

**ALASKA ENERGY AUTHORITY**  
**VILLAGE POWER SYSTEM ASSESSMENT**

Community: Newhalen  
Evaluation Date: Aug 11, 2012 Time Started 8:00am Completed 4:00pm  
Evaluator(s): Mike Dunn

**\* Indicates that only one from the group shall be chosen. Otherwise choose all that apply**

**Powerhouse Building**

**Site Location**

- ☒ Site suitable for powerhouse
- ☐ < 100 feet from a public well
- ☐ < 25 feet from an eroding bank or beach, or in a flood plain (runoff)

**\* Foundation**

- ☒ Powerhouse on acceptable foundation (pad & post, piling, concrete, etc.)
- ☐ Powerhouse directly on gravel pad or light timbers (raised timbers, on permeable gravel)
- ☐ Powerhouse directly on tundra or natural soils (no foundation)
- ☐ Powerhouse leaning considerably or unstable foundations (seismic hazard)

**\* Flooring**

- ☐ Welded steel deck plate or concrete (sealed)
- ☒ Steel deck plate or concrete (unsealed)
- ☐ Wood (sealed or painted)
- ☐ Wood (non-sealed or bare)

**\* Interior Walls**

- ☒ Concrete or metal skin
- ☐ Fiberglass reinforced paneling (FRP)
- ☐ Gypsum board
- ☐ Wood (painted or sealed)
- ☐ Wood (non-painted or bare)

**\* Exterior Walls**

- ☒ Concrete or metal siding
- ☐ Wood (painted or sealed)
- ☐ Wood (non-painted or bare)

\* Roof Penetration

- ☐ None
- ☒ Properly installed (rain tight)
- ☐ Minor leaks (repairable)
- ☐ Major leaks (not repairable)

\* Ventilation

- ☐ Proper ventilation (air intake & exhaust fans, louvers & hoods)
- ☒ Adequate ventilation (air intake & exhaust fans)
- ☐ Minimum ventilation (air intake)
- ☐ No ventilation (doors or windows have to be left open)

\* Lighting

- ☒ Excellent lighting
- ☐ Adequate lighting
- ☐ Poor lighting
- ☐ No lighting

Security

- ☐ Powerhouse fenced in & door locks
- ☒ Door locks
- ☐ No fence
- ☐ No door locks

**Generator Equipment and Installation**

Diesel Engines

	Unit #1	Unit #2	Unit #3	Unit #4	Unit # 5
kW	320kW	320kW	320kW	600kW	
Hours of Operation	31158	8158	57376	23367	

\* Generator Condition

	Unit #1	Unit #2	Unit #3	Unit #4	Unit #5
Good, like new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fair	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Poor, guards/covers missing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Load Sizing

- ☒ Properly sized generation to meet the community loads
- ☐ Undersized generation to meet the community loads
- ☐ Oversized generation to meet the community loads

\* Load Balance

- ☒ <10% Imbalance
- ☐ 10% to 25% Imbalance
- ☐ >25% Imbalance

\* Control Switchgear

- ☐ Fully automatic synchronizing switchgear
- ☐ Semi-automatic synchronizing switchgear
- ☒ Manually synchronizing switchgear
- ☐ Manual transfer switches
- ☐ Manual mounted breakers

\* Electrical

- ☒ Wiring appears appropriate
- ☐ Exposed wiring, improper grounding, missing covers etc.

\* Fuel System Inside Powerhouse

- ☐ Welded piping
- ☒ Welded & threaded piping
- ☐ Threaded piping
- ☐ Rubber hose

Fuel System Appurtenances

- ☐ No day-tank
- ☐ Additional for active leaks

Totalizing & Station Service Meter

- ☒ Properly installed and working totalizing & station service meter
- ☐ No totalizing meter
- ☐ No station service meter

**\* Fuel Meter**

- ☒ Properly installed & working fuel meter
- ☐ No fuel meter

**Environmental**

**Interior of Powerhouse**

- ☒ Clean, well-kept
- ☐ Old generator part stored inside facility
- ☐ Waste oil stored inside facility
- ☐ Apparent oil spills

**Under Facility**

- ☒ Clean, well-kept
- ☐ Old generator part stored under facility
- ☐ Waste oil stored under facility
- ☐ Apparent oil spills

**Surrounding of Powerhouse**

- ☒ Clean, well-kept
- ☐ Old generator part stored on site
- ☐ Waste oil stored on site
- ☐ Apparent oil spills

**\* Waste Oil Disposal**

- ☐ Waste oil blending system
- ☒ Waste oil incinerator
- ☐ Drum or tank storage for waste oils

**\* Life, Health, & Safety**

- ☐ Code Compliant
- ☒ Low risk
- ☐ Medium risk
- ☐ High risk
- ☐ Potential for loss of life

## Electrical Distribution Line Evaluation

### Overhead Distribution System

#### \* Pole type

- ☒ Fully treated poles
- ☐ Butt treated poles
- ☐ Native pole (trees)

#### \* Pole installation

- ☐ Proper depth (can be determined by the manufacture's mark or button on pole)
- ☒ Within 12 inches of recommended depth
- ☐ Within 24 inches of recommended depth
- ☐ Greater than 24 inches of recommended depth

#### \* Pole alignment

- ☐ Poles straight
- ☒ Poles leaning less than 10°
- ☐ Poles leaning greater than 10°

#### \* Distribution voltage

- ☒ =>7200 volts
- ☐ 2400 volts
- ☐ 480/277 volts
- ☐ 208/120 volts

#### \* Anchors

- ☒ Properly installed (<12 inches of the anchor rod exposed)
- ☐ 12 - 24 inches of the anchor rod exposed
- ☐ >24 inches of the anchor rod exposed

#### \* Primary conductor

- ☒ Appears properly installed (sag, conductor size, etc)
- ☐ Improperly installed (conductor needs resagging, etc)

#### \* Service conductor

- ☐ Appears properly installed (sag, conductor size, etc)
- ☒ Improperly installed (conductor needs resagging, etc)

**\* Meter installation**

- ☒ Appears to be properly installed (height, grounding, etc)
- ☐ Improperly installed (height, no ground, etc)

**\* Meter Condition Residential & Commercial**

- ☐ Good (appears in good condition)
- ☒ Fair (minor corrosion)
- ☐ Poor (major corrosion, needs replacing)

**\* Over all condition of the system**

- ☐ Excellent (no repairs needed)
- ☒ Good (minor repairs, re-sag guys, re-sag service drops, etc.)
- ☐ Poor (major repairs needed, pole, guy, conductor, meter replacement, etc)

**Underground Distribution System**

**\* Primary conductor**

- ☒ Appears to be properly installed
- ☐ Exposed conductor

**\* Transformers**

- ☒ Appears to be properly installed
- ☐ Improperly installed (no pad, leaning, etc)

**\* Service conductor**

- ☒ Appears to be properly installed
- ☐ Exposed conductor

## Operator Proficiency

### \* Meter Reading

- ☐ Excellent
- ☐ Good
- ☒ Acceptable
- ☐ Unacceptable

### \* Daily Logs

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

### \* Routine Maintenance

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

### \* Scheduled Maintenance

- ☐ Excellent
- ☐ Good
- ☒ Acceptable
- ☐ Unacceptable

### \* Maintenance Planning

- ☐ Excellent
- ☐ Good
- ☒ Acceptable
- ☐ Unacceptable

## Waste Heat Recovery

### \* Waste Heat Recovery Operational

- ☒ Yes  
☐ No

#### Office Building

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### \* BTU/Hr Meter

- ☒ Yes  
☐ No

### \* Additional Waste Heat Available

- ☐ No  
☒ Yes

List Potential New Users

#### School

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## System Information

Supply / Return Delta T **10deg F**

Estimate of current annual heating fuel gallons displaced

**5000**

Estimate of potential annual heating fuel gallons displaced

**16000**

Existing Heat Sales Agreement(s)

**None**

## General Questions

*Use separate sheet(s) to answer these questions.*

1. If records are available, indicate the number, duration, and causes of all forced outages during the last 12 months. If records are not available, provide whatever reasonable estimates available from utility personnel regarding outages number, duration, and causes. **Diesel plant is standby to hydro plant.**



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	Aug 11, 2012	TIME START	8:00a	TIME END	4:00p
COMMUNITY	Newhalen	UTILITY	INN Electric Cooperative		
OWNERSHIP	INN Electric Coop	CONTACT	George Hornberger		
OPERATOR	George Hornberger	PHONE	907-246-6242		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Caterpillar	Caterpillar	Caterpillar	Caterpillar	
ENGINE MODEL	3412	3412	3412	3508DI	
ENGINE RPM	1200	1200	1200	1200	
SERIAL NUMBER	81Z01200	81Z012898	81Z01008	70Z00654	
GOVERNOR TYPE	Woodward	Woodward	Woodward	Woodward	
MODEL ACTUATOR	D8250-454	D8250-454	D8250-501	G8250-565	
MODEL SPEED CONTROL	8271-442	8271-442	9987-818	8271-442	
DC VOLTAGE	24VDC	24VDC	24VDC	24VDC	
UNIT CIRCUIT BREAKER	ITE Imperial Corp	ITE Imperial Corp	ITE Imperial Corp	ITE Imperial Corp	
TYPE/AMP/VOLT	1200A / 2400V	1200A / 2400V	1200A / 2400V	1200A / 2400V	
CURRENT HOURS	31158	8158	57376	23367	
GENERATOR MAKE	Kato	Kato	Kato	Kato	
GENERATOR MODEL #	320 687361111	320 687361111	320 687361111	A245760000	
GENERATOR SERIAL #	87449-1	87449-2	87449-3	95837	
GENERATOR CAPACITY (kW)	320kW	320kW	320kW	600kW	
GENERATOR VOLTAGE	2400V	2400V	2400V	2400V	
VOLTAGE REGULATOR, MAKE & MODEL	Basler SR4A2B01A3E	Basler SR4A2B01A3E	Basler SR4A2B01A3E	Basler SR4A2B06A3E	
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y	Y	
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Landis / Gyr				
CATALOG # or TYPE	AXS4				
DEMAND ?	-				
CT RATIO	250:5				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Elster Type A1D				
CATALOG # or TYPE	TE0008055993				
BATT. CHARGER/TYPE/MODEL	SENS FC24-10-2011V				
FUEL DAY TANK TYPE	Pryco				
PUMP #	M544200-2				
MOTOR #	unknown				
FUEL DAY TANK METER	Data tag missing				
FIRE PROTECTION	Yes				
TYPE/OPERATIONAL?	Fire Extinguisher				
ORIGINAL CONTRACTOR					