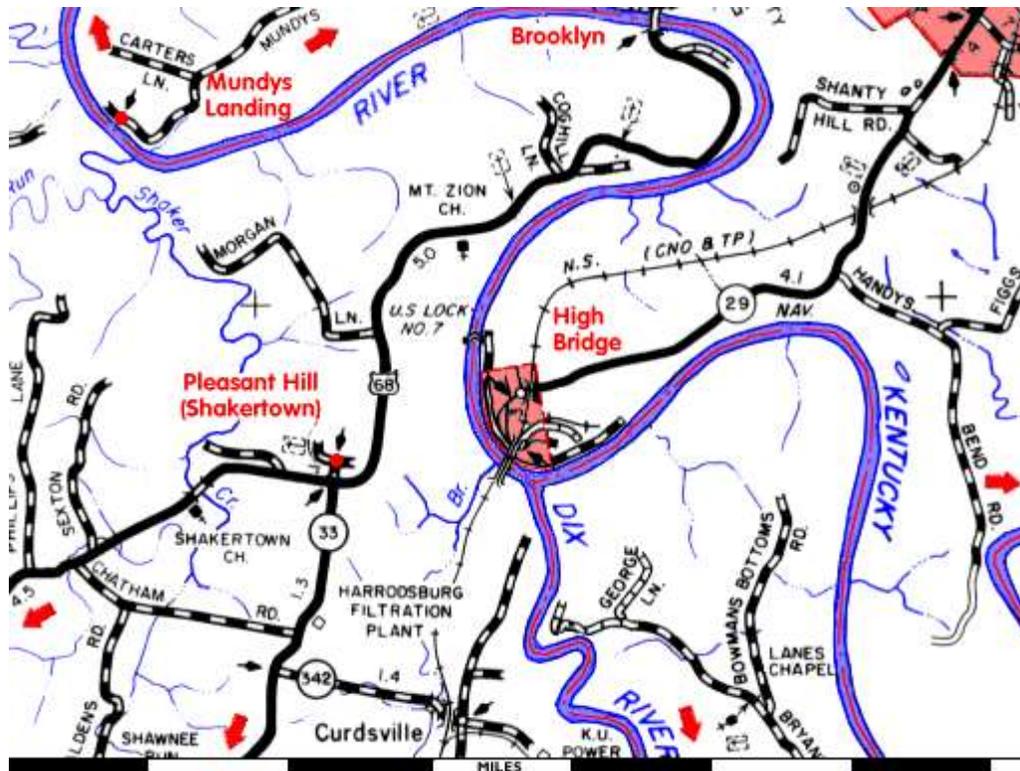


Project Description

The Mother Ann Lee Hydroelectric Station is located at Lock and Dam 7 on the Kentucky River. This dam is part of a system of 14 lock and dams installed on the Kentucky River between Beattyville in the eastern Kentucky and Carrollton on the Ohio River. This navigation system established a transportation route deep into central and eastern Kentucky, and provided access to the eastern Kentucky coalfields and many points along the way. The Shaker community at Pleasant Hill, located near Lock and Dam 7, relied heavily on this river system to ship its products as far away as New Orleans. In 1836, the Commonwealth of Kentucky constructed the first section of this system with Lock and Dams 1 through 5. In the late 1800's, the U.S. Army Corps of Engineers reconstructed these first 5 lock and dams, and then extended the system with Lock and Dams 6 through 14. The entire system through to Beattyville was completed in 1917.

Lock and Dam 7 was constructed in 1896 and 1897 by the U.S. Army Corps of Engineers at river mile 117, near High Bridge at the end of Kentucky route 29 on the Jessimine County side of the river, and near the Shaker Landing on the Mercer County side.



During the 1900's, rail and truck transportation became more widespread in this region, and the use of the Kentucky River Lock and Dam system declined significantly. By the late 1900's, all commercial traffic ceased on the upper system (Locks 5 through 14), and the locks were only used by recreational boaters. When these locks began to have operational problems in recent years, use of these locks was discontinued. Today, Locks 5 through 14 have concrete bulkhead walls added behind the upper lock gates to strengthen this weakest link in the dam structure. Now only Locks 1 through 4 are available for navigation.

While the Kentucky River Lock and Dam system was originally constructed for commercial transportation, over the many years since it was built, a number of other uses for these dams developed. Today, the dams are critical as the main source of drinking water for most citizens of central Kentucky, including the city of Lexington. Most of the Kentucky River pools have community water intakes, and the pools that don't are used for drought water storage. The pool behind Lock and Dam 7 provides water for most of the citizens of Mercer County, which includes the city of Harrodsburg. The pools created by the dams are also used for recreation and tourism. The Lock and Dam 7 pool is used by the Dixie Belle riverboat for tourist excursions for the restored Shaker Community at Pleasant Hill. The pools are also used by recreational boaters and anglers.

Another use of the lock and dam system was developed in the 1920's. In 1927, a hydroelectric plant was added to Lock and Dam 7 (FERC Project No. 539). This plant, originally named the Lock 7 plant, was operated by Kentucky Utilities (KU) from 1928 to 1999, when the plant was no longer operable. On April 1, 2004, Kentucky Utilities (KU) filed an "Initial Consultation Document" stating its intent to decommission the Lock 7 Plant and surrender the FERC license for the project. The decommissioning plan included removal of the power plant. (Note: the plan would have removed only the power plant; the dam would remain for water supply.) KU received significant public comment (including from environmental groups such as the Kentucky Resources Council, Kentuckians for the Commonwealth, the Kentucky Solar Partnership and Paddlewheel Alliance), all calling for the plant to be rehabilitated and put back in service instead of being torn down.

Upon KU's notice to decommission the plant, Soft Energy Associates (SEA) began discussion with KU on the purchase of the project with the intent of renovating the plant. KU and SEA entered into an exclusive agreement that allowed for a due diligence evaluation of the site. SEA was encouraged by the comments that KU received from the public and environmental groups (see attached comments) requesting that the plant be renovated by KU or sold to someone else that would save this clean renewable energy plant. In December 2004, KU and SEA signed a "Letter of Intent" to purchase to plant. SEA created a corporation, Shaker Landing Hydro Associates, Inc. (SLHA) specifically to renovate the plant. To strengthen its proposal to renovate the plant, SLHA formed a 50/50 partnership with Salt River Electric, a rural electric cooperative in Bardstown, Kentucky. This partnership, named Lock 7 Hydro Partners, LLC, purchased the Lock 7

plant from KU on December 30, 2005. Salt River Electric plans to sell power produced by the plant through its Green Power pricing program called “EnviroWatt”.

The Lock 7 plant is located on land once owned by the Shaker community at Pleasant Hill. Access to the plant by footpath (there is no road access) is over an easement granted by the restored Shaker community at Pleasant Hill. In recognition of this connection to the Shaker community, the Applicant approached the last active Shaker Community at Sabbath Day Lake, Maine, with the idea of renaming the Lock 7 plant after the spiritual leader of the Shakers, Mother Ann Lee. With the concurrence of the Sabbath Day Lake Shakers, the Applicant was granted by the FERC permission to rename the plant “The Mother Ann Lee Hydroelectric Station.”

The Lock 7 plant was added to the existing Lock and Dam 7 facility. The dam is a timber crib structure with a concrete cap. The lock chamber is built of stone quarried from the rock cliffs near the site. When commercial use of the lock ceased in the late 1900’s, the Army Corps of Engineers (ACOE) sought to transfer ownership and operations of the dams on the upper Kentucky River (Lock and Dams 5 through 14) to a state entity, the Kentucky River Authority (KRA). Transfer of ownership of Lock and Dam 7 from the ACOE to the KRA took place in March 2006.

The Lock 7 Project was built in 1927 and completed in 1928. A license for the Project was originally issued to the Kentucky Hydro Electric Company on August 19, 1926, and was transferred to KU effective December 31, 1928. The current FERC license was transferred from KU to Lock 7 Hydro Partners, LLC on November 23, 2005.

The existing Lock No. 7 Hydroelectric Project consists of:

- a concrete substructure, about 116 feet long, with a 36-foot-long solid concrete section and an 80-foot-long hollow dam/spillway, containing trash racks, six intake gates, three turbines, and discharge facilities;
- a 93-foot-long, 25-foot-wide and 16.5-foot-high superstructure/powerhouse located above the spillway, supported by hollow concrete piers, with three 680 kW generating units having a total installed capacity of 2,040 kW;
- a forebay about 120 feet long and 100 feet wide;
- a substation located on the west bank;
- a foot bridge, about 85 feet long, connecting the substation with the powerhouse;
- a 34.5 kV, 4,540-foot-long transmission line, with a right-of-way ranging from 50 feet to 200 feet wide (about half of this line is owned by the applicant, the rest is leased from KU); and,
- appurtenant facilities.

The Lock No. 7 Powerhouse is of an unusual design in that the Powerhouse with generators and electrical equipment is situated on piers. The piers contain shafts that are over 40 feet long that connect the turbines, which are built into the hollow section of the dam, to the Powerhouse which is located on top of the piers. The Powerhouse is elevated

well above the river (operating floor El 554 vs. El 514.6 for spillway crest). Even with the Powerhouse being situated almost 40 feet above the upper pool of the river, it was flooded in 1978 (maximum flood of record) leading to subsequent rewinding of the generators and replacement of the switchgear.

Lock No. 7 Generator Data	
Number of Units	3
Manufacturer	General Electric
Type of Units	Vertical
Rating KVA	850
KW Output @ 0.8 PF	680
Voltage	2300
Speed (rpm)	150

Each of the three turbines at the Lock No. 7 hydroelectric project is an open flume, fixed blade propeller type turbine with a long turbine shaft – more than 40 feet. Each turbine is controlled by a Woodward gate-shaft, electro-mechanical governor that actuates the operating ring on the turbine.

Lock No. 7 Turbine Data	
Number of Units	3
Type of Units	Vertical fixed blade
Manufacturer	Newport News Shipbuilding and Drydock
Design Head (ft)	15
Design Flow (cfs)	743
Max. Output (kW)	757
Max. Output (hp)	1000
Speed (rpm)	150
Runner Material	Cast Iron

In addition to the powerhouse superstructure, the Project's civil components include the hollow dam section containing the turbines and supporting the powerhouse piers as well as a short solid-concrete overflow section tying the powerhouse to the west bank.

The Project is not classified as high hazard and does not fall under the FERC Part 12 Independent Consultant process. The FERC re-affirmed the project's low hazard status in a letter dated August 11, 2004. No stability or project safety issues are known to exist and no such items appear in recent FERC operational inspection reports. An underwater inspection of the powerhouse foundation was conducted in December 2005, which found no problems.

By March 2006, the necessary paperwork was completed, insurance was in place, and the renovation of the Mother Ann Lee Hydroelectric Station began at the end of

March. All three generating units were declared operational on December 30, 2008. Even though the plant is now running, renovation work is continuing. The current renovation plans include the replacement of the runners, with a total renovation cost of over \$3 million, to be completed by 2015. With improved efficiencies from new replacement equipment, we are hoping for an average output of 11,400,000 kWh per year.