

Red Deer College targets net zero

Innovative technologies provide alternative energy and supplement student learning at Alberta-based College

Red Deer College (RDC) originally planned on reducing its energy costs by 20%, with an equivalent reduction in greenhouse gas emissions. That was in 2015, when the College first developed a comprehensive Green Energy Master Plan that outlined how it would move forward with a wide variety of energy efficiency initiatives.

Three years later, RDC has far surpassed this target. Now, leaders are challenging themselves to further explore how the College could become a net zero institution, producing all the energy RDC's main campus will require to power its buildings and infrastructure from sustainable sources.



on this incredible new facility. Another 545 vertically aligned panels are currently being installed on the College's new residence building, which is scheduled to open early in 2019.

A modest array of 276 panels has been installed on the new solar walkway on campus, with the remaining panels installed on the main building, including the new Alternative Energy Lab. The Lab, which will officially open in early 2019, will be a hub for learners and businesses to engage in training, demonstration and applied research related to alternative energy.

The panels on the Lab roof contribute to the Col-

“Many of our panels aren't visible to the public, as they're positioned on various rooftops across main campus. But the scale is incredible, and our installers have advised us that we likely have the largest institutional solar array in Canada.”

*Jason Mudry,
RDC's Director of Campus Management*

The College has taken significant steps to move toward this goal, having invested in a number of alternative energy technologies to reduce demand coming from external energy suppliers. A pivotal part of this is investment in photovoltaic solar panels, and in total RDC will install more than 4,190 of these on buildings across its main campus. The panels are photovoltaic modules, designed to provide a high yield per surface area in all types of weather.

More than 2,500 photovoltaic panels are located on RDC's Gary W. Harris Canada Games Centre, meaning that virtually all of the flat roofs are covered

lege's energy and educational goals, as they provide comparison data and information about energy generation by replicating real-world conditions such as installation and seasonal variances.

This type of mirrored technology is a key feature of the new Lab, where equipment within the lab replicates and simulates the systems of the alternative energy units RDC has installed. This allows learners to manipulate equipment and conduct simulations on the systems without impacting the actual energy production of the College.

Alternative energy is also being produced at RDC through their new 1 MW combined heat and power (CHP) unit, which was fabricated by Red Deer-based Collicutt Energy. This unit produces electricity on-site



RDC's Alternative Energy Lab

using a natural gas generator, and the waste heat from that process is scrubbed off to help heat water systems in various areas on campus.

From a learning perspective, the CHP is located just outside of the Alternative Energy Lab, providing students with easy access to the full-scale technology. They can then apply this knowledge to the smaller CHP, housed within the lab, for teaching and learning purposes.

At this stage, Red Deer College has made significant strides to its net zero goal, with alternative energy

initiatives already offsetting approximately 66% of the electricity demands on campus. The currently completed initiatives equate to roughly 9,200 megawatt hours per year in electricity savings.

With the currently installed technologies, College officials anticipate that, at some points in the year, they may be producing excess power that can be sent back to the grid.

With the recent chapter of this sustainable journey nearing completion, RDC is looking at future opportunities for alternative energy growth. The College is working on partnerships with companies such as the Calgary-based Eco Growth Environmental Inc. to establish how an Eco Growth Organic Reactor could be incorporated onto main campus.

This technology, which provides on-site conversion of organic waste into biomass fuel, would provide feed stock for a gasification boiler system. A full-size commercial version of this technology would be housed outside of the Alternative Energy Lab, adjacent to the main food services area on campus. In addition, a complementary demonstration unit would be housed inside the lab, allowing for teaching and learning of this innovative technology.

“Red Deer College is building a legacy of sustainability that will serve our institution and our region. We look to profile and demonstrate the latest alternative energy technologies to students, faculty, business and industry. We are a hub for both learning and alternative energy production, and we’re committed to supporting learning and skill development as we continue to strive to reach net zero.”

Joel Ward, RDC President & CEO



Rendering of RDC's new Residence

Visit rdc.ab.ca/alternative-energy for further details.

