THE CORPORATION OF THE CITY OF PORT COQUITLAM

PARKS AND RECREATION COMMITTEE

A meeting of the Parks & Recreation Committee was held in the Council Chambers on June 27th, 1984 at 4:00 p.m.

In attendance were Alderman Keryluk, Alderman Farnworth, Alderman Stewart, and Alderman Gates.

Also in attendance were K. Janna Taylor, Parks and Recreation Director; Bram Hoogendoorn, Parks Superintendent; Yvonne Kerr of The Energy Centre and Bruce Joiner of The Energy Centre.

CONFIRMATION OF MINUTES

That the minutes of the meeting of the Parks & Recreation Committee held on Wednesday, June 20th, 1984 be taken as read and adopted.

Item No. 1 Can-Pac Energy Consultants Ltd.

Representatives from Can-Pac Energy Consultants Ltd. made a presentation to the Parks & Recreation Committee on a Energy-Management System for the Port Coquitlam Recreation Centre and Hyde Creek Centre. Attached are the proposals for both the PoCo Recreation Centre and Hyde Creek Centre. During the presentation they indicated that it was possible to save up to 25% of our energy costs and that they as a company, if we were to put their equipment in, would guarantee a 14% minimum saving. Rather than go into great detail of the cost savings in the minutes, the proposals outline the savings very well. Also discussed were the various ways of financing the projects. One is an outright purchase, another is a lease option and the third option, which was not identified in the proposal, was an option that they call a 75-25 savings plan and in this case they would get 75% of the energy saved and the City would get 25%. It should be noted that presently we are already paying out these costs, so in effect the money is in the budget to do such a project. The representatives went over the various capabilities of the computer and what it could do. Janna Taylor indicated that due to the fact that this is a fairly new concept in the field of Parks and Recreation many municipalities had not installed such a system and therefore are presently investigating such systems. Therefore the experience of these types of computers in recreational facilities is very minimal. Attached is a letter from the North Vancouver Recreation Commission, who initially went on the 75-25 savings and

Cont'd

have now bought the system. The committee thanked them for their presentation and indicated that we would be inviting them back to make a presentation to City Council.

Recommendation:
That we investigate the companies utilizing such a system and their savings and that this information be brought back to the Committee prior to a presentation to Council.

CARRIED

Item No. 2 Fraser Valley Softball Tournament

Janna Taylor presented the attached letter to the Parks and Recreation Committee for discussion. It was agreed that the behaviour of the tournament was unacceptable. Discussion took place around the fact whether we should have beer gardens at Cedar Drive Park due to the close proximity of the residents. Further discussion took place as to the possibility of having portable toilets at these tournaments. It was generally agreed that if toilets were required that this would be the responsiblity of the host team.

Recommendation:
That the draft letter be approved and sent.

CARRIED

Item No. 3 Wilson Centre

We have had a request from the Wilson Centre Advisory Board that the centre be made available for rent. It should be noted that the $40.00 per hour charge is the basic charge for the Mabbett Room and the size of the space is similar.

Recommendation:
1. That the Wilson Centre be made available for rental to centre members or members of their family for the purpose of celebrating an event pertinent to the member.

2. That the type of rental be for occasions only as outlined;
   a) birthdays
   b) anniversaries
   c) weddings
   d) retirement party

3. That the rental be $40.00 per hour for the large open space of the Wilson Centre.

4. That the kitchen rental be $20.00

Cont'd...

5. That the rental of the facility must not conflict with any activity at the Centre.

6. Bookings will be done through the Department Office

Item No. 4 Second Step Society

We have received a letter (please see attached) from the Second Step Society indicating that they would like to plant some trees. The Parks Department will be looking into a site and discussions will take place with C.U.P.E. to see if this project meets with their approval.

Recommendation:
That a further report be brought back to the Parks and Recreation Committee for discussion.

ADJOURNMENT
The meeting adjourned at 6:00 p.m.

J. J. Kerylúk,
Chairman

K. Janna Taylor
Secretary

Enc.

KJT/pg

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Port Coquitlam Recreation Club AREMA
On-site Evaluation Report
Port Coquitlam, B.C.

GENERAL DISCUSSION

This report describes the results of an on-site energy evaluation, and the analysis of 12 months' B.C. Hydro's billing of Port Coquitlam Recreation Centre for Port Coquitlam Club Port Coquitlam, B.C.

Several factors must be considered to properly evaluate a facility's energy performance standard (EPS) in order to effectively reduce energy usage and consequently reduce energy cost.

The most significant factors, which are all taken into consideration, are:

Climate (cooling/heating degree days)

Utility rates

Hours of operation

Condition of controlled equipment

External electrical loads

Level of occupancy

Use and load factors (HVAC)

Electrical distribution (System)

Gas distribution (System)

Building area volume change

Demand curves

Metering errors

Many of these factors can be automatically eliminated. However, each factor has been carefully examined for application and discounted when not having any effect, plus or minus, to the saving strategies as a whole.

Facility: Port Coquitlam Recreation Club

Opening Hours-Port Coquitlam Recreation Club

Business

Monday to Sunday

6:00 am to 2:00 am = 600 hours a month

Maintenance and Janitors = 720 hours a month

ENERGY USE ANALYSIS

In order to properly evaluate opportunities for reducing energy usage, it is first necessary to analyze current energy usage and costs. The resulting energy profile serves as a basis for identifying and qualifying savings opportunities.

A summary of energy usage and cost provided by the management appears as follow:

Electric billing
A/C No. 14-5170-14501
June 1983 to May 1984

Winter months.....479	Kw	256,856	kwh
Summer months.....234	Kw	92,027	kwh
Average month.....356	Kw	174,441	kwh
Lowest month(Aug.).....120	Kw	31,764	kwh

Total Consumption:

362 days.....4278 Kw 2,104,200 kWh = Cost: $75,898.10

Monthly Consumption:

357 Kw 175,350 kWh = Cost: $6,324.84

Cost per Kw: $4.40

Cost per kwh: $0.02712

Gas Billing

A/C No.14-5170-14501
June 1983 to May 1984

Winter months	2,053	B.U.
Summer months	663	B.U.
Average month	1,358	B.U.
Lowest month (Aug.)	211	B.U.

Total consumption: Actual Gas billing

362 days ..... 16,414 B.U. = Cost: $7,147.95

Monthly consumption:

1,367 B.U. = Cost: $595.66

Cost per B.U. = $0.435

Total Annual Cost:

Electricity	$75,898.10	- 91.4%
Gas	7,147.95	- 8.6%
	$83,046.05	- 100%

Breakdown of Electricity Energy Usage

Lighting	35.39%	-	$26,792.02
Air Conditioning units & Heaters	22.3%	-	16,925.27
Mechanical Room-Compressors	32.7%	-	24,818.67
Miscellaneous	9.7%	-	7,362.14
	100%	-	$75,898.10

Breakdown of Gas Energy Usage

Heating system	55.8%	-	$3,988.55
Domestic hot water/Zomboni	44.2%	-	3,159.40
	100%	-	§$7,147.95

ENERGY COST REDUCTION OPPORTUNITIES

From our studies of the electricity, gas bills and on-site survey of the facility's power consuming loads, we recommend an installation of a Central Micro Porcessor computer which will automatically control various power consuming loads. From our calculation, it appears that the cost of the computer will be justified by the potential savings.

The computer which essentially acts as an intelligent real time programmer can perform such functions as:

OPERATIONS (Micromizer Computer)

A. Time of Day Scheduling

1. The Time of Day Scheduling function shall reduce electrical consumption by turning loads off and on according to a programmed time for each day with one minute resolution.

2. Each load shall be capable of having 40 unique events (on or off) programmed for each day of the week and holidays.

3. The time of Day Scheduling function shall allow up to 16 holiday periods. Each holiday period shall allow for up to 255 days. Holidays shall be programmable at least a year in advance.

4. The Time of Day Scheduling function shall allow for manual schedule override which will override scheduled on or off loads.

5. The Time of Day Scheduling function shall allow for single event temporary on/off programming with automatic return to scheduled programming after the event.

B. Duty Cycling

1. The Duty Cycling shall reduce electrical consumption by duty cycling loads off and on according to a programmed on and off time for each assigned load.

2. The Duty Cycling function shall allow each load to be assigned to an on time interval of 1 to 255 minutes and an off time interval of 1 to 255 minutes.

3. The Duty Cycling function shall be able to automatically rotate the loads to minimize electrical demand at all times by aligning the duty cycled on and off times in rotation.

4. The Duty Cycling function together with the Analog Control function shall allow any of the solid state air temperature sensors (inside or outside) to be assigned to any load to allow individual high and/or low temperature setpoints to override a duty cycled "off" load.

5. The Duty Cycling function shall be programmable to continuously vary the on and off times in response to a selected analog temperature input while evenly rotating up to eight loads assigned to that variable duty cycle program

C. Analog Control, Fixed and Variable

1. The controller shall have the capability to accept up to 16 analog inputs such as Kw, temperature, humidity, etc.

   a. The Analog Control function shall allow for any one or several of the 16 analog inputs to be assigned to any load(s) to allow individual high and/or low analog setpoints to turn each load on or off.

   b. The Variable Analog Control function shall allow the high and low setpoint of any analog input controlling a load to be continuously and linearly varied in response to a second analog input.

D. Start Time Optimization

1. The Start Time Optimization function shall reduce energy consumption by starting assigned loads at the latest possible time which will permit the building's internal environmental conditions to reach the desired temperature by building occupancy time.

2. The Start Time Optimization function shall use outside air temperature, selected inside air temperatures, heating or cooling thermal efficiency factors, building loss factor and building occupancy temperature setpoint to calculate optimum start time. The optimizing function shall be self correcting over time.

E. Stop Time Optimization

1. The Stop Time Optimization function shall reduce energy consumption by stopping assigned loads at the earliest possible time that will permit the building's internal environmental conditions to be maintained until the scheduled occupancy stop time.

2. The Stop Time Optimization function shall use the outside air temperature, selected inside air temperature, building loss factor, and the permissible internal environmental temperature range to calculate optimum stop time.

F. Demand Control

1. The Demand Control function shall monitor and control electrical demand shedding (turning off) and restoring (turning on) loads to maintain the peak demand below programmed peak demand setpoints.

2. The Demand Control function shall provide for up to four or more time of day peak demand setpoints.

3. The Demand Control function shall allow for any load to be assigned to be shed and restored on priority basis. Any number of loads may be assigned to a priority.

4. The Demand Control function shall allow for a maximum off time assignable to each load to limit the amount of time a load may be shed.

5. The Demand Control function shall allow a minimum on time assignable to each load to assure a minimum on time before the load may be re-shed.

6. The Demand Control function shall allow a minimum off time before the load may be restarted.

7. The Demand Control function together with the Data Logging function shall allow for maintaining the following statistics: Accumulated Consumption (to be available on 16 inputs), past 35 days Demand Peaks (to be available on at least 8 inputs), the time and date of occurence, and the averaged kW for every 15 minutes of the previous 48 hours (to be available on at least 2 inputs)

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8. The Demand Control function shall accept an input signal for electrical demand and consumption calculations from either a watt transducer or a pulse-generating demand meter and shall not require an end of interval signal. Up to 16 such demand limiting signals shall be accepted by the controller and any load shall be able to be shed by any of the demand signals. However, each demand limiting input to the controller shall reduce by one the number of temperature sensing or other inputs the controller shall reduce by one the number of temperature sensing or other inputs the controller can accept.

G. Data Logging

1. The Data Logging function shall provide for the continuous accumulation of kwh or any other analog accumulation on any or all of 16 analog input channels.

2. The Data Logging function shall provide for the recording of the daily maximum values or minimum values for the previous 35 days of at least 8 of the analog inputs.

3. The Data Logging function shall provide, for at least 2 of the analog inputs, the recording of the averaged analog data for every 15 minutes of the previous 48 hours.

4. The Data Logging function shall provide for recording of the accumulated ON time of each output channel and the accumulated override ON time of each output channel.

H. Remote Communications

1. The controller shall have the capability to have a field addable communications module installed.

2. The communications module shall provide the capability to:

a. Maintain all programming access of the controller

b. Remotely display and/or modify all data that may be entered at the controller's operator panel.

c. Display all statistics available to the operator of the controller in easy-to-read formatted reports.

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d. Provide a load control status report

e. Provide for the current day, a report of temperatures, demand and consumption data.

f. Provide a report of the averaged analog data for every 15 minutes for the previous 48 hours.

g. Provide a report of the accumulated ON time of all output channels.

h. Provide a report of the accumulated overried ON time for all output channels.

i. Provide the ability to transfer and restore all programs.

j. Provide the ability to transfer report data to a printed format via a computer terminal.

k. Provide at least a 35-day history report of daily high or low temperatures, high or low demand, time high or low temperature and demand occurred, kWh consumption, of all connected sensors.

3. Terminals for remote communication may be connected directly to the remote communication module via standard RS232C electrical interface or remotely via telephone line with modem. Remote communication shall be capable of auto-answer operation when connected to telephone service.

4. The communication module shall provide the capability for the controller to dial out and report to a remote monitoring computer in response to any predetermined level of analog input.

I. Local Report Printout

1. The controller shall have the capability to have a field addable communications module installed that will provide for a printer connection at the installation site for the purpose of generating data logging and system status report printouts automatically.

Your facility have a number of specific loads which readily lend themselves to an integrated time control system or the micro processor computer. These loads and description of the type of control required are described in the paragraphs which follow:

To Control:

Lighting in:
- New Arena
- Old Arena
- Lobby
- Changing Room
- Senior Citizen

- 30 Base Board Heaters
- 10 Electric Unit heaters
- 2 Roof Top Air Conditioning units
- 4 Compressors
- 4 Humidifiers
- 3 Domestic Hot Water tank
- 2 Exhaust fans

The above noted loads will be programmed into the computer to ensure that the unique requirements of the building are clearly recognized and so that no inconvenience will be caused to the customers or the staff. The production or the general business will not be adversely affected.

The strategy used for controlling and programming the above power consuming loads will be :

A. Time of Day Scheduling
B. Duty Cycling
C. Analog Control
D. Start Time Optimization
E. Demand Control
F. Data Logging
G. Remot. Communication

Lighting System

Lights in the New and Old Arena will be controlled by means of a Central computer.

Whereas, lights in the Lobby, Changing Rooms, Senior Citizen, and Mobett Room, etc. will be controlled by means of Super Sensitive Ultrasonic Detector units. Lights will be turned "off" automatically after everyone leaves the room. When someone enters, everything will be turned back "On" automatically.

Minimum savings achieved will be as follows:

Arena New.....	39,600	kwh
Old Arena.....	24,000	kwh
Senior Citizen Area.....	24,480	kwh
Mobett Room.....	23,400	kwh
Main Lobby.....	9,000	kwh
	120,480	kwh @ $0.02712
		= $3,267.41

Electric Loads

By means of a Central Micro Processor Energy Control computer with temperature sensors, the following electric power consuming loads will be controlled and programmed to operate.

Minimum savings achieved will be as follows:

Mechanical Room for Arenas:

4 Compressors for Arenas.....	74,880	kwh

Heating & Cooling System;

2 Roof Top A/C units.....	29,777	kwh
30 Base Board Heaters.....	63,640	kwh
	168,297	kwh @ $.02712
		= $4,564.26

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Gas Loads

As per our survey of the facility, gas is mostly used for Heating System, Zomboni and Domestic Hot Water tank.

Minimum savings achieved by controlling the Gas fired unit heaters and Domestic hot water tank will be:

2,996 B.U. @ $.435 = $1,303.26

Total Savings:

	Total Cost	Savings	
Electric.....	$75,898.10	$7,831.67	
Gas.....	7,147.95	1,303.25	
	$83,046.05	$9,116.96	- 10.97%

PROPOSED SYSTEM

The control system we propose will require the instailation of a central micro processor computer which will monitor and increase the efficiency of your present sytem. This will also permit the control of all set points from a central location.

By using a Radio Frequency signal transmitter system on the existing power wiring with a similarly coded receiver at the equipment to be controlled by the computer, will eliminate tampering and permit only authorized personnel to make any change to the computer.

In addition, any future loads which may be installed can be controlled in the same manner.

The system we propose will include the following equipment to perform the functions outlined and in the computer analysis.

Primarily, we propose to install,

1) One - 16 Channel Micromizer Energy Controller with 8 analog input temperature sensor, with hard wire or power line carrier system.

Five - Lighting Sensors with Power Packs

If desired,

This computer can be expanded from 8 to 32 channels at any time

Each channel is capable of controlling as many loads as required, provided the programming is the same.

With the addition of Analog inputs, all Heating will operate according to time, outside and inside temperature.

It will contain a power reserve to maintain memory during a power loss.

The Analog Input Board is also capable to control various power consuming loads by means of Humidity, Pressure, Flow or Temperature Sensors.

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PROPOSED ENERGY MANAGEMENT SYSTEM

To achieve the estimated savings in a cost-effective manner, we propose the installation of an Energy Management System that will include the following:

1. One - 16 Channel Micromizer Energy Controller Computer with 8 analog input, temperature sensor, hard wires or power line carrier system

   Five - Lighting Sensors with Power Packs

2. All necessary receivers, relays, override switches and others to ensure a complete operational system.

3. Fail safe features to protect A/C units, etc.

Total Cost.....$25,950.00

SERVICE PROVIDED

1. Complete installation of all equipment
2. Final checkout and start up
3. On-site training of personnel in the operation of all equipment
4. Warranty on installation and equipment
5. Regular site inspection of all system components to ensure proper operation for one year.
6. Energy usage reports will be written by us and sent to you indicating actual savings in consumption and dollars when we receive your Hydro billings every month.

The above price will be in effect for 30 days from the presentation of this proposal.

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As per our calculation the minimum expected savings from the installation of an Energy Management System and related control of various loads at your facility for gas and electric will be $9,116.96 per year.

This estimate of utility cost may not occur if:

1. The sytem is turned off, disconnected or set lower than recommended.
2. The system or any of the components are altered or modified.
3. Additional electrical equipment having combined rating greater than one (1) kw is installed.

CALCULATION OF ENERGY SAVINGS

Calculations of consumptions of energy prior to and subsequent to the installation in determining the total savings achieved shall be based upon the schedule of prior consumption hereto referred to as "BASE YEAR" and this schedule shall construed to be part of this agreement and all savings shall be computed as based on this schedule of "Base Year."

Monthly energy savings shall be determined by subtracting the energy used during a calendar month from the energy used during the corresponding month in the base period (a twelve month period prior to the installation of the Systems.) An adjustment will be made for variations in the respective outside temperatures for that percentage of the Premises energy usage affected by outside weather. Said adjustment shall utilize the "degree day" data compiled by the Canada Environmental Department. Prior to the installation of the Systems, Supplier and Purchaser shall mutually agree in writing on the percentage of the Premises' energy usage that is affected by outside weather and also schedule of the total monthly energy usage in the base period for each type of fuel. In addition, during the term of this Agreement, adjustments, as needed, shall be made for the changes as and when required. The monthly reduction in energy usage, if any, for each type of energy supplied to the Premises will be multiplied by the current cost thereof, and the results will be added together to determine the total savings in dollars (the total savings being hereinafter referred to as "Savings"), including savings in the demand charge, fuel use tax, fuel adjustment charge and social service tax.

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FINANCE OPTIONS

1. Cash

2. Lease

PORT COQUITLAM RECREATION CENTRE
For: PORT COQUITLAM RECREATION CLUB

Lease Agreement for E.M. System

Cost.....$25,950.00

3 Years Lease stretched to 45 months

Approximately $861.54 per month + 7% sales tax
Buy out at nominal cost less than 5%

5 Years Lease stretched to 66 months

Approximately $655.24 per month + 7% sales tax
Buy out at nominal cost less than 5%

Minimum Savings

1st year	2nd year	3rd year	4th year	5th year
$9,116.96	$9,116.96	$10,484.50	$12,057.18	$13,865.76
	1,367.54	1,572.68	1,808.58	2,079.86
$9,116.96	$10,484.50	$12,057.18	$13,865.76	$15,945.62

= $61,470.02 or $1,024.50 per month

The above rates are subject to confirmation by the Leasing Company.

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FINANCE OPTIONS

1. Cash
2. Lease

Insurance Coverage

If desired, we will be able to provide you with a Certificate of Warranty towards the savings you will achieve with the installation of our Energy Management Control System, at a nominal cost.

NAME: Port Coquitlam Recreation Club"ILLUSTRATIVE" DATE: June 27, 1984

3-YEAR SAVINGS & PAYBACK PROJECTION

BASED ON A UNIT COST OF $25,950.00

		FIRST YR.	SECOND YR.	THIRD YR.
7% Investment Tax Credit *	1	1,816.50		
50% Depreciation of Balance				
(A) $ 24,133.50 x 50%=$ 24,133.50	2	6,033.38	6,033.38	
Gas Savings Per Year Percentage ____%	3			
Increase Utility Cost at 15%	4			
Electric Savings Per Year Percentage ( )	5	9,116.96	9,116.96	10,484.50
Increased Utility Cost @ 15%	6		1,367.54	1,572.68
Total Gas & Electric Savings	7			
Social Service Tax 6%				
Municipal Tax	8			
Total Yearly Savings	9			
Total Investment in System 1st Yr. Initial Cost Less 1st Yr. Savings	10	* 16,966.84		
Total Investment in System After Two Years Net Gain (+) Loss (-)	11		** 16,517.88	
Total Investment in System After Three Years Net Gain (+) Loss (-)	12			12,057.18

MOS Pay Back

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Straight Payback

1st Yr. $9,116.96
2nd Yr. 10,484.50
3rd Yr. 12,057.18

$31,658.64 = 30.3 mos

1. Investment Tax Credit of 7% Ref. 371.
2. Fast write-off for energy-efficient equipment Ref: 889 - (Class 34 - Capital Cost Allowance)
8. 6% Savings on Sales Tax and/or Municipal Tax

ILLUSTRATIVE PAYBACK PERIOD USING TAX ADVANTAGES, DEPRECIATION & UTILITY SAVINGS

Months

18.5 mos

JUN 27 1984

CAN-PAC ENERGY CONSULTANTS LTD.

Specializing in energy management systems
Temperature control monitor & alarm systems

Date_____

Dear Sirs:

CAN-PAC ENERGY CONSULTANTS can help cut your business' energy costs by up to 30%.

1. We have shown to more than 300 companies how to save 10 to 30% of their energy cost.

2. We have installed and proven the projected savings to more than 75 companies in Lower Fraser Valley which has been between 12% to 40%.

3. Our energy audit can give you new ideas to control energy expenses.....offering dramatic savings, rapid payback and substantial investment return. And we have priced this service far below its actual cost, to make effective conservation advice affordable.

4. Our energy auditor will perform an on-site survey of all your power consuming loads including the heating and cooling system. You will get a detailed report, featuring:

   a) recommended energy-savings measures, with specific cost and payback. The average recommendation pays for itself in less than two years.

   b) low- or no-cost steps you can implement at once, for immediate bottomline savings.

   c) five-year financial analysis of major conservation investments, including depreciation, investment return, savings, cash flow, and tax credits. It can serve as a planning guide for capital equipment expenditures.

Please take a moment to review the enclosed materials. Then return the attached application. We will call to set up a time to submit the proposal--to start your business towards major energy savings.

Very truly yours,

JUN 27 1984

Marcel Gautron
Marketing Director

Suite #216, 17704 56th Avenue, Surrey, B.C.

CAN-PAC ENERGY CONSULTANTS LTD.

Specializing in energy management systems
Temperature control monitor & alarm systems

A word or two about the Company.....

Expertise

Can-Pac Energy Consultants Ltd. has been organized out of a group of specialists in a wide variety of diverse areas. Experts in mechanical engineering, HVAC system design, air balance, pneumatic controls, electronic controls, food service engineering, data systems, energy use analysis and hardware applications, team together into an energy management group that we feel is quite unique in the field today. All of us at Can-pac are dedicated to one common goal: To combine state-of-the-art technologies in each of our fields into the most reliable, advanced and cost effective energy management systems available today.

Total Capability

Can-Pac is not simply a seller of hardware. Ours is not a "SELL IT OFF THE SHELF AND FORGET IT" philosophy. We work with building design engineers and architects to incorporate energy management techniques and systems into building structures from the planning stage, through construction and on into facility operation.

No matter what your business, we have specialist ready to help you reduce your energy costs on most any project , be it at the planning stage or an existing operation. As one of the most experienced energy management firms in British Columbia, Can-Pac has been able to offer TOTAL energy control systems and remain cost competitive with less expensive proposals. Whether the design calls for simple demand control, electronic or pneumatic economizer systems or full on-site load control, we are simply able to offer far greater actual energy cost avoidance and far "FEWER HEADACHES" for your energy conservation dollar.

Experience

To date, Can-Pac has designed and installed more than 50 successful energy management systems at commercial and industrial facilities in B.C., some of which are BAKER COLD STORAGE (B.C. ICE-new management), CAPILANO GOLF COURSE, KENTUCKY FRIED CHICKEN, SURREY CO-OP, HOMETOWN, ACKLANDS, PILLARS INN, NORTH VANCOUVER RECREATION CENTRE, GRAY BEVERAGE (PEPSI COLA), LONDON DRUGS, VOLKSWAGEN CANADA LTD., CHRISTIAN LIFE ASSEMBLY, COACH HOUSE, KNIGHT & DAY RESTAURANTS, etc. We are currently involved in large, successful energy management projects with MCDONALD RESTAURANTS, WHITE SPOT LTD., JOHNSON TERMINALS, NABOB FOODS, FLETCHER FOODS, HUDSON BAY CO., LTD., SAFEWAY STORES, etc. to name a few.

JUN 27 1984

Suite #216, 13704 56th ...

Service and Back-up

Can-Pac Systems offer a nationwide network of skilled service personnel, trained in the operation and service of our systems. You will find our service history unexcelled and our service personnel prompt and efficient.

To augment this service network, Can-Pac offers in-depth training of your operations personnel together with a program which is truly unique in the field today: OUR FIELD DATA SUPPORT SYSTEM.

Field Data Support System

Any energy conservation program, no matter how thoughtfully designed or skillfully installed, is only as effective as its actual operation in the field. Our experience has shown that this operation is dependent upon large number of factors which are either difficult to predict or control or vary with time.

Such factors as changing mechanical condition of refrigeration and air conditioning equipment, changing store hours, customer count and operational philosophy, changing climate, transit store managers, all of these team up to make truly high level energy management a rather complex task; one that has caused many firms to create separate energy departments concerned totally with monitoring and controlling escalating energy usage and costs.

Can-Pac's Field Data Support System was created to relieve the burden of continuous tracking of energy system performance from the user and place it in the hands of our computer assisted energy management specialists. Through a telephone data link from the store's on-site load controller to a Can-Pac host computer, our FDS group is able to provide monthly energy usage reports and modify programming to maximize energy savings while maintaining harmony with the store operations philosophy. We are also able to detect changes in your daily energy usage caused by mechanical system service difficulties or failures. We can then work with your operations or maintenance personnel to pinpoint the difficulty before a large toll is taken on either utility or service costs.

Analysis of Operating Condition

Poor operating condition of a facility's mechanical equipment is as great an abuser of energy as an inefficient system design. One low refrigerent short cycling compressor can waste as much energy as the best energy management system can save. Malfunctioning outside air dampers can cause a system to use twice as much the needed energy to maintain temperature in the building. Every Can-Pac proposal is accompanied by a survey of the facility's mechanical equipment, detailing recommended corrective action. Our clients find this a valuable asset to their existing maintenance programs.

Single Source Responsibility

Perhaps the most difficult task facing the facility's management team is the coordination of any one program throughout all of the facility. The energy management field, touching as many diverse areas of an operation as it does, is more difficult to coordinate than most.

Can-Pac systems are especially sensitive to these problems. Our organization is designed to assist the facility's manager interested in a coordinated approach to his firm's energy conservation program. We offer a central control system for a facility's Energy Management. Can-Pac's engineering and marketing staff provide professional expertise and support to their clients; from design through complete installation and operation of the system, personnel training and monitoring.

Can-Pac's goal is very simple. To help clients achieve maximum savings at minimum costs, while maintaining acceptable comfort and productivity levels.

Through proper application, Can-Pac has done this time, time and again.

NORTH VANCOUVER
RECREATION
COMMISSION
600 West Queens Road,
North Vancouver, B.C.
V7N 2L3
Tel. 984-4181

April 26th, 1984.

Can-Pac Energy Consultants Ltd.,
Ste. #216, 17704 56th Avenue,
Surrey, B.C.
V3S 1C7

Dear Sirs:

Re: Can-Pac Energy Management System

As you are aware, an Energy Management System has been installed by your firm on a Lease basis at the North Vancouver Recreation Centre Complex. We have, as a result of this equipment, experienced an approximate savings of $11,600 on energy consumption over the past 4 to 5 months.

We are pleased with the operation of this equipment to date.

Our initial observations indicate that the Energy Management System has not only saved dollars but has reduced wear and tear on equipment by closely monitoring and adjusting boiler temperatures, turning off and on pumps, fans, lights and dehumidifiers.

As a result of these observations, the Recreation Commission intends to purchase a number of energy management systems in the next few months subject to Council approval.

However, we must point out that neither the Commission nor its staff are authorized to endorse goods or services obtained or used by the Commission. The purpose of this letter, therefore, is to update you on our intentions in this matter.

Yours truly,

David Mayes
Recreation Manager

DM/gb

JUN 27 1984

CAN-PAC ENERGY CONSULTANTS LTD.

Specializing in energy management systems
Temperature control monitor & alarm systems

PROPOSAL

from

CAN-PAC ENERGY CONSULTANTS LTD.
Surrey, B.C.

HYDE CREEK

to

PORT COQUITLAM RECREATION CENTRE
1300 Laurier Avenue
Port Coquitlam, B.C.

June 26th, 1984

JUN 27 1984

Suite #216, 17704 56th Avenue, Surrey, B.C. Canada V3S 1C7 Telephone (604) 576-1321

Port Coquitlam Recreation Centre
On-site Evaluation Report
Port Coquitlam, B.C.

GENERAL DISCUSSION

This report describes the results of an on-site energy evaluation, and the analysis of 12 months' B.C. Hydro's billing of Port Coquitlam Recreation Centre, Port Coquitlam, B.C.

Several factors must be considered to properly evaluate a facility's energy performance standard (EPS) in order to effectively reduce energy usage and consequently reduce energy cost.

The most significant factors, which are all taken into consideration, are:

Climate (cooling/heating degree days)

Utility rates

Hours of operation

Condition of controlled equipment

External electrical loads

Level of occupancy

Use and load factors (HVAC)

Electrical distribution (System)

Gas distribution (System)

Building area volume change

Demand curves

Metering errors

Many of these factors can be automatically eliminated. However, each factor has been carefully examined for application and discounted when not having any effect, plus or minus, to the saving strategies as a whole.

Facility: Swimming Pool

Opening Hours-Port Coquitlam Recreation Centre

Business

Monday to Sunday

7:00 am to 10:00 pm = 450 hours a month

Maintenance and Janitors = 160 hours a month

Total: 610 hours a month

ENERGY USE ANALYSIS

In order to properly evaluate opportunities for reducing energy usage, it is first necessary to analyze current energy usage and costs. The resulting energy profile serves as a basis for identifying and qualifying savings opportunities.

A summary of energy usage and cost provided by the management appears as follow:

Electric billing
A/C No. 14-5193-04012
June 1983 to May 1984

Winter months.....127	Kw	67,915	kwh
Summer months.....113	Kw	50,893	kwh
Average month.....120	Kw	59,404	kwh
Lowest month(Aug.)..... 83	Kw	27,323	kwh

Total Consumption:

363 days.....1441 Kw 721,440 kWh = Cost: $27,651.69

Monthly Consumption:

120 Kw 60,120 kWh = Cost: $2,304.30

Cost per Kw: $2.15

Cost per kwh: $0.034

Gas Billing

A/C No.14-5193-04012
June 1983 to May 1984

Winter months .....8,062 B.U.

Summer months .....4,361 B.U.

Average month.....6,211 B.U.

Lowest month (Aug.).....1,449 B.U.

Total consumption: Actual Gas billing

363 days ..... 75,488 B.U. = Cost: $32,606.22

Monthly consumption:

6,290 B.U. = Cost: $2,717.18

Cost per B.U. = $0.432

Total Annual Cost:

Electricity.....	$27,651.69	-	45.9%
Gas.....	32,606.22	-	54.1%
	$60,257.91	-	100%

JUN 27 1984

Breakdown of Electricity Energy Usage

Lighting	57%	-	$15,761.46
Supply & Return fans	20.6%	-	5,696.24
Miscellaneous/Filter motors,etc	22.4%	-	6,193.99
	100%	-	$27,651.69

Breakdown of Gas Energy Usage

Heating system	33.2%	-	$10,825.26
Domestic hot water & Swimming Pool	66.8%	-	21,780.96
	100%	-	$32,606.22

ENERGY COST REDUCTION OPPORTUNITIES

From our studies of the electricity, gas bills and on-site survey of the facility's power consuming loads, we recommend an installation of a Central Micro Porcessor computer which will automatically control various power consuming loads. From our calculation, it appears that the cost of the computer will be justified by the potential savings.

The computer which essentially acts as an intelligent real time programmer can perform such functions as:

OPERATIONS (Micromizer Computer)

A. Time of Day Scheduling

1. The Time of Day Scheduling function shall reduce electrical consumption by turning loads off and on according to a programmed time for each day with one minute resolution.

2. Each load shall be capable of having 40 unique events (on or off) programmed for each day of the week and holidays.

3. The time of Day Scheduling function shall allow up to 16 holiday periods. Each holiday period shall allow for up to 255 days. Holidays shall be programmable at least a year in advance.

4. The Time of Day Scheduling function shall allow for manual schedule override which will override scheduled on or off loads.

5. The Time of Day Scheduling function shall allow for single event temporary on/off programming with automatic return to scheduled programming after the event.

B. Duty Cycling

1. The Duty Cycling shall reduce electrical consumption by duty cycling loads off and on according to a programmed on and off time for each assigned load.

2. The Duty Cycling function shall allow each load to be assigned to an on time interval of 1 to 255 minutes and an off time interval of 1 to 255 minutes.

3. The Duty Cycling function shall be able to automatically rotate the loads to minimize electrical demand at all times by aligning the duty cycled on and off times in rotation.

4. The Duty Cycling function together with the Analog Control function shall allow any of the solid state air temperature sensors (inside or outside) to be assigned to any load to allow individual high and/or low temperature setpoints to override a duty cycled "off" load.

5. The Duty Cycling function shall be programmable to continuously vary the on and off times in response to a selected analog temperature input while evenly rotating up to eight loads assigned to that variable duty cycle program

C. Analog Control, Fixed and Variable

1. The controller shall have the capability to accept up to 16 analog inputs such as Kw, temperature, humidity, etc.

   a. The Analog Control function shall allow for any one or several of the 16 analog inputs to be assigned to any load(s) to allow individual high and/or low analog setpoints to turn each load on or off.

   b. The Variable Analog Control function shall allow the high and low setpoint of any analog input controlling a load to be continuously and linearly varied in response to a second analog input.

D. Start Time Optimization

1. The Start Time Optimization function shall reduce energy consumption by starting assigned loads at the latest possible time which will permit the building's internal environmental conditions to reach the desired temperature by building occupancy time.

2. The Start Time Optimization function shall use outside air temperature, selected inside air temperatures, heating or cooling thermal efficiency factors, building loss factor and building occupancy temperature setpoint to calculate optimum start time. The optimizing function shall be self correcting over time.

E. Stop Time Optimization

1. The Stop Time Optimization function shall reduce energy consumption by stopping assigned loads at the earliest possible time that will permit the building's internal environmental conditions to be maintained until the scheduled occupancy stop time.

2. The Stop Time Optimization function shall use the outside air temperature, selected inside air temperature, building loss factor, and the permissible internal environmental temperature range to calculate optimum stop time.

F. Demand Control

1. The Demand Control function shall monitor and control electrical demand shedding (turning off) and restoring (turning on) loads to maintain the peak demand below programmed peak demand setpoints.

2. The Demand Control function shall provide for up to four or more time of day peak demand setpoints.

3. The Demand Control function shall allow for any load to be assigned to be shed and restored on priority basis. Any number of loads may be assigned to a priority.

4. The Demand Control function shall allow for a maximum off time assignable to each load to limit the amount of time a load may be shed.

5. The Demand Control function shall allow a minimum on time assignable to each load to assure a minimum on time before the load may be re-shed.

6. The Demand Control function shall allow a minimum off time before the load may be restarted.

7. The Demand Control function together with the Data Logging function shall allow for maintaining the following statistics: Accumulated Consumption (to be available on 16 inputs), past 35 days Demand Peaks (to be available on at least 8 inputs), the time and date of occurence, and the averaged kW for every 15 minutes of the previous 48 hours (to be available on at least 2 inputs)

8. The Demand Control function shall accept an input signal for electrical demand and consumption calculations from either a watt transducer or a pulse-generating demand meter and shall not require an end of interval signal. Up to 16 such demand limiting signals shall be accepted by the controller and any load shall be able to be shed by any of the demand signals. However, each demand limiting input to the controller shall reduce by one the number of temperature sensing or other inputs the controller shall reduce by one the number of temperature sensing or other inputs the controller can accept.

G. Data Logging

1. The Data Logging function shall provide for the continuous accumulation of kwh or any other analog accumulation on any or all of 16 analog input channels.

2. The Data Logging function shall provide for the recording of the daily maximum values or minimum values for the previous 35 days of at least 8 of the analog inputs.

3. The Data Logging function shall provide, for at least 2 of the analog inputs, the recording of the averaged analog data for every 15 minutes of the previous 48 hours.

4. The Data Logging function shall provide for recording of the accumulated ON time of each output channel and the accumulated override ON time of each output channel.

H. Remote Communications

1. The controller shall have the capability to have a field addable communications module installed.

2. The communications module shall provide the capability to:

   a. Maintain all programming access of the controller

   b. Remotely display and/or modify all data that may be entered at the controller's operator panel.

   c. Display all statistics available to the operator of the controller in easy-to-read formatted reports.

d. Provide a load control status report

e. Provide for the current day, a report of temperatures, demand and consumption data.

f. Provide a report of the averaged analog data for every 15 minutes for the previous 48 hours.

g. Provide a report of the accumulated ON time of all output channels.

h. Provide a report of the accumulated overried ON time for all output channels.

i. Provide the ability to transfer and restore all programs.

j. Provide the ability to transfer report data to a printed format via a computer terminal.

k. Provide at least a 35-day history report of daily high or low temperatures, high or low demand, time high or low temperature and demand occurred, kWh consumption, of all connected sensors.

3. Terminals for remote communication may be connected directly to the remote communication module via standard RS232C electrical interface or remotely via telephone line with modem. Remote communication shall be capable of auto-answer operation when connected to telephone service.

4. The communication module shall provide the capability for the controller to dial out and report to a remote monitoring computer in response to any predetermined level of analog input.

I. Local Report Printout

1. The controller shall have the capability to have a field addable communications module installed that will provide for a printer connection at the installation site for the purpose of generating data logging and system status report printouts automatically.

JUN 27 1984

Your facility have a number of specific loads which readily lend themselves to an integrated time control system or the micro processor computer. These loads and description of the type of control required are described in the paragraphs which follow:

To Control:

1 Boiler
6 Supply & Return Air Fans
2 Hot water Circulating Pumps (to be discussed)

Lighting:

Pool Area
Boys and Girls Dressing Rooms
Gym
Lobby

The above noted loads will be programmed into the computer to ensure that the unique requirements of the building are clearly recognized and so that no inconvenience will be caused to the customers or the staff. The production or the general business will not be adversely affected.

The strategy used for controlling and programming the above power consuming loads will be :

A. Time of Day Scheduling
B. Duty Cycling
C. Analog Control
D. Start Time Optimization
E. Demand Control
F. Data Logging
G. Remote Communication

Lighting System

Lights in the Port Coquitlam Recreation Centre will be controlled by the Central Computer.

Whereas, lights in the Gym, Dressing Rooms, Lobby or Meeting Room will be controlled by means of Super Sensitive Ultrasonic Detector units. Lights will be turnedf "Off" automatically after everyone leaves the room. When someone enters, everything will be turned back "On" automatically.

Swimming Pool Lights

Lights in the Swimming Pool Area will be controlled by the Central computer(Presently these lights are controlled manually). After the Public closing hours at the Pool, 50% of the lights will be switched "Off" in such a way that Maintenance staff will have no problem as far as lighting level are concerned.

Minimum savings achieved will be as follows:

Pool lighting.....	23,490	kwh
Change Room/Gym,etc.....	19,901	kwh
	43,391	kwh @ $.034
		= $1,475.29

Electric Loads

Supply & Return Air Fans

From the invormation received these fans are operating all the time. As per our calculation, fans are operating approximately 600 hours a month.

By means of a Micro Processor Computer with temperature sensors, we will be able to reduce the energy cost by:

38,005 kwh = $1,292.17

JUN 27 1984

Gas Loads

As per our survey of the facility, gas is consumed by the Boiler which supplies the Hot Water for Swimming Pool, Domestic hot water tank and Heating system.

During the operating hour of the Swimming areas, the Boiler will be programmed to operate on Variable analog controls. These devices will be programmed to sense the ambient air temperature and the hot water supply temperature to the Pool. With this type of control, the Boiler efficiency can be greatly increased, as it will maintain the comfort level in the Pool at lower Boiler operating temperatures.

As per our calculation, by means of a Central computer with temperature sensor minimum savings will be :

14,342 B.U. = $6,196.00

Total Savings:

	Total Cost	Savings	
Electric.....	$27,651.69	$2,767.46	
Gas.....	32,606.22	6,196.00	
	$60,257.91	$8,963.46	- 14.8%

PROPOSED SYSTEM

The control system we propose will require the installation of a central micro processor computer which will monitor and increase the efficiency of your present system. This will also permit the control of all set points from a central location.

By using a Radio Frequency signal transmitter system on the existing power wiring with a similarly coded receiver at the equipment to be controlled by the computer, will eliminate tampering and permit only authorized personnel to make any change to the computer.

In addition, any future loads which may be installed can be controlled in the same manner.

The system we propose will include the following equipment to perform the functions outlined and in the computer analysis.

Primarily, we propose to install,

1) One - 8 Channel Micromizer Energy Controller with 8 analog input temperature sensor, with hard wire or power line carrier system.

Five - Lighting Control with Power Packs

If desired,

This computer can be expanded from 8 to 32 channels at any time

Each channel is capable of controlling as many loads as required, provided the programming is the same.

With the addition of Analog inputs, all Heating will operate according to time, outside and inside temperature.

It will contain a power reserve to maintain memory during a power loss.

The Analog Input Board is also capable to control various power consuming loads by means of Humidity, Pressure, Flow or Temperature Sensors.

PROPOSED ENERGY MANAGEMENT SYSTEM

To achieve the estimated savings in a cost-effective manner, we propose the installation of an Energy Management System that will include the following:

1. One - 8 Channel Micromizer Energy Controller Computer with 8 analog input, temperature sensor, hard wires or power line carrier system

   Five - Lighting Control with Power Packs

2. All necessary receivers, relays, override switches and others to ensure a complete operational system.

3. Fail safe features to protect A/C units, etc.

Cost of E.M. System.....$14,250.00

SERVICE PROVIDED

1. Complete installation of all equipment
2. Final checkout and start up
3. On-site training of personnel in the operation of all equipment
4. Warranty on installation and equipment
5. Regular site inspection of all system components to ensure proper operation for one year.
6. Energy usage reports will be written by us and sent to you indicating actual savings in consumption and dollars when we receive your Hydro billings every month.

The above price will be in effect for 30 days from the presentation of this proposal.

JUN 27 1984

As per our calculation the minimum expected savings from the installation of an Energy Management System and related control of various loads at your facility for gas and electric will be $8,963.46 per year.

This estimate of utility cost may not occur if:

1. The sytem is turned off, disconnected or set lower than recommended.
2. The system or any of the components are altered or modified.
3. Additional electrical equipment having combined rating greater than one (1) kw is installed.

CALCULATION OF ENERGY SAVINGS

Calculations of consumptions of energy prior to and subsequent to the installation in determining the total savings achieved shall be based upon the schedule of prior consumption hereto referred to as "BASE YEAR" and this schedule shall construed to be part of this agreement and all savings shall be computed as based on this schedule of "Base Year."

Monthly energy savings shall be determined by subtracting the energy used during a calendar month from the energy used during the corresponding month in the base period (a twelve month period prior to the installation of the Systems.) An adjustment will be made for variations in the respective outside temperatures for that percentage of the Premises energy usage affected by outside weather. Said adjustment shall utilize the "degree day" data compiled by the Canada Environmental Department. Prior to the installation of the Systems, Supplier and Purchaser shall mutually agree in writing on the percentage of the Premises' energy usage that is affected by outside weather and also schedule of the total monthly energy usage in the base period for each type of fuel. In addition, during the term of this Agreement, adjustments, as needed, shall be made for the changes as and when required. The monthly reduction in energy usage, if any, for each type of energy supplied to the Premises will be multiplied by the current cost thereof, and the results will be added together to determine the total savings in dollars (the total savings being hereinafter referred to as "Savings"), including savings in the demand charge, fuel use tax, fuel adjustment charge and social service tax.

JUN 27 1984

FINANCE OPTIONS

1. Cash
2. Lease

PORT COQUITLAM RECREATION CENTRE

Lease Agreement for E.M. System

Cost of E.M. System.....$14,250.00

3 Years Lease stretched to 45 months

Approximately $530.10 per month + 7% sales tax
Buy out at nominal cost less than 5%

5 Years Lease stretched to 66 months

Approximately $379.05 per month + 7% sales tax
Buy out at nominal cost less than 5%

Minimum Savings

1st year	2nd year	3rd year	4th year	5th year
$8,963.46	$8,963.46	$10,307.98	$11,854.18	$13,632.31
	1,344.52	1,546.20	1,778.13	2,044.85
$8,963.46	$10,307.98	$11,854.18	$13,632.31	$15,677.16

= $60,435.09 or $1,007.25 per month

The above rates are subject to confirmation by the Leasing Company.

JUN 27 1984

FINANCE OPTIONS

1. Cash
2. Lease

Insurance Coverage

If desired, we will be able to provide you with a Certificate of Warranty towards the savings you will achieve with the installation of our Energy Management Control System, at a nominal cost.

JUN 27 1984

NAME: Port Coquitlam Recreation Centre "ILLUSTRATIVE" DATE: June 26, 1984

(Swimming Pool) 3-YEAR SAVINGS & PAYBACK PROJECTION

BASED ON A UNIT COST OF $ 14.250.00

		FIRST YR.	SECOND YR.	THIRD YR.
7% Investment Tax Credit *	1	997.50		
50% Depreciation of Balance (A) $13,252.50 x 50%=$ 6,626.25	2	3,313.13	3,313.13	
Gas Savings Per Year Percentage ____%	3			
Increase Utility Cost at 15%	4			
Electric Savings Per Year Percentage ( )	5	8,963.46	8,963.46	10,307.98
Increased Utility Cost @ 15%	6		1,344.52	1,546.20
Total Gas & Electric Savings	7			
Social Service Tax 6% Municipal Tax	8			
Total Yearly Savings	9	13,274.09	13,621.11	11,854.18
Total Investment in System 1st Yr. Initial Cost Less 1st Yr. Savings	10	975.91 *		
Total Investment in System After Two Years Net Gain (+) Loss (-)	11		12,645.20 **	
Total Investment in System After Three Years Net Gain (+) Loss (-)	12			24,499.38

MOS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Pa
Ba

Straight Payback

1st Yr. $ 8,963.46

2nd Yr. 10,307.98

3rd Yr. 11,854.18

$31,125.62 = 18.16 mos

1. Investment Tax Credit of 7% Ref. 371.
2. Fast write-off for energy-efficient equipment Ref: 889 - (Class 34 - Capital Cost Allowance)
8. 6% Savings on Sales Tax and/or Municipal Tax

ILLUSTRATIVE PAYBACK PERIOD USING TAX ADVANTAGES, DEPRECIATION & UTILITY SAVINGS

Months

12.8 mos

JUN 27 1984

CAN-PAC ENERGY CONSULTANTS LTD.

Specializing in energy management systems
Temperature control monitor & alarm systems

Date_____

Dear Sirs:

CAN-PAC ENERGY CONSULTANTS can help cut your business' energy costs by up to 30%.

1. We have shown to more than 300 companies how to save 10 to 30% of their energy cost.

2. We have installed and proven the projected savings to more than 75 companies in Lower Fraser Valley which has been between 12% to 40%.

3. Our energy audit can give you new ideas to control energy expenses.....offering dramatic savings, rapid payback and substantial investment return. And we have priced this service far below its actual cost, to make effective conservation advice affordable.

4. Our energy auditor will perform an on-site survey of all your power consuming loads including the heating and cooling system. You will get a detailed report, featuring:

   a) recommended energy-savings measures, with specific cost and payback. The average recommendation pays for itself in less than two years.

   b) low- or no-cost steps you can implement at once, for immediate bottomline savings.

   c) five-year financial analysis of major conservation investments, including depreciation, investment return, savings, cash flow, and tax credits. It can serve as a planning guide for capital equipment expenditures.

Please take a moment to review the enclosed materials. Then return the attached application. We will call to set up a time to submit the proposal--to start your business towards major energy savings.

Very truly yours,

JUN 27 1984

Marcel Gautron
Marketing Director

Suite #216. 17704 56th Avenue. Surrey. B.C. Canada V3S 1G7 Telephone (604) 576-1321

CAN-PAC ENERGY CONSULTANTS LTD.

Specializing in energy management systems
Temperature control monitor & alarm systems

A word or two about the Company.....

Expertise

Can-Pac Energy Consultants Ltd. has been organized out of a group of specialists in a wide variety of diverse areas. Experts in mechanical engineering, HVAC system design, air balance, pneumatic controls, electronic controls, food service engineering, data systems, energy use analysis and hardware applications, team together into an energy management group that we feel is quite unique in the field today. All of us at Can-pac are dedicated to one common goal: To combine state-of-the-art technologies in each of our fields into the most reliable, advanced and cost effective energy management systems available today.

Total Capability

Can-Pac is not simply a seller of hardware. Ours is not a "SELL IT OFF THE SHELF AND FORGET IT" philosophy. We work with building design engineers and architects to incorporate energy management techniques and systems into building structures from the planning stage, through construction and on into facility operation.

No matter what your business, we have specialist ready to help you reduce your energy costs on most any project , be it at the planning stage or an existing operation. As one of the most experienced energy management firms in British Columbia, Can-Pac has been able to offer TOTAL energy control systems and remain cost competitive with less expensive proposals. Whether the design calls for simple demand control, electronic or pneumatic economizer systems or full on-site load control, we are simply able to offer far greater actual energy cost avoidance and far "FEWER HEADACHES" for your energy conservation dollar.

Experience

To date, Can-Pac has designed and installed more than 50 successful energy management systems at commercial and industrial facilities in B.C., some of which are BAKER COLD STORAGE (B.C. ICE-new management), CAPILANO GOLF COURSE, KENTUCKY FRIED CHICKEN, SURREY CO-OP, HOMETOWN, ACKLANDS, PILLARS INN, NORTH VANCOUVER RECREATION CENTRE, GRAY BEVERAGE (PEPSI COLA), LONDON DRUGS, VOLKSWAGEN CANADA LTD., CHRISTIAN LIFE ASSEMBLY, COACH HOUSE, KNIGHT & DAY RESTAURANTS, etc. We are currently involved in large, successful energy management projects with MCDONALD RESTAURANTS, WHITE SPOT LTD., JOHNSON TERMINALS, NABOB FOODS, FLETCHER FOODS, HUDSON BAY CO., LTD., SAFEWAY STORES, etc. to name a few.

JUN 27 1984

Suite #216, 17704 56th Avenue, Surrey, B.C. Canada V3S 1G7 Telephone 574-7711

Service and Back-up

Can-Pac Systems offer a nationwide network of skilled service personnel, trained in the operation and service of our systems. You will find our service history unexcelled and our service personnel prompt and efficient.

To augment this service network, Can-Pac offers in-depth training of your operations personnel together with a program which is truly unique in the field today: OUR FIELD DATA SUPPORT SYSTEM.

Field Data Support System

Any energy conservation program, no matter how thoughtfully designed or skillfully installed, is only as effective as its actual operation in the field. Our experience has shown that this operation is dependent upon large number of factors which are either difficult to predict or control or vary with time.

Such factors as changing mechanical condition of refrigeration and air conditioning equipment, changing store hours, customer count and operational philosophy, changing climate, transit store managers, all of these team up to make truly high level energy management a rather complex task; one that has caused many firms to create separate energy departments concerned totally with monitoring and controlling escalating energy usage and costs.

Can-Pac's Field Data Support System was created to relieve the burden of continuous tracking of energy system performance from the user and place it in the hands of our computer assisted energy management specialists. Through a telephone data link from the store's on-site load controller to a Can-Pac host computer, our FDS group is able to provide monthly energy usage reports and modify programming to maximize energy savings while maintaining harmony with the store operations philosophy. We are also able to detect changes in your daily energy usage caused by mechanical system service difficulties or failures. We can then work with your operations or maintenance personnel to pinpoint the difficulty before a large toll is taken on either utility or service costs.

Analysis of Operating Condition

Poor operating condition of a facility's mechanical equipment is as great an abuser of energy as an inefficient system design. One low refrigerent short cycling compressor can waste as much energy as the best energy management system can save. Malfunctioning outside air dampers can cause a system to use twice as much the needed energy to maintain temperature in the building. Every Can-Pac proposal is accompanied by a survey of the facility's mechanical equipment, detailing recommended corrective action. Our clients find this a valuable asset to their existing maintenance programs.

Single Source Responsibility

Perhaps the most difficult task facing the facility's management team is the coordination of any one program throughout all of the facility. The energy management field, touching as many diverse areas of an operation as it does, is more difficult to coordinate than most.

Can-Pac systems are especially sensitive to these problems. Our organization is designed to assist the facility's manager interested in a coordinated approach to his firm's energy conservation program. We offer a central control system for a facility's Energy Management. Can-Pac's engineering and marketing staff provide professional expertise and support to their clients; from design through complete installation and operation of the system, personnel training and monitoring.

Can-Pac's goal is very simple. To help clients achieve maximum savings at minimum costs, while maintaining acceptable comfort and productivity levels.

Through proper application, Can-Pac has done this time, time and again.

NORTH VANCOUVER
RECREATION
COMMISSION
600 West Queens Road,
North Vancouver, B.C.
V7N 2L3
Tel. 984-4181

April 26th, 1984.

Can-Pac Energy Consultants Ltd.,
Ste. #216, 17704 56th Avenue,
Surrey, B.C.
V3S 1C7

Dear Sirs:

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However, we must point out that neither the Commission nor its staff are authorized to endorse goods or services obtained or used by the Commission. The purpose of this letter, therefore, is to update you on our intentions in this matter.

Yours truly,

David Mayes
Recreation Manager

DM/gb

JUN 27 1984

NORTH VANCOUVER
RECREATION COMMISSION
600 West Queens Road,
North Vancouver, B.C.
V7N 2L3
Tel. 984-4181

May 25, 1984

Ms. Janna Taylor
Parks and Recreation Director
2253 Leigh Square
Port Coquitlam, B.C.
V3C 3B8

Dear Janna:

Re: Energy Management System installed at the North Vancouver Recreation Centre Complex

An Energy Management System was included in the 1984 Capital Budget in order to reduce the amount spent on utilities at the Recreation Centre Complex located at 23rd Street and Lonsdale.

Last September, the Recreation Commission approved a one year lease agreement (see Appendix A) with Can-Pac Energy Services to install an Energy Management System at the Recreation Centre Complex in order to test the System's capabilities. The lease agreement was set up in such a way that the majority of the savings (75%) went to the Company that did the installation, and the Recreation Commission reserved the right to purchase the System at any time during the lease agreement.

The Energy Management System has now proven itself at the Recreation Centre Complex, and results recently received indicate a savings of $11,600 on energy consumption over the past 4 to 5 months, which translated into terms of payback would be less than 1½ years. The Energy Management System has not only saved dollars, but it has saved much wear and tear on equipment by closely monitoring and adjusting boiler temperature, turning off and on pumps, fans and dehumidifier, and has saved many hours of staff time turning on and off lights and monitoring equipment.

The method used by Can-Pac Energy Services to determine the amount of energy saved was varified by an independent consultant, (Keen Engineering Co. Ltd.) See Appendix B.

I hope this provides you with the information you requested. If further information is required, or if you would like to see the Energy Management System, just give me a call.

Yours truly,

dm:hw

David Mayes,

JUN 27 1984

Appendix 15

keen ENGINEERING CO. LTD. • Consulting Professional Engineers
214 - 545 Clyde Ave., West Vancouver, British Columbia, Canada V7T 1C5 • Phone (604) 926-3207 • Cable: Keeneng

April 18, 1984

North Vancouver Recreation Commission
600 West Queens Road
North Vancouver, B.C.

Attention: Mr. David Mayes

Dear Sirs:

Re: Energy Management Savings

As requested, we have reviewed your invoice #1377 pertaining to the energy management savings calculations and find the method used to be reasonable and fair and recommend acceptance provided the unit energy cost rate schedule used is correct.

Yours very truly,

KEEN ENGINEERING CO. LTD.

M. Yee, P. Eng.

MY/df

JUN 27 1984

THE CORPORATION OF THE CITY OF PORT COQUITLAM

CITY HALL
2272 McALLISTER AVENUE
PORT COQUITLAM, B.C
V3C 2A8
TELEPHONE 941 5411

PARKS & RECREATION DEPARTMENT
2253 LEIGH SQUARE
PORT COQUITLAM, B.C.
V3C 3B8
TELEPHONE 942 - 0285

1984 06 29

Clayton Perry
1215 Galiano Street,
Port Coquitlam, B.C.
V3B 5T3

Dear Mr. Perry;

re: Tournament - Cedar Drive Park
June 22nd & 23rd, 1984

It is most regretable that I have to write this letter. I have been notified by 2 members of Council and several residents about the deplorable behaviour of the spectators at the tournament hosted by your organization. It has been reported that the male spectators and players were urinating along the wooden fences, on private property, in a resident's garage and on the bushes - this is not acceptable behaviour. Not only was this going on; but the spectators and players were drinking beer outside the beer garden which is not allowed. When your organization is given permission to host a tournament and a beer garden by the Parks & Recreation Department we expect that you will control the activities on the park.

Due to the fact that we had a major disturbance at Cedar Drive Park, the Parks & Recreation Department will not be allocating your organization a beer garden for the 1985 softball season.

Thank you for your attention to this matter.

Yours very truly,

K. Janna Taylor,
Parks & Recreation Director

c.c. - Mayor & Council
- B.R. Kirk, City Administrator

KJT/pg

JUN 27 1984

—SECOND STEP SOCIETY—

May 30, 1984

Ms. Janna Taylor
Parks and Recreation Committee
City of Port Coquitlam
City Hall
2272 McAllister Avenue
Port Coquitlam, B.C.
V3C 2A8

Dear Ms. Taylor,

Futher to telephone conversations I have had with your employee Mr. B.Hoogendoorf, I am now formally requesting permission to plant several tundra pine trees within the city's boundaries as part of National Forest Week and Katimavik.

Our organization is currently sponsoring a Katimavik work project. As sponsors of, and advocates for Katimavik, we have been asked to facilitate our participant's activities in the promotion of conservation, reforestation and silviculture, and trees and forests generally.

It is our participant's wish to include the disabled clients we serve in the activity of planting these trees as their part in this week. Mr. Hoogendoorf and I have discussed the possibility of doing so and he has located an area that would be suitable. He has asked me to contact you for formal approval of this activity.

Should you require more information on Katimavik and this project please don't hesitate to contact me at my office. Thanking you in advance, I remain,

Yours Sincerely,

Ms. Kim Lyster
Co-ordinator:
Second Step Society for
Physically Handicapped Adults

JUN 27 1984

cc.Lorraine Cameron, Robert Trepanier: Katimavik

KL/cg

2567 Kingsway Port Coquitlam B.C. V3C 1T5 Phone 464-6540