatory learning. Students and teachers emphasize the need for hands-on projects in learning about energy efficiency.
-The youth need to be empowered with opportunities.
-Students devising solutions to energy inefficiency.
-Students, teachers and school boards have an insufficient level of energy efficiency literacy.
-Projects that allow for exposure to industry and advocacy.
-There are not enough qualified teachers to offer instruction on energy efficiency.
-Students should be encouraged to change the environment in which they learn.
-What/Where/How students learn needs to be changed.
-Lack of financial resources for teachers. Often, they need to fund their own programs/projects.
-Pilot projects and using schools as models of implementation.
-Physical buildings become tools for learning.
-Students should have opportunities to monitor energy use.
-Intersection of environment with other topics.
-Student exposure to projects in the real working world.
-Some of the school programs/projects utilized partnership with community entities.
-General lack of funding in the education sector regarding energy efficiency/environmental learning content and support resources.
-Sustainability progress.
-Importance of the learning space.

-School boards require incentives.

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