



BC NURSERIES

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 nursery operations in BC. Consider these opportunities and work towards implementing those applicable to your operation.



photo by Sandra Tretick

Low or No Cost Opportunities for Nurseries

Quick ways you can reduce your energy costs right now:

- Repair greenhouse/poly-tunnel glazing leaks to avoid unnecessary heat loss.
- Shut off zone heating pumps unless there is a need for heating in the zone.
- If you have multiple boilers, isolate any which are in standby mode using isolation valves to reduce losses.
- Conduct boiler flue gas tests and tuning at least annually.
- Insulate the perimeter walls below the height of the bench to minimize heat loss.
- Ensure any fans are clean and free from obstructions, balanced and in good condition.

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.

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Additional Opportunities for Nurseries

Opportunity	Savings Potential*	Incentives**	Capital Cost	Payback
Retrofit gravity or power vented unit heaters with condensing unit heaters. Condensing unit heaters recover additional heat from the flue-gas, making them more efficient (93%) than standard options (65 to 80%).	For a 200 MBH (output) unit heater, expect around \$1,600/yr*** savings per heater compared to gravity vented, or \$700/yr*** compared to power vented.	None available	Approximately \$4,500 per condensing unit heater installed (200 MBH output).	2.8 yrs for gravity vented base-case. 6.4 yrs for power vented base-case.
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
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.
Retrofit end-of-life atmospheric boilers with condensing boilers over forced draft. Applies if your return water temperature is less than approx. 55°C.	For a 5 acre greenhouse with a 1,000 MBH boiler, expect around \$2,400/yr**** in gas savings over forced draft.	Fortis BC (\$12/MBH plant input for condensing and \$4/MBH for forced draft) \$8,000 more for a 1,000 MBH condensing boiler over forced draft.	Incremental cost for condensing option is approximately \$25,000 above that of forced draft for a 1,000 MBH boiler.	7.1 yrs (on the incremental cost to go to condensing)

* 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.

*** Savings based on 2011 Abbotsford weather data and assume unit heaters are sole source of heat in greenhouse.

**** Savings based on average nursery gas use of 1,000 GJ/acre/year.

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



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.