

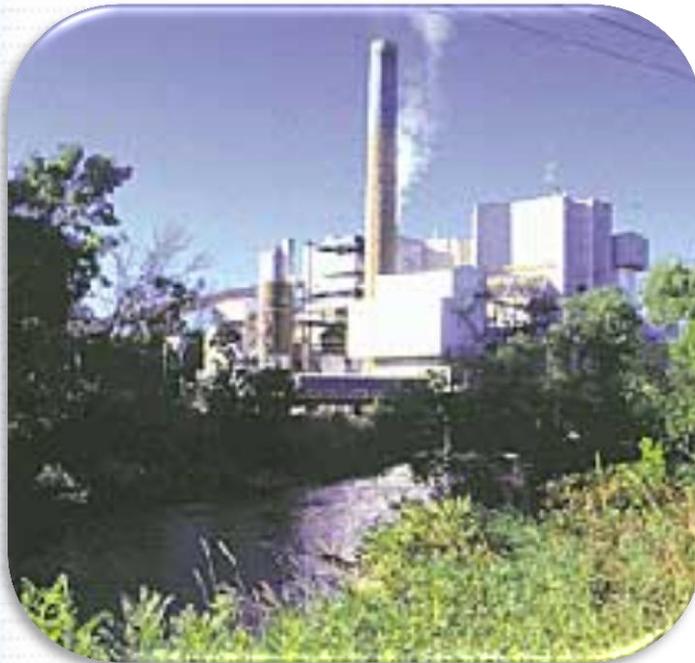
# **Hoot Lake Plant MATS Project**

**South Dakota Public Utilities Commission**

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November 25, 2014

# Hoot Lake Plant quick facts



**Location:** Fergus Falls

**Fuel Source:** Sub-bituminous coal

**Online:** Unit 2 – 1959

Unit 3 – 1964

**Capacity:** 138 Megawatts

*(Approximately 20% of OTP's need)*

**Energy:** 700K-800K MWhs

*(Approximately 20% of OTP's need)*

# MATS Regulation

(Mercury and Air Toxics Standard)

Emission	Current and MATS Requirements	Upgrade to Comply	Capital Cost
Particulate Matter	0.03 lb/mmbtu	ESP Upgrade	\$10 Million (original estimate)
Mercury	1.2 lb/Tbtu	Activated Carbon Injection	Included in \$10 Million
HCL	0.002 lb/mmbtu	Native control most likely (Injection of lime if needed)	\$1 Million

# Project description

- Upgrade Hoot Lake Plant Electrostatic Precipitators (ESPs)
  - Existing ESPs in-service since 1972
  - Re-use existing infrastructure (foundations, structural steel, casing, ash removal, etc.)
  - Physical flow modeling
  - Replacing internal components and T/R sets
- Install Activated Carbon Injection (ACI)
  - Storage silo and blowers for injection
  - ACI “attaches” to Hg and is removed in the ESP
- Previous HCL measurements have shown HLP is already in compliance with MATS on the current fuel

# Timeline

- ESP Upgrade contract May 2013
- Installation of ACI System November 2013
- ESP Upgrade Components Fabricated January 2014
- Installation of ESP Upgrade April/May 2014
- System startup and testing June – October 2014
- MATS Compliance Deadline April 2015

# Budget Status

- Previous estimate was reduced from \$10,000,000 to \$8,625,280
- Expenditures at the expected completion date (after MATS final stack testing in March/April 2015) estimated at approximately \$7.6M - \$8.0M

# Project Status

- All components installed and met performance guarantees.
- Electrostatic Precipitator (ESP – Particulate removal) performing very well and meeting particualte needs for MATS regulation
- Hg removal (ACI Injection) – able to meet MATS Regulation

# Installation



Removal of old ESP components  
installed in 1972

# Installation



Modern T/R sets are key to improved particulate control performance (T/R – Transformer/Rectifier to energize ESP fields)

# Installation



Modern control system for  
ESP system

# Installation



New internal ESP components (rigid discharge electrodes) and modern plates/rappers

# Installation



Gas distribution plates for even gas flow

# Installation



Activated Carbon Silo in foreground (blue) cranes replacing ESP components