

Staff Workshop On Block Grant Program Funding Application Process for Small Cities and Counties

October 22, 2009



Block Grant Program Funding Application

1. Energy Efficiency Project
2. Direct Purchase Option



Energy Efficiency Project

1. All building related projects are eligible
 - ❑ Lighting and control projects
 - ❑ HVAC and control projects
 - ❑ Building envelope project
 - ❑ Domestic Hot water Projects
 - ❑ Demand response projects
 - ❑ Kitchen Projects
 - ❑ Energy generation projects
2. Feasibility Studies are required
3. Need to meet 10 million Btu per \$1,000 grant funds spent requirement
4. Can fund up to 100% of total energy efficiency measure
5. Funds can not exceed total allocation



Energy Efficiency Project

Feasibility Studies should include:

1. Latest 12 month utility bills
2. Energy efficiency project description (current and proposed) with an energy efficiency project summary
3. Energy balance if HVAC equipment energy use exceeds 50% of electrical usage
4. Energy efficiency measure calculations



Energy Efficiency Project

Sample Energy Efficiency Project Summary

Facility	Billing Demand Savings(kW)	Annual Elect Savings (kWh/yr)	Annual Elect Cost Savings (\$/yr)	Installed Project Cost	Block Grant amount	Cost Effectiveness Ratio	Simple Payback
T12 to T8 retrofit							
Total							



Energy Efficiency Project

Energy Balance To Show Percent Total

1. Lighting
 - ◆ Lighting intensity or detailed light count for Interior lights
 - ◆ Exterior lights
2. HVAC
 - ◆ Packaged A/C units
 - ◆ Chillers & boiler
 - ◆ Air handlers
 - ◆ Cooling tower
 - ◆ Pumps
3. Domestic hot water
4. Computer and plug loads
5. Others



Energy Efficiency Project

Energy Calculation for Pre- and Post-Energy Use

1. Lighting (spreadsheet)
2. HVAC
 - ◆ Engineering calculation
 - ◆ Temperature Bin model
 - ◆ Hourly simulation Model, (eQuest, Trace 700, Energy Pro etc.)
3. Domestic hot water
 - ◆ Engineering calculation
4. Building Envelop
 - ◆ Engineering calculation
 - ◆ Building simulation model



Energy Efficiency Project

1. Combined projects must meet 10 mmBtu/ \$1000 grant fund awarded
2. Cost Effectiveness Calculation
 - Multiple energy efficiency project calculation
 - ◆ Combine short payback and long payback projects
 - ◆ Use Cost Effectiveness calculator provided at CEC website <http://www.energy.ca.gov/recovery/blockgrant.html>
 - Use source energy or higher heating values
 - ◆ Electricity Savings 1 kWh = 10,239 Btu
 - ◆ Natural Gas Savings 1 therm = 100,000 Btu
 - ◆ Propane fuel Savings 1 gallon = 94,500 Btu
 - ◆ Diesel or Fuel Oil Savings 1 gallon = 140,000 Btu



Energy Efficiency Project

Sample Cost Effectiveness Ratio Table

Energy Efficiency Project	KWh Savings	Natural Gas Savings	Energy Cost Savings	Source mmBTU	Cost Effectiveness Ratio	Maximum Available Grant	Estimated Project Cost	Combined Cost Effectiveness
Install Packaged AC Unit for Dispatching Unit (instead of running chiller)	63420.9	0.0	\$ 5,907	649	10	\$ 64,937	\$ 13,799	47
Old Library Lighting HVAC	10964.0	446.0	\$ 2,211	157	10	\$ 15,686	\$ 56,000	3
Install New Induction Parking Lot Lights	7483.23	0	\$ 966.78	77	10	\$ 7,662	\$ 10,861	7
Total	81868.1	446.0	9085.5	882.8		\$ 88,285	\$ 80,660	10.9

DOE Block Grant Allocation	\$ 81,861
Project Meets DOE Guideline	Yes



Direct Equipment Purchase Option

- Features:

1. Detailed Energy Studies are not required
2. Preselected Energy Efficiency Measures that are deemed cost effective (Equipment List in Exhibit 2)
3. Supporting documents of existing and proposed efficiency measures including equipment size and hours of operations are required.
4. Allocation can be used for all Material and Labor costs, as long as labor cost does not exceed 50% of measure allocation.
5. Can fund up to 100% of total energy efficiency measure
6. Funds can not exceed total allocation



Direct Equipment Purchase List

- Lighting and Controls:

1. T-8 Fluorescent Lamps replacing T-12 Fluorescent Lamps
2. T-8 Fluorescent Lamps replacing older generation T-8 Fluorescent Lamps (2,000 hours of operation is required). Proration is allowed for less than minimum operation
3. Electronic Ballasts replacing Magnetic Ballasts
4. LED exit signs replacing Incandescent or Fluorescent signs
5. LED or Induction exterior lighting and controls including: Street Lights, Wall-Packs, Parking Structures, Walk-Ways, etc..
6. LED Traffic and Pedestrian signal modules replacing inc. modules
7. Dual Technology Occupancy Sensors (Passive & Ultrasonic)



Direct Equipment Purchase List

- Mechanical / Electrical:

1. NEMA approved premium efficiency motors replacing regular efficiency motors (Not to Exceed \$100/ HP)
2. Variable Frequency Drives (VFD's) for all motors, fans, pumps (Not to Exceed \$300/HP)
3. High Efficiency HVAC system replacement (Not to Exceed \$1,000/ Ton)
4. Condensing Boiler or Furnace not to Exceed \$2,500/ one million Btu's)
5. Vending Machine Controllers
6. Programmable Thermostats



Attachment B Documentation

<i>Existing Equipment</i>	<i>Proposed Equipment</i>	<i>Facility Where Equipment Installed</i>	<i>Existing Capacity (kW, HP, Btus, etc.)</i>	<i>Proposed Capacity (kW, HP, Btus, etc.)</i>
T12 Mag Ballasts (2 Lamps)	28 W T8 EI Ballast (2 Lamps)	Corporation Yard	80 W	46 W
4 ton HVAC	energy Eff HVAC	Corporation Yard	4 ton each	4 ton each
HPS parking lot lights	LED parking lot lamps	Corporation Yard	295 W	139 W
HPS wall-packs	Induction wall packs	Corporation Yard	120 W	40 W
T12 Mag Ballasts (3 Lamps)	28 W T8 EI Ballast (3 Lamps)	Corporation Yard	120 W	71 W
32 W T8 lamps	28 W T8 Lamps	City Hall	32 W	28 W
10 ton HVAC	energy Eff HVAC	Corporation Yard	10 ton	10 ton
T12 Mag Ballasts (2 Lamps)	28 W T8 EI Ballast (2 Lamps)	Waste Water Treatment	80 W	46 W
70 HP pump w std motor	70 HP pump w premium efficiency motor	Waste Water Treatment	70 HP	70 HP



Attachment B Documentation (continued)

<i>Number of Hours of Operation</i>	<i>Number of Units</i>	<i>Equipment/ Material Cost per Unit</i>	<i>Total Equipment/ Material Cost</i>	<i>Total Installation Cost</i>	<i>Total Project Costs</i>
2,000.00	23.00	\$ 25.00	\$ 575.00	\$ 460.00	\$ 1,035.00
1,200.00	2.00	\$ 4,000.00	\$ 8,000.00	\$ -	\$ 8,000.00
2,190.00	4.00	\$ 450.00	\$ 1,800.00	\$ 900.00	\$ 2,700.00
2,190.00	6.00	\$ 100.00	\$ 600.00	\$ 300.00	\$ 900.00
2,000.00	34.00	\$ 30.00	\$ 1,020.00	\$ 680.00	\$ 1,700.00
2,000.00	40.00	\$ 3.00	\$ 120.00	\$ 40.00	\$ 160.00
1,200.00	1.00	\$ 10,000.00	\$ 10,000.00	\$ -	\$ 10,000.00
2,000.00	30.00	\$ 25.00	\$ 750.00	\$ 600.00	\$ 1,350.00
2,000.00	1.00	\$ 7,000.00	\$ 7,000.00	\$ -	\$ 7,000.00
	141.00		\$ 29,865.00	\$ 2,980.00	\$ 32,845.00



For Technical Information or Questions

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