

## Biomass

Recent studies indicate that Arizona has a fair biomass resource potential.

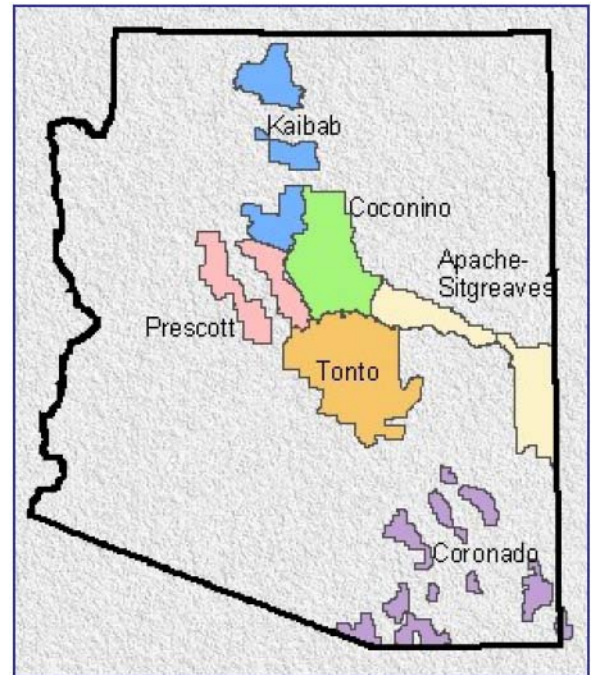
An estimated 1.6 billion kWh of electricity could be generated using renewable biomass fuels in Arizona. This is enough electricity to supply eight percent of the residential electricity use in Arizona.

Arizona's biomass resources capitalize on what has always been one of the state's strengths: its highly productive farmland and forests. Today, these two sources contribute an estimated 72 megawatts to Arizona's electricity production. The state's three major biomass electrical production facilities are the Stone Forest Biomass Project near Eagar, the Los Reales Landfill Gas System south of Tucson, and the Tri-Cities Landfill Generation Facility on the Salt River-Pima Maricopa Indian Community. A planned facility near Snowflake should be on-line in late 2006.

In August of 1999 Tucson Electric Power, and the City of Tucson, started electric production from the installation of a 5.5 MW Landfill Gas System at the Los Reales Landfill. The project's landfill gas is piped from the landfill to Irvington Unit 4 Generating Station, where it is co-burned with coal. TEP is reviewing additional landfill gas to energy projects as well as a number of biomass waste-to-energy projects.

In July 2002, SRP entered into an agreement with the Salt River-Pima Maricopa Indians to purchase gas from landfills on tribal lands. The facility generates about 4 MW of electricity.

APS' Stone Forest Biomass Project came on-line February 17, 2004. It has been running at between 2 and 2.8 MW. The Stone Forest Biomass Project is expected to help improve the health of the nearby Apache-Sitgreaves forest by thinning Ponderosa Pine growth which in turn is used for generating electricity. Because this project was the first of its kind in Arizona it laid the foundation for future endeavors including another 3 megawatt facility owned by APS. These projects provide an outlet for dying trees and help protect the transmission lines in APS' rights-of-way from forest fire risk.



The generation of electricity from forest waste is being further investigated by a number of other interested parties throughout Arizona. Snowflake White Mountain Power has a proposed 60 MW Biomass Plant to be built at the Abitibi Paper Mill in Snowflake.

Because roughly 27 percent of Arizona is covered by forest, this resource has tremendous potential. However, economic considerations are the primary impediment to effective use of this resource. Harvesting costs alone, if unsubsidized, are about four cents per kWh. In addition, of Arizona's forests lands, about 59 percent are administered by government agencies. The following agencies oversee portions of Arizona's forests:

- 42 percent of forest lands is administered by USDA Forest Service

- 41 percent is private (which includes Indian Trust Land)
- 7 percent is administered by the BLM
- 6 percent is State owned
- 4 percent is other public

**Biomass Energy Baseline**

Resource	1999	2000	2001	2002	2003	2004	2005	2006	Total
<b>Biomass</b>	5.5 MW	0	0	4 MW	0	2.8 MW	0	60 MW*	72.3 MW*

- Planned.