

**Agency: Commerce, Community and Economic Development**

**Grants to Named Recipients (AS 37.05.316)**

**Grant Recipient: Nanwalek IRA Council**

**Federal Tax ID: 92-0156920**

**Project Title:**

# Nanwalek IRA Council - Back-up Generator Purchase, Shipping and Installation

**State Funding Requested: \$ 25,000**

**House District: 35 - R**

One-Time Need

**Brief Project Description:**

The \$25,000 will be used to finish purchasing, shipping, and installing a back-up generator that was partially funded in the FY2008 capital budget. The rural community of Nanwalek experiences many black outs a year that can last many days, leaving homes unheated and spoiling meat stored in the freezer.

**Funding Plan:**

**Total Cost of Project: \$120,000**

	<u>Funding Secured</u>		<u>Other Pending Requests</u>		<u>Anticipated Future Need</u>	
	<i>Amount</i>	<i>FY</i>	<i>Amount</i>	<i>FY</i>	<i>Amount</i>	<i>FY</i>
State Funds	\$75,000	FY2008				
Local Funds	\$20,000	FY2008				
<b>Total</b>	<b>\$95,000</b>					

**Detailed Project Description and Justification:**

Nanwalek experiences black outs two or three times a year and most homes are heated exclusively by wood heat. Community members have lost their subsistence food supplies because during times of blackout their freezers and other appliances don't function. The community still needs an additional \$25,000 toward the purchase, shipping, and installation of a back-up generator, which would be large enough to benefit the entire village. Nanwalek is the last community on the southern end of the peninsula and it is not on the road system. It often takes hours or even days for Homer Electric Association to find the cause of the outage and make necessary repairs.

**Project Timeline:**

Once funds are received, it will take approximately four months to ship and install the generator.

**Entity Responsible for the Ongoing Operation and Maintenance of this Project:**

Nanwalek IRA Council

*For use by Co-chair Staff Only:*

4:47 PM 4/29/2008

**Grant Recipient Contact Information:**

Contact Name: Jerry Demas, Finance Director  
Phone Number: 907-281-2274  
Address: POB 8028 Nanwalek, AK 99603  
Email: nanwalek@yahoo.com

Has this project been through a public review process at the local level and is it a community priority?  Yes  No



# KENAI PENINSULA BOROUGH

## YEAR 2008 STATE CAPITAL IMPROVEMENT PROJECTS

**COMMUNITY: NANWALEK**

**Funding Recipient: Nanwalek IRA Council**

Project Name: Back Up Generator

Project  
Priority  
Ranking: 1

### Detailed Project Description and Justification:

Our community experiences black outs two or three times a year and most homes are heated exclusively by electricity not wood heat. Community members have lost their subsistence food supplies because during times of blackout their freezers and other appliances don't function. We still need at least an additional \$25,000 toward the purchase, shipping and installation of a back up generator which would be large enough to benefit the entire community. Nanwalek is the last community on the southern end of the peninsula and it is not on the road system. It often takes hours or even days for Homer Electric Association to find the cause of the outage and make necessary repairs.

**Funding Requested:** \$ 25,000  
**Total Project Cost:** \$100,000  
**Local Match (if any) and Source:** \$ 75,000 State of Alaska Grant 2007

**CONTACT INFORMATION**

Nanwalek IRA Council  
Wally Kvasnikoff, First Chief  
P. O. Box 8028  
Nanwalek, Alaska 99603

Phone: 907-281-2274  
Fax: 907-281-2252  
Email: nanwalek@yahoo.com

Election Districts: Senate District: R  
House District: 35

*designated  
\$20.0 towards  
back up gen -  
how much  
more will they  
need. \$25.0  
not \$25.0*



Image shown may not reflect actual package.

## STANDBY

**300 kW 375 kVA  
60 Hz 1800 rpm 480 Volts**

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

## FEATURES

### FUEL/EMISSIONS STRATEGY

- Tier 3

### WORLDWIDE PRODUCT SUPPORT

- Caterpillar® dealers provide extensive post sale support including maintenance and repair agreements
- Caterpillar dealers fill 99.7% of parts orders within 24 hours
- Caterpillar dealers have over 1,798 dealer branch stores operating in 200 countries
- The Cat® S•O•S<sup>SM</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

### UL 2200

- UL 2200 listed packages are available. Certain restrictions may apply. Consult with your Caterpillar dealer network

### FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested

### SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

### CAT® C9 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight
- ADEM™A4 electronic engine control

### CAT GENERATOR

- Matched to the performance and output characteristics of Caterpillar engines
- 2/3 pitch minimizes harmonic distortion and facilitates parallel operation
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H Insulation

### CAT EMCP 3 CONTROL PANELS

- Controls designed to meet individual customer needs
- Options for power metering and protective relaying are available
- Options to meet UL/CSA/NFPA
- Rear mounted power center provides convenient location for control panel, optional power terminal strips and optional circuit breakers

# STANDBY 300 ekW 375 kVA

60 Hz 1800 rpm 480 Volts



## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> <li>• Light Duty Air filter</li> </ul>	<ul style="list-style-type: none"> <li>• Dual element &amp; heavy duty air cleaners</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Radiator package mounted(50°C)</li> <li>• Coolant level sight gauge</li> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Caterpillar Extended Life Coolant</li> </ul>	<ul style="list-style-type: none"> <li>• Radiator duct flange</li> </ul>
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> </ul>	<ul style="list-style-type: none"> <li>• Mufflers</li> <li>• Stainless steel exhaust flex with split cuff connectors</li> <li>• Elbows</li> </ul>
Fuel	<ul style="list-style-type: none"> <li>• Primary fuel filter with integral water separator</li> <li>• Secondary fuel filters</li> <li>• Fuel cooler</li> <li>• Fuel priming pump</li> <li>• Fuel pressure gauge</li> <li>• Engine fuel transfer pump</li> </ul>	<ul style="list-style-type: none"> <li>• Integral UL listed fuel tank bases</li> <li>• Flex fuel line</li> <li>• Fuel level switch</li> </ul>
Generator	<ul style="list-style-type: none"> <li>• Self excited</li> <li>• Class H insulation</li> <li>• Class H Temperature Rise</li> <li>• Random Wound</li> <li>• R448 voltage regulator with load adjustment module</li> <li>• IP23 Protection</li> <li>• Power Center</li> <li>• Single phase sensing</li> </ul>	<ul style="list-style-type: none"> <li>• Permanent magnet excitation</li> <li>• Internal excitation</li> <li>• Oversize and premium generators</li> <li>• Three phase sensing</li> <li>• Digital voltage regulator with KVAR/PF control</li> <li>• Anti-condensation space heaters</li> <li>• Cable access box</li> <li>• Reactive droop</li> </ul>
Power Termination	<ul style="list-style-type: none"> <li>• Bus-bar connection inside generator (NEMA pattern)</li> </ul>	<ul style="list-style-type: none"> <li>• Circuit breakers, UL listed, 3 pole</li> <li>• Circuit breakers, IEC compliant, 3-4 pole</li> <li>• Power terminal strip connections in power center</li> <li>• Shunt trip</li> <li>• Auxiliary contacts</li> </ul>
Governor	<ul style="list-style-type: none"> <li>• ADEM™A4</li> </ul>	<ul style="list-style-type: none"> <li>• Load share module</li> </ul>
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 3.1 (mounted inside power center)</li> <li>• Rear facing</li> <li>• Speed adjust</li> <li>• Emergency stop pushbutton</li> <li>• Voltage adjustment</li> </ul>	<ul style="list-style-type: none"> <li>• EMCP 3.2 &amp; EMCP 3.3</li> <li>• Right-hand mounting of control panel</li> <li>• Local annunciator modules (NFPA 99/110)</li> <li>• Remote annunciator modules (NFPA 99/110)</li> <li>• Discrete I/O module</li> </ul>
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valves</li> <li>• Fumes disposal</li> <li>• Lube oil level indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Oil temperature sensor</li> <li>• Manual sump pump</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>• Formed steel wide base frame</li> <li>• Linear vibration isolation-seismic zone 4</li> </ul>	<ul style="list-style-type: none"> <li>• Oil field skid base</li> <li>• Formed steel wide base frame</li> </ul>
Starting/Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor</li> <li>• 45 amp charging alternator</li> </ul>	<ul style="list-style-type: none"> <li>• Jacket water heater with shut off valves</li> <li>• Block heater</li> <li>• Ether starting aids</li> <li>• Battery disconnect switch</li> <li>• Battery charger(5A,10A)</li> <li>• Oversize batteries</li> <li>• Batteries with rack and cables</li> </ul>
General	<ul style="list-style-type: none"> <li>• Paint - Caterpillar yellow except rails and radiators gloss black</li> <li>• Flywheel and flywheel housing - SAE No.1</li> </ul>	<ul style="list-style-type: none"> <li>• UL 2200 packages</li> </ul>

# STANDBY 300 ekW 375 kVA

60 Hz 1800 rpm 480 Volts



## SPECIFICATIONS

### CAT GENERATOR

Frame size.....LC5014J  
Excitation.....Self Excited  
Pitch.....0.6667  
Number of poles.....4  
Number of bearings.....1  
Number of leads.....12  
Insulation.....UL 1446 Recognized Class H with tropicalization and antiabrasion  
- Consult your Caterpillar dealer for available voltages  
IP rating.....IP23  
Alignment.....Pilot Shaft  
Overspeed capability.....125% of rated  
Wave form deviation (Line to Line).....2%  
Voltage regulator.....Single phase sensing  
Voltage Regulation.. Less than +/- 1/2% (steady state)Less than +/- 1% (no load to full load)  
Telephone Influence Factor.....Less than 50  
Harmonic distortion.....Less than 5%

### CAT DIESEL ENGINE

C9 ATAAC, I-6, 4-stroke-cycle watercooled diesel  
Bore - mm.....112.00 mm (4.41 in)  
Stroke - mm.....149.00 mm (5.87 in)  
Displacement - L.....8.80 L (537.01 in<sup>3</sup>)  
Compression ratio.....16.1:1  
Aspiration.....Turbocharged Air-to-Air Aftercooled  
Fuel system.....HUEI  
Governor type.....Caterpillar ADEM control system

### CAT EMCP 3 CONTROL PANELS

- EMCP 3.1 (Standard)
  - 24 Volt DC Control
  - NEMA 1, IP22 enclosure
  - UL/CSA/CE
  - Single location customer connector point
  - Run/Auto/Stop control
  - True RMS metering, 3-phase
  - Speed Adjust
  - Vandal cover (option)
  - Voltage adjust
  - Digital Indication for:
    - RPM
    - Operating hours
    - Oil Pressure
    - Coolant temperature
    - System DC volts
    - L-L volts, L-N volts, phase amps, Hz
    - ekW, kVA, kVAR, kW-hr, %kW, PF, (EMCP3.2/3.3)
  - Shutdowns with common indicating light for:
    - Low oil pressure
    - High coolant temperature
    - Low coolant level
    - Overspeed
    - Emergency stop
    - Failure to start (overcrank)
  - Programmable protective relaying functions: (EMCP 3.2 & 3.3)
    - Under and over voltage
    - Under and over frequency
    - Reverse power
    - Overcurrent
  - MODUS isolated data link (RS-485 half-duplex EMCP 3.2 & 3.3)
    - Terminal box mounted
- Consult your Caterpillar dealer for available voltages.

**TECHNICAL DATA**

Open Generator Set - - 1800 rpm/60 Hz/480 Volts	DM8168	
<b>Tier 3</b>		
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	375 kVA 300 ekW	
<b>Coolant to aftercooler</b> Coolant to aftercooler temp max	49 ° C	120 ° F
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	86.1 L/hr 66.7 L/hr 51.3 L/hr	22.7 Gal/hr 17.6 Gal/hr 13.6 Gal/hr
<b>Cooling System<sup>1</sup></b> Ambient air temperature Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine coolant capacity	49 ° C 0.12 kPa 497 m <sup>3</sup> /min 22.0 L	120 ° F 0.48 in. water 17551 cfm 5.8 gal
<b>Inlet Air</b> Combustion air inlet flow rate	25.7 m <sup>3</sup> /min	907.6 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	499.5 ° C 69.7 m <sup>3</sup> /min 170 mm 5.9 kPa	931.1 ° F 2461.4 cfm 7 in 23.7 in. water
<b>Heat Rejection</b> Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	121 kW 309 kW 89 kW 43 kW 21.9 kW	6881 Btu/min 17573 Btu/min 5061 Btu/min 2445 Btu/min 1245.5 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	682 skVA LC5014J 150 ° C	302 ° F
<b>Lube System</b> Sump refill with filter	40.0 L	10.6 gal
<b>Emissions (Nominal)<sup>3</sup></b> NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	4.11 g/hp-hr .25 g/hp-hr .06 g/hp-hr .033 g/hp-hr	

<sup>1</sup> Ambient capability at 300m (984 ft) above sea level. For ambient capability at other altitudes, consult your Caterpillar dealer. Air flow restriction (system) is added to existing restriction from factory. Generator temperature rise is based on a 40 C (104 F) ambient per NEMA MG1-32

<sup>2</sup> Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32.

<sup>3</sup> Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

# STANDBY 300 ekW 375 kVA

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## RATING DEFINITIONS AND CONDITIONS

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**Meets or Exceeds International Specifications:** AS1359, AS2789, CSA, EGSA101P, IEC60034, ISO3046, ISO8528, NEMA MG 1-32, UL508, 72/23/EEC, 89/336/EEC, 98/37/EEC

**Standby** - Output available with varying load for the duration of the interruption of the normal source power. Standby power in accordance with ISO8528. Fuel stop power in accordance with ISO3046, AS2789, and BS5514. Standby ambients shown indicate ambient temperature at 100 percent load which results in a coolant top tank temperature just below the shutdown temperature.

**Ratings** are based on SAE J1995 standard conditions. These ratings also apply at ISO3046, standard conditions.

**Fuel rates** are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements. Consult your Caterpillar representative for details.

**DIMENSIONS**

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<b>Package Dimensions</b>		
<b>Length</b>	<b>3132.0 mm</b>	<b>123.31 in</b>
<b>Width</b>	<b>1112.3 mm</b>	<b>43.79 in</b>
<b>Height</b>	<b>1844.5 mm</b>	<b>72.62 in</b>
<b>Weight</b>	<b>2287 kg</b>	<b>5,042 lb</b>

Note: Do not use for installation design.  
See general dimension drawings for detail (Drawing #2778059).

Performance No.: DM8168

Feature Code:: C09DE03

Source:: U.S. Sourced

26 June 2006

6984921

[www.CAT-ElectricPower.com](http://www.CAT-ElectricPower.com)

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February 28, 2008

Quote #: LRS781

Jerry Demas  
281-2274  
JLDZ@worldnet.att.net

Project; 300 KW Standby for Nanwalek

## **QUOTATION**

**CATERPILLAR DIESEL GENERATOR SET MODEL C9  
RATED 300 EKW STANDBY at 0.8 POWER FACTOR  
VOLTAGE 480      3PHASE      60 HZ**

Proposal also includes the following standard and optional equipment Quantity is one (1) per engine unless otherwise noted.

**STANDARD EQUIPMENT:**

INCLUDES ALL STANDARD EQUIPMENT PER ATTACHED SPEC SHEET

**ADDITIONAL EQUIPMENT:**

UL 2200 LISTED PACKAGE GEN SET  
60HZ 480 VOLTS  
STANDBY POWER APPLICATION  
EMCP 3.2 CONTROL PANEL  
300 EKW W/FAN  
600 AMP UL 3 POLE 80% CB 76  
SOUND ATTENUATED ENCLOSURE-YELLOW  
ENCLOSURE INT MAINT LIGHT  
GENERATOR 6114D FRAME SE  
SPEED ADJUST - EMCP 3.2  
WIDE BASE  
FUEL TANK BASE-660GAL (2500L)  
COOLANT LEVEL SENSOR  
BLOCK HEATER 1.5 KW 240 VAC  
FLEXIBLE FUEL LINES  
FUEL LEVEL SWITCH-  
LOW FUEL LEVEL SHUTDOWN  
PERMANENT MAGNET EXCITATION  
DIGITAL VOLTAGE REGULATOR-

CIR BRKR AUX CONTACTS 05  
SHUNT TRIP UL BKR (24 VDC) 03  
CONTROL PANEL MOUNTING - REAR  
OVERSIZE BATT-1300 CCA SL  
BATTERY CHARGER-10 AMP 23  
CONTROL GP-HEATER 110V  
AIR CLEANER-DUAL ELEMENT  
NEUTRAL GROUNDING CONNECTION

**ONE LOT FOB ANCHORAGE, AK \$ 89,567.00**

Delivery to Job site: 29 weeks after release to order.

Notes: Subject to all terms and conditions below

Excludes ATS (automatic transfer switch)

**Lloyd Shanley**  
**Sales Representative**  
**NC Power Systems**  
**6450 Arctic Blvd**  
**Anchorage, Alaska**  
**Office 907-786-7591**

[Lshanley@ncpowersystems.com](mailto:Lshanley@ncpowersystems.com)

## **TERMS AND CONDITIONS:**

1. The above quoted prices are subject to change without notice; price quoted is valid for 30 days.
2. The above quoted prices do not include state and local taxes, if applicable.
3. All orders to purchase or lease based on this quotation shall be subject to acceptance by NC Power Systems Co. All transactions shall be made on, and subject to NC Power Systems Co.'s standard terms, conditions and warranties, or modified documents reflecting mutually agreeable terms.
4. Provides Caterpillar Warranty for parts and labor for one year on NEW Caterpillar products. All other manufacturer's warranties apply per their respective warranty statements.
5. NC Power Systems Co. will not be responsible for, or subject to, penalties attributed to force majeure.

6. This proposal represents NC Power Systems Co.'s best interpretation of the project requirements, which may vary from other's interpretation. If equipment or services are not described, they cannot be construed to be included in this scope of supply.
7. Terms: Net upon invoice.
8. Quote does not include any installation labor, piping, wiring, fuel or jobsite offloading.
9. Start up& testing services if provided will be reviewed prior to technician being dispatched. If the site proves unready and additional trip (s) are necessary, additional charges will apply.
10. The following notes apply to this proposal: **NOT QUOTED TO ANY SPEC**

**How has the community shown support for this project? (Volunteerism, money, resolutions, etc.)**

When the electricity goes out people volunteer their generators and fuel to help others.

**What steps have been taken to date to get this project going?**

The Nanwalek IRA Council members have communicated with representatives from the borough to discuss this as one of the needs. In 2007, we requested this project and it was awarded but, the need to purchase, install and have it transported to Nanwalek will require additional funds. We need to purchase a big generator that will supply all the homes and businesses in Nanwalek.

**How did the community select this project as a funding priority? (Community meeting, survey, etc.)**

This has been discussed at council meetings and a community survey was given to each household in Nanwalek.

**If you conducted a community meeting, how was it advertised?**

**When and where was the meeting held?**

The meetings are posted in at least four public places. The meetings are held at the Community Center.

**Who attended (List specific groups such as community council, APC, general public, etc.)**

Nanwalek IRA Council members and community members.

**Who owns the property and what is the status of the land for the project?**

The Nanwalek IRA Council owns lands where the generator could be placed.

**Who will own the project or facility?**

The Nanwalek IRA Council and its staff.

**How will the project be constructed or accomplished?**

Currently we are doing research on what this project will entail. We have called the appropriate people to learn what will be needed to finalize this project.

**Who will operate and/or maintain the project or facility?**

The Nanwalek IRA Council and its staff.