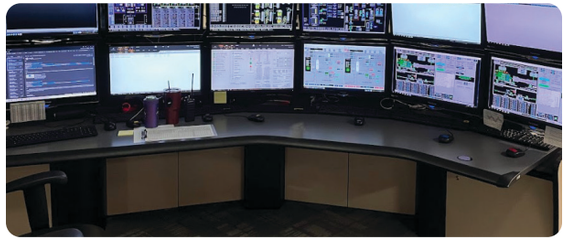
The Arvah B. Hopkins Power Plant

Tallahassee's largest electric plant, Hopkins, primarily uses natural gas across eight units. Built in 1971 and expanded in 1977 to over twice its original size, it spans 236 acres. In 2008, it converted to a modern combined-cycle system with a large gas turbine and steam generation. Hopkins added two LM6000 "jet engine" turbines in 2005 and five quick-start Wartsila Reciprocal Internal Combustion Engine (RICE) units between 2018 and 2019 to support solar integration and improve reliability.

The Sam O. Purdom Power Plant

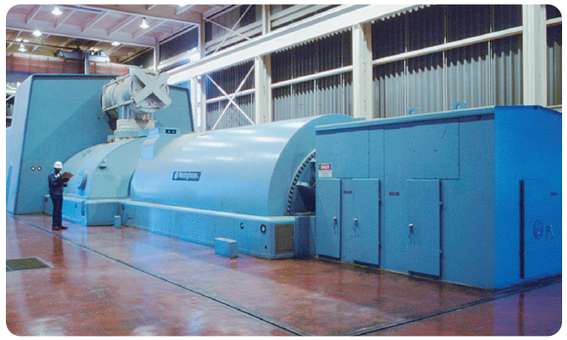
The Purdom Power Plant, located on the St. Marks River in Wakulla County, is one of Tallahassee's electric plants. Built in 1952 and renovated in 2000, it replaced most of its original equipment with a modern combined-cycle system that operates about 30% more efficiently than older plants.



Operators at Hopkins and Purdom monitor turbines and generators around the clock, 365 days a year.

Substation 12 Distributed Generation

Operating since late 2018 on Medical Drive, Substation 12 (Sub 12) supplies direct power to key assets like a hospital and police station, while boosting reliability and backup generation for other medical facilities in the area.



Hopkins' combined-cycle system powers two generators using the same amount of fuel as one.

Tallahassee Solar

The City operates two solar farms at Tallahassee International Airport: a 20-MW facility on 120 acres and a 42-MW facility on 240 acres. Together, they produce 62 megawatts of solar power for the City.

The Power of Public Power

The City of Tallahassee entered the power business in 1902 with a small plant supplying 92 streetlamps. Today, revenues from its publicly owned power system help fund much of city government operations.

Built and Maintained to Exist in Close Harmony with the Environment

Protecting Tallahassee's environment is a top priority for the City's electric utility. The Hopkins and Purdom plants primarily use natural gas, the

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Power Generation

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cleanest-burning fossil fuel, keeping emissions well below federal and state standards. Plant chemists also conduct over 40 daily water tests to monitor metals, minerals, and acidity, ensuring cooling and process water remains clean.

Innovative Technology: Zero Discharge Water Treatment

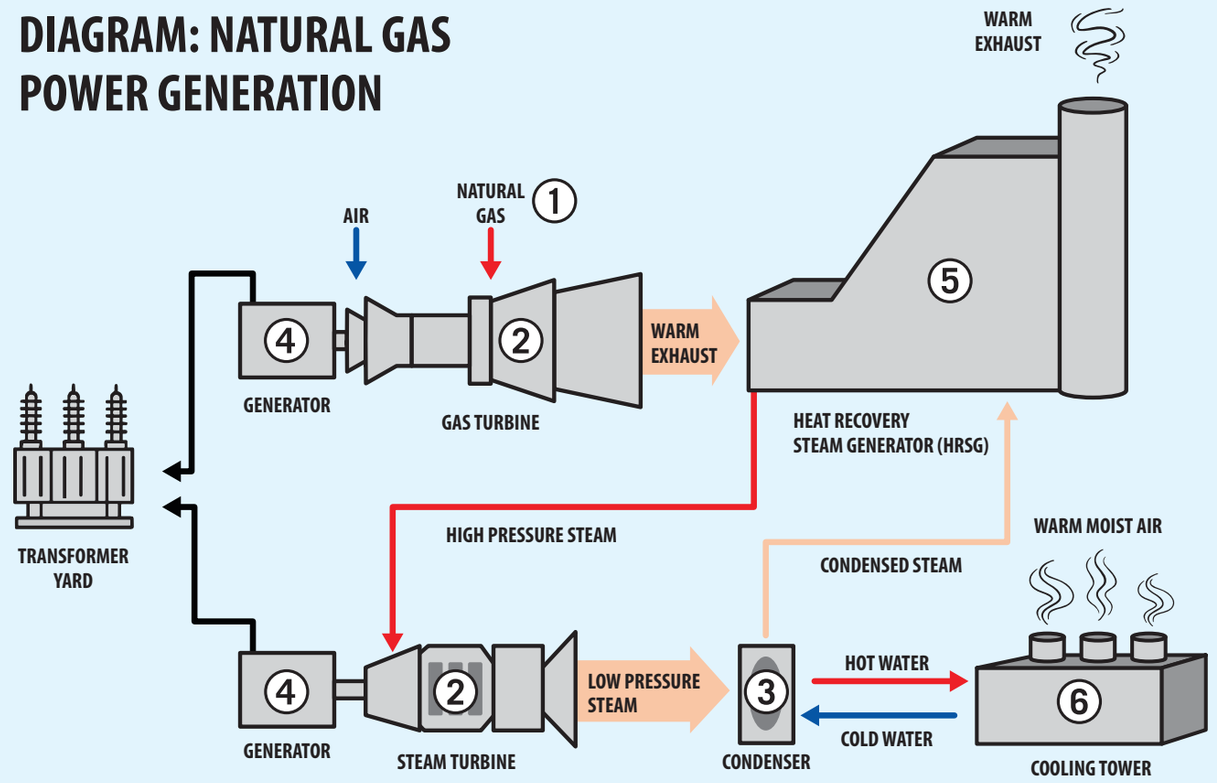
Power plants use large amounts of water for steam generation and cooling. Most plants pull water from natural sources and return some back to the environment.

The Purdom Plant takes a different approach. In addition to using some river water, it recycles treated wastewater from the St. Marks treatment plant and a local industrial facility.

Thanks to its advanced zero discharge system, Unit 8 releases no water back into the environment. This reduces dependence on the river and eliminates historical discharges - making it better for both the environment and our community.

Heat is removed from Purdom's cooling water, producing steam.

DIAGRAM: NATURAL GAS POWER GENERATION



1. Fuel Sources

The Hopkins and Purdom plants primarily use natural gas delivered by pipeline. In emergencies, some larger turbines can run on fuel oil, which is trucked to and stored in the plants' tank yards.

2. Turbines

A turbine is a huge fan with hundreds of blades. Superheated steam enters the turbine, striking its blades at extremely high speed (150 mph) and pressure (1,800 psi), causing the rotor to spin fast.

The rotor drives a shaft connected to the generator, producing electricity.

3. Condensers

This cools spent steam from the turbine by passing it over tubes filled with cooling water, turning it back into hot condensate. This water is then pumped back to the boiler to restart the cycle.

4. Generators

Electric power is produced when a large magnet on the turbine's drive shaft spins (3,600 RPM) inside coils of copper, generating a strong electric current that flows to transformers in the switchyard.

5. Heat Recovery Steam Generator (HRSG)

This is a tall hollow box of water-filled tubes where 1,200°F gas turbine exhaust converts the water into superheated steam, which is then sent to the steam turbine.

6. Cooling Towers

These remove heat from the condenser's hot cooling water by cascading it down slats exposed to air. Large fans pull air through the falling water, releasing heat and water vapor (steam) out the top. The cooled water is then returned to the condenser.

How It All Works

Our power plants use combustion turbines, which operate similarly to jet engines, to burn fuel and spin generators, producing electricity.

Instead of wasting the turbine's 1,200°F exhaust, it's routed into a Heat Recovery Steam Generator (HRSG). There, the heat is used to create steam, which drives a second turbine and generator - just like in a traditional power plant.

This two-step process boosts efficiency by up to 30%, generating more power from the same amount of fuel.