Flint Creek Power Plant

Reliable Electric Power for Northwest Arkansas



Joint Energy Committee Interim Meeting Flint Creek Power Plant Tour, Sept. 11, 2015





Flint Creek Power Plant

- Coal-fueled
- 528 MW
- Serves base load
- Co-owners
 - AEP SWEPCO (50%)
 - Arkansas Electric Cooperative Corp. (AECC) (50%)
- Operated by SWEPCO
- In-service date: 1978
- Location: Gentry, Ark.







SWEPCO Generation



Harry D. Mattison Power Plant

- Natural gas-fueled
- Simple cycle combustion turbines, 4 units
- 300 MW total
- Designed to serve peak load
- Owned by SWEPCO; operated by Flint Creek staff
- Completed in 2007 on fast track – to meet NWA growth
- Location: Tonitown, Ark.







SWEPCO Part of SPP

Independent System Operator (ISO) / Regional Transmission Organization (RTO) Map

SWEPCO operates in the Southwest Power Pool (SPP) – 9-state Regional Transmission Organization (RTO)





Lack of highvoltage transmission infrastructure + large load = need for baseload generation

Flint Creek & the NWA Grid

- Flint Creek anchors the NW Arkansas electric grid
- Only base load plant located in NW Arkansas
 - Baseload plants supply power 24/7
- Located near load centers
 - Fayetteville, Springdale, Rogers, Bentonville
- Has powered regional growth for 30+ years
 - Walmart, Tyson, J.B. Hunt, University of Arkansas
- Necessary to meet demand and reliability reserve requirements
 - Electric load in the region exceeds local power supply
 - NWA is already transmission-dependent (net importer of electricity)



Base Load Power

- Base load is the basic demand for power that exists on the system around the clock
- Base load plants operate 24/7 to meet daily needs

PEAK LOAD Operates to meet peak demand INTERMEDIATE Operates as demand rises and falls BASE LOAD Operates 24/7





EPA Rules Forced a Choice

- Flint Creek Power Plant required to meet stringent air emissions limits to comply with new EPA regulations – or cease operations after April 2015
 - Mercury and Air Toxics Standards (MATS) reduction of mercury and other hazardous air pollutants. Required April 2015 (or April 2016 with one-year extension for installation under way)
 - Regional Haze Rule reduce pollution that impairs visibility to federal Class I areas (designated wilderness areas and national parks) – reduce SO2, NOx, and particulate matter. Required in 2017/2018





Strong Public Support

 Outstanding public support at two APSC hearings – public officials, businesses, community leaders, many others spoke during comment sessions



 More than 500 letters in support







In the Public Interest

- APSC ruled in July 2013 that retrofit with additional environmental controls is in the public interest
- ADEQ granted one-year extension to April 2016 – can continue operations beyond EPA's 2015 deadline while controls are installed
- ADEQ issued air permit in Nov. 2013, including authorization to construct and operate new pollution control equipment







Retrofit Benefits

- New technology added to a valuable existing asset
- Maintain critical reliability
- Meet stringent new environmental regulations
- Lowest reasonable cost impact to our customers
- Preserves/add jobs







Retrofit Benefits

- Preserves Flint Creek's existing 69 jobs (prior to retrofit), \$3.9 million payroll and \$1.2 million annual real estate/property taxes
- Preserves Flint Creeks total economic output of \$28.2 million for Washington, Benton Counties
- 600+ construction jobs at peak
- 25 new permanent jobs to operate equipment









Current Environmental Systems

- Low-sulfur fuel supply
- Low NOx burners control burning to reduce formation of nitrogen oxides
- Electrostatic precipitator removes more than 99% of fly ash (particulate) from the flue gas stream
- Continuous emission monitoring system (CEMS) to help ensure compliance with regulations



Emission Control Systems





Retrofit Technology Summary

- Scrubber Dry Flue Gas Desulfurization (FGD) with pulse jet fabric filter (commonly called baghouse)
 - NID technology
 - Removes SO2 (95% or better)
 - Uses lime as reagent
 - Co-benefit of additional mercury, metals, acid gas removal
- Activated Carbon Injection (ACI)
 - Injects powdered activated carbon to remove mercury (~ 90%)





New Environmental Controls



This illustration is conceptual.

Relationships in size and volume may not be accurately portrayed.



Arkansas Electric Cooperative Corporation We Are Arkansas

Project Cost

- Estimated capital cost \$408 million
 - SWEPCO \$204 million
 - AECC \$204 million
- Estimated cost impact for SWEPCO's Arkansas retail customers, beginning in 2017, increase of:
 - Approx. \$2.97 per month, or 3.85%, for residential customers (using 1,000 kWh per month)
 - Approx. 3.87% for commercial and small industrial customers
- AECC's estimate of the wholesale cost impact to its distribution cooperative members:
 - Annual cost of \$30 million increase of approx. 3.4%





Time Line

- APSC approval July 2013
- ADEQ air permit issued November 2013
- Construction began
 November 2013
- 30-month construction schedule with equipment in operation by end of May 2016 (after tie-in outage)















NID structure and lime silo





Construction



Setting NID weather enclosure and duct section







Construction





ACI silo. Duct

AEP SOUTHWESTERN ELECTRIC POWER A unit of American Electric Power





Construction







Environmental Control Retrofit Project



(Rendering)

Before ...





EPA Carbon Regulation

- EPA on Aug. 3 announced its 111(d) regulation of greenhouse gas emissions from existing power plants, known as Clean Power Plan
- Final rule substantially revised from proposed rule
- 1,600 pages plus supporting technical documents
- Review of new rule requires extensive evaluation of the carbon emissions targets, state goals, compliance strategies, other critical details.
- Impact on individual facilities not yet known





EPA Carbon Regulation

- AEP and SWEPCO encouraging states to develop State Implementation Plans (SIP)
- AEP and SWEPCO will continue to participate in the federal and state processes as we work to protect customers and ensure reliability of the electric grid
- A diverse, reliable and affordable supply of electricity is vital to customers, communities and the economy





Our People, Our Safety Culture

- 92 Flint Creek employees energy production, maintenance, material handling, environmental, administrative
- 18 years without a lost-time accident (as of October 2014)
- 2.5 million work hours without a lost-time accident (as of July 2015)
- "No aspect of operations is more important than the health and safety of people. Our customers' needs are met in harmony with environmental protection."





Environmental Stewardship



- 500-acre SWEPCO Lake
- Eagle Watch Nature Trail
- IRWP partnership, tree farm
- Habitat management
- Public and community partnerships









Bald Eagles at SWEPCO Lake







Eagle Watch Nature Trail







COMPANY

A unit of American Electric Power

- Built in 1999 by plant employees and Gentry Boy Scout Troop 34
- Located on SWEPCO Lake at Flint Creek Power Plant
- 1 mile west of Gentry, Ark.
- 65 acres, half-mile nature trail
- Wildlife viewing pavilion
- Open to public free yearround
- Facebook:

www.facebook.com/SWEPCOEagleWatch



Questions?



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Peach orchard in bloom - Spring 2013



