

# Escanaba Electric Advisory Committee February 11, 2009

## Present and Future Power Supply Options

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Escanaba Energy



# Energy Supply Plan

*Why do we need a new energy supply plan?*

1. Escanaba is facing high electricity costs associated with high fuel costs and an inefficient power plant.
2. Escanaba is facing costs associated with maintaining an aged facility. E.g., \$972,000 in 2009 for one turbine generator re-build.
3. Escanaba must plan for future growth.
4. Escanaba needs to provide competitive priced and reliable electrical energy to its customers.



# Present and Future Power Supply Options

- Present Operation
  - What are we doing now?
- Options Considered to Date
  - What could we do?
- Choices for Future
  - What are we going to do?



# Present Operation - Assets

- Escanaba Power Plant

- 25 Mega Watt capacity, 2 12.5 MW identical steam generators
- Traveling grate stokers, coal fired
- 50 year old plant, very reliable, high generation costs

- Combustion Turbine

- 15 MW capacity, diesel fuel fired, “black start” capability
- Used for Emergency Power, Reserve Power, Revenue Source
- Ran for 411 hours for a profit of \$254,132 in 2007/2008
- 0 hours for City, 394 hours for MISO, 17 hours testing

- Transmission Lines

- Two 69 kV lines connect to ATC’s Delta Substation

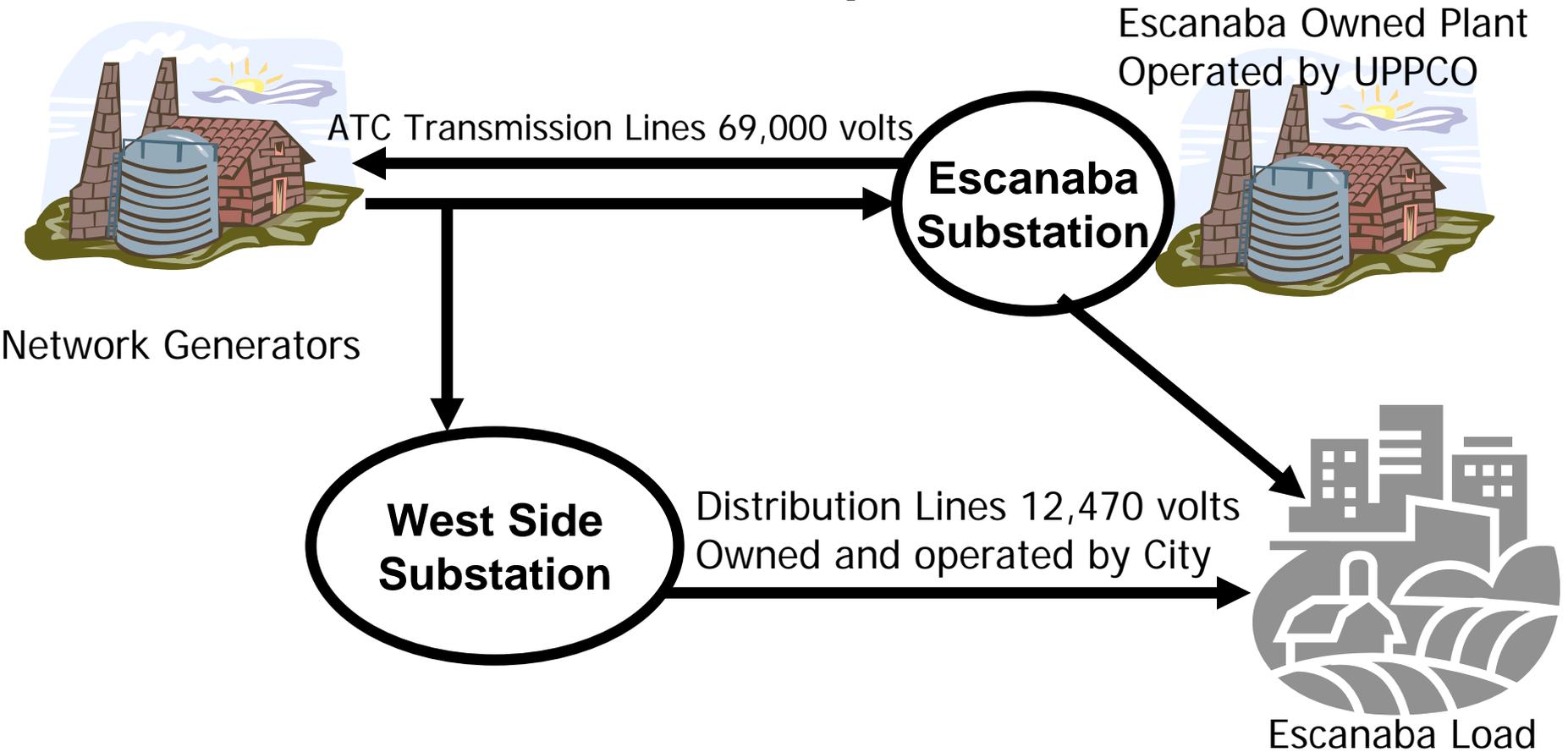


# Present Operation

- City Annual Peak Load ~ 30 MW
- City Annual Minimum Load ~ 10 MW
- City Load swings daily, weekly, seasonally
- What happens when City load exceeds 25MW?
  - We can buy power off “grid” (transmission system)
  - We can generate power with Combustion Turbine
  - To date, cheaper grid power has always been available



# Present Operation



# Present Operation

Distribution and Transmission Lines



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# Present Operation

- What happens if 1 or 2 Steam Generators Go Down?
  - The power comes from the transmission system
  - Most times customers do not notice change in power source
  - Each steam generator is shut down annually for maintenance
  - During yearly shut down, there is a period when BOTH steam generators are shut down
  - December 16, 2008 – both steam generators were down for 12 hours – not 1 outage reported that day
  - August 28, 2007 – Entire City out for 54 minutes, Plant went down, Transmission lines went down – Escanaba substation was the cause due to a lightning strike that had damaged some equipment
  - May 14 – August 21, 2007 – One generator was down for 98 days after being damaged by a lightning strike



# Options Considered to Date

- Continue to Operate the Plant “as is”
  - Construct a New Generation Plant (60 to 300 MW size)
  - Improve Plant Efficiencies at the Existing facility
  - Wind
  - Gasification
  - Biomass-Wood Chips
  - Biomass – Processed Wood
  - PRB (Western coal) Conversion
  - Purchase All Requirements Energy from Outside Source
- Red options have been discarded after thorough investigations



# Choices for Future

## Continue to Operate “As-Is”

- Reliable power from local source
- Continuation of existing UPPCO jobs at plant
- Plant maintenance and upgrade contracts typically awarded to local business
- Limited to 25Mw base load capacity
- High cost of power today, with potential to increase significantly
- Escanaba electrical customers would not realize competitive energy pricing as compared to our regional competition



# Choices for Future

## Purchase All Requirements Energy & Sell Plant

- Escanaba would realize lower costs of energy through full requirements purchase
- Plant jobs could be retained to some degree
- Private entity could be eligible for production tax credits if plant is converted to biomass (\$10 to \$21/MWh)
- Private entity could be eligible for waste energy recapturing stimulus money
- Potential increase in tax base through privatization and/or Payment in Lieu of Taxes
- Continued operation of plant by new owner
- Reliability from local generation retained (power plant & CT)
- City would maintain ownership of distribution system



# Sample Power Charges

These represent **approximate** charges. Variations could exist depending on actual usage patterns.

This chart shows what Escanaba's monthly rates could be under the various scenarios compared to other regional communities.

	Marquette	Escanaba with Wholesale Purchase	Escanaba Current 2008 rates	Manistique	Sturgeon Bay	Escanaba 2008 "Cost Based" rates	Escanaba 2009 "Cost Based" rates	Gladstone	Ishpeming
Residential 500 kWh/mo	\$41.70	\$46.72	\$50.88	\$48.15	\$55.38	\$57.49	\$63.60	\$65.50	\$73.97
Commercial 4000 kWh/mo	\$333.65	\$348.01	\$378.97	\$417.40	\$403.09	\$428.24	\$473.71	\$462.80	\$592.56
Large Power 200,000 kWh/mo	\$13,510.45	\$14,350.57	\$15,627.49	\$16,655.60	\$21,000.00	\$17,659.06	\$19,534.36	\$18,365.00	\$18,507.50



# How are other communities in the U.P. addressing their power needs?

City of Manistique – There is no city involvement in that the Edison Soo Electric Company serves this area.

Communities of Ishpeming, Houghton, Rapid River and Iron River – There is no community involvement in that the Upper Peninsula Power Company serves these areas.

Communities of Bark River, Iron Mountain and Kingsford – There is no community involvement in that Wisconsin Electric serves these areas.

City of Menominee – There is no city involvement in that Wisconsin Public Service serves this area.

City of Marquette – The City of Marquette retains ownership of the generating facility, but the facility is operated by the Marquette Board of Light and Power (self-generation/distribution).

Communities of L'Anse, Baraga, Norway, Negaunee, Gladstone (full membership in 2010) and the Alger-Delta Coop (full membership in 2012) – These communities are load serving entities who receive their power from Wisconsin Public Power Inc. (WPPI) on a member equivalent basis.

# Additional Information

Please visit the City of Escanaba Energy  
Website at:

[www.escanabaenergy.com](http://www.escanabaenergy.com)

or

[www.escanaba.org](http://www.escanaba.org)