TECHNICAL PAPER A-2
DEVELOPMENT OF PROJECTED FIRM DEMANDS FOR POWER PLANTS
January 2026

INTRODUCTION

For this revision to the LCRA Water Management Plan (WMP), future firm customer demands were updated to reflect the projected demand in 2032. This technical paper addresses the projected demands at steam electric power plants supplied with water by LCRA. The demands generally are based on recent actual water use and are weather-varied for most facilities.

1.0 GENERAL DEMAND METHODOLOGY

LCRA supplies water to the following customer power plant facilities: Bastrop Energy Center Power Plant, Fayette Power Project (owned by LCRA and the City of Austin), Thomas C. Ferguson Power Plant, Lost Pines Power Park, and the South Texas Project [operated by STP Nuclear Operating Company (STPNOC)]. LCRA previously supplied water to the Decker Creek Power Station for its two steam units, but these units were decommissioned in 2022.

The Lost Pines Power Park is supplied almost entirely with groundwater, and LCRA projects its demands through 2032 will continue to be met with groundwater. Thus, no demand for the Lost Pines Power Park is included in this WMP update.

The water use for the Fayette Power Project is simulated in the Water Management Plan model as a demand from the Colorado River. The demand from the Colorado River is used to offset both the natural evaporation from the cooling reservoirs and the forced evaporation that results from the generation of electricity at this facility. The historic demand for this facility varies greatly. For this WMP update, the demand for this facility is weather-varied as presented below.

In the 2020 WMP update, the Decker Creek Power Station was included as a weather-varied demand. In this update, Decker Creek Power Station has been removed as a firm demand for steam electric because the two steam units were decommissioned in 2022. Lake Walter E. Long, the reservoir which stored the water to be used for steam electric supply to the Decker Creek Power Station, is now modeled as a recreational reservoir with only natural evaporation as a demand. The reservoir is filled using the City of Austin Colorado River water right 14-5489, and backup water is provided if needed from lakes Buchanan and Travis to maintain a minimum storage of about 25,950 acre-feet in Lake Water E. Long, which maintains the reservoir within approximately the top 6.5 feet of its storage range.

The Bastrop Energy Center facility also diverts water from the Colorado River. This facility does not have a cooling reservoir. In recent years, the demand for water at Bastrop Energy Center Power Plant has been relatively constant at about 2,300 acre-feet per year, which is the same volume projected in 2032 for this WMP update.

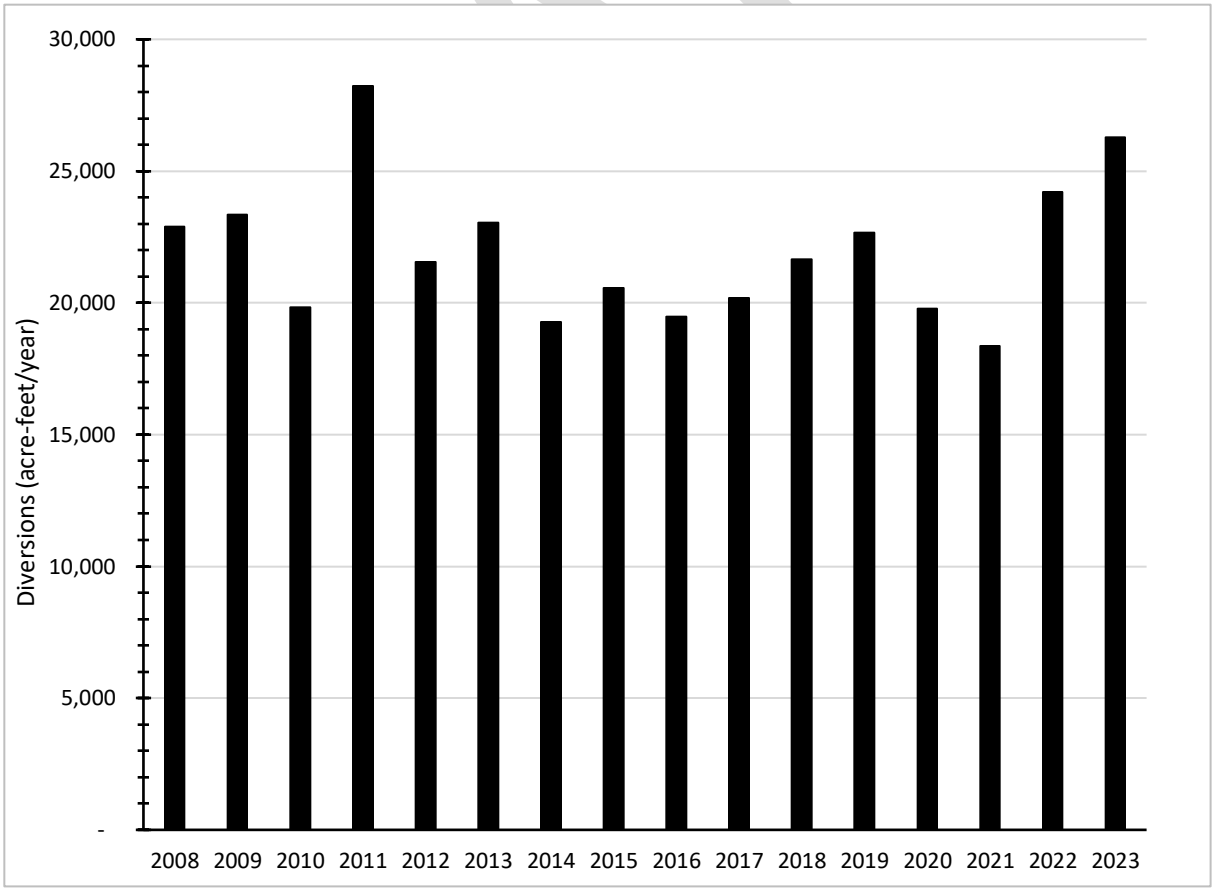
The Ferguson Power Plant diverts water from Lake LBJ, with the lake serving as a cooling reservoir. For this lake and power plant, there is both natural and forced evaporation. The WMP model includes Lake LBJ as an impoundment, and the natural evaporation is modeled as weather-varied based on historic evaporation rates. For this WMP update, the demands for forced evaporation are projected in 2032 as a constant, equal to the recent high-water use at the facility of 1,800 acre-feet per year.

The South Texas Project diverts water from the Colorado River into an off-channel reservoir that serves as a cooling reservoir. For this reservoir and power plant, there is both natural and forced evaporation. The modeling of the WMP includes the cooling reservoir as an impoundment, and the natural evaporation is modeled as weather-varied based on historic evaporation rates. Actual demands for the forced evaporation are relatively constant. For this WMP update, the demands for forced evaporation are projected as a constant, equal to the customer's high-water use in 2007 of 39,400 acre-feet per year.

2.0 WEATHER-VARIED METHODOLOGY FOR FAYETTE POWER PROJECT

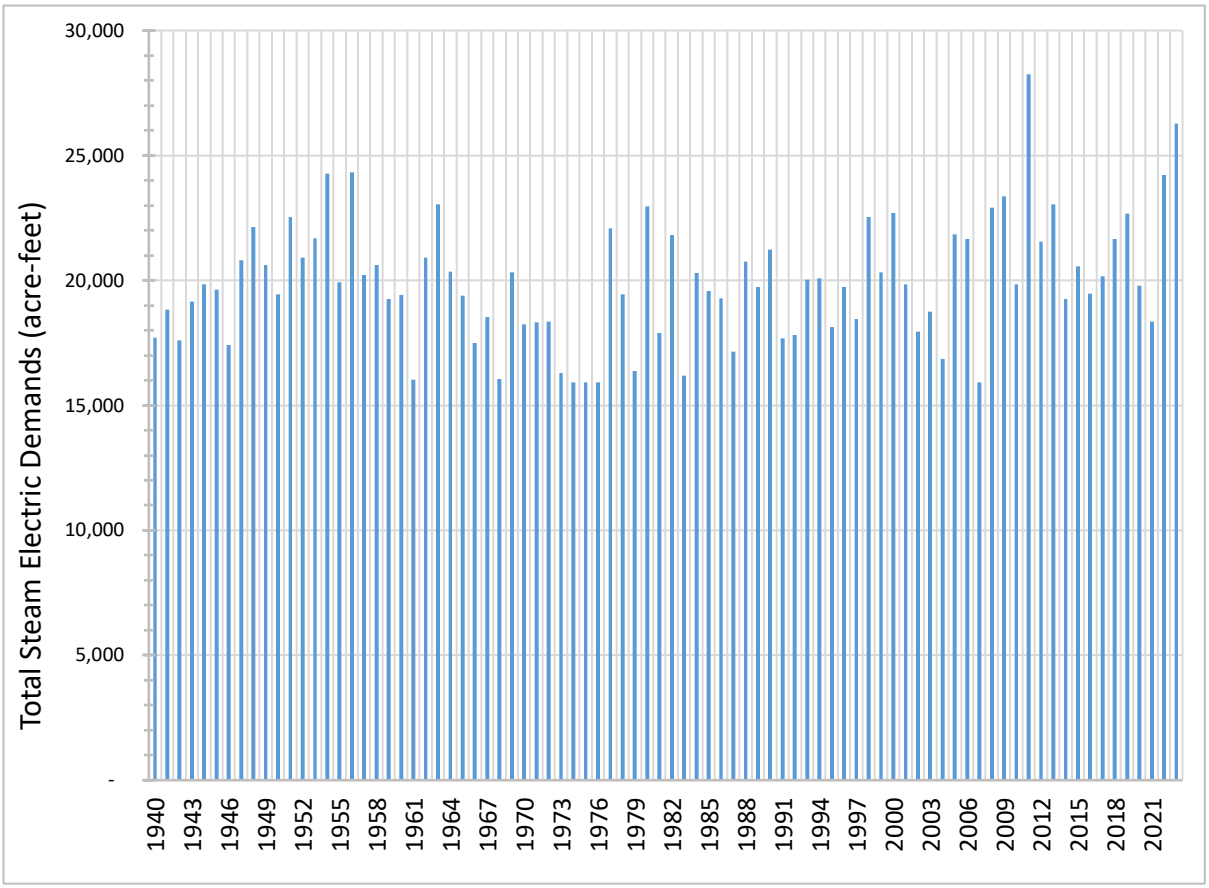
Diversions from the Colorado River for the Fayette Power Project have varied significantly from year to year as shown in Figure 1.

Figure 1. Total Annual Diversions to the Fayette Power Project



As stated above, the diversion demand for this facility varies based on the natural evaporation from the cooling reservoirs and from forced evaporation, which is a function of the power demands. LCRA staff developed a relationship between warm season temperature and demand that results in demands that equal or exceed the actual water use for each of the past 16 years (2008-2023) and has a minimum annual demand level approximately equal to the average demand over the past 16 years, omitting 2011. Based on this relationship, projected demands for the Fayette Power Project were developed over the WAM simulation period (1940-2023) for this WMP update (Figure 2).

Figure 2. Total Projected Demands for the Fayette Power Project



3.0 SUMMARY OF PROJECTED DEMANDS FOR POWER PLANTS

As part of this WMP update, a weather-varied approach is used for most power plants supplied water by LCRA. For the Thomas C. Ferguson Power Plant and South Texas Project, the natural evaporation from the cooling reservoirs varies based on monthly evaporation data, while the forced evaporation is a constant demand each year. For the Fayette Power Project, demands are weather-varied and reflect both the natural evaporation and forced evaporation. For the Bastrop Energy Partners facility, the demand will be modeled as a fixed amount each year.

Table 1 summarizes the projected annual demands for power plants for this WMP update.

Table 1. Power Plant Demand Summary

	Minimum	Average	Maximum
Fayette Power Project – Austin	5,800	7,300	10,300
Fayette Power Project – LCRA	10,100	12,600	17,900
Ferguson Power Plant[1]	1,800	1,800	1,800
STPNOC[2]	39,400	39,400	39,400
Bastrop Energy Center	2,300	2,300	2,300

1 Demand shown is for forced evaporation. Natural evaporation from Lake LBJ is simulated within the modeling.
2 Demand shown is for forced evaporation. Natural evaporation from the South Texas Project cooling reservoir is simulated within the modeling.