Merom GENERATING STATION

Hoosier Energy's Merom Generating Station in Sullivan County provides dependable baseload power for 18 member distribution cooperatives in central and southern Indiana and southeastern Illinois.

The Merom Station has a production capacity of 1,070 megawatts, and is equipped with more than a quarter-of-a-billion dollars in environmental protection equipment. The plant is outfitted with electrostatic precipitators for fly ash removal, and a flue gas desulfurization system, or scrubber, to remove sulfur dioxide. A $73 million environmental project was completed in 2003 that added selective catalytic reduction (SCR) technology to reduce nitrogen oxide emissions.

At full load levels, the power plant's two generating units use 10,000 tons of coal a day from southwestern Indiana mines. Trucks and trains are used to deliver coal to the plant where a stockpile is maintained.

To provide cooling water for the plant's operation, Hoosier Energy developed the adjacent 1,550-acre Turtle Creek Reservoir. The reservoir is a popular destination for fishing and waterfowl hunting. It's also the site of an education center where students, teachers and other groups study energy, the environment and science.

Plans for the Merom project were announced in 1977 to meet increasing power requirements of member electric cooperatives. Groundbreaking ceremonies for the facility were held in November 1977. More than 20 environmental permits were obtained from state and federal agencies prior to construction.

Built at a cost of approximately $850 million, the power plant's two generating units began commercial operation in 1982-83, providing electricity to homes, farms, businesses and industries.

HERE'S HOW THE MEROM POWER PLANT CONVERTS THE POTENTIAL CHEMICAL ENERGY OF COAL INTO ELECTRICAL ENERGY:

(illustration on reverse side)

Coal is conveyed from a stockpile to a crusher that reduces coal to approximately ¾-inch size at a rate of 750 tons per hour. After crushing, the coal is conveyed into bunkers (A) inside the plant. Each Merom unit has six coal bunkers capable of holding 2,610 tons, enough to operate a unit at full load for 10 hours. Coal feeds from the bunkers through a scale and dryer (B) to mills where it is pulverized into dust-like particles (C). Air is injected through the mills to carry coal dust to burners on the front and rear of the furnace (D). Powdered coal is ignited inside the furnace by oil firing torches located near each burner. Once lighted, the coal fire is sustained without oil igniters.

Air for combustion is blown into the furnace by forced draft (E) axial fans. These fans send combustion air through ducts to the air preheater (F), which utilizes heat from the furnace exhaust gases to preheat incoming combustion air. Ducts then carry heated air to the burner fronts where, when mixed with powered coal, they aid in complete combustion.

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The furnace is a multi-story structure where combustion takes place. The furnace is constructed of tubes placed closely together to form a solid wall above, around and beneath the fire (G). At various locations within the furnace, other tubes are suspended to absorb additional heat. This enclosure, together with the furnace walls and other tube sections, forms the boiler.

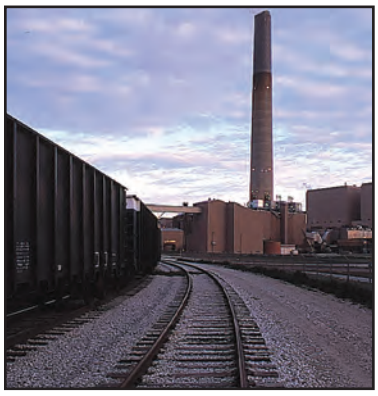
To generate steam, boiler water is pumped from the lower section of the condenser (H) via a condensate pump (J) to the deaerator (K) where boiler water is mixed with steam to heat water and drive out air. From the deaerator water flows to the boiler feed pump (L) and is pumped through the first section of the boiler known as the economizer (M) then through furnace walls where most of the boiling takes place.

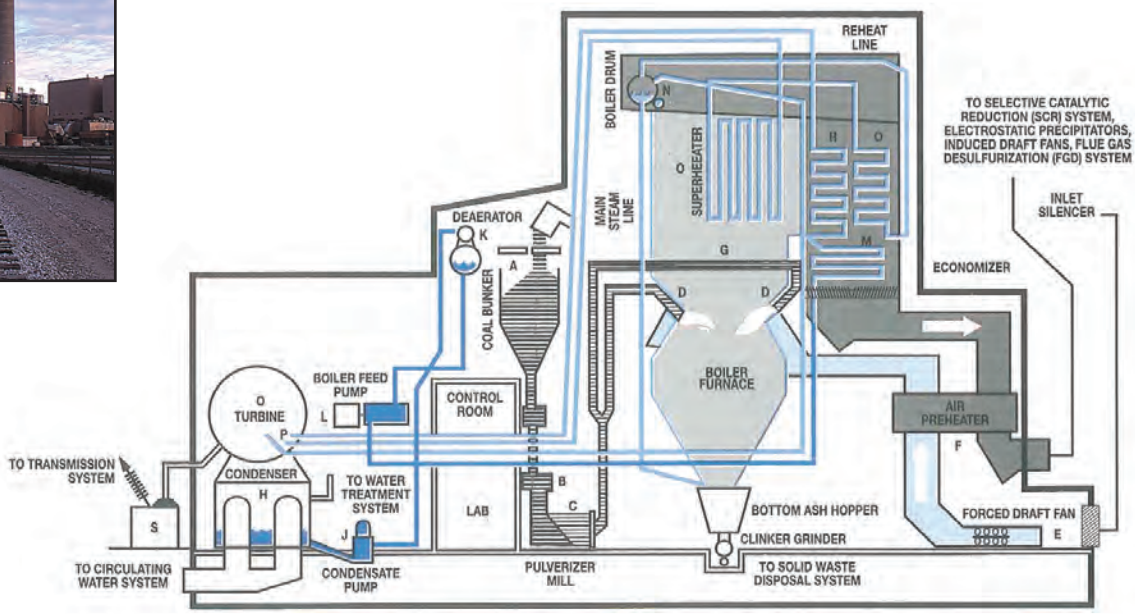
From the furnace walls, a steam and water mixture flows to the boiler drum (N) where it is separated. Water is allowed to go through the furnace walls again and steam is forced through the superheater. The superheater (O) is made up of a series of tubes located at the hottest portion of the furnace where steam reaches its highest temperature. From the superheater, steam now at 1,005° Fahrenheit and 2,600 pounds per square inch pressure, flows to the main turbine (P). Each boiler delivers 3,900,000 pounds of steam per hour to its turbine (Q).

Each turbine at Merom actually consists of four turbines connected to a single shaft. These turbines – the high pressure, intermediate pressure and two low pressures – each absorb the energy of the steam by allowing it to expand through its blades. When a portion of its energy has been absorbed in the high-pressure turbine, steam is piped through a section of the boiler (R) and is reheated to 1,005° Fahrenheit. From the reheater, steam is piped back to the intermediate section of the turbine and then to one of two low-pressure turbines. From the low-pressure turbine, the spent steam is exhausted to the condenser, where the final level of energy is absorbed and is converted into water. Condensed water is held in the lower portion of the condenser (H) and is circulated again.

The rotational motion imparted to the turbine shaft, approximately 365,500,000 horsepower, is used to turn an electromagnetic field within the generator stator, which produces 500,000 kilowatts (kW) of electric energy at approximately 23,000 volts.

Electric energy is transformed in the main power transformer (S) to 345,000 volts and is transmitted throughout Hoosier Energy's service area over an extensive 1,700-mile transmission network.





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