



Public Utilities Commission

SB 310- Specific

Application for Certification as an
Eligible Ohio Renewable Energy
Resource Generating Facility

Case No.: 14-2286-EL-REN

A. Name of Renewable Facility: Greenup Hydroelectric Plant

The name specified will appear on the facility's certificate of eligibility issued by the Public Utilities Commission of Ohio.

Facility Location

Street Address: 3263 Kenyon Rd.

City: Franklin Furnace State: OH Zip Code: 45629 County: Scioto

Facility Latitude and Longitude

Latitude: 38 degrees, 38 minutes, 48 seconds Longitude: 82 degrees, 51 minutes, 38 seconds

There are internet mapping tools available to determine the latitude and longitude, if you do not have this information.

For facilities that have a total nameplate capacity of 1 MW or greater provide the U.S. Department of Energy, Energy Information Administration Form EIA-860 Plant Name and Plant Code.

EIA-860 Plant Name: W.T. Love Generating Station

EIA Plant Code: 4258

B. Legal Name of the Facility Owner: City of Hamilton

Please note that the facility owner name listed will be the name that appears on the certificate. The address provided in this section is where the certificate will be sent.

If the facility has multiple owners, please provide the following information for each on additional sheets.

Legal Name of Facility Owner Representative (First Name, MI, Last Name): Kevin M. Maynard

Title: Director of Electric

Organization: City of Hamilton

Street Address: 345 High St., Suite 450

City: Hamilton State: OH Zip Code: 45011

Country: USA

Phone: 513.785.7208 Fax: 513.785.7230 Email Address: maynardk@ci.hamilton.oh.us

Web Site Address (if applicable):

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2014 DEC 18 PM 2:15

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C. List the name, address, telephone number and web site address under which the Applicant will do business in Ohio.

Legal Name of Facility Owner Representative (First Name, MI, Last Name): Kevin M. Maynard

Title: Director of Electric

Organization: City of Hamilton

Street Address: 345 High St., Suite 450

City: Hamilton State: OH Zip Code: 45011

Phone: 513.785.7208 Fax: 513.785.7230 Email Address: maynardk@ci.hamilton.oh.us

Web Site Address (if applicable):

D. Name of Generation Facility Operating Company: City of Hamilton

Legal Name of Contact Person (First Name, MI, Last Name): Kevin M. Maynard

Title: Director of Electric

Organization: City of Hamilton

Street Address: 345 High St., Suite 450

City: Hamilton State: OH Zip Code: 45011

Phone: 513.785.7208 Fax: 513.785.7230 Email Address: maynardk@ci.hamilton.oh.us

Web Site Address (if applicable):

E. Regulatory/Emergency contact

Legal Name of Contact Person (First Name, MI, Last Name): Kevin M. Maynard

Title: Director of Electric

Organization: City of Hamilton

Street Address: 345 High St., Suite 450

City: Hamilton State: OH Zip Code: 45011

Phone: 513.785.7208 Fax: 513.785.7230 Email Address: maynardk@ci.hamilton.oh.us

Web Site Address (if applicable):

F. Certification Criteria 1: Deliverability of the Generation into Ohio

Ohio Revised Code (ORC) Sec. 4928.64(B)(3)

Check which of the following applies to the facility's location:

- ☒ The facility is located in Ohio.
- ☐ The facility is located in a state geographically contiguous to Ohio (Indiana, Kentucky, Michigan, Pennsylvania, or West Virginia).
- ☐ The facility is located in the following state:

If the renewable energy resource generation facility is not located in Ohio, Indiana, Kentucky, Michigan, Pennsylvania, or West Virginia, you are required to submit a POWER FLOW study by one of the regional transmission organizations (RTO) operating in Ohio, either PJM or Midwest ISO, demonstrating that the power from the facility is physically deliverable into the state of Ohio. . This study must be appended to the application as an exhibit. THE FACILITY MUST BE INTERCONNECTED TO TRANSMISSION LINES. FOR ADDITIONAL INFORMATION ON DELIVERABILITY REQUIREMENTS, SEE THE COMMISSION'S MARCH 23, 2011 ORDER IN CASE NO. 09-0555-EL-REN.

G. Certification Criteria 2: Qualified Resource or Technology

You should provide information for only one generation facility in this application. If you are applying for more than one facility, you will need to complete a separate application for each facility.

The resource or technology for which you are applying for certification must be a renewable energy resource or technology included in Amended Substitute Senate Bill 310 (SB 310) that was not previously recognized as a renewable energy resource under previous statutes. If the resource or technology was a renewable resource or technology recognized by statute before the effective date of SB 310, the applicant must use the online Renewable Energy Resource Generating Facility Application for Certification at

<http://www.puco.ohio.gov/puco/index.cfm/puco-forms/renewable-energy-resource-generating-facility-application-for-certification/>

G.1 The Applicant is applying for certification in Ohio for a facility using the following SB 310 qualified resources or technologies (Sec. 4928.01 Ohio Revised Code):

The Greenup Hydroelectric Plant is a run-of-the-river hydroelectric facility located in Ohio that was placed in service on or after January 1, 1980. It relies upon the Ohio River to produce power and operates, or is rated to operate, at an aggregate capacity of at least 40 MW.

G.2. For the resource or technology you identify in Sections G.1 above, please provide a detailed description of the system.

The Greenup Hydroelectric Plant consists of three (3), horizontal shaft bulb-type turbines and generators. The turbine runners have 4 adjustable blades. The turbines are directly connected to the generators operating at 90 rpm. Each turbine has a rated output of 24.3 MW. Each generator is rated at 23.9 MW with a Power factor of 0.98. The plant is designed to produce 70 megawatts of power at optimum river conditions.

G.3. Please include a detailed description of how the output of the facility is going to be measured and verified, including the configuration of the meter(s) and the meter type(s).

The Greenup Hydroelectric Plant is measuring total facility output by summing each unit(s) three (3) hourly output and subtracting station in-house hourly usage. The (3) individual units output are metered using the digital Shark 200 manufactured by Electro Industries GaugeTech. The in-house station service usage is measured using one (1) active of three (3) analog Enertec Schlumberger rotary type C3V4 0 U meters.

Unit hourly output for each of the three (3) generators is totaled per hour, on the hour and stored internally within the Shark 200 electronically and subsequently downloaded into a readable excel file for hour to hour sum totals in megawatt-hours. The in-house station service usage is calculated in the same manner with the exception that the hourly readings and hourly calculation for station service usage are written down by operators each and every hour, 24 / 7 & 365 days per year. The in-house station service usage is measured in kilo-watt hours.

Output Net_{hourly} = ((Unit #1 Net_{hourly})+(Unit #2 Net_{hourly})+(Unit #3 Net_{hourly})) - Station service_{hourly}

The Greenup facility is working to verify the total net output using the above Shark 200 meters by Electro Industries GaugeTech to further improve the accuracy of metered output reporting.

G.4. Please attach digital photographs that depict an accurate characterization of the renewable generating facility. Please indicate the date(s) the photographs were taken.

INSERT PHOTOGRAPH(S)



Photo taken 6/11/2014



Photo taken 8/18/2009

H. Certification Criteria 3: Placed-in-Service Date (Sec. 4928.64. (A)(1) O.R.C.)

The Renewable Energy Facility:

☒ has a placed-in-service date before January 1, 1998; (month/day/year): October 1982

☐ has a placed-in-service date on or after January 1, 1998; (month/day/year):

☐ has been modified or retrofitted on or after January 1, 1998; (month/day/year):

Please provide a detailed description of the modifications or retrofits made to the facility that rendered it eligible for consideration as a qualified renewable energy resource. In your description, please include the date of initial operation and the date of modification or retrofit to use a qualified renewable resource. Please include this description as an exhibit attached to your application filing and identify the subject matter in the heading of the exhibit.

☐ not yet online; projected in-service date (month/day/year):

H.1 Is the renewable energy facility owner a mercantile customer?

☐ Yes

☒ No

ORC Sec. 4928.01 (19) "Mercantile customer" means a commercial or industrial customer if the electricity consumed is for nonresidential use and the customer consumes more than seven hundred thousand kilowatt hours per year or is part of a national account involving multiple facilities in one or more states.

Has the mercantile customer facility owner committed to integrate the resource under the provisions of Rule 4901:1-39-08 O.A.C?

☐ Yes

☐ No

If yes, please attach a copy of your approved application as an exhibit to this filing.

I. Facility Information

I.a If applicable, the nameplate capacity of the entire facility in kilowatts (kW): or in megawatts (MW): 71.7

To convert from kilowatts (kW) to megawatts (MW) divide by 1,000.

I.b If applicable, what is the expected net heat rate of the facility:
BTU/kWh

Number of Generating Units: 3

I.1 If applicable, for each generating unit, provide the following information:

In-Service date of each unit	The nameplate capacity of each unit in megawatts (MW)	Projected Annual Gross Generation (MWh)	Expected Annual Capacity Factor %
Unit 1 - 10/18/1982	23.9	90,000	65%
Unit 2 - 10/12/1982	23.9	90,000	65%
Unit 3 - 10/11/1982	23.9	90,000	65%

(To expand the number of rows if more units need to be reported, place your cursor in the bottom right cell and hit tab).

$$\text{Capacity Factor \%} = \frac{\text{Projected Annual Generation}}{\text{Nameplate Capacity} \times 8760} \times 100$$

J. Regional Transmission Organization Information

In which Regional Transmission Organization area is your facility located:

☒ Within Geographic Area of PJM Interconnection, L.L.C.

☐ Within Geographic Area of Midwest ISO

☐ Other (specify):

K. Attribute Tracking System Information

Are you currently registered with an attribute tracking system: ☒ Yes ☐ No

In which attribute tracking system are you currently registered or in which do you intend to register (*the tracking system you identify will be the system the PUCO contacts with your eligibility certification*):

☒ GATS (Generation Attribute Tracking System)

☐ M-RETS (Midwest Renewable Energy Tracking System)

☐ Other (specify):

K.1 Enter the generation ID number the facility has been assigned by the tracking system:

MSET89560101

(If the generation ID number has not yet been assigned, you will need to file this number in the PUCO Case Docket within 15 days of the facility receiving this number from the tracking system).

L. Other State Certification

Is the facility certified by another state as an eligible generating resource to meet the renewable portfolio standards of that state?

☐ Yes

☒ No (in process of completing application for certification in PA, DC, MD, NJ, IL, WV)

L.1 If yes, for each state, provide the following information:

Name of State	State Certification Agency	State Certification Number	Date Issued

(To expand the number of rows if more units need to be reported, place your cursor in the bottom right cell and hit tab).

M. Type of Generating Facility

Please check all of the following that apply to the facility:

☒ **Utility Generating Facility:**

☐ Investor Owned Utility

☐ Rural Electric Cooperative

☒ Municipal System

☐ Electric Services Company (competitive retail electric service provider certified by the PUCO)

☐ Distributed Generation with a net metering and interconnection agreement with a utility.
Identify the utility:

☐ Distributed Generation with both on-site use and wholesale sales.
Identify the utility with which the facility is interconnected:

☐ Distributed Generation, interconnected without net metering.
Identify the utility with which the facility is interconnected:

☐ Other:

N. Meter Specifications

Metering Requirements

If the renewable energy resource electrical generating facility is 6 kW or below, the output may be measured with either an inverter meter or a utility grade meter.

All electrical generating facilities that are larger than 6 kW must measure the output of the facility with a utility grade meter. Electrical generating facilities that are larger than 6 kW and that are not measuring output with a utility grade meter will not be certified. OAC 4901:1-40-04 (D)(1)

Please only report on the meter or the meters used to measure the output from the facility which will be reported to the attribute tracking system.

N.a The meter(s) that are measuring output from the facility are:

☐ Inverter Meter(s)

☒ Utility Grade Meter(s) (Must meet ANSI 12.1, or demonstrate an accuracy level of $\pm 2\%$)

N.1 Please provide the following information for each meter used in your system.

N.1.a Manufacturer: Electro Industries GaugeTech

N.1.b Serial Number: 0052186527

N.1.c Type: Shark 200

N.1.d Date of Last Certification: 10/7/2011

N.2.a Manufacturer: Electro Industries GaugeTech

N.2.b Serial Number: 0052189025

N.2.c Type: Shark 200

N.2.d Date of Last Certification: 10/7/2011

N.3.a Manufacturer: Electro Industries GaugeTech

N.3.b Serial Number: 0052185122

N.3.c Type: Shark 200

N.3.d Date of Last Certification: 10/7/2011

N.4.a Manufacturer: Enertech Schlumberger

N.4.b Serial Number: B 316140

N.4.c Type: C3V4 O U

N.4.d Date of Last Certification: Initial installation October 1982

N.5.a Manufacturer: Enertech Schlumberger

N.5.b Serial Number: B 316142

N.5.c Type: C3V4 O U

N.5.d Date of Last Certification: Initial installation October 1982

N.6.a Manufacturer: Enertech Schlumberger

N.6.b Serial Number: B 316141

N.6.c Type: C3V4 O U

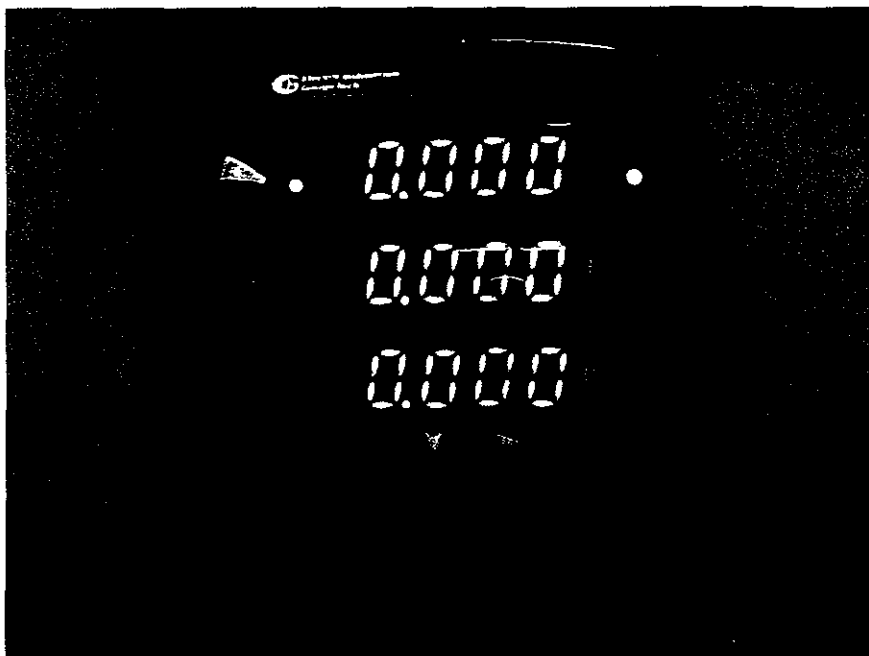
N.6.d Date of Last Certification: Initial installation October 1982

Attach a photograph of the meter(s) with date image taken. The meter reading(s) must be clearly visible in the photograph.

N.1.e Report the total meter reading number at the time the photograph was taken and specify the appropriate unit of generation (e.g., kWh): 1,540,325 kWh as of 10/17/2014 (total of three rotary meter readings – see pp. 13-15 for photos)

Date photographs taken: 10/17/2014

INSERT PHOTOGRAPH(S)



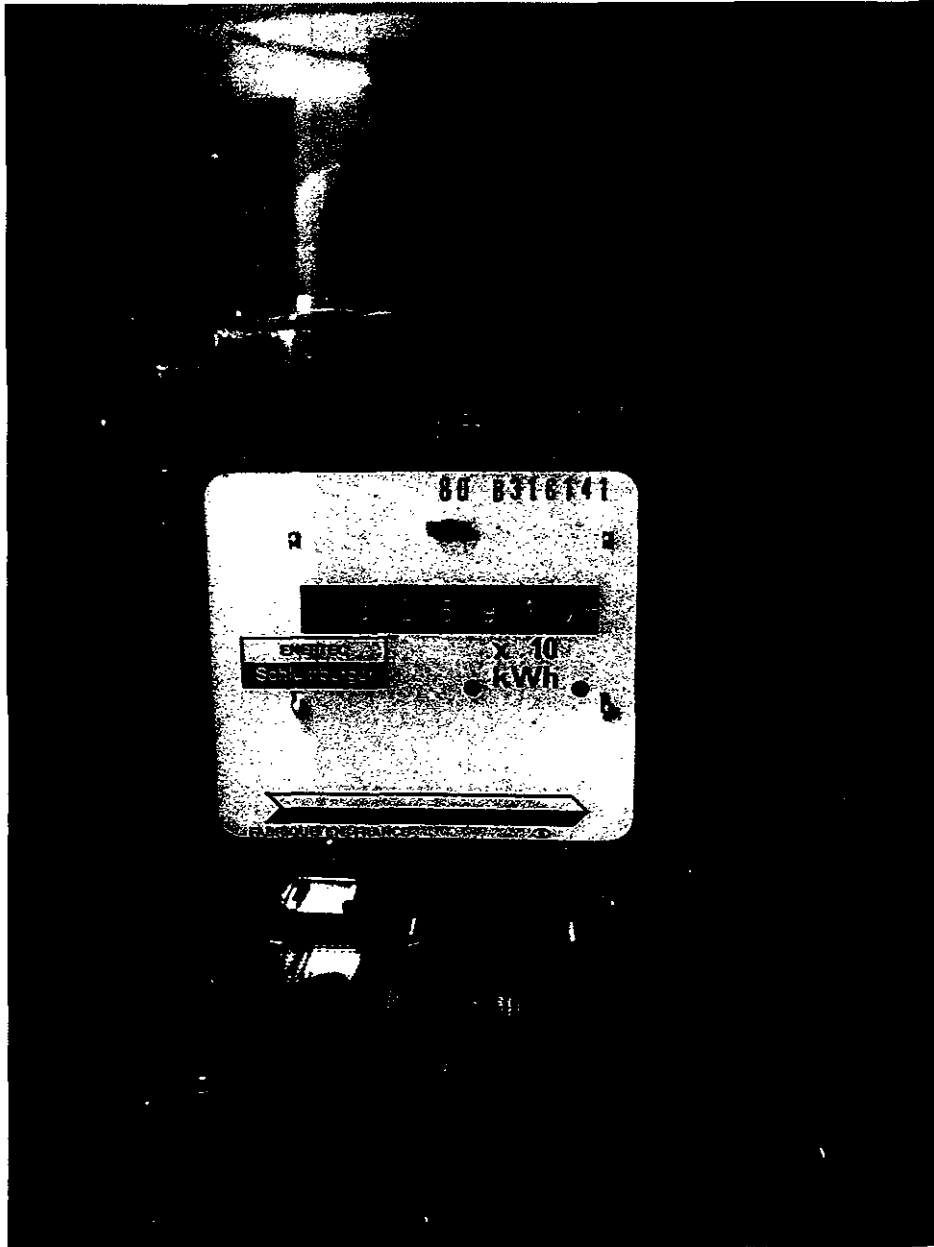
The Generator 1 Shark Meter is a LED digital meter that displays instantaneous readings. The picture shown displays Generator 1 as being Off-Line. Hourly readings are stored digitally at an internal memory location and hourly accrued readings are downloaded to an excel spreadsheet for hour to hour generation totals. Hourly readings are in Mega-Watt Hours. Image taken on 10/17/2014.



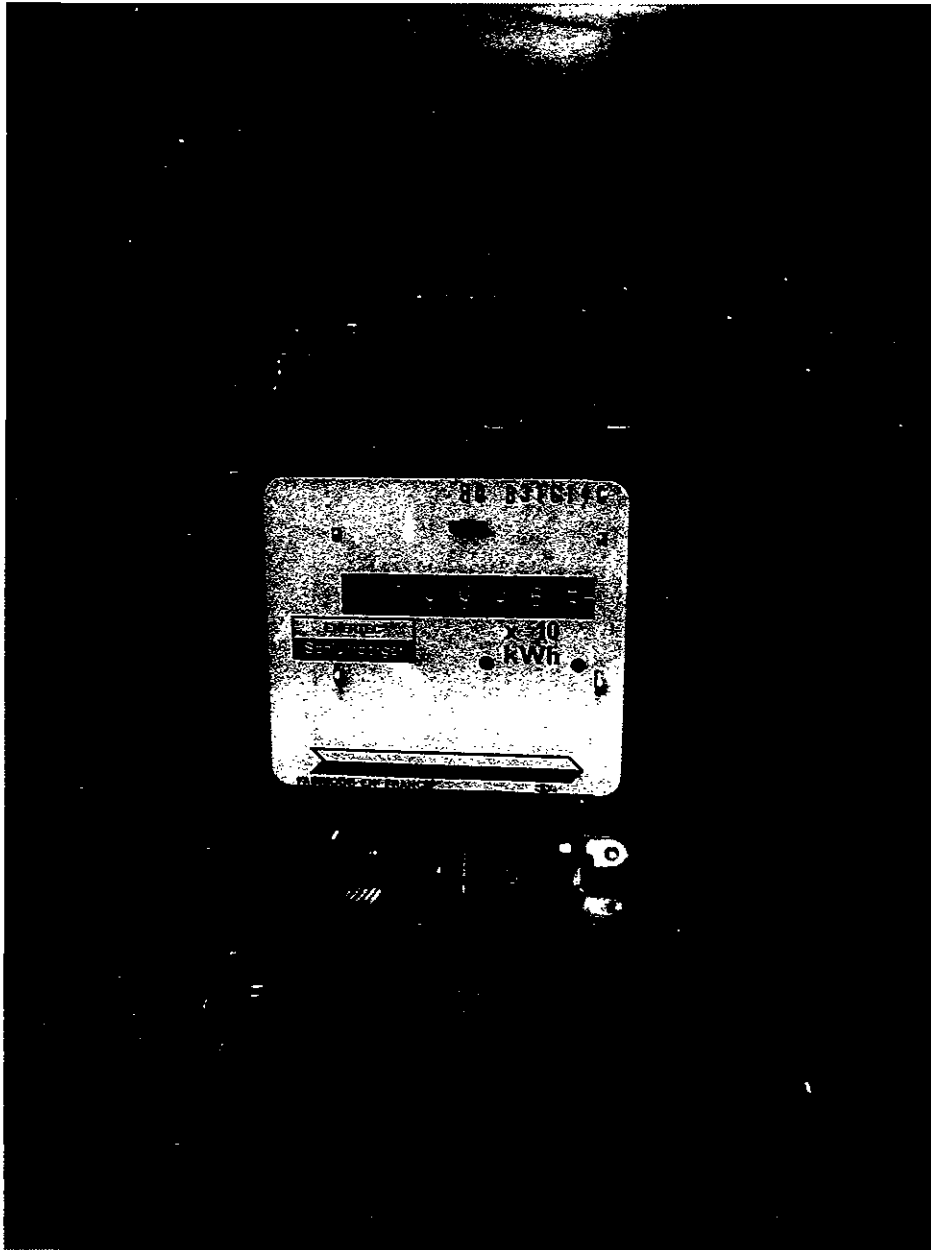
The Generator 2 Shark Meter is a LED digital meter that displays instantaneous readings. The picture shown displays Generator 2 as reading 13.64 MW, 3.06 MVARs & a 0.976 Power Factor. Hourly readings are stored digitally at an internal memory location and hourly accrued readings are downloaded to an excel spreadsheet for hour to hour generation totals. Hourly readings are in Mega-Watt Hours. Image taken on 10/17/2014.



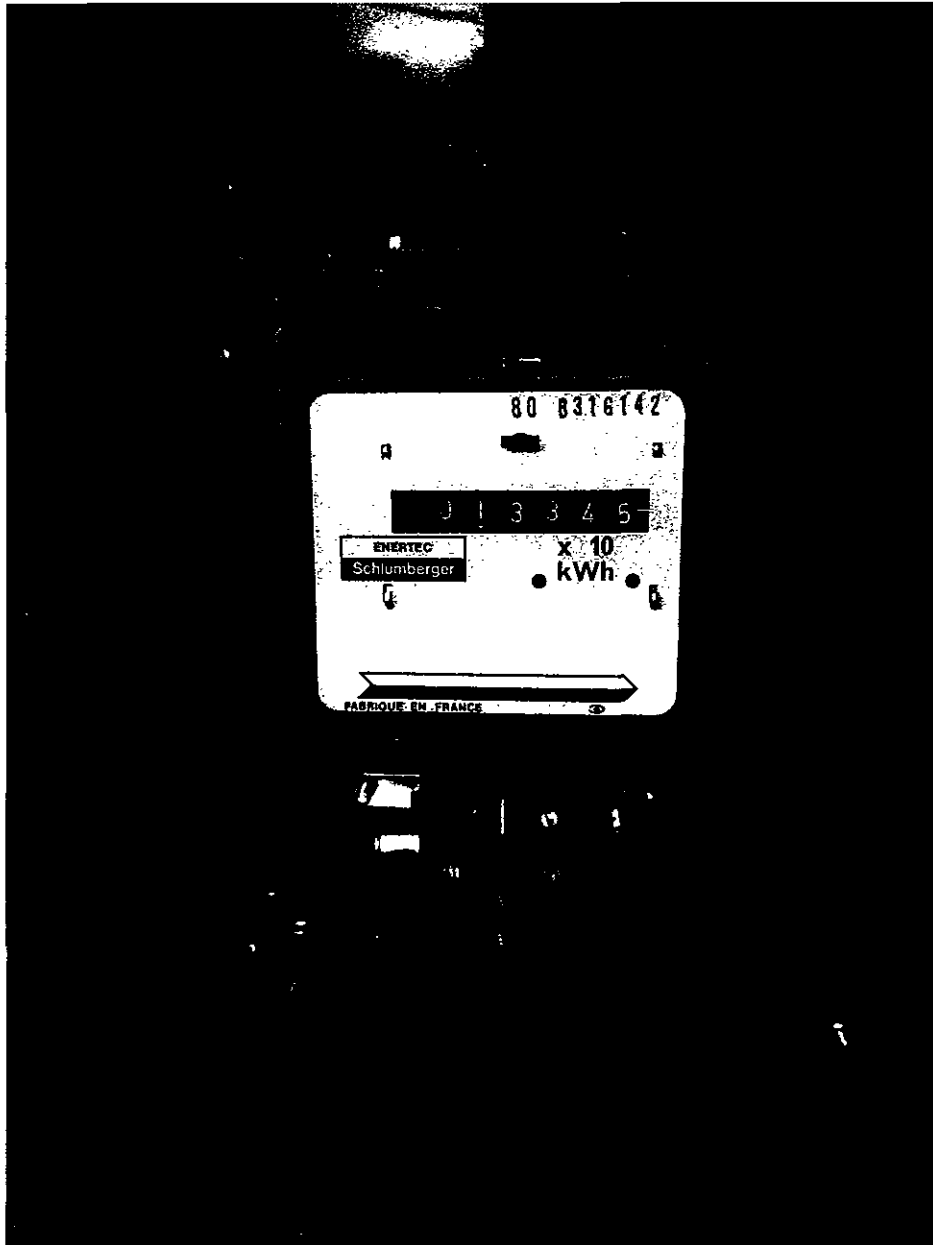
The Generator 3 Shark Meter is a LED digital meter that displays instantaneous readings. The picture shown displays Generator 3 as reading 12.77 MW, 3.00 MVARs & a 0.973 Power Factor. Hourly readings are stored digitally at an internal memory location and hourly accrued readings are downloaded to an excel spreadsheet for hour to hour generation totals. Hourly readings are in Mega-Watt Hours. Image taken on 10/17/2014.



The Tag #1 Station Service Meter is an Enertech Schlumberger analog rotary meter. This meters readings are taken manually every hour and hourly totals are calculated by hand as referenced to the prior hourly reading. The rotary dials have turned over many times within the past 30 + years. The hourly total is in Kilo-Watt hours. Image taken on 10/17/2014.



The Tag #2 Station Service Meter is an Enertech Schlumberger analog rotary meter. This meters readings are taken manually every hour and hourly totals are calculated by hand as referenced to the prior hourly reading. The rotary dials have turned over many times within the past 30 + years. The hourly total is in Kilo-Watt hours. Image taken on 10/17/2014



The Tag #3 Station Service Meter is an Enertech Schlumberger analog rotary meter. This meters readings are taken manually every hour and hourly totals are calculated by hand as referenced to the prior hourly reading. The rotary dials have turned over many times within the past 30 + years. The hourly total is in Kilo-Watt hours. Image taken on 10/17/2014

The Public Utilities Commission of Ohio reserves the right to verify the accuracy of the data reported to the tracking system and to the PUCO.

Version: August 28, 2014