Energy Study Requirements

Public Sector Energy Conservation Agreement (PSECA)

June 8, 2010

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1. Executive Summary

1.1 Background of Project
1.2 Précis of Project
1.3 Summary Report Table
1.4 Request for Funds

2. Customer Information

2.1 Customer Name
2.2 Address
2.3 Contact Person:
2.4 Contact Information
    2.4.1 Office address (postal and courier)
    2.4.2 Telephone number, mobile number
    2.4.3 Fax number
    2.4.4 Email address
2.5 BC Hydro Alliance Energy Consultant
    2.5.1 Consultants Name
    2.5.2 Office address (postal and courier)
    2.5.3 Telephone number, mobile number
    2.5.4 Fax number
    2.5.5 Email address

3. Background Description of Facility, Hardware and Systems

3.1 Overview
    3.1.1 BC Hydro account number
    3.1.2 Terasen Gas account number
    3.1.3 Other utility account number (if required)
    3.1.4 Building number
    3.1.5 Facility type
    3.1.6 Facility age
    3.1.7 Total floor area and number of floors
    3.1.8 Sketches/drawings (Optional)
    3.1.9 Physical condition
    3.1.10 Types of doors and windows and amount of insulation
    3.1.11 Shading, glazing levels (% of wall area) type of glazing
    3.1.12 Occupancy patterns and schedules, current and projected
3.2 Mechanical System including HVAC and Hot Water Systems
    3.2.1 Description of Mechanical Systems including HVAC and Hot Water Systems
        - areas served
        - hours of operation
        - maintenance schedules and issues
        - service life remaining
        - effectiveness

3.2.2 Table of equipment with make, model, age, fuel type, part load performance, and annual load estimate

3.3 Electrical System

3.3.1 Description of electrical systems

- Service size and description
- Monthly peak demand
- Power Factor and phase imbalance issues
- maintenance schedules and issues
- service life remaining
- effectiveness
- non mechanical or lighting loads
  - hours of use
  - Table of part load performance, and annual KWH estimate

3.4 Lighting System

3.4.1 Description of lighting systems

- areas served
- hours of operation
- maintenance schedules and issues
- service life remaining
- effectiveness (quality and quantity)

3.4.2 Table of room by room inventory of lights

- BC Hydro Lighting Calculator results (XLS)
- Type of control
- Luminaire Type
- Number of Luminaires
- Watts per Luminaire
- Total Watts
- Hours of use
- Total kiloWatt-hours

3.4.3 Luminaire schedule by type

- Description
- Lens control
- Watts
- Number of Lamps
- Lamp Type
- Ballast type

3.5 Controls System

3.5.1 Description of control systems

- areas served
- maintenance schedules and issues
- service life remaining
- effectiveness

3.6 Process System (e.g. refrigeration units, etc.)

3.6.1 Description of process system

- areas served
- hours of operation
- maintenance schedules and issues

- service life remaining
- effectiveness

3.6.2 Table of equipment with HP, part load performance, and annual load estimate

3.6.3 Full load performance, annual hours of operation, types of controls

3.7 Energy Accounting System

3.7.1 Description of energy accounting methodology

- BEPI and BECI data
- Reconciliation of billings to estimates from 3.2, 3.3 .3.4 3.5 and 3.6.

4. Energy Conservation Opportunities

4.1 Integrated Design Process Used/Proposed

4.2 Recommended Efficiency Conservation Measures (ECM)

4.2.1 Description of ECM

- Quantity, equipment tag
- Baseline consumption, proposed consumption, (all fuels)
- Performance criteria (EER, COP)

4.2.2 Effected area within the facility

4.2.3 Implementation strategy and timeline

4.2.4 Estimated service life

4.2.5 Estimated annual operational and energy savings (GJ, kWh and kW

4.2.6 Estimated fuel efficiency energy savings (GJ, kWh and kW)

4.2.7 Additional savings such as water and air contaminants

4.2.8 Estimated Total capital cost (including design, material, labour and commissioning)

4.2.9 Estimated capital cost for split out by individual measures including design, material, labour and commissioning

4.2.10 Economic analysis (annual dollar savings, simple payback, net present value and internal rate of return)

4.2.11 Type of energy analysis performed (e.g. BIN simulation, hourly simulation, other)

4.2.12 Assignment of in-house human resource to operate and maintain ECM

4.2.13 Synergy with other systems/units

5. Bundled Project Definition

5.1 Description of Preferred Bundle of ECMs

5.2 Rationale for Selection of Preferred Bundle

5.3 Bundled Economic Analysis

6. Conclusion