SAVING ENERGY ON YOUR FARM

BC FIELD CROPS

Climate Action Initiative
BC AGRICULTURE & FOOD

Reducing energy consumption is an excellent way to reduce operating costs, as well as minimize environmental impacts. Below are some of the key energy saving opportunities applicable to field crop operations in BC. Consider these opportunities and work towards implementing those applicable to your operation.

Low or No Cost Opportunities for Field Crops

Quick ways you can reduce your energy costs right now:

- Repair any leaks in your irrigation system to avoid energy and water wastage.
- Early morning irrigation will reduce evaporative losses of water relative to irrigating during the daytime.
- Use the irrigation calculator available from the Irrigation Industry Association of BC (IIABC) to optimize your water application rate, at: www.irrigationbc.com
- Ensure vehicles and mobile equipment are not left idling unnecessarily.
- Regularly check tractor tire pressures. Over-inflated tires can slip on loose or steep terrain, increasing fuel consumption. Under-inflated tires cause unnecessary drag which also increases fuel consumption.
- Disable hot water heat sources when hot water is not required for extended periods.

What are the next steps?

1. Implement low cost/no cost energy saving opportunities immediately.
2. Contact the **LiveSmart BC Agriculture Energy Advisor** to evaluate additional energy saving opportunities for your operation.
3. Use the LiveSmart BC Agriculture Energy Advisor to help you access incentive funding.
4. Implement projects and benefit from energy cost savings!

LiveSmart BC Agriculture Energy Advisor

The BC Agriculture Energy Advisor is a **FREE** resource available to assist producers with the following:

- Provide direction and guidance to reduce on-farm energy consumption;
- Visit farms to identify and quantify energy saving opportunities;
- Help to access financial incentives for energy upgrades where possible;
- Support with implementing energy efficiency measures;
- Monitor and verify energy savings;
- Provide technical information and fact sheets.

Agricultural producers are encouraged to contact the Energy Advisor at any time.

Sam Thomas, Prism Engineering
ag.advisor@prismengineering.com

www.bcagclimateaction.ca/energy
604-205-5510

Additional Opportunities for Field Crops

Opportunity	Savings Potential*	Incentives**	Capital Cost	Payback
Replace diesel or tractor driven irrigation pumps with electric pumps. Electric pumps require considerably less maintenance, further reducing operating costs.	Around $1,400/yr for replacing a 50hp tractor driven pump with a 20hp electric pump, assuming 2 weeks of pumping per year. Also CO_2 emissions reduced by 4.8 tons/yr.	None available	Approximately $4,000 to $5,000 installed (excluding any power line extensions that may be required).	**2.8 to 3.5 yrs**
If you irrigate and your load is variable, **install a variable frequency drive (VFD) on irrigation pump(s)** to vary the pump speed based on demand. Throttling valves are an inefficient method of adjusting flow.	Savings will vary, but as an example, for a 20hp pump running for 2 months/yr, reducing the motor speed from 100% to 75% would save approximately $800/yr in electricity costs.	**BC Hydro PIP / LiveSmart BC** - $140 per horsepower [$2,800 for a 20hp pump motor]	Approximately $6,500 for this example with a 20hp pump motor.	Approximately **4.5 years** after the incentive for this example.
Lighting upgrades: Replace incandescent lamps with compact fluorescents or LED. Replace T12 fluorescent lamps with T8 or T5 lamps.	Variable, but as an example, for 2 x 110 watt T12 lamps (magnetic ballast), replacement with 4 x 32 watt T8 lamps will save approximately $40/yr if turned on 12 hrs/day.	**BC Hydro PIP / LiveSmart BC** – varies depending on lamp type – $30 per fixture for this example.	Approximately $200 per fixture installed for this example.	**4.8 yrs** for this example.
Use low pressure drip irrigation systems over high pressure spray systems. Pumping energy requirements are less from reduced evaporation and system pressure. Water consumption is also reduced with low pressure systems.	Savings will vary for each site. *To evaluate what the savings would be for your site, contact the **BC Agriculture Energy Advisor**.*	None available	Variable	Variable

* Savings are estimates only. Savings are based on the following energy costs: Electricity $0.08/kWh, Gas: $8/GJ, Diesel: $1.10/litre

** Incentives may change without notice. Check with the BC Agriculture Energy Advisor for current incentive amounts.

Other Resources

- BC Agriculture Energy Advisor: **www.bcagclimateaction.ca/energy**
- LiveSmart BC Incentive Program: www.livesmartbc.ca/incentives
- BC Hydro Product Incentive Program: www.bchydro.com/rebates_savings/product_incentive_program.html
- Fortis BC Incentive Program: www.fortisbc.com/NaturalGas/Business/Offers
- Agricultural Irrigation Calculator: www.irrigationbc.com

DISCLAIMER: All savings, capital costs, and incentive amounts shown in this fact sheet are estimates only and are not guaranteed. It is recommended that the producer contacts the BC Agriculture Energy Advisor to better quantify these for their own site before proceeding with a project.

Prepared by Prism Engineering Ltd – November 2012