

**Administration and Energy Conservation Measures (ECM) Survey**

<b>Site:</b>	
<b>Building:</b> (Name, year built)	
<b>Site Contact -Title</b>	
<b>Name:</b>	
<b>Phone:</b>	
<b>E-mail:</b>	
<b>County:</b>	
<b>Use</b> (Office, etc.)	
<b>Floor Area:</b> (GSF)	
<b>Street Address:</b>	
<b>Mailing Address:</b>	
<b>City:</b>	
<b>State:</b>	
<b>Zip Code:</b>	

<b># of floors</b>	
<b># of occupants</b>	
<b>Hrs. occupied per week</b>	

<b>Utilities supplied to bldg. (Enter 1 if present, 2 if present and metered):</b>	
<b>Electric</b>	
<b>Dom cold water</b>	
<b>Natural gas</b>	
<b>Oil</b>	
<b>Propane</b>	
<b>Steam</b>	
<b>Heating hot water</b>	
<b>Chilled water</b>	
<b>Dom hot water</b>	

<b>Surveyor Name:</b>	
<b>Team:</b>	Waste Reduction Partners
<b>Survey Date:</b>	
<b>Survey Time:</b>	

**Client - Please complete the top of this page and pages 2 , 3, and 12**

Waste Reduction Partners contact: 828-251-7477 or russjordan.wrp@windstream.net

The section below is completed by WRP assessor.

**Baseline Energy Data (See Annual Energy Consumption Worksheet):**

<b>Total energy consumed:</b>		0	Million BTUs of energy per year
<b>Total energy index:</b>		#DIV/0!	kBTU/sq. ft. per year
<b>Total energy costs:</b>		\$0.00	Per year
<b>Total energy cost index:</b>		#DIV/0!	Total Energy Cost
<b>Total water use:</b>		0	Gallons per year
<b>Water/sewer cost:</b>	\$0.00	Per year	
<b>Gallons per Occupant:</b>	#DIV/0!		
<b>Gallons / sf</b>	#DIV/0!		
<b>After-hours usage/year -</b>			
<b>After-hours usage/year -</b>			

## FACILITY AND SYSTEMS DATA

FOR EACH SYSTEM PRESENT, RECORD BASIC NAMEPLATE DATA INCLUDING TYPE, AGE, MANUFACTURER, CAPACITY, AND FUEL. IF FACILITY IS ON A CENTRAL UTILITY LOOP, SO INDICATE AND RECORD UTILITIES PROVIDED.

**Heating System:**


**Chiller: na**


**Cooling Tower:**


**Air Handler Units (include number):**


## FACILITY AND SYSTEMS DATA

FOR EACH SYSTEM PRESENT, RECORD BASIC NAMEPLATE DATA INCLUDING TYPE, AGE, MANUFACTURER, CAPACITY, AND FUEL. IF FACILITY IS ON A CENTRAL UTILITY LOOP, SO INDICATE AND RECORD UTILITIES PROVIDED.

<b>Domestic Hot Water:</b>	
<hr/> <hr/> <hr/> <hr/>	
<b>Air Conditioners:</b>	
<hr/> <hr/> <hr/> <hr/>	
<b>Heat Pumps:</b>	
<hr/> <hr/> <hr/> <hr/>	
<b>Building Automation/Control System:</b>	(Include brand and systems monitored and/or controlled)
<hr/> <hr/> <hr/> <hr/>	
<b>Lighting:</b>	(List type and number of fixtures)
<hr/> <hr/> <hr/> <hr/>	
<b>Observations / Comments:</b>	
<hr/> <hr/> <hr/> <hr/>	

## **A. ENERGY CONSERVATION MEASURES (ECM) SURVEY CHECKLIST**

(On line to left, write "Y" for yes, "N" for no, "S" for some or leave blank if not applicable or unknown)

	A1.	Has the need to become more efficient in the use of energy and water been endorsed by management?
	A2.	Has an Energy Management Plan been created and communicated to staff?
	A3.	Is there a staff position that includes responsibility for utilities management?
	A4.	Does the Energy Management Plan include efficiency guidelines for new construction and rehabilitation?
	A5.	If a school, is the concept of becoming more efficient in the use of energy and water included in student curriculums and classroom p
	A6.	Have energy management teams been organized to provide leadership and enhance the success or reducing energy and water consu
	A7.	Is there a program to recognize individuals who provide leadership and increase the success of the energy plan?
	A8.	Are energy efficiency posters conspicuously displayed throughout the facility?
	A9.	Does your financial resource investment polity include criteria for financing energy upgrade projects?
	A10.	Is energy and water usage and cost data tracked monthly and distributed to all users?
	A11.	Are energy and water costs and program performance included in monthly facility operations reviews?
	A12.	Is data monitored to question and pursue remedies for unusual variations from the norm?
	A13.	Are measures taken to discover billing errors and recover incorrect charges?
	A14.	Do you review rates with your energy company to ensure you are on the most favorable rate structure?
	A15.	Do you understand your rate structure?
	A16.	Have you considered using an energy expert to conduct an efficiency assessment?
	A17.	Have measures been taken to benchmark current energy and water usage to establish improvement goals and to measure future ene
	A18.	Are off-hour meetings scheduled in locations that do not require lighting and HVAC in the entire facility?
	A19.	Does the Energy Management Plan ensure that when facilities are used by outside groups during evening and weekend hours that in
	A20.	Is housekeeping scheduled and organized to minimize the use of lighting and HVAC?
	A21.	If a school, is summer vacation maintenance activity managed to avoid the inefficient use of lighting and HVAC?

## B. Building Envelope

Roof type (check one)	B1.	Metal		Composite		Membrane		Other	
Roof color (check one)		Light		Dark					
	B2.	Is roof insulated?							
	B3.	Is attic insulated?							
	B4.	Are walls insulated?							
	B5.	Is floor insulated?							
	B6.	Are thermal windows used? Low-e?							
	B7.	Are overhangs present on east west facing windows?							
	B8.	Is weather stripping on windows and doors present and maintained?							
	B9.	Is building envelope in good general condition?							
	B10.	Are interior shades present and adjusted to allow daylight and reject solar heat gain?							
	B11.	Are windows kept closed in conditioned spaces?							

## C. Lighting and Electrical Systems

	C1.	Can lighting be controlled in perimeter rooms to make use of day light?
	C2.	Have T-12 fluorescent lamps been replaced with T-8?
	C3.	Are occupancy sensors utilized?
	C4.	Are computers using power-save feature?
	C5.	Have all incandescent lamps been replaced by CFL's?
	C6.	Are all electric exit lights of LED type?
	C7.	Do exterior lights turn off during daylight hours?
	C8.	Have space heaters been eliminated?
	C9.	Have beverage and snack machine lights been removed?
	C10.	Are procedures in place to purchase the most energy efficient equipment?
	C11.	Is fluorescent task lighting used to minimize background lighting?
	C12.	Has High-Bay T-5 lighting been evaluated for use in high ceiling areas (warehouses, gyms, auditoriums, etc.)?
	C13.	Have energy conservation decals been placed on light switches?

## D. HVAC Systems

	D1.	Is a building automation system present to manage operation of all HVAC systems and miscellaneous equipment?
	D2.	Are exhaust fans switched off for unoccupied periods?
	D3.	Are recommended thermostat set-points (70 heating, 76 cooling) maintained?
	D4.	Are thermostats routinely calibrated?
	D5.	Are thermostats tamper-proof?
	D6.	Are air conditioning or heating controls set back when facility is not occupied?
	D7.	Have programmable thermostats utilized for automatically controlling set points and unoccupied set points?
	D8.	Are OA dampers controlled to close during unoccupied periods?
	D9.	Do OA dampers modulate in economizer mode when the ambient temperature is below 65F?
	D10.	For reheat HVAC systems, is the supply air discharge temperature automatically raised from 55F to minimize reheat energy consumption?
	D11.	Have the HVAC systems been tested and balanced within the past two years?
	D12.	Has direct conditioning of unoccupied areas (corridors, stairwells, storage rooms, exhausted toilet rooms) been minimized?
	D13.	Has the introduction of outdoor air been minimized to the ASHRAE Standard 62-1999 recommended ventilation rates?
	D14.	Are coils and heat exchanger surfaces regularly cleaned?
	D15.	Are air filters replaced on a regular basis to ensure good airflow?
	D16.	Are all valves in good condition and not leaking?
	D17.	Are all steam, condensate and hot water pipes insulated?
	D18.	Is a steam trap inspection / maintenance program in place?
	D19.	If a boiler is present, is the burner turned on an annual basis?
	D20.	Is the most cost-effective fuel used?
	D21.	Has the cooling tower been metered to enable a sewer-charge credit?
	D22.	Has the concentration ratio on the cooling tower been increased to "6"?

### **E. Domestic Water Systems**

	E1.	Is a high-efficiency water heater present?
	E2.	Is the hot water thermostat set at the minimum required?
	E3.	Is a timer used to switch off the hot water heater for unoccupied periods?
	E4.	Is a timer used to switch off the hot water circulating pump for unoccupied periods?
	E5.	Have flush valves on urinals and water closets been adjusted for the lowest / shortest practical flow?
	E6.	Are hot water storage tanks, heaters, heat exchangers, and piping well insulated?
	E7.	Are low-flow 0,5-GPM lavatory faucet aerators present?
	E8.	1.5-GPM showerheads?
	E9.	1.6-GPF water closets?

### **F. Compressed Air Systems**

	F1.	Is the compressed air system regularly inspected for leaks?
	F2.	Is cool air provided to the compressor?
	F3.	Has the compressor discharge pressure been minimized?
	F4.	Is system turned off when not in use?
	F5.	Is heat from compressor cooling system deflected to avoid intake in adjacent equipment?

### **G. Electric Motors**

	G1.	Are PREMIUM efficiency motors regularly purchased?
	G2.	Is an efficient rewind policy In effect?
	G3.	Are cog belts utilized?
	G4.	Are VFD's used to control fan and pump motors?
	G5.	Is idling of motor-driven equipment avoided when no foreseeable use is scheduled?

### H. Miscellaneous Equipment

	H1.	Have electric-heated defrost cycles on refrigerated devices been minimized and scheduled for off-peak periods (night)?
	H2.	Are demand-limiting controls present on equipment that may be switched off during peak demand periods?
	H3.	Are fire pumps tested only during off-peak periods?

### I. Maintenance

	I1.	Does the facility have a work order system?
	I2.	What type of work order system (check one)
		Manual <input type="checkbox"/> Computer-based <input type="checkbox"/> Brand <input type="checkbox"/>
	I3.	Can the system generate reports?
	I4.	Can the system schedule routine / preventive maintenance?
	I5.	What are the top five maintenance issues in the facility?
		1 <input style="width: 100%;" type="text"/>
		2 <input style="width: 100%;" type="text"/>
		3 <input style="width: 100%;" type="text"/>
		4 <input style="width: 100%;" type="text"/>
		5 <input style="width: 100%;" type="text"/>

### J. Electricity Billing / Use

	J1.	Has the utility been requested to do a rate review in the last three years?
	J2.	Have operating hours or equipment used changed significantly in the last three years?
	J3.	Are steps being taken to reduce peak demand?



## K. Recommendations

List top ECM recommendations (include estimated potential savings when possible). Indicate if building is a candidate for performance contracting.

	K1.	
	1	
		Annual potential savings: <input style="width: 60%;" type="text"/>
		Cost to implement: <input style="width: 60%;" type="text"/>
		Simple payback: <input style="width: 60%;" type="text"/>
	2	
		Annual potential savings: <input style="width: 60%;" type="text"/>
		Cost to implement: <input style="width: 60%;" type="text"/>
		Simple payback: <input style="width: 60%;" type="text"/>
	3	
		Annual potential savings: <input style="width: 60%;" type="text"/>
		Cost to implement: <input style="width: 60%;" type="text"/>
		Simple payback: <input style="width: 60%;" type="text"/>
	4	
		Annual potential savings: <input style="width: 60%;" type="text"/>
		Cost to implement: <input style="width: 60%;" type="text"/>
		Simple payback: <input style="width: 60%;" type="text"/>

### K. Recommendations (Continued)

List top ECM recommendations (include estimated potential savings when possible). Indicate if building is a candidate for performance contracting.

5			
	Annual potential savings:		
	Cost to implement:		
	Simple payback:		
6			
	Annual potential savings:		
	Cost to implement:		
	Simple payback:		
7			
	Annual potential savings:		
	Cost to implement:		
	Simple payback:		
8			
	Annual potential savings:		
	Cost to implement:		
	Simple payback:		
Total estimated annual savings potential:			



### ANNUAL ENERGY AND WATER CONSUMPTION

Month	Year	Electricity		Natural Gas		Other Fuels		Water	H <sub>2</sub> O / Sewer
		Usage	Cost	Usage	Cost	Usage	Cost	Usage	Cost
		KWH	\$	Therms	\$	Units	\$	Gallons	\$
July	2008								
August	2008								
September	2008								
October	2008								
November	2008								
December	2008								
January	2009								
February	2009								
March	2009								
April	2009								
May	2009								
June	2009								
<b>12-month total</b>			0	0	\$0.00			0	0
<b>Square footage:</b>			0						

#### CONVERSION TO BTU EQUIVALENTS

Fuel totals						
Electricity -kWh	0	x	3,413	BTU/kWh	0	Million BTU's
Fuel oil - gallons	0	x	140,000	BTU/GAL.	0	Million BTU's
Natural gas - Therms	0	x	100,000	BTU/THERM	0	Million BTU's
Propane -	0	x	92,000	BTU/GAL.	0	Million BTU's
<b>Total energy use</b>					0	Million BTU's
<b>Cost per million BTU</b>					#DIV/0!	Million BTU's
<b>Total Energy Index</b>					#DIV/0!	kBTU/SF
<b>Total Cost Index</b>					#DIV/0!	Per Sq. Ft.

