Agricultural Industry

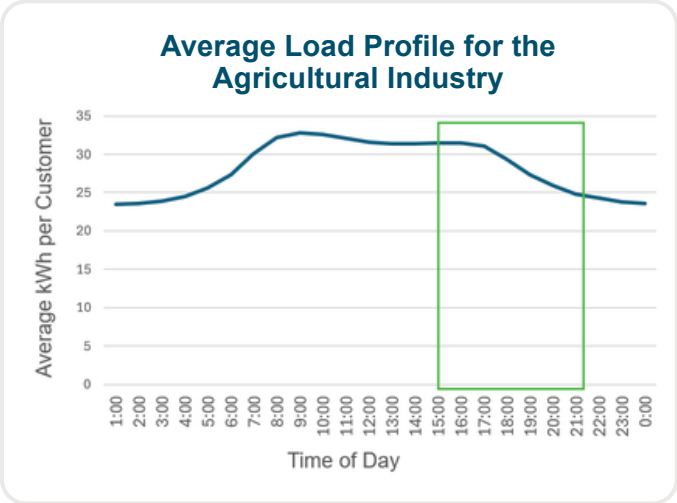


BC Hydro Demand Response Program

DEMAND OPPORTUNITY

Agricultural operations offer strong demand response potential as:

- They have large electrical loads such as lighting, refrigeration, irrigation, and ventilation systems.
- Many loads can be adjusted or shifted while maintaining crop, livestock, and food safety requirements.
- Automated controls make it easier to reduce loads while maintaining production requirements.



PROGRAM OVERVIEW

Program Incentive	$50 per average kilowatt (kW) of demand reduction per season
Event Duration	Up to 20 events per season, no more than four hours each
Event Season	November 1 – March 31
Advanced Notification	One business day
Participation	Must have successfully performed in at least 50% of all events

PARTICIPATION BENEFITS



FINANCIAL INCENTIVES



NO COST TO ENROLL



RISK-FREE

INDUSTRIAL DR BEST PRACTICES

- Develop a DR event plan that identifies specific systems or equipment, control actions, monitoring requirements, and procedures for actions before, during, and after the event, including returning systems to normal operation.
- Assign clear roles and responsibilities so staff understand required actions, and ensure adequate staffing, particularly if the event occurs outside normal operating hours.
- Focus on controllable loads that operations staff can adjust through centralized plant SCADA/DCS or local controls.
- Monitor potential adverse impacts (including building conditions, inventory levels, product quality, safety) and determine any critical levels which will require return of systems or equipment to normal operation.
- Use automated control systems where possible to implement DR actions quickly and consistently. This could include pre-programmed shutdown sequencing.
- Perform a mock DR event when conditions are suitable. Use lessons learned from the test event to identify flaws and correct or adjust where possible.
- Following DR events, review performance and document lessons learned to improve future event execution.



“The rebate on the bill was a substantial amount, so it’s well worth taking part in this program.”
- TERRY, HOLLANDIA GREENHOUSES

CASE STUDY: HOLLANDIA GREENHOUSES

Hollandia Greenhouse participates in BC Hydro’s Demand Response (DR) program as part of its long-standing commitment to energy-efficient greenhouse operations. Located in Pitt Meadows, the facility grows gerbera flowers in approximately nine hectares of greenhouse space and uses advanced controls to manage lighting, heating, irrigation, and environmental conditions.

Since lighting is by far the greenhouse’s largest electrical load, it provides an ideal opportunity for DR participation. Hollandia’s lighting system consists of a 50-50 mix of high-pressure sodium (HPS) and LED fixtures that can be controlled through its greenhouse control system. This 50-50 mix offers significant operational flexibility and enables Hollandia to tailor its response to DR events based on weather conditions and growing requirements.

During a DR event, operators reduce lighting demand by turning off either the HPS or LED fixtures, reducing lighting levels by about 50%. Their strategy depends largely on weather conditions and growing requirements, as HPS fixtures provide supplemental heat that supports flower quality during cooler periods. In addition, since LED fixtures can be dimmed, Hollandia can tailor load reductions to the specific requirements of a DR event while continuing to support plant growth.

This past season, Hollandia participated in all four DR events. They found the process easy to manage as lighting schedules could be programmed in advance to automatically turn off and resume at designated times. By reducing half of its lighting load, the facility saved approximately $400-450 per hour in operating costs, in addition to receiving DR incentive payments.

Hollandia credits its success to advanced control systems and flexible lighting infrastructure. They encourage other greenhouse operators to explore DR opportunities, noting that participation can be straightforward when facilities have the ability to control lighting zones and adjust loads through computerized control systems.

DEMAND RESPONSE OPPORTUNITIES

- Adjust temperature setpoints within animal welfare, crop, and food safety requirements.
- Pre-cool refrigerated storage and reduce cooling loads.
- Shift energy-intensive processes (e.g., grain drying, pasteurization, manure treatment) outside events.
- Reduce fan speeds to minimum required levels where VFDs are available.
- Schedule manure handling outside DR events.
- Shift irrigation pumping to off-peak hours where feasible.
- Reduce supplemental lighting while maintaining crop requirements.
- Use on-site energy storage or generation to reduce grid demand.

HOW DO I SIGN UP?

Enroll in the program via the Demand Response Behavioural link or QR code, log into your MyHydro account and provide:

- A list of the sites you want to enroll.
- The name and contact info for the person on site who will receive event notices.

BC Hydro