

Joule AnalytiX Managed Services

*Automated Ongoing Commissioning for Energy proposal at
220 Highway 99, Surrey, BC V3S-9N7 (Douglas 840)*

For

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Contact Title: Project Engineer

Customer Name: CanmetENERGY for CBSA



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Executive Summary

The UCtriX Group has been requested by CanmetENERGY and CBSA to provide a proposal for a phased implementation of our Joule AnalytiX Managed Service. The proposal includes the installation of a dynamic real-time monitoring, analytic and reporting solution, all targeted towards optimization of the HVAC systems at the various CBSA locations.

Information technology enables unprecedented efficiencies for businesses. Powerful analytics are helping firms better manage supply chains, improve resource allocation, detect fraud and optimize many core business functions. Property is no exception.

Buildings are equipped with hundreds of sensors and controls, but organisations are leaving money on the table if they do not use this data more holistically to optimize their infrastructure. By applying Joule AnalytiX for Commissioning, the DABO and M&V modules, you can make energy-smart decisions, save on operational and maintenance costs while significantly reducing the environmental impact.

The increasing cost of energy and pressure to reduce our GHG emissions finds energy managers from all sectors and governments strongly motivated to reduce their energy use by 2020. *Energy Managers* are continually investigating solutions that allow the asset to further improve financial and environmental performance while maintaining occupant comfort. The Joule AnalytiX Platform will deliver these goals.

What are the benefits of the JAC Platform?

The JAC Platform will deliver commercial, industrial and retail asset owners the following benefits;

- Immediate dollars savings through reduced energy consumption (optional M&V with JAC)
- Improved maintenance costs through proactive maintenance instructions to building or contract maintenance teams.
- Improved lifecycle of plant and equipment.
- Future proofing assets against increasing electricity prices.
- Optimization of the existing plant and equipment without interrupting operations.
- Asset appreciation through a reduction in outgoings.
- Access to state and federal funding from CO₂ reduction subsidy programs (where applicable)

Joule AnalytiX for Commissioning - Platform Overview

UCtriX's Joule AnalytiX Ongoing Commissioning for Energy (JAC) Platform is a software solution, which continuously takes real time data from buildings and applies advanced analytics. Joule AnalytiX can then pinpoint which systems and equipment have irregularities, with prioritization based on energy cost, severity and occupant comfort impact. Property owners have the assurance to completely understand why building issues are happening and how to remedy these situations. The cloud-based automated diagnostics solution uses analytics and complex correlation rules to not only identify problem conditions, but also guide resolution through suggested actions.

Periodic engineering reviews of your building diagnostics ensure that the JAC Platform continuously drives action and tracks performance over time. This actionable information allows clients to better organize internal and contract resources for quicker, more efficient repairs and commissioning services.

Scope of works

The setup, commissioning and continuous monitoring of the software is a detailed processes. For a building like *Douglas 840*, the process will take approximately two to three weeks. The stages within the project are defined below.

Stage 1: Investigation

- What technologies in the building – valves, control elements?
- What is the condition of the existing plant and equipment?
- What level of maintenance is currently being carried out?
- Review Balancing Reports.
- Identify meter and sub-meter control points.
- How is the existing system performing?
 - Is there a false demand on the plant, i.e. Air Handling Units (AHU)?
 - Staging of chillers, economy cycles and night purges?
- What is the control philosophy of the building?
- Does the building respond dynamically to:
 - Changes in Occupancy
 - Weather Changes
 - Changes in Time of Day

Stage 2: Setup & Commissioning

- Identify data acquisition potential from BMCS and HVAC plant.
- Analyze existing BMCS log files
- What points from the BMCS must be logged (proposal is for 650 points)
- Configuration of the automated data collection function
- Capturing sensor and PI(D) data
- Identifying temperature set points.
 - Note: any manual adjustment of a temperature set point can be analyzed.
- Identify control strategies
- Collect and validate utility data and tariffs.

Stage 3: HVAC optimization

- All system faults identified in the install and commissioning addressed
- Tuning of control logic within the BMCS is required
- Begin the continuous review process, real time monitoring and open case studies to track activities and savings.

Cost Benefit Analysis

UCtriX understands that CBSA would like to start with a test site to assess and evaluate the effectiveness of an Automated Fault Detection and Diagnostics solution before deploying across all CBSA buildings. Our pilot discounted pricing model is made up of 2 components 1) A low initial setup fee where we discover and map control points to a virtual building, tune systems parameters, setup the loaner Secure Data Collector, configure and setup a cloud test instance of Joule AnalytiX and DABO and 2) A monthly recurring cost for delivering the service and desired reports.

The initial installation setup fee for the Joule AnalytiX service is \$12,000 excluding taxes for up to 650 BMS points and a monthly recurring cost starting at \$1395.00 (*Please refer to appendix A – Pricing Schedule*). The installation timeframe is approximately three weeks. During this time we would require access to the onsite BMS, maintenance records and a brief meeting with the maintenance team or contractor.

The JAC secure data collector sits aside from the BMS therefore it does not affect the controls within the site. The assumption for connecting and access the building data is via ODBC (database connection), OPC or BACnet/IP protocol.

UCtriX strongly believes that it can exceed CBSA's evaluation criteria and expectations through a close and transparent working relationship.

The monthly service includes:

- Monthly review meeting between UCtriX Engineering team, Project Manager and with a designated CBSA contact or team (TBD).
- UCtriX and CBSA will mutually agree to a review date and time for each month.
- UCtriX will issue a detailed monthly fault report, capture and document action items.
- UCtriX will make available to CBSA a project log tracking project activity.
- Typically a maximum of 2 hours are allocated per month for fault review, Q&A and general correspondence. Additional partnership hours are available in blocks of 10 hours (optional)
- Identification of the energy wastage that has occurred from each AHU.
- Creation of a management report highlighting the dollar value of rectification of faults. (Optional)

General UCtriX service elements and responsibilities

- UCtriX will deliver training and finding reports over Cisco Webex service. User interface training is approximately 4 hours and has a practical module. UCtriX will also include 6 hours of product dashboard customization if required.
- UCtriX will provide a toll free number and Single Point of Contact.
- UCtriX will provide clear instructions for the installation of the SDC.
- UCtriX will provide a loaner on-premise Secure Data Collector for the duration of the project.
- UCtriX will provide one secure user access account to Joule Reporting Platform.
- UCtriX will make available Energy, Commissioning Engineers and Subject Matter Experts during normal business hours (8:00am to 6:00pm EST).
- UCtriX is responsible for the day-to-day management of the system; which entails monitoring of faults, validating abnormal data readings, data sanitization, mitigating false positives by detailed system analysis.
- Optimization of the savings on maintenance by analyzing the trend data on each fault to suggest the root cause and cut down on time to be spent on diagnostics.
- Optimization of savings on operations by continuously tuning JAC building attributes

based on season, location, usage patterns and physical changes in the building hence detecting issues more accurately. Also, prioritizing faults based on their impact on their energy savings, effects on product longevity and tenant comfort.

Customer responsibilities

- CBSA and or the Project Engineer will provide UCtriX pertinent information in a timely manner. Timely manner is defined as within 5 days on the initial request.
- CBSA and or the Project Engineer will be accessible during the project for clarification and verification on system functions.
- CBSA and or the Project Engineer will be responsible for internal and external IP connectivity for the Secure Data Collector. The Secure Data Collector comes pre-configured with the information provided by CBSA IT services. Please note UCtriX will provide a Low Level Design document to assist CBSA IT services with the secure configuration requirements. The installation typically involves connecting a Ethernet cable to the pre-defined port identified by CBSA IT services and connecting the SDC to a standard 110V AC power source.

Acceptance Criteria (Deliverables)

1. System Setup, Configuration - discover and map control points to a virtual building, tune systems parameters and generate a test FDD report.
2. User Interface Training and Issue Tracking System portal.
3. Monthly FDD and system performance tracking.

UCtriX are pleased to offer you this proposal and hope it is to your satisfaction. We value your business and look forward to you being a valued client. If there is anything we can do to assist you please call us on +1.819.485.1123 extn 3004 or toll free 1-877-6UCTRIX.

Shelton Durham

Major Accounts

50 Queen Street, Suite 204

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Quotation

UCtriX Inc

50 Queen Street, Suite 204
Montreal, Quebec H3C 2N5P: 819-485-1123
Account Managersales@uctrix.com www.uctrix.com
Cedric Ropartz/Shelton Durham

Quote No.: CE20160702

Quote Date: 16-01-12

Valid Date: 16-02-11

To: Canada Border Services Agency
Address: 355 North River Road, Tower B, 19th Floor
Ottawa, ON K1A 0L8Phone: 343-291-5830
Fax:
Email: Jennifer.Strevens@cbsa-asfc.gc.ca]
Contact: Jennifer StrevensQuote For: Joule AnalytiX Pilot
Budgetary Quote for Joule AnalytiX Service

DATE	DESCRIPTION	UNIT PRICE	QUANTITY	FLAT FEE	DISCOUNT	TOTAL
16-01-12	Turnkey Setup - buildings with ~600 points (OTC)	\$8,400.00	1			\$8,400.00
16-01-12	Engineering Onboarding(OTC)	\$3,600.00	1			\$3,600.00
16-01-12	Monthly Service - Continuous Commissioning custom SLA. (MRC)	\$1,395.00	1			\$1,395.00
16-01-12	CPE - Secure Data Collector Appliance (Loan)	\$1,500.00	1			\$0.00
16-01-12	Optional: M&V Module and Service (2 meters/Sub meters)					
	One Time Setup Fee	\$2,500.00	1			
	Monthly M&V Service and Report	\$500.00	1			
	Partnership hours 10 hour block (optional)	\$1,250.00				
	DABO access \$99.00 per month (optional)					
* OTC - One Time Charge. MRC - Monthly Recurring Charge				One Time Charge		\$12,000.00
				Monthly Recurring Charge		\$1,395.00
				Excluding Taxes		

Payment Terms 30 days. Overdue accounts subject to a service charge of 10% per month.

Price Breakdown	One Time Charges	\$12,000.00	Payable after Stage 2 (page5)
	Monthly Recurring Charges	\$1,395.00	Payable after delivery of monthly report

** This is a budgetary quote based on a 12 month term. Please refer to the Detailed Service Description Proposal for further information.