

The Future IS ELECTRIC

Electrical and communications systems step up to meet the needs of our planet

by NATALIE BRUCKNER

Never before has the role of electrical and communications systems been quite so important in meeting the growing needs of the planet. A recent report by the Canadian Climate Institute entitled *The Big Switch: Powering Canada's net zero future* outlines how electrical systems can play a central role in ensuring affordable, secure energy in the face of global volatility, while also advancing Canada's climate goals.

This is hardly new information to those already working in this sector, many of whom have for years been committed to educating the masses and coming up with innovations that will not only help exceed goals, but make our lives through the means of communications and smart systems that bit easier.

Experts know that understanding where the market is headed and how to tackle future challenges is essential – it allows businesses to pivot as required, and also take the lead toward a more sustainable future. In this regard, MCW Group of Companies is ahead of the game with its recently published Industry White Paper created in collaboration with KWM Consulting entitled *The Changing Landscape for Energy Performance Contracting in Canada*.

“COVID-19 provided a temporary global pause to the increase of greenhouse gas emissions ... this is all due to the curtailment of human activity. As we enter what many believe could be a modern version of last century's Roaring 20s, now is the time for the EPC [Energy Performance Contract] industry and all levels of government to strengthen a framework that will deliver meaningful permanent energy and carbon savings,” says David Bellamy, executive partner at MCW Group.

The white paper aims to provide clarity on this by offering a multi-faceted overview of the current state of EPC services delivery in Canada, and to provide unbiased evidence of historical success and recommendations regarding EPC project structures to policymakers, regulatory organizations, and prospective EPC clients in the Canadian public sector. It delves deep into everything from the adoption of innovative technologies (from Smart tech and AI to renewable energy and onsite microgrids), to the benefits of EPCs.

The paper states: “Achieving the net zero emission targets established by the federal government requires collaboration between public and private sectors and the evolution of all stakeholders involved in the energy industry to adopt diverse solutions. It is therefore vital that the procurement processes adopted are not too prescriptive as to disallow true partnering and outcomes to be achieved.” The white paper hopes to be a springboard for further discussion.

WHAT'S TRENDING?

During the pandemic, human centric design became very much a focus of the industry, and Ben Rajewski, engineering manager, electrical at Williams Engineering says this continues to be the case: “With people coming back to the office, we are getting requests from clients to add dimming zones for lighting in open offices.”

Another trend Rajewski is seeing is that many condo corporations, municipalities, and facility owners are realizing that electrical vehicles are here to stay and are coming in a big way. “They are requesting studies and designs to add electrical vehicle stations to their facilities and anticipating that eventually the majority of parking at a building should have electric charging capabilities,” he says.



Williams is currently involved in a number of fascinating projects that showcase their expertise in this realm, one of which is the Coronation Park Sports and Recreation Centre in Edmonton, which is currently under construction. The \$150-million, world-class recreation facility will include one of North America's only indoor velodromes, and will allow for world class cycling and triathlon competitions and training. “The facility includes both a velodrome and an indoor running track, and connects to the existing Peter Hemingway pool allowing for full indoor triathlon training year-round. It's an honour to be the electrical engineer of record for this exciting project. I began working on this project preliminarily in 2012 and to see it finally be coming out of the ground 10 years later is amazing. The facility will include a cycle track lighting system that will minimize shadowing, while providing high-level illumination for competition broadcasts,” says Rajewski.

As the world moves ahead at a rapid pace, the team at Williams Engineering is excited about the role that electrification in existing infrastructure has on the decarbonization of the world. “Diesel, gas, and propane-fired systems are not a long-term solution for the climate, so electrifying our buildings needs to be part of the path to helping out the climate. This will involve adding electric heat, electric vehicle charging stations, solar, and wind power, where possible, to many of our existing buildings. It is exciting to be part of this change as an electrical engineer and it will be a new and unique challenge to help these buildings further electrify their systems,” says Rajewski.

Steven Nemetz, CEO/senior principal at Nemetz (S/A) & Associates, says an interesting trend he is seeing as a result of the pandemic is that because many people are still working in a hybrid situation (home/office), there is a major emphasis in increasing the technical efficiency of people's home smart tech systems. “These systems need to not only be robust with hardware, but also need high speed internet connection to ensure speed of operations is not diminished when working from home,” explains Nemetz.

This has led to a need for stronger electronic fibre systems that organize information in categories to provide an efficient “easy-to-locate” way for people to access (i.e. standards, codes, processes, and reference material).

“The biggest challenge now is finding that balance and comfort level for peoples’ work schedule. Depending on the type of business, maintaining flexibility is key with respect to working in the office and at home. People still want to maintain a good balance in their lives,” explains Nemetz.

Nemetz (S/A) & Associates is currently involved in some interesting mixed-use commercial, residential, and office developments that required a major focus on integration of system. These projects include: Oakridge Redevelopment; Lougheed Town Centre; Brentwood Town Centre; CF Richmond Centre; and Metrotown (Phase 1, 2 and 3).

“In the future, as technology is always being upgraded, we look forward to the seamless transition from wired to wireless systems,” Nemetz says.

FOCUS ON HEALTH CARE

Health care continues to be a growing priority in B.C. and companies like Houle are helping upgrade critical electrical systems, while integrating advanced health-care technology solutions to improve health-care services across the province. Managing complex health-care projects requires top-tier talent, strong field/office co-ordination, and experience, but they also involve multi-trade collaboration and innovative construction approaches, on and off-site.

“With increasing project complexity and owner engagement, strong design-build partners and collaboration are key to project success,” says Jake Russell, director, design-build, Houle.

As a design-build partner, Houle’s Project Planning Services (PPS) and Prefab teams work alongside the project team to develop installation drawings utilizing standard prefab assemblies. This helps to optimize installation and advance tight schedules.

Using BIM modelling and CAD, Houle’s PPS team supports multi-trade collaboration through shared drawings. This helps mitigate trade-stacking and streamlines off-site construction of multi-trade racks. With a passion for community development, Houle is now bringing its expertise and approach to several new-build hospital projects including Royal Columbian, Lions Gate, and Mills Memorial hospitals – helping advance the health-care experience for all British Columbians.

INNOVATIONS

Innovation and electrical systems go hand-in-hand, and OZZ Electric/Cairns Electric has been working on a number of projects that showcase just how far we’ve come in a matter of a few years. The expansion of the Argyle International Airport Solar PV Project in St. Vincent is one such project. OZZ Electric was contracted to build an additional 600kW of solar PV onto an existing solar farm that OZZ had initially constructed in 2018. Construction has commenced, and the project is scheduled to be completed this year.

Oakridge Centre is another great example of what can be achieved. Developed by QuadReal Property Group and partner Westbank, the project included doubling the size of the mall to 1.4-million square feet, adding more than 2,900 residential units in 13 towers (both market and affordable housing), the addition of 300,000 square feet of commercial office space, and a 70,000 square foot civic centre.

Cairns Electric Ltd. was awarded the Phase 1 North and Phase 1 South electrical scope of work, which includes: five high-voltage incoming services; 10 emergency power generator systems; 10 fire alarm systems along with infrastructure for multiple low voltage building control; monitoring and communications system; an extensive underground parking complex as well as retail, commercial, and office space as part of their scope of work. Over the four years that the Phase 1 construction is expected to take to complete, Cairns Electric will be a key player laying the basis upon which all the future phases will be built.

With more than 30 years in the electrical construction industry, Bridge Electric has experience in all types of projects from 500-square-foot CRU spaces to one-million square foot mixed-use towers. The REC Room in Burnaby, B.C., is a great example of the team’s expertise at work.

The project is comprised of the main area (which is a large games room), a kitchen, two restaurants, auditorium, and a bar.

The complex electrical systems for this included: conduit racks, tray, and wiremold for 24 electrical panels; four Quantum lighting control panels; 49 luminaire types; and 78 TV’s – all which require multiple levels of control including games shut-downing upon fire alarm activation and lighting returns to full brightness. **A**



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