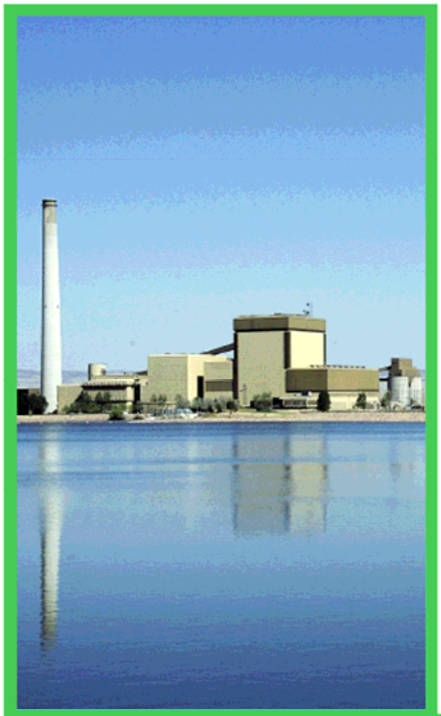


2007

Integrated Resource Plan

Platte River Power Authority
2007 Integrated Resource Plan

October 2006

Table of Contents

I. Executive Summary

Platte River Power Authority (Platte River), in coordination with its member municipalities (Estes Park, Fort Collins, Longmont and Loveland), has prepared this Integrated Resource Plan (IRP). An IRP provides information associated with the planning of resource acquisitions to meet customers' future electrical energy needs, including capacity and energy supply resources, renewable energy and energy efficiency options (referred to as demand side management or DSM). The planning process must balance rate impacts, reliability and environmental effects, with the resulting plans informed by both technical analysis and public review. Resource planning is a continuous and dynamic process, and this IRP represents a view of conditions as they stand at a narrow window in time. Many of the issues and assumptions presented here will change as customers' needs and available resource options evolve. This IRP is written in the context of a long-term horizon (2007 through 2018), with emphasis on the next five-years.

Platte River and the member municipalities plan to implement several action items related to resource planning and acquisition, including: (1) addition of a new 138 MW GE7FA gas-fired peaking resource at the Rawhide site by the summer of 2009, (2) expansion of energy efficiency programs, (3) continued implementation of the Renewable Energy Supply Policy, (4) monitoring of developments in regional generation and transmission resources to ensure a position in any new options of benefit to Platte River and its members, and (5) monitoring of changes in customer loads to support contingency planning.

The municipalities served by Platte River have seen significant growth in business activity, population, and demand for electricity over the past ten years. In 2005, Platte River provided 47% more energy to 35% more customers than in 1995, with summer peak demand increasing by 80%. Growth rates are anticipated to slow over the long term; however, factors such as business relocation, economic conditions, annexation variability and the potential expansion of distributed generation make accurate forecasting a challenge, particularly over the long term. The most recent 10-year load forecast is included as part of this IRP.

Platte River's existing electrical generation resource portfolio includes a mix of hydropower (via federal contracts), coal-fired generation (located at Rawhide and Craig stations), natural gas turbines (four units at the Rawhide site) and wind turbines (located at the Medicine Bow Wind Project in Wyoming). These resources, along with a small quantity of purchases from the wholesale market (less than 1% of total energy requirements), are adequate to meet the needs of Platte River's members for the next few years. However, given Platte River's reserve and reliability requirements, and considering load forecast variability and market purchase limitations, a new resource is needed in 2009.

Since the late 1970's, the member municipalities and Platte River have developed numerous programs to encourage efficient generation, transmission, distribution, and use of energy. Over the next five years (2007 through 2011), DSM programs will be expanded, with the goal of achieving demand savings of 17 MW and energy savings of 108,000 MWh per year by the end of 2011.

In March of 2006, Platte River's Board of Directors approved a Renewable Energy Supply Policy, which guides Platte River as it plans for and acquires new renewable sources to meet the needs of its owner municipalities. The policy provides direction regarding the level of renewable sources to be obtained, the type of sources considered acceptable to meet municipal renewable requirements, the anticipated impacts of renewable sources on future resource planning and the approach to be used for pricing renewable sources for sale to the member municipalities. By 2018, Platte River anticipates providing renewable energy (from sources other than WAPA hydropower) at a level of approximately 360,000 MWh/yr, or about 10% of total predicted energy supply to the municipalities. Though renewable energy sources are not expected to provide peak capacity, they can provide energy and environmental benefits.

Resource planning in general and this IRP in particular have been the topic of several public communications processes in recent years. Through customer and community surveys, public hearings, customer meetings, media releases, meetings with community groups and public meetings of the Platte River Board of Directors, an effective exchange of information on the issues of electric load growth and resource planning has occurred (and will continue) among the member utilities, boards and councils, customers, and citizens of the member communities.

It is anticipated that a final 2007 IRP will be approved by resolution of the Platte River Board of Directors during the fall of 2006. It will also be submitted to the Western Area Power Administration, in accordance with the directives of the Energy Policy Act of 1992. Updates will be provided on an annual basis.

II. Recent Trends in Electrical Load Growth

The municipalities served by Platte River have seen significant growth in business activity, population, and demand for electricity over the past ten years. In 2005, Platte River provided 47% more energy to 35% more customers than in 1995, with summer peak demand increasing by 80%. Figure 1 shows the overall trends in energy and peak demand on the Platte River system. Figure 2 breaks out the energy usage, peak demand and ten-year population growth rates by municipality.

Figure 1

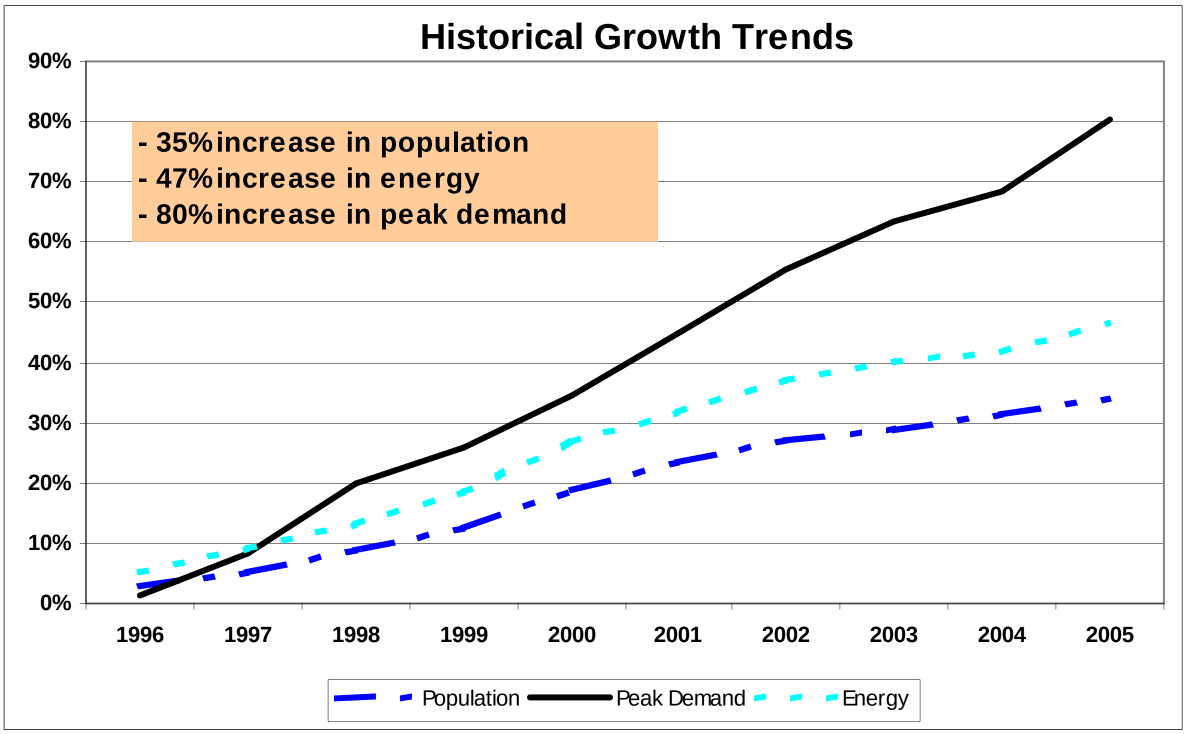


Figure 2

Cities	1995 Energy Requirements (MWh)	2005 Energy Requirements (MWh)	1995-2005 Energy Growth Rate	1995 - 2005 Summer Peak Demand Growth	10 Year Population Growth Rate*
Estes Park	100,203	126,208	26%	35%	48%
Fort Collins	988,530	1,432,566	45%	73%	29%
Longmont	509,435	792,503	56%	97%	44%
Loveland	430,267	634,684	48%	88%	37%
Aggregate	2,028,435	2,985,961	47%	80%	35%

**Source: State Demography Office. Ten year growth rates based on 2004 data (2005 data was not available)*

Growth in electric demand has come not only from new business and residential customers, but also from an increase in the average use of electricity per customer. A significant portion of this increased demand has been attributed to more extensive use of both residential and commercial air conditioning, together with greater reliance on computers and other electrical technologies.

Figure 3 below presents the historical and projected growth for summer, winter and annual peak demand. As of 2005, the summer and winter peak load grew at an average of 5.8% and 3.0%, respectively, over the past five years. In 1997, Platte River's annual maximum system peak changed over from the winter season to the summer season. The peak demand disparity between summer and winter has widened in recent years; during 2005, the summer peak demand was 35%, or 159 MW, greater than the winter peak demand for the 2004/2005 winter season.

Figure 3

SUMMER PEAK			
Year	*Peak (MW)*	*Annual Change %*	*Five-Year Avg. Change %*
HISTORICAL			
1996	346	0.9%	4.3%
1997	371	7.2%	6.0%
1998	411	10.8%	6.7%
1999	431	4.9%	6.7%
2000	466	8.1%	6.3%
2001	497	6.7%	7.5%
2002	533	7.2%	7.5%
2003	559	4.9%	6.3%
2004	576	3.1%	6.0%
2005	618	7.2%	5.8%
FORECAST			
2006	617	-0.2%	4.4%
2007	636	3.2%	3.6%
2008	656	3.1%	3.2%
2009	675	3.0%	3.2%
2010	695	2.9%	2.4%
2011	714	2.8%	3.0%
2012	734	2.7%	2.9%
2013	754	2.7%	2.8%
2014	774	2.7%	2.8%
2015	794	2.6%	2.7%

*Summer (April-September)

WINTER PEAK			
Year	*Peak (MW)*	*Annual Change %*	*Five-Year Avg. Change %*
HISTORICAL			
96-97	364	6.7%	5.8%
97-98	361	-0.8%	3.8%
98-99	392	8.6%	5.1%
99-00	386	-1.5%	4.2%
00-01	429	11.1%	4.7%
01-02	417	-2.8%	2.8%
02-03	430	3.1%	3.6%
03-04	460	7.0%	3.3%
04-05	459	-0.2%	3.5%
05-06	497	8.3%	3.0%
FORECAST			
06-07	485	-2.5%	3.0%
07-08	496	2.3%	2.9%
08-09	507	2.3%	2.0%
09-10	518	2.2%	2.5%
10-11	529	2.2%	1.3%
11-12	541	2.1%	2.2%
12-13	552	2.1%	2.2%
13-14	564	2.1%	2.1%
14-15	575	2.0%	2.1%
14-16	587	2.1%	2.1%

*Winter (October-March)

BILLABLE PEAKS			
Year	*Billable Peak (MW)*	*Annual Change %*	*Five-Year Avg. Change %*
HISTORICAL			
1996	3,945	5.6%	4.8%
1997	4,054	2.8%	5.2%
1998	4,282	5.6%	5.1%
1999	4,376	2.2%	4.4%
2000	4,783	9.3%	5.1%
2001	4,994	4.4%	4.8%
2002	5,294	6.0%	5.5%
2003	5,415	2.3%	4.8%
2004	5,466	0.9%	4.5%
2005	5,695	4.2%	3.6%
FORECAST			
2006	5,837	2.5%	3.2%
2007	5,991	2.6%	2.5%
2008	6,144	2.6%	2.6%
2009	6,297	2.5%	2.9%
2010	6,449	2.4%	2.5%
2011	6,603	2.4%	2.5%
2012	6,759	2.4%	2.4%
2013	6,916	2.3%	2.4%
2014	7,072	2.3%	2.3%
2015	7,231	2.2%	2.3%

Figure 4 presents a summary of the historical and projected growth in energy supplied by Platte River. Billable peaks represent the sum of all monthly peak demands for the year. The average annual summer and winter energy growth rates for the 5-year period ending 2005 were 3.0% and 2.6% respectively.

In summary, summer peak demand growth has outpaced growth in winter peak, summer energy and winter energy, as indicated by 5-year averages in Figures 3 and 4. Winter peak, summer energy and winter energy have had similar growth (all close to 3%) over the last 5 years.

Figure 4

SUMMER			
Year	*Energy (GWh)*	*Annual Change %*	*Five-Year Avg. Change %*
Historical			
1996	1,052	3.9%	4.8%
1997	1,098	4.4%	5.4%
1998	1,153	5.0%	5.4%
1999	1,213	5.2%	4.8%
2000	1,311	8.1%	5.3%
2001	1,357	3.5%	5.2%
2002	1,415	4.3%	5.2%
2003	1,453	2.7%	4.7%
2004	1,442	-0.8%	3.5%
2005	1,523	5.6%	3.0%
Forecast			
2006	1,560	2.5%	2.8%
2007	1,600	2.5%	2.5%
2008	1,640	2.5%	2.4%
2009	1,679	2.4%	3.1%
2010	1,719	2.4%	2.5%
2011	1,759	2.3%	2.4%
2012	1,799	2.3%	2.4%
2013	1,840	2.3%	2.3%
2014	1,881	2.2%	2.3%
2015	1,922	2.2%	2.3%

*Summer (April-September)

WINTER			
Year	*Energy (GWh)*	*Annual Change %*	*Five-Year Avg. Change %*
Historical			
96-97	1,087	6.1%	4.3%
97-98	1,131	4.0%	4.0%
98-99	1,165	3.1%	4.1%
99-00	1,226	5.2%	4.4%
00-01	1,312	7.0%	5.7%
01-02	1,335	1.8%	4.2%
02-03	1,374	2.9%	4.0%
03-04	1,420	3.4%	4.0%
04-05	1,442	1.5%	3.3%
05-06	1,492	3.5%	2.6%
Forecast			
06-07	1,527	2.4%	2.7%
07-08	1,562	2.3%	2.6%
08-09	1,597	2.2%	2.4%
09-10	1,632	2.2%	2.5%
10-11	1,667	2.1%	2.2%
11-12	1,703	2.1%	2.2%
12-13	1,739	2.1%	2.2%
13-14	1,775	2.1%	2.1%
14-15	1,811	2.0%	2.1%
15-16	1,847	2.0%	2.1%

*Winter (October-March)

ANNUAL			
Year	*Energy (GWh)*	*Annual Change %*	*Five-Year Avg. Change %*
Historical			
1996	2,133	5.1%	4.8%
1997	2,213	3.7%	5.4%
1998	2,298	3.9%	5.4%
1999	2,404	4.6%	4.4%
2000	2,587	7.6%	5.0%
2001	2,670	3.2%	4.6%
2002	2,781	4.2%	4.7%
2003	2,846	2.3%	4.4%
2004	2,885	1.4%	3.7%
2005	2,991	3.7%	2.9%
Forecast			
2006	3,070	2.6%	2.8%
2007	3,145	2.4%	2.5%
2008	3,220	2.4%	2.5%
2009	3,294	2.3%	2.7%
2010	3,369	2.3%	2.4%
2011	3,444	2.2%	2.3%
2012	3,520	2.2%	2.3%
2013	3,597	2.2%	2.2%
2014	3,673	2.1%	2.2%
2015	3,751	2.1%	2.2%

Figure 5 shows the annual load duration curves from 1995 and 2005. Over this period, the peak load demands during relatively few hours on summer peak days have grown 80%, while demands during the rest of the year have grown much slower.

Figure 5

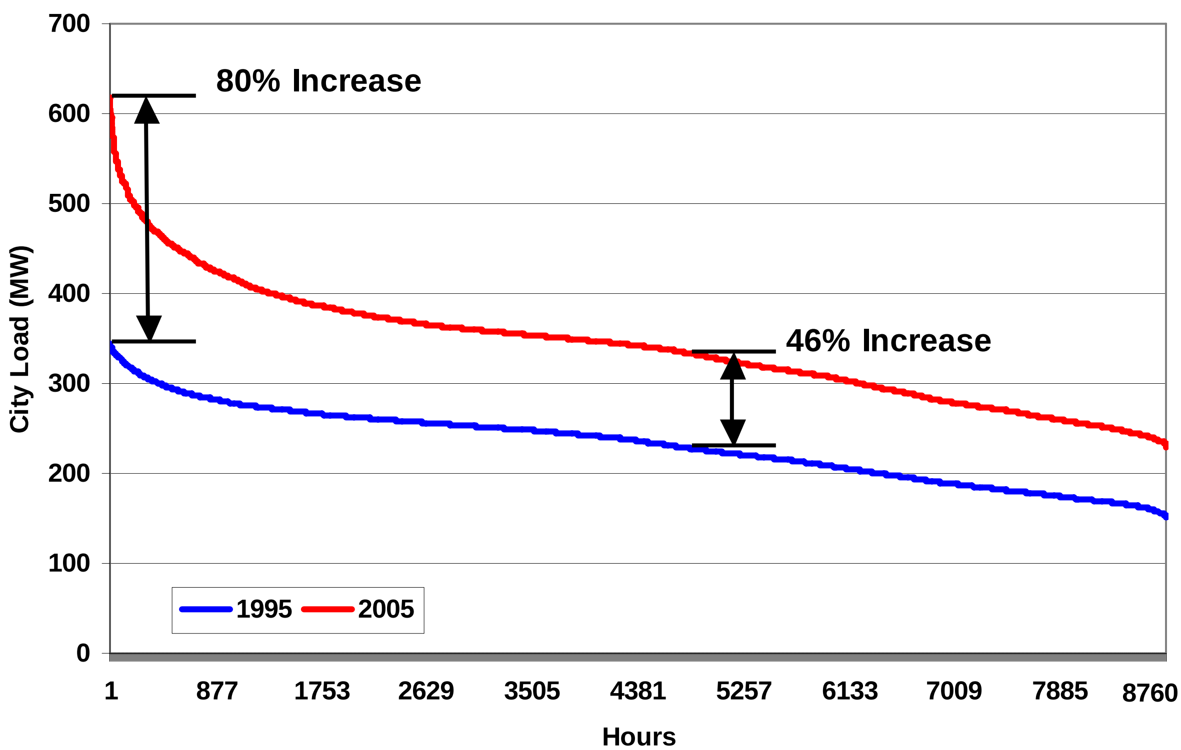


Figure 6 illustrates the summer peak-day load profile for the summer seasons 2002 through 2005. Over this period the summer peak increased by 85 MW, or about 28 MW per year. Figure 7 shows the winter peak-day load profile for the same years. From 2002 through 2005 the winter peak has increased by 67 MW, or about 22 MW per year.

Figure 6

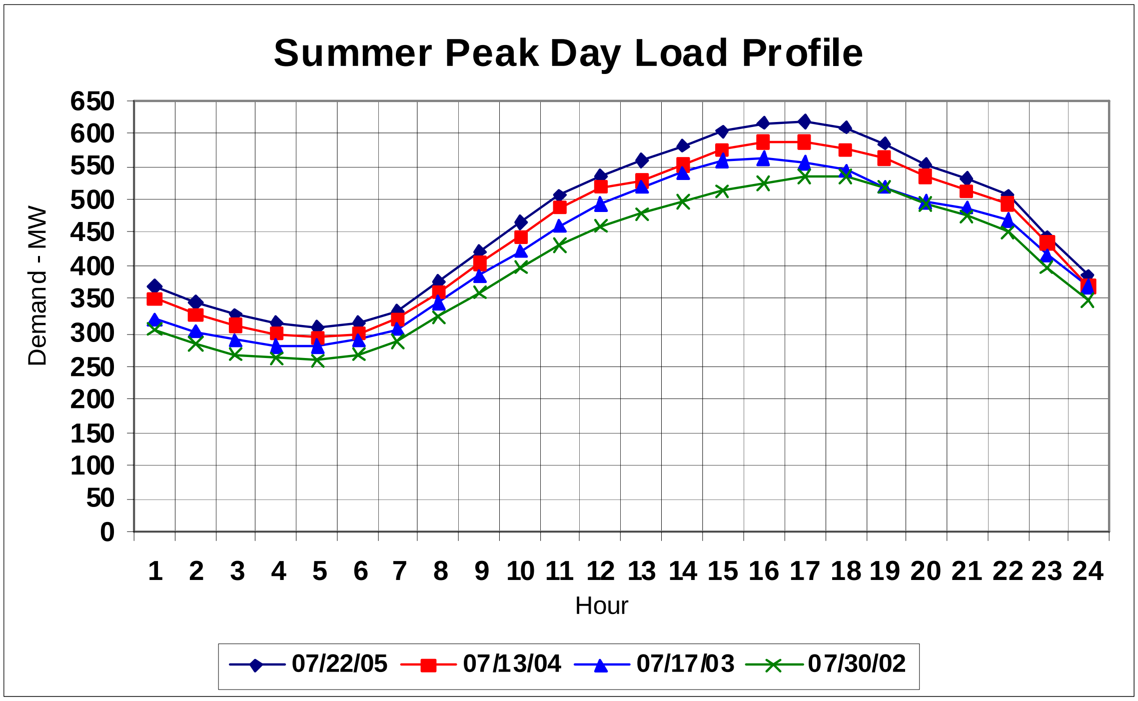
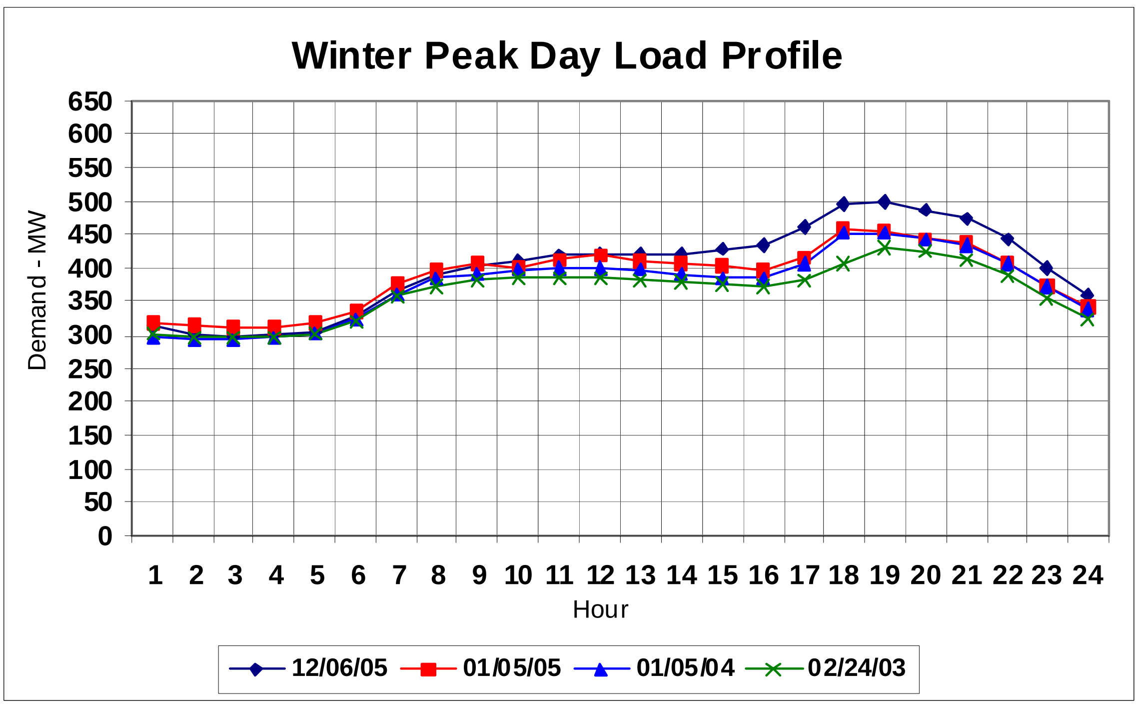


Figure 7



III. System Load Forecast

1. Method

Platte River retained UFS (Utility Financial Solutions) to create a long-term load forecast using an econometric model to forecast projected energy and demand growth. Econometric modeling uses multiple forecasts of independent variables to project the growth of a dependent variable. Platte River's econometric model uses population, weather and employment as independent variables to project demand and energy growth.

Woods & Poole (W&P), an independent economic forecasting consulting firm, provided forecasts for population and employment. W&P's most recent employment and population forecast for Larimer and Boulder counties show a significant decline from historical growth rates. While Platte River's owner municipalities' populations have grown at an annual average rate of 3.0% between 1991 and 2004, W&P's forecast projects average annual population growth of 1.7% for the 2006-2024 period. This forecasted decline in population and employment contribute to the forecasted reduction in peak demand growth.

To forecast the independent weather variables used in Platte River's peak demand projections, average weather conditions (either Cooling Degree Days or Heating Degree Days) for the period 1991 to 2004 were applied. While this long run average should reflect "average" weather conditions, weather variability in any given year may be higher or lower than the long run average.

2. 10-Year Municipal Load Forecast

The following are the highlights of the 2006 Ten-Year Forecast:

- The ten-year summer demand growth is approximately 20 MW per year, with an average annual growth rate of 2.5% for the 2006 to 2015 period.
- The ten-year winter demand growth is approximately 11 MW per year, with an annual growth rate of 1.7% for the 2006 to 2015 period.
- Average annual energy growth rate is 2.3% for the 2006 to 2015 period.

Figure 3 above details the most recent 10-year projected seasonal peak demand forecast for the aggregate of the municipalities' loads. The data are taken from the 2006 Budget Forecast. As can be seen from this figure, the five-year average growth rate for Platte River's base summer demand is projected to decline from 5.8% in the summer of 2005 to 2.7% in the summer of 2015. The five-year average growth rate in base winter demand is projected to decline from 3.5% from the 2004-2005 winter to an annual seasonal growth rate of 2.1% during the final interval of the 10-year forecast. As indicated in Figure 4, the summer five-year average energy growth rate is projected at 2.3% in 2015, down from 3.0% in 2005. The winter five-year average energy growth rate is projected at 2.1% in 2015/2016, down from 2.6% in 2005/2006.

Figures 8 and 9 depict historical and projected summer and winter demand for 1995 through 2015, along with the high and low forecast intervals. It is expected that the summer peak load will continue to dominate, driven in part by the more widespread use of air conditioning systems.

Figure 8

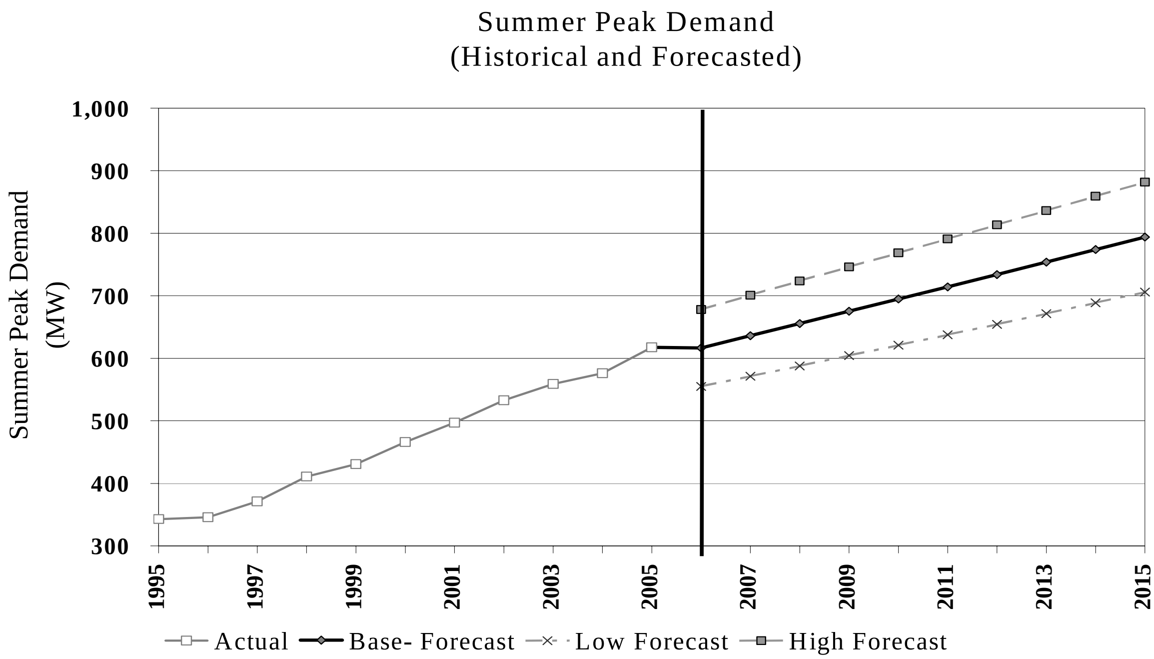


Figure 9

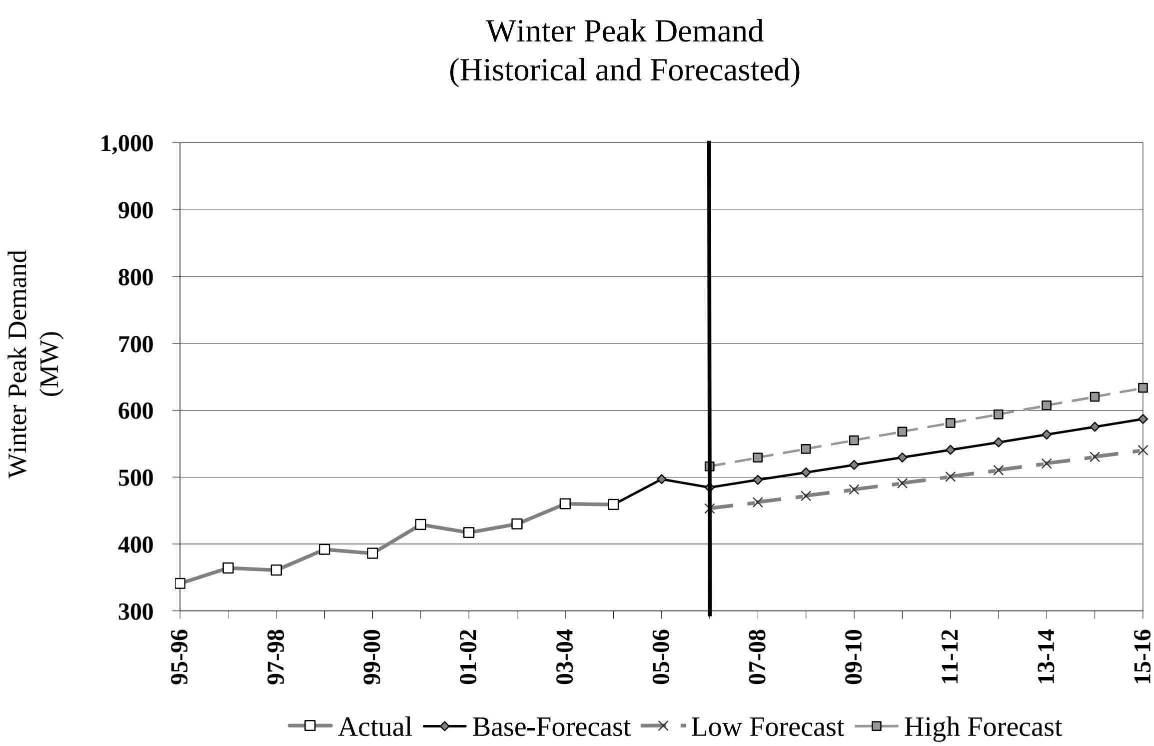
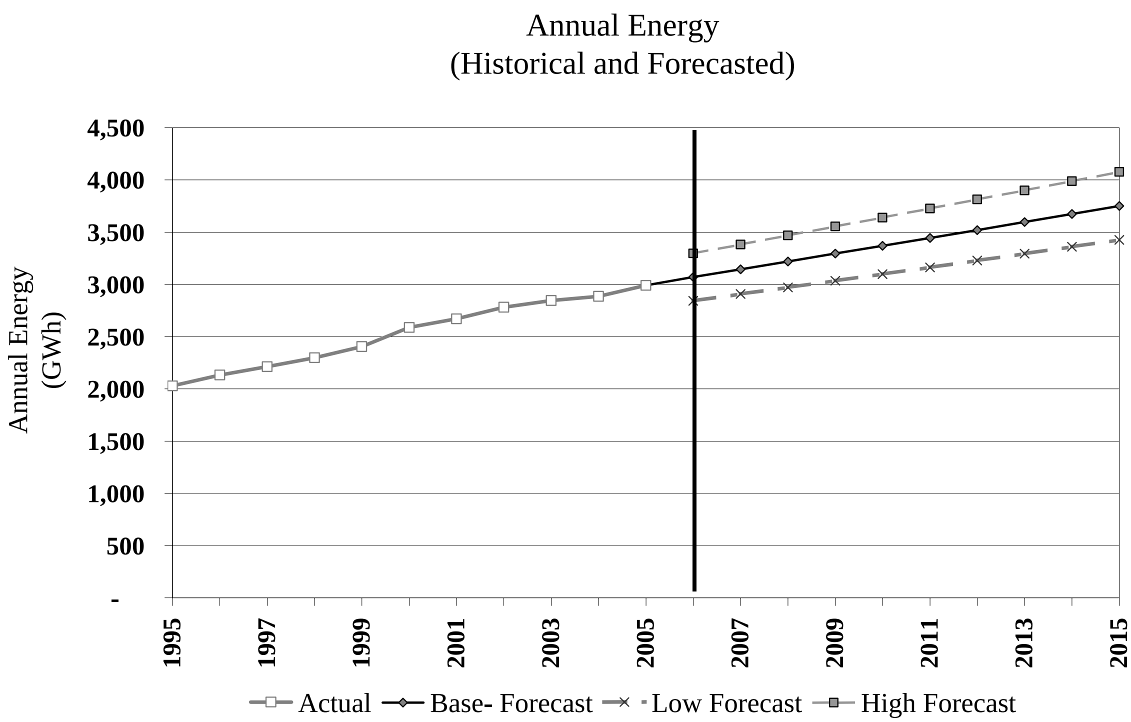


Figure 10 depicts historical and projected annual energy from 1995 through 2015, along with the high and low forecast intervals.

Figure 10



3. Factors Affecting Load Growth

A number of factors introduce uncertainty into load projections for the Platte River system. Several of these are discussed here.

A. Annexations and Urban Growth Boundaries

Each of the four member municipalities is characterized by its own set of policies that guide decision-making processes for annexation and changes to urban growth boundaries. Urban growth boundaries define the limits for a municipality's future footprint of homes and businesses upon the landscape, which impacts electricity consumption. New construction outside the urban growth area will typically fall under the county's jurisdiction, not that of the municipality. In the future, new developments outside of urban growth boundaries could be proposed, accompanied by requests for annexation into the adjacent municipality. Depending upon the size and number of such projects, growth outside the urban growth boundaries of the cities may have significant impact on the municipalities' future load growth. Annexations of existing loads may also occur and these could increase loads beyond the forecasted level. Platte River and the municipalities will monitor this issue.

B. New Energy Intensive Loads

Advances in computing technology and the need for secure data have led to expansion of web and data server installations, which are typically high energy users. These large installations can increase peak loads by over 50 MW within a few years. Given the owner municipalities' historically low and stable electric rates (and other attractive characteristics), several entities with large loads (5 MW to 48 MW) have considered locating within the members' service areas. The assumptions supporting the current load forecast do not include new large energy intensive loads. Platte River and the cities continue to work closely together on this issue.

C. Local and National Economic Conditions

The population forecast used to develop our electric energy forecasts predicts a significant decline in population growth rates (vs. historical rates). Between 1991 and 2004, population growth has averaged 3.0% for the region. For forecasting future energy and demand requirements, Platte River used the Woods & Poole forecast, which averages 1.7% annual population growth. The actual rate of population growth and strength of economic conditions in the region will impact future demand and energy growth rates.

D. Restructuring/Market Trends

Events over the last several years in California and other regions have significantly diminished the momentum behind electric industry restructuring (particularly at the retail level). The current regulatory and legislative environment leaves the timing of restructuring in Colorado uncertain, but it is unlikely that retail competition will be implemented for the next several years. Changes in municipal loads that may occur due to industry restructuring are not included in the current forecast.

E. Distributed Generation

Distributed Generation (DG) technologies such as fuel cells, micro-turbines, small-scale co-generation, photovoltaics, small-scale reciprocating engines, and small wind turbines have garnered a great deal of interest in recent years. To date, the relatively high cost of these technologies has limited their widespread installation. Many organizations are vigorously working to overcome these barriers. As the cost of distributed generation technologies continues to drop in future years, some of the loads in Platte River's owner communities may be affected. The extent of the impact depends on the rate of acceptance of DG technologies and on the degree to which Platte River participates in their implementation. Platte River will continue to closely monitor ongoing developments in distributed generation, both to maintain a watch on competitive developments in the industry and to understand the benefits and risks of directly implementing DG technologies as they continue to mature.

IV. Current Resources

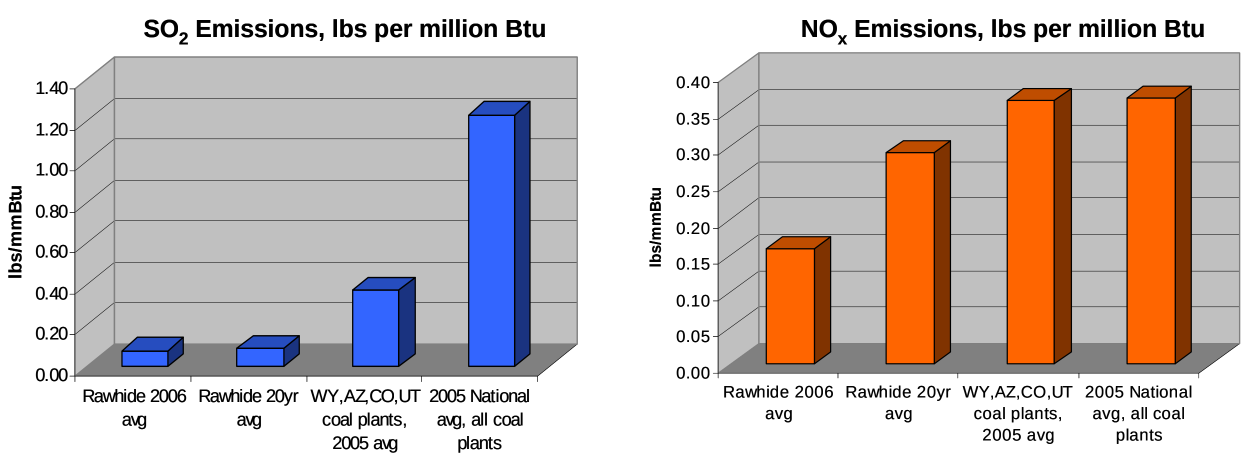
To fulfill its mission, Platte River has developed and contracted for a diversified mix of reliable, cost-effective and environmentally responsible resources. An overview of each of Platte River's current resources is provided below.

1. Rawhide Energy Station

The Rawhide Energy Station consists of Rawhide Unit 1, a 274 MW (net capacity) coal-fired generating facility, with cooling reservoir, coal-handling facilities, emissions control equipment, and related transmission facilities. Rawhide Unit 1 commenced commercial operation on March 31, 1984. The station is located approximately 20 miles north of Fort Collins and is connected to Platte River's system by two double circuit 230 kV transmission lines. The site includes four gas-fired combustion turbines, Rawhide Units A, B, C, and D; these units are discussed in further detail below.

At inception in 1984, Rawhide Unit 1 was equipped with the best available emissions control technology, and has seen several emissions control upgrades since. Rawhide Unit 1 is one of the lowest emitting coal-burning energy stations in the U.S., as can be seen in Figure 11.

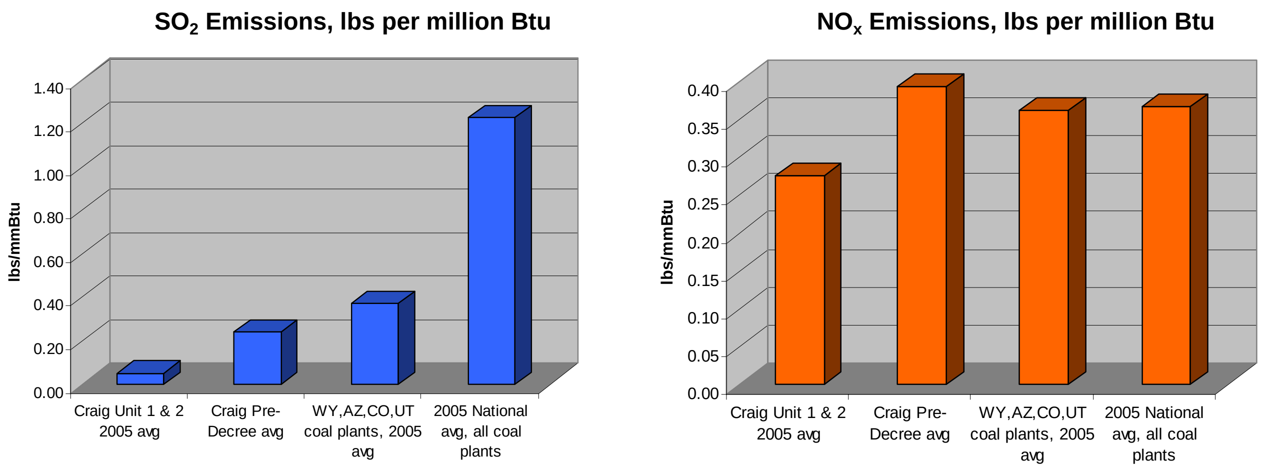
Figure 11



2. Yampa Project (Craig Units 1 and 2)

The Yampa Project consists of Craig Units 1 and 2, both of which are coal-fired—each rated at 428 MW (net capacity). Platte River owns an 18% share of Units 1 and 2, or 77 MW per unit, for a total of 154 MW. The Yampa Project is located in northwestern Colorado, approximately four miles southwest of Craig. The site includes the generation facilities, a coal handling facility, a small water storage reservoir, and related transmission facilities. The $120 million Yampa Environmental Project was completed in 2004, which reduced SO_2, NOx, and particulate emissions from the plant. Due to recent upgrades to the emission control systems, Craig Units 1 and 2 are now among the lowest emitting coal-fired plants in Colorado (and throughout the U.S.), as indicated in Figure 12. Platte River also owns approximately 190 MW of transmission capacity in the path from western to eastern Colorado, which is used to deliver Platte River's share of the Yampa Project output.

Figure 12



3. Western Area Power Administration Supply Contracts

Platte River receives allocations of federal hydropower under contracts from the Western Area Power Administration's (WAPA) Loveland Area Project (LAP) and the Colorado River Storage Project (CRSP). These allocations vary by season.

The LAP contract was extended in March 1996 to run through September 2024. Platte River receives monthly quantities of approximately 30 MW to 34 MW of LAP capacity throughout the year. It is expected that these allocations may be reduced in 2009.

Platte River's guaranteed capacity from CRSP was reduced on March 1, 1997, as part of Amendment No. 4 to the CRSP agreement. This reduced capacity is referred to as Sustainable Hydropower (SHP). For long-range load and resource planning, Platte River uses the SHP quantity as the capacity expected to be available from CRSP. Platte River expects to receive approximately 55 MW to 62 MW of CRSP capacity during the summer season and 75 MW to 85 MW of CRSP capacity during the winter season.

The final element of the CRSP supply is an as-available resource, based upon the capacity difference between contract-rate-of-delivery and Sustainable Hydropower quantities. This difference is referred to as Western Replacement Power (WRP) and represents capacity and energy that Platte River can schedule from WAPA. The price for this energy is not known until after the power is delivered. For long-range resource planning, any market purchases required to meet loads are assumed to be met first from WRP purchases.

4. Wind Generation

In 1998, Platte River completed the development and commercial startup of two 600 kW commercial wind turbines at its Medicine Bow Wind Project site (MBWP). Together with the City of Fort Collins, Platte River was the first utility in Colorado to provide wind energy to its customers. Five more 660 kW turbines were added in 1999, followed by another two units in 2000. During 2005, a new 2.5 MW wind turbine was installed (Clipper Liberty), making a total of ten turbines (8.3 MW) at Platte River's Medicine Bow site. All member municipalities purchase renewable energy from the turbines and the output of one turbine is sold to Tri-State Generation and Transmission Association.

5. Peaking Units

As a result of ongoing load and resource planning, Platte River's Board of Directors has approved the purchase of four GE7EA natural gas fired combustion turbines (Rawhide Units A, B, C, and D). Three of these units were commercially available for generation in 2002 and the fourth was brought on line in the spring of 2004. Each unit provides 65 MW of summer peaking capacity. A 14-mile natural gas pipeline was constructed to supply fuel to the units. The pipeline has adequate capacity to supply up to 10 similarly sized gas turbines. These units provide peaking capacity as well as backup reserve capacity in the event of an outage at one of Platte River's base load resources.

6. Forced Outage Assistance Agreement

An agreement has been executed with Tri-State Generation and Transmission Association, whereby 100 MW of capacity is provided to Platte River in the event of an outage at Rawhide Unit 1. In exchange for this capacity provision, Platte River provides 100 MW of capacity to Tri-State in the event of an outage at Craig Unit 3. The agreement applies for a time period of up to one week per occurrence.

7. Photovoltaic Plant

Platte River continues to operate a photovoltaic system that was installed as a pilot project in 1986. Initially, four sets of modules (10 kW total) were operated in different configurations so that side-by-side comparisons of effectiveness could be made. A final report on system performance was issued in 1992. Since then, two configurations have remained in operation, for a total capacity of about 7 kW (maximum). Platte River continues evaluation of the two remaining systems for long-term performance and reliability. The solar system is also used to charge two electric vehicles in Platte River's fleet. These vehicles (Toyota RAV4s) have significantly improved range and performance relative to earlier models of electric vehicles. With photovoltaic charging, the vehicles are essentially "zero emission" vehicles.

8. Demand Side Management

Finally, Platte River works jointly with its owner municipalities to implement customer demand side management (DSM). DSM programs are described in more detail in Section VIII of this document.

V. Load/Resource Balance and Resource Needs

Platte River's system load characteristics and the resources available to serve that load are summarized in the foregoing sections. We now turn to the issue of matching resources with load. In this section, we summarize the balance between Platte River's annual loads and resources, and we review the risks associated with the unanticipated loss of Platte River's largest resource.

Platte River's resource decisions are based on ensuring an adequate level of resources to meet loads, particularly when the largest resource (Rawhide Unit 1) is off line. Other resource decision criteria include rate impact, operational characteristics of new resources, appropriate matching of short-term and long-term needs of the municipalities, financial risk, and environmental considerations. In addition, any resource development undertaken by Platte River will be considered within the context of the resource plans and activities of other utilities and independent power generators in the region.

Ensuring an adequate level of resources to meet loads is addressed quantitatively by considering four criteria: (1) maintain resources to ensure that loads do not exceed Platte River's resources by more than 65 MW in the event of an outage of Rawhide Unit 1 (in other words, ensure no more than 65 MW is required to be purchased from the wholesale market), (2) maintain a minimum reserve margin of 15%, (3) ensure loss of load probability (LOLP) of less than 5% at the peak hour, and (4) ensure loss of load expectation (LOLE) of less than 1 day in 10 years. Platte River's Board approved the first criterion during prior resource planning efforts; the other criteria have been analyzed during this planning cycle to enhance decision making.

Load and resource comparisons are based on a seasonal peak-day analysis. Figures 13 and 14 highlight the historical and projected summer and winter load duration curves. The shape of the curves has not changed markedly in recent years and is not expected to change substantially in the future.

Figure 13

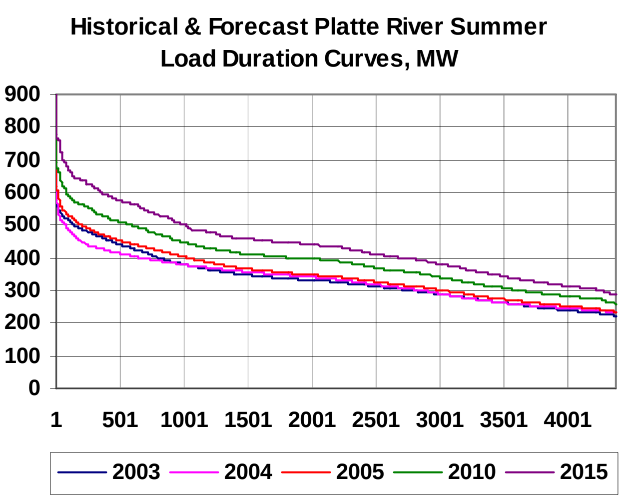
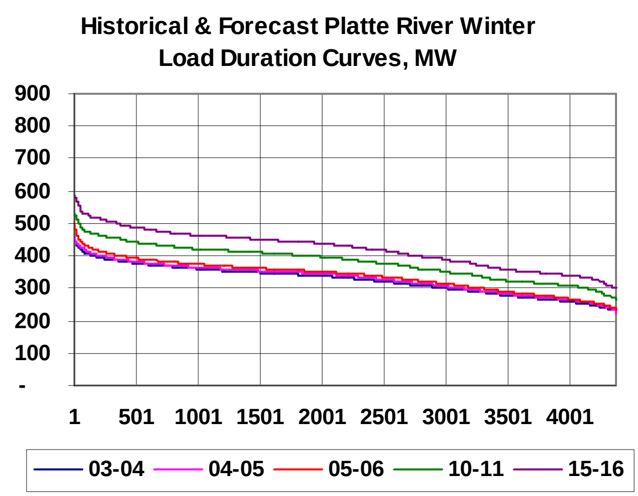


Figure 14



1. Projected Balance of Loads and Resources (with all resources available)

Figures 15 and 16 present the summer and winter peak-month loads and resources balance in table form for years 2006 through 2015, assuming all firm resources are available. Loads include the aggregated municipality load, Xcel Energy contract deliveries, transmission system losses and reserves (required to meet unanticipated demand or to counteract the sudden, unforeseen loss of a major resource). The need to maintain large dedicated reserves is moderated substantially by Platte River's participation in the Rocky Mountain Reserve Group, an association of neighboring generating entities that have agreed to cooperatively assist each other in the event that a generating unit goes down. This arrangement helps ensure that system-wide reserve requirements are met at all times.

Currently available resources include Rawhide Unit 1, Platte River's share of Craig Units 1 and 2, the CRSP and LAP hydroelectric contracts with WAPA, and the gas turbine peaking units A, B, C and D at Rawhide. Deficits are made up first through purchases of WAPA Replacement Power (WRP) and then through open market purchases. Surpluses may be sold by contract or in the short-term market as availability and market demand permit.

Figure 15

SUMMER PEAK MONTH FORECAST										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Loads										
City Loads	617	636	656	675	695	714	734	754	774	794
DSM [1]	(2)	(4)	(7)	(10)	(13)	(17)	(19)	(22)	(25)	(28)
Xcel Energy	30	30	-	-	-	-	-	-	-	-
Required Reserves	25	27	28	29	29	30	31	32	33	34
Losses	11	12	12	12	12	13	13	13	14	14
	681	701	689	706	723	741	759	777	796	814
Resources										
Rawhide	274	274	278	278	278	278	278	278	278	278
Craig	154	154	154	154	154	154	154	154	154	154
CRSP	60	60	60	60	60	60	60	60	60	60
LAP	30	30	30	30	30	30	30	30	30	30
Peaking	260	260	260	260	260	260	260	260	260	260
	778	778	782	782	782	782	782	782	782	782
Surplus (Deficit)	97	77	93	76	59	41	23	5	(14)	(32)
Reseve Margin [2]	24.3%	20.7%	18.3%	15.5%	12.8%	10.1%	7.5%	5.0%	2.5%	0.2%

[1] DSM based on data provided by each city and Platte River estimates.

[2] Reserve margin calculation excludes firm surplus sales and required reserves.

As indicated in Figure 15, the reserve margin drops to a level very close to the 15% reliability limit in 2009.

Figure 16

WINTER PEAK MONTH FORECAST	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	14-16
Loads										
City Loads	485	496	507	518	529	541	552	564	575	587
DSM [1]	(2)	(4)	(5)	(7)	(10)	(12)	(14)	(17)	(19)	(22)
Xcel Energy	30	30	-	-	-	-	-	-	-	-
Reserves	27	27	28	29	30	31	32	33	34	35
Losses	9	9	9	9	10	10	10	10	10	11
	549	558	539	549	559	570	580	590	600	611
Resources										
Rawhide	274	274	278	278	278	278	278	278	278	278
Craig	154	154	154	154	154	154	154	154	154	154
CRSP	85	85	85	85	85	85	85	85	85	85
LAP	31	31	31	31	31	31	31	31	31	31
Peaking	260	260	260	260	260	260	260	260	260	260
	804	804	808	808	808	808	808	808	808	808
Surplus (Deficit)	255	246	269	259	249	238	228	218	208	197
Reseve Margin [2]	63.5%	60.4%	58.2%	55.4%	52.7%	50.0%	47.5%	45.0%	42.7%	40.3%

[1] DSM based on data provided by each city and Platte River estimates.

[2] Reserve margin calculation excludes firm surplus sales and required reserves.

2. Load/Resource Balance During Forced Outage of Largest Resource

Due to the relatively large size of Platte River's largest resource, and due to declining reserves and tightening transmission constraints in the region, the loss of a generating unit could seriously impact the reliability of the Platte River system. Replacement power sources are limited, and at times replacement power is not available. Also, scheduling of transmission to deliver power from other generators to Platte River's system is often a challenge. The forced-outage rate for Platte River's thermal generating units has historically been about 3.5% per year. The extent of Platte River's exposure to reliability and market risk during such outage periods depends on the timing and duration of an outage.

Platte River's resource planning philosophy includes carrying reserves or maintaining access to firm resource capacity that is sufficient to meet load obligations even if its largest generating unit (Rawhide Unit 1) is out of service. As indicated above, one of our reliability criteria is to add new resources if the resource deficit, during an outage at Rawhide Unit 1, is forecast to exceed 65 MW. Deficits less than 65 MW may be met through market purchases or other resource solutions, such as the Forced Outage Assistance Agreement with Tri-State. Should a forced outage occur at Rawhide Unit 1, this agreement would be invoked first as a source of replacement power. After invoking this option, Platte River would use one or more of the following sources to meet loads: WAPA Replacement Power, wholesale market purchases or the combustion turbine units.

Assuming the Forced Outage Assistance Agreement and WAPA Replacement Power purchases have both been fully utilized in the event of an outage of Rawhide Unit 1 (assuming all other resources are available), the deficits remaining to be covered by market purchases are shown for the 10-year forecasting horizon as the last line in Figure 17 (summer) and Figure 18 (winter). Figure 17 shows deficits in 2006 through 2009, with a 2009 deficit very close to the maximum level allowed in the current reserve policy criteria (56 MW vs. 65 MW). Figure 18 projects no market exposure during the winter season.

Figure 17

SUMMER PEAK MONTH FORECAST - RAWHIDE OUT OF SERVICE										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Loads										
City Loads	617	636	656	675	695	714	734	754	774	794
DSM [1]	(2)	(4)	(7)	(10)	(13)	(17)	(19)	(22)	(25)	(28)
Xcel Energy	0	0	-	-	-	-	-	-	-	-
Required Reserves	25	27	28	29	29	30	31	32	33	34
Losses	11	12	12	12	12	13	13	13	14	14
	651	671	689	706	723	741	759	777	796	814
Resources										
Rawhide	0	0	0	0	0	0	0	0	0	0
Shaft Sharing	100	100	100	100	100	100	100	100	100	100
Craig	154	154	154	154	154	154	154	154	154	154
CRSP	60	60	60	60	60	60	60	60	60	60
LAP	30	30	30	30	30	30	30	30	30	30
Peaking	260	260	260	260	260	260	260	260	260	260
WRP	46	46	46	46	46	46	46	46	46	46
	650	650	650	650	650	650	650	650	650	650
Surplus (Deficit)	(1)	(21)	(39)	(56)	(73)	(91)	(109)	(127)	(146)	(164)

[1] DSM based on data provided by each city and Platte River estimates.

Figure 18

WINTER PEAK MONTH FORECAST - RAWHIDE OUT OF SERVICE										
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	14-16
Loads										
City Loads	485	496	507	518	529	541	552	564	575	587
DSM [1]	(2)	(4)	(5)	(7)	(10)	(12)	(14)	(17)	(19)	(22)
Xcel Energy	30	30	-	-	-	-	-	-	-	-
Reserves	27	21	22	23	24	25	26	27	28	29
Losses	9	9	9	9	10	10	10	10	10	11
	549	553	533	543	554	564	574	585	595	605
Resources										
Rawhide	0	0	0	0	0	0	0	0	0	0
Shaft Sharing	100	100	100	100	100	100	100	100	100	100
Craig	154	154	154	154	154	154	154	154	154	154
CRSP	85	85	85	85	85	85	85	85	85	85
LAP	31	31	31	31	31	31	31	31	31	31
Peaking	260	260	260	260	260	260	260	260	260	260
WRP	30	30	30	30	30	30	30	30	30	30
	630	630	630	630	630	630	630	630	630	630
Surplus (Deficit)	81	77	97	87	76	66	56	45	35	25

[1] DSM based on data provided by each city and Platte River estimates.

3. Timing of New Resource Need

All four of Platte River's resource reliability criteria are very close to the planning limits in 2009. With all resources available and operating, the reserve margin drops to 15.5% in 2009, within less than 1% of the 15% criterion. With the largest resource (Rawhide Unit 1) off line, required market purchases are estimated at 56 MW, only 9 MW less than the 65 MW criterion. Loss of Load Probability and Loss of Load Expectation are also very close to the limits set for these criteria.

Note that there are several uncertainties that could quickly tighten the load/resource balance within the next few years. On the load side, these include the potential for large new facilities locating within the municipalities, uncertainty in weather, expansion of use of air conditioning, uncertainty regarding DSM program impacts, potential annexations by the municipalities and changes in population. On the resource side, the supply of capacity from regional markets has tightened substantially due to the drought, growth across the region exceeding resource additions, and increasing transmission constraints. Given these factors, it is recommended that a new capacity resource be on line before the summer of 2009.

VI. Resource Supply Alternatives

1. Context for Resource Scenario Evaluation

It is important to periodically study a variety of future resource alternatives, since there is a long lead time associated with bringing new resources on line. Moreover, opportunities for joint development of resources may present themselves at any time. Analyses of options are regularly reviewed and revised by Platte River's resource planning team, and new studies are initiated to take into account ongoing developments in load forecasts, technology, regulation, environmental conditions, competitive factors, new resources and markets, pricing, and political conditions.

As indicated earlier, Platte River needs new resources that meet the municipalities requirements during the peak summer season. The focus here is toward firm resources that are available during this time frame. Non-dispatchable renewable energy options, such as wind and solar, provide little or no reliable capacity at peak times and are not included as an option to meet peak capacity or reserve needs. However, renewable resources can provide energy supply, as well as environmental and other benefits. Renewable energy planning is discussed later, in Section VII of this report.

2. Firm Resource Options

In the 2002 IRP, Platte River recommended participation with Tri-State (and other entities) in the study of a jointly owned coal resource to meet future resource needs. This unit planned for Southeast Colorado was referred to as the Colorado Generation Project. Tri-State recently announced the delay of this project until at least 2017 and has decided to pursue new generation at a coal-fired facility near Holcomb, Kansas. Tri-State has informed Platte River that participation in the Holcomb facility is limited to purchase power contracts only (no joint ownership is being offered) and has refunded participants for their investment in the study of the Colorado Generation Project. Given the significant transmission investment required to reach the Holcomb facility, along with the fact that no long-term supply resource is being offered, Platte River has no serious interest in pursuing a purchase agreement from the Holcomb facility at this time.

Other joint projects may be available for consideration in the future, but at this time there are no viable opportunities for Platte River to participate in regional generation projects that could meet our resource need by 2009. After review of all options available to meet our needs, three key alternatives have been identified, as summarized below.

1. ***Coal-fired generation at the Rawhide site (Rawhide Unit 2)*** – This option involves installation of a 100 MW coal-fired unit, utilizing pulverized coal or fluidized bed coal combustion technology. The Rawhide site was originally designed and constructed with additional coal-fired generation in mind. Physical layout of the site and the coal handling facilities are situated in such a way that a second coal unit could be constructed without substantially modifying existing structures. The Rawhide site also offers a 4,300 acre area owned by Platte River, a trained workforce, water availability, coal handling facilities, rail access, transmission access, and proximity to our municipal load centers.

2. ***Simple-cycle gas-fired generation*** – The lowest capital cost alternative to increase generating capability would be to install additional simple-cycle combustion turbine (CT) units at the Rawhide site. Simple-cycle units are suited to intermittent operations, characteristic of a peaking resource. They can be quickly started during periods of high demand and easily shut down for off-peak periods and for maintenance. The following peaking unit options were considered**:**

	Installed kW Cost	Capacity Rating	Fuel Efficiency
GE7EA	Medium	65 MW	Lowest
GELMS100	Highest	75 MW	Highest
GE7FA	Lowest	138 MW	Medium

3. ***Purchase of capacity*** – Market based capacity purchases could be used to meet future resource needs instead of building additional generation.

Use of gas-fired combined cycle technology at the Rawhide facility was also considered briefly. This option involves recovering heat from two (or more) of the peaking units to make steam that feeds a steam turbine generator. This option is clearly not cost effective due to the need to operate two peaking units at high gas costs in order to obtain additional capacity from the steam unit. This option would also significantly increase maintenance costs for the peaking units and would limit operational flexibility of the units.

In the following sections, the three options described above are reviewed from several perspectives, beginning with environmental considerations.

3. Environmental Considerations

Platte River staff assesses and evaluates the environmental effects of every proposed action that is brought forward for consideration by management or the Board. This practice is an integral part of the decision-making process. The selection and specification of a generating resource is a particularly important decision, not only because of the substantial effects on the reliability of electric service and impact on rates, but also because of the short and long-term environmental implications inherent in each resource acquisition decision.

Recognizing this, the Platte River Board has adopted an Environmental Policy and a set of Environmental Principles to guide management and staff in planning and day-to-day operations and to clearly communicate a set of priorities to everyone in the organization. The policy and principles are summarized in Figure 19.

In practice, the "environmentally responsible" aspect of Platte River's mission is carried out through the operation of its Environmental Management System (EMS), described graphically in Figure 20. The EMS enables staff and management to coordinate efforts to continuously evaluate environmental performance. This focus on environmental performance ensures compliance with complex and changing regulations through ongoing internal compliance assessment, document/data control, training, program implementation, management review, and continuous improvement.

For example, Platte River has implemented ongoing environmental performance at Rawhide. Although Rawhide has been equipped since startup with controls that maintain emissions levels well below the plant's operating permit conditions (which themselves are among the lowest in the industry), Platte River has implemented options for improvements that reduce emissions even further. Early in the decade, changes were made to reduce SO2 emission by about 10% and in 2005 a separated over-fire air burner control system was installed that reduces NO_x emissions by about 40%.

Figure 19

PLATTE RIVER POWER AUTHORITY
Environmental Policy and Principles

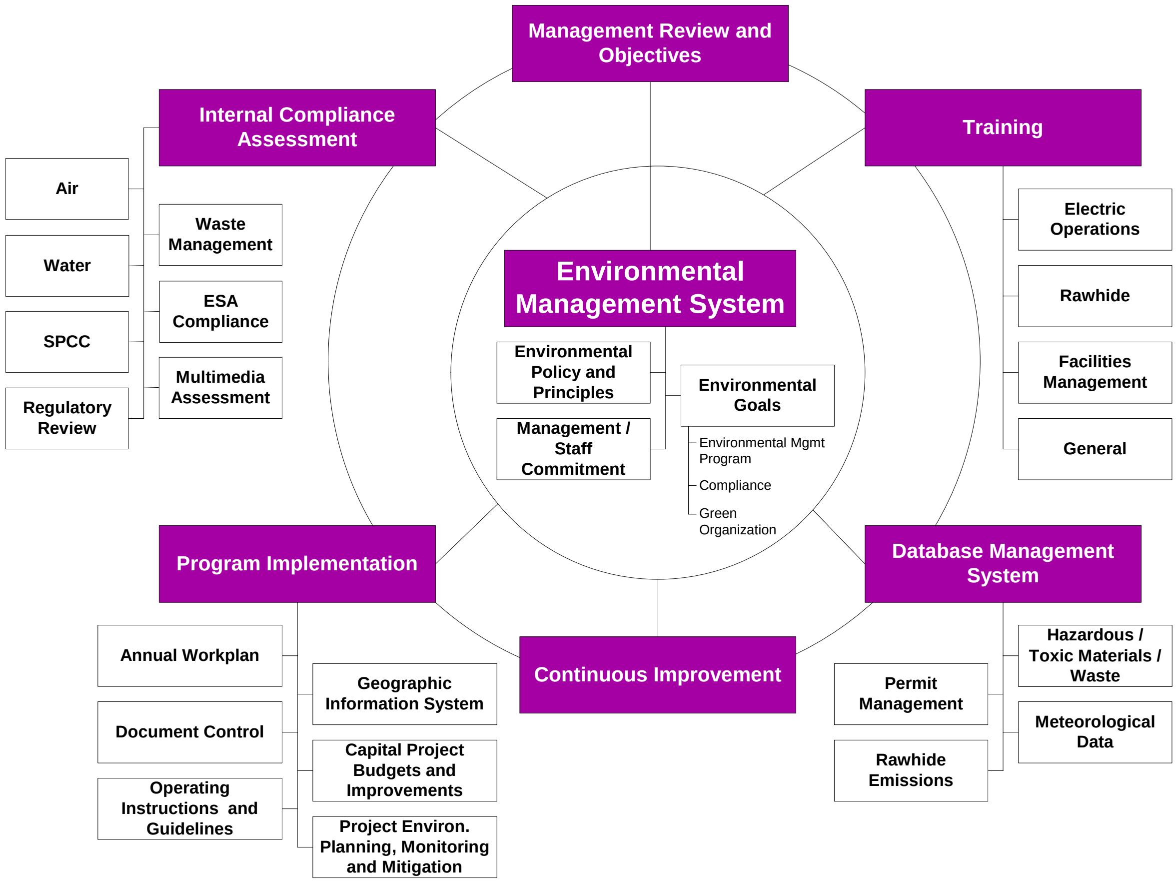
Platte River provides reliable, low-cost electricity in an environmentally responsible manner to its owner communities of Estes Park, Fort Collins, Longmont and Loveland. Depending on water storage conditions, over one-quarter of the municipalities' electrical energy requirements are served from renewable resources including hydropower and wind. Platte River's other energy resources are fueled with coal and natural gas.

Platte River uses state-of-the-art air quality control systems at its power generation stations and meets or exceeds all applicable environmental laws and regulations. As new legislation and regulations are proposed, Platte River participates in public processes and supports additional control requirements where costs are commensurate with measurable environmental benefits. In addition, as technology improves and opportunities arise, Platte River will be proactive in evaluating and implementing improvements in its power operations that balance environmental and other socio-economic concerns.

Platte River Power Authority…

- considers environmental factors an integral part of all planning, design, construction, and operating decisions.
- reinforces environmental compliance through program reviews, training, and by communicating environmental values throughout the organization.
- encourages public participation in planning for the location of major facilities as a means of avoiding and resolving conflicts and to achieve a balance between the need for an economic electric supply and environmental quality.
- conserves natural resources such as water, soils, grasslands, and wetland areas through efficient use and careful planning. Where needed, Platte River restores land disturbed by its operations.
- encourages employees to bring environmental issues forward to assure Platte River's compliance with applicable laws, rules, regulations, and permits.
- strives to reduce environmental health and safety risks to its employees and the communities in which it operates by (i) maintaining safe and healthful working conditions, (ii) responsible design and operation of its facilities, and (iii) being prepared for emergencies.
- works with its customers to support cost-effective programs to conserve energy.
- coordinates its generation and transmission planning with neighboring utilities to minimize over-building or under-utilization.
- considers environmentally progressive technologies such as wind and solar power in addition to other renewable technologies to meet its future generation needs.

Figure 20



Specific to planning for the next resources, an assessment of various generation technologies and combinations of these technologies was conducted to determine the best fit for Platte River's near term generation needs. Each potential new resource was evaluated for environmental impacts (a 100 MW coal-fired unit using pulverized coal or fluidized bed, a 65 MW GE7EA, a 138 MW GE7FA and a 75 MW GELMS gas-fired unit). The combined impact of a coal unit and gas-fired unit was also considered to evaluate long term planning issues. The environmental analysis was primarily focused on air quality impacts. Specific modeling of criteria pollutant emissions (SO_2, NO_x, CO, and particulate matter) and a general analysis of other emission effects (CO_2, mercury, etc.) were conducted. It was concluded from these assessments that both the coal and gas-fired units and a combination of the two were permittable. However, it was determined that the gas-fired unit alone would have the least environmental impact and was the best overall choice from an environmental perspective. A comparison of environmental impacts for the generation types (at equivalent capacity factor) is provided in Figures 21 and 22.

For planning purposes, it is assumed that a mandatory cost specifically associated with the emission of carbon will occur by 2012, beginning at a cost of approximately $9.00 per ton (2012) and increasing over time.

Figure 21

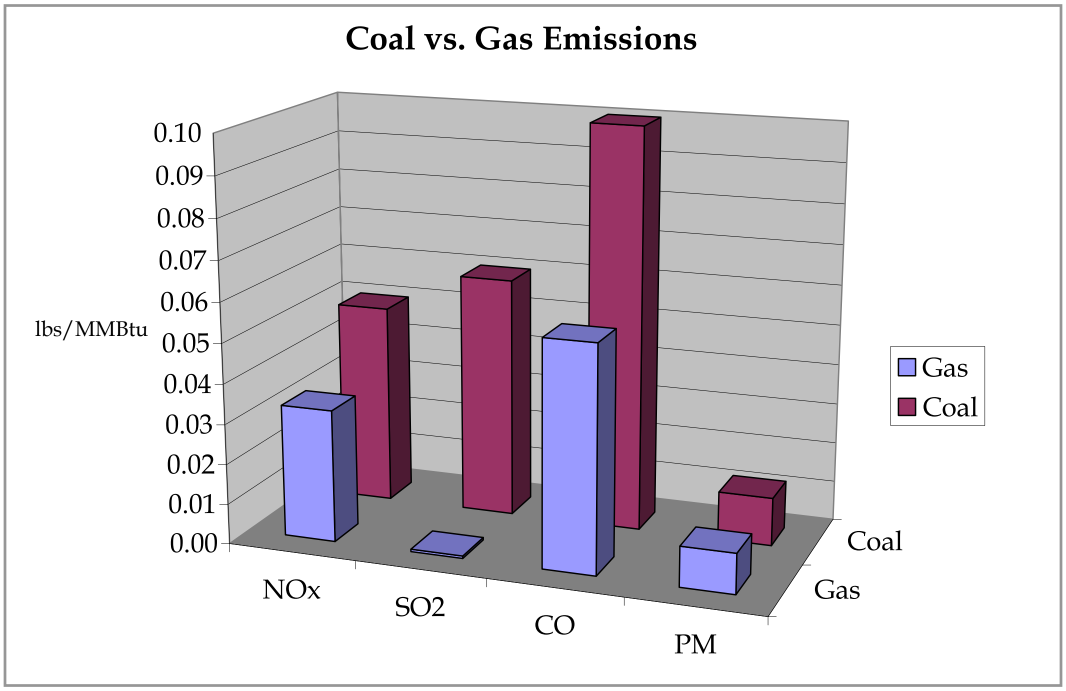
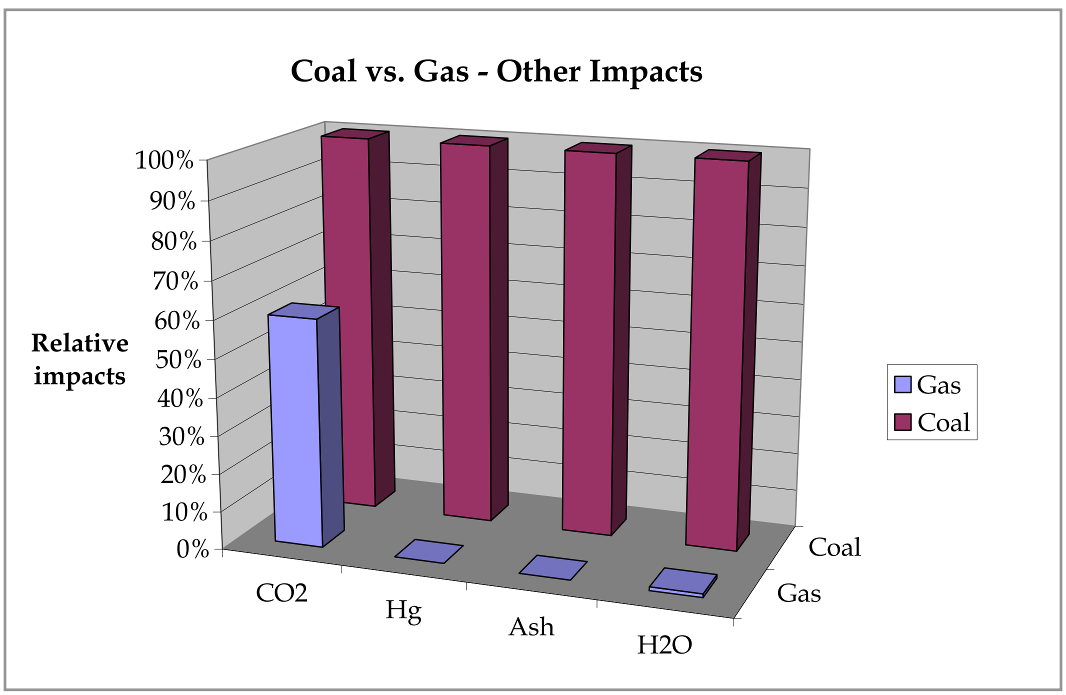


Figure 22



4. Matching of Resource Type with Municipalities' Needs

For the next several years, considering the needs of the member municipalities, Platte River's load and resource analysis shows that a new resource would primarily be called upon during peak-load conditions. For example, for the 10-year period 2009 through 2018, about 95% of the municipalities' energy needs can be met with existing baseload resources and only 5% is needed from existing peaking units, purchased power and new resources (primarily at or near summer peak periods). Given the size of any conceivable new coal plant, the owner municipalities would consume only a small portion of the output for many years. Surplus generation from the base-load unit could be sold into the wholesale market, but this approach introduces significant risk, particularly given the difficulty in obtaining a long-term sales agreement with other entities in the region.

Purchase of peaking capacity from the market may also provide for the municipalities' needs. However, given the limited power supply available in the market at times of peak (vs. regional loads), there appear to be no opportunities for acquiring purchased capacity for more than one year at a time. This would lead to significant reliability risk in the future.

Clearly, a gas-fired peaking unit is more suited to meet the needs identified in the short-term. In the longer term, another resource will eventually be needed. At this time, it is assumed that both short and longer term resources would be gas-fired. However, this may be reconsidered in the future as loads, market conditions and other variables change, or if new joint project options become available.

5. Financial Considerations

The options described above were also compared from a financial perspective. A summary of key financial assumptions for new generation options is provided in Figure 23.

Figure 23

	Gas			Coal
	GE7EA	GE7FA	LMS100	Rawhide
Net Capacity (MW)	65	138	75	100
Heat Rate (MMBtu)	13,470	10,434	8,700	10,030
Installed Cost (Millions)	$ 31.8	$ 57.4	$ 52.7	$ 268.0
Cost per kW	$ 490	$ 416	$ 703	$ 2,680

Gas units generally have a low capital cost and high operating cost (due to high fuel cost for natural gas), while coal units have high capital costs and low operating costs. One of the key drawbacks for the new Rawhide coal unit is the very high capital cost. This is primarily due to the small size considered (100 MW). The GE7FA unit has the lowest installed cost per unit of capacity and a lower heat rate (higher efficiency) than the GE7EA (existing units at Rawhide).

Total costs for options considered are summarized in Figure 24 for the period 2009 through 2018. These costs represent the operating cost of existing peaking units, purchased power and new resource additions (capital plus operating). For the Rawhide Unit 2 coal option, the costs are based on a 75% capacity factor and surplus sales revenues are netted against the total cost. Note that two resources are included in this long term comparison, though only one resource is needed for a decision affecting the 2009 time frame. Bringing on the GE7FA unit first leads to the lowest total resource cost. This approach also provides the lowest rate impact to the member municipalities. A summary of advantages and disadvantages of each potential generation resource from a rate risk perspective is provided in Figure 25.

Figure 24

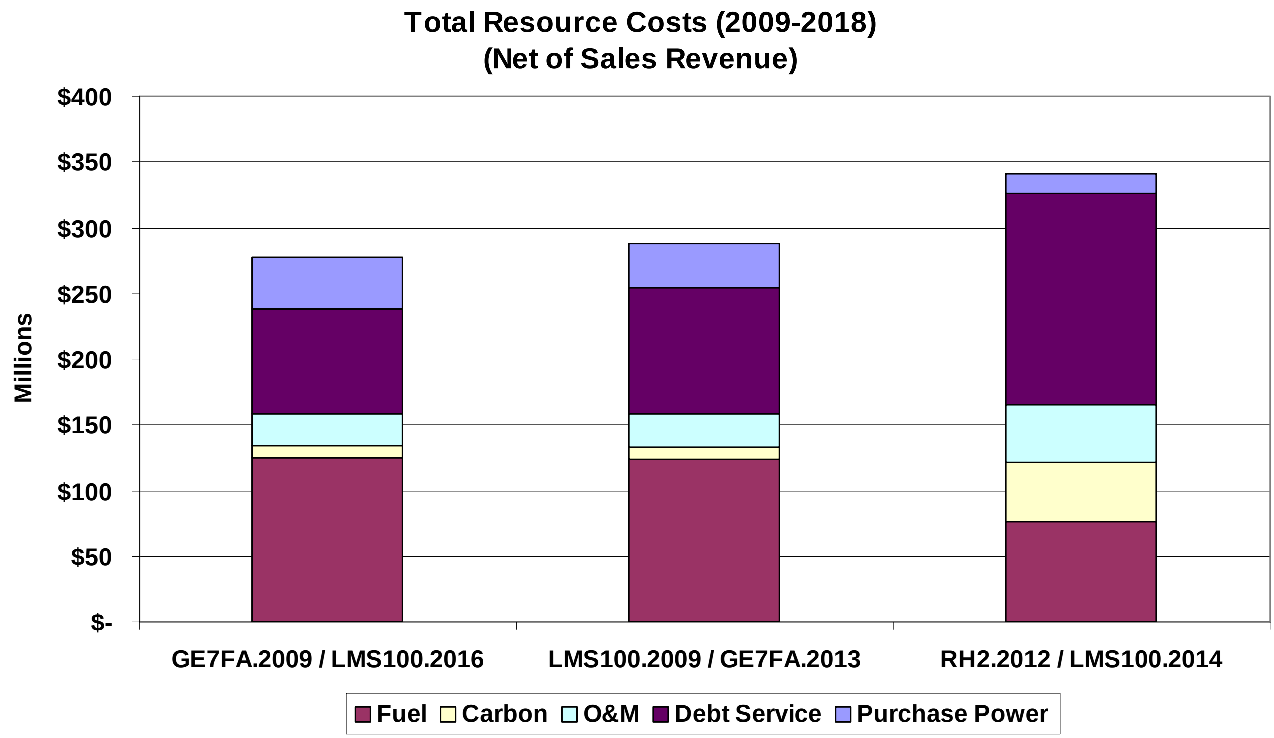


Figure 25

Peaking Resource

- <u>Advantages</u>
  - Matches needs
  - Lower capital cost
  - Low environmental impact
- <u>Disadvantages</u>
  - Higher per unit fuel cost
  - Limited utilization

Lower Rate Risk

Coal Resource

- <u>Advantages</u>
  - Lower fuel cost
  - Potential higher utilization
  - Surplus sales potential
- <u>Disadvantages</u>
  - Does not match need
  - Higher capital cost
  - Higher environmental impact

Higher Rate Risk

6. Other Considerations

The reliability of the gas and coal options is comparable, but the reliability of the market purchase option is much lower, as described above. From an operational perspective, it is clear that the GE7FA has several advantages over the LMS100 and the GE7EA unit. All of the gas-fired units match the need for peak capacity and outage support. However, the GE7FA has a higher operating efficiency than the GE7EA unit and has the lowest capital cost per unit of capacity of all gas turbine options considered. In addition, it is a well-proven technology, while the LMS100 unit is an unproven technology at this time. Finally, the GE7FA unit provides more capacity than the other options, which provides additional dispatching flexibility and extends the time frame for considering the next new resource. Therefore, the GE7FA unit is the best option from an operating and planning perspective.

VII. Renewable Energy

Since 1998, Platte River has provided renewable energy from the Medicine Bow Wind Project. The energy generated at the Medicine Bow site supplements renewable hydropower purchased from Western Area Power Administration (WAPA). As the needs of the owner municipalities have increased, new options for meeting renewable requirements have been identified. For 2005, the level of non-hydro renewable supply represented about 35,000 MWh, or about 1.5% of total energy sales to the owner municipalities. Though all owner municipalities purchase renewable energy, about 90% was supplied to Fort Collins during 2005.

In March of 2006, Platte River's Board approved a Renewable Energy Supply Policy. This policy guides Platte River as it plans for and acquires new renewable sources to meet the needs of its owner municipalities. The policy provides guidance regarding the level of renewable sources to be obtained, the type of sources considered acceptable to meet municipal renewable requirements, the anticipated impacts of renewable sources on future resource planning and the approach to be used for pricing renewable sources for sale to the member municipalities. A brief summary of each of these issues is provided below:

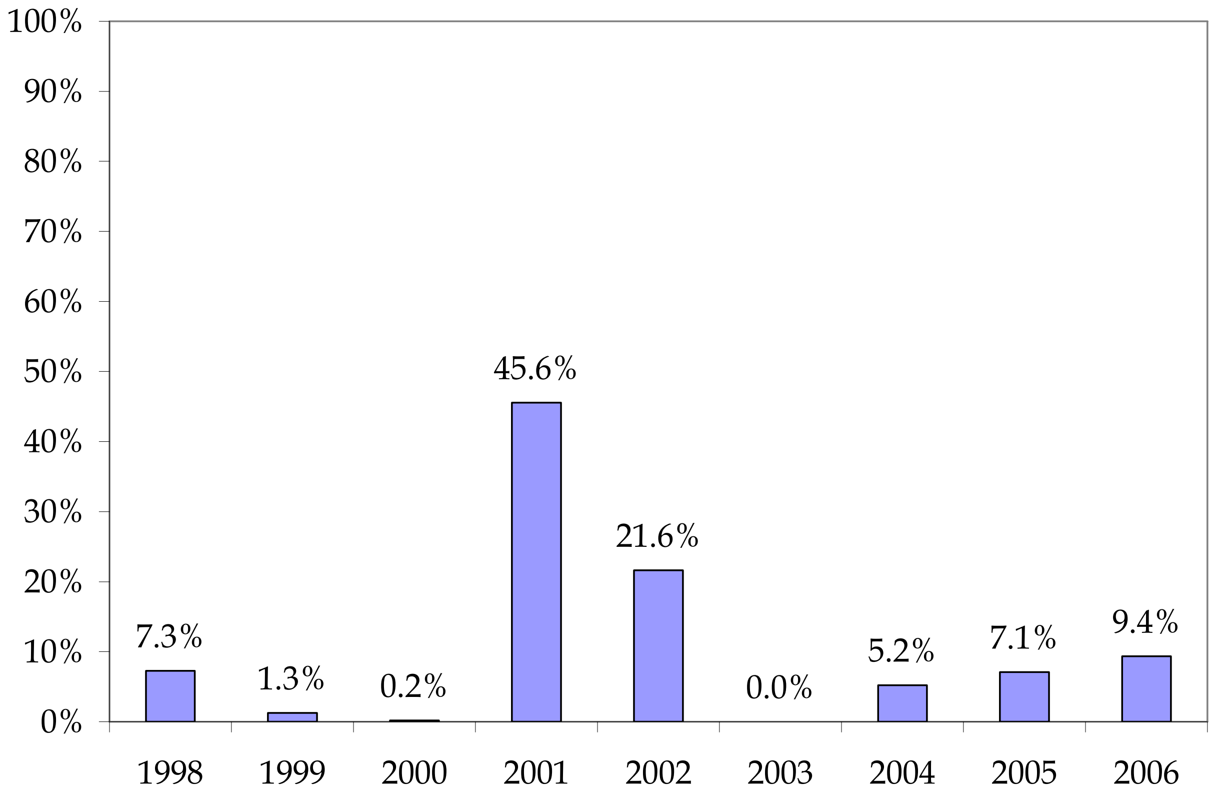
> ***Level of renewable resources*** – This is driven by three factors: (1) Fort Collins' Energy Supply Policy, which includes renewable energy goals, (2) Colorado Revised Stature 40-2-124, which implements a renewable portfolio standard, and (3) voluntary participation in renewable energy programs by customers, particularly large commercial entities. By 2018, municipal requirements for renewable energy from sources other than WAPA hydropower are expected to exceed 360,000 MWh/yr, about 10% of total predicted energy supply to the municipalities.
>
> ***Types of resources*** – Renewable energy resources considered qualified include solar (photovoltaic or thermal electric systems), wind turbines, geothermal systems, biomass systems and small hydroelectric generation systems. Renewable Energy Certificates (RECs) from any of these sources may also be combined with Platte River's energy resources to provide renewable energy to the municipalities.
>
> ***Impact on resource planning*** – Due to the intermittent nature of wind, particularly at the time of system peak, Platte River's wind generation is assigned no firm peak capacity

value. Wind resources do not reduce the need for firm resources to meet system peak demand. Figure 26 shows the operating history of Platte River's wind project at Medicine Bow during the system peak hour. About 80% of the time, the generation level at time of system peak has been less than 10% of rated output and about one-third of the time, generation was very near zero output. Transmission constraints also limit the delivery of wind generation. Solar energy is relatively expensive, costing $6,000 to $9,000 per kW installed or about $0.20/kWh to $0.35/kWh over the life of the unit (vs. about $0.04/kWh for wind). Solar availability is also relatively low at time of system peak (typically 5 pm to 6 pm on summer days) and the output is intermittent due to cloud cover variation. Small hydro has limited potential due to constraints and regulations on dams in the region and is further constrained by limited transmission. Geothermal sources are limited in this region and biomass production has significant risks associated with fuel supply. For purposes of this resource plan, no renewable energy sources are anticipated to provide firm capacity at the time of system peak.

Pricing – A new tariff (Tariff 7) for pricing renewable energy to the municipalities was initiated in July 2006. This tariff provides a single price for all renewable resources combined, based on cost of service.

More details associated with renewable energy planning are provided in the Renewable Energy Supply Policy, a copy of which is available upon request.

Figure 26



VIII. Demand-Side Management

1. DSM Programs Operated by Platte River

Current Programs

Platte River has a five-year history of running incentive-based DSM programs and has provided energy services (energy audits, project financing, power quality, etc.) for nearly 15 years. In 2001 a study was completed by staff, working with Nexant (a regional DSM consultant), to identify programs that could deliver peak demand reduction and associated energy savings. Based on this study, Platte River set a five-year DSM goal of 6 MW, with associated energy savings projected to be 18,000 MWh per year (by 2006). The five-year budget estimated to achieve these savings was $3.1 million.

Two programs were selected from several studied based on their capability to meet demand and energy goals while providing service to each of the three customer classes—residential, commercial, and industrial. These two programs—the Cooling Rebate Program (CRP) and Electric Efficiency Program (EEP)—were initiated in 2002. The CRP provides rebates for more efficient residential and commercial air conditioning equipment. The EEP provides incentives for a variety of energy-efficiency technologies that reduce commercial and industrial loads.

Figures 27, 28, and 29 indicate the performance of these programs relative to the goal and budget for the first four complete years.

Figure 27

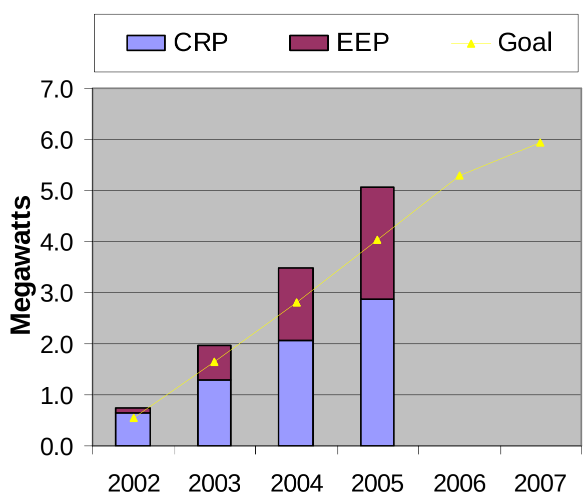


Figure 28

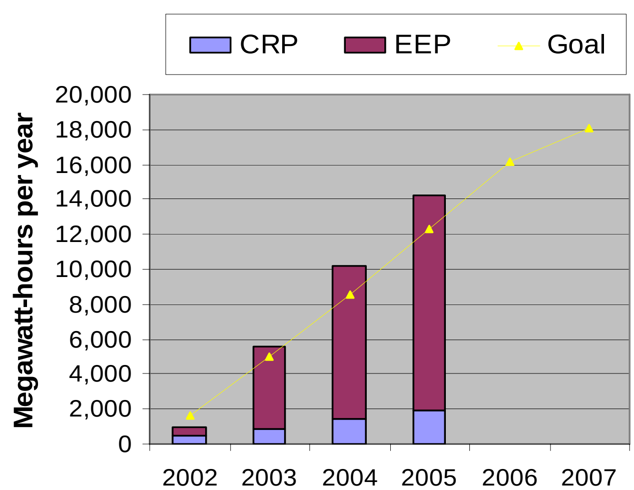
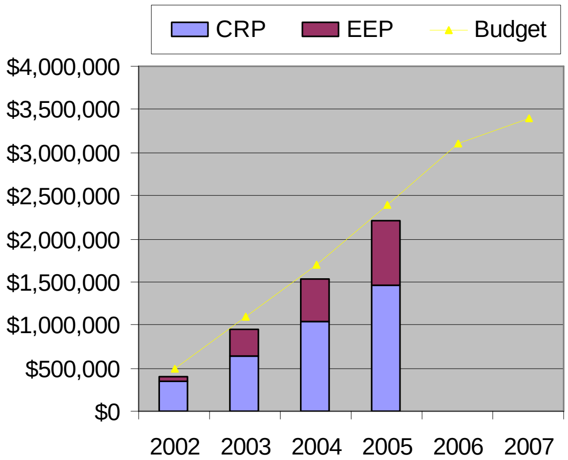


Figure 29



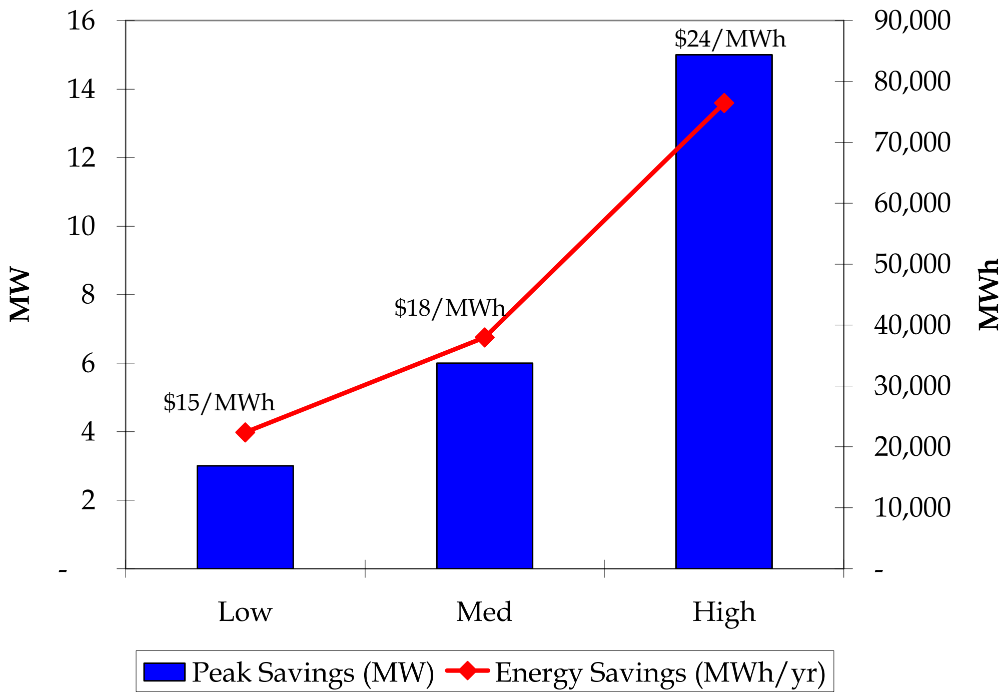
Future DSM Potential

During early 2006, an updated assessment of additional DSM potential was completed by Nexant to provide estimates of potential demand reduction, energy savings, and program costs for a range of DSM program options. The assessment indicated a maximum peak reduction of about 35 MW can be obtained by 2011, with energy savings of up to 76,000 MWh per year. Approximately 20 MW (with very little energy savings) could come from summer peak clipping programs (air conditioning control) and the remaining 15 MW (with about 76,000 MWh/yr of energy savings) could be available from a combination of residential and commercial/industrial efficiency measures (lighting, air conditioning, motors, appliances, etc.).

A detailed financial analysis of DSM program costs and benefits was also performed, from Platte River's perspective (wholesale supplier). DSM costs include marketing and promotion, administration, incentives, measurement and verification and lost revenues (due to reduced municipal sales). Direct financial benefits of DSM include deferred capital, reduced fuel usage, lower variable operation and maintenance, reduced losses and increased surplus sales. This financial analysis indicated that energy efficiency programs (those that save energy as well as reduce peak) are more cost effective than peak clipping programs (those that only reduce summer system peak and save little or no energy). Efficiency programs also provide additional value, including environmental benefits, customer service enhancement, local economic development and positive public relations. Given that they are more cost effective and provide environmental and other benefits, energy efficiency programs are preferred going forward.

Nexant developed estimates for low, medium and high levels of energy efficiency program expenditures. These are summarized in Figure 30. Cost of conserved energy (at the generator) is estimated at $15/MWh (low case), $18/MWh (mid case) and $24/MWh (high case). To put these costs in perspective, Platte River's average cost to generate energy from existing and proposed resources (fuel plus variable O&M) for the period 2007 to 2018 is about $18/MWh with no carbon costs included. It is assumed that some form of carbon charge will occur in the future, perhaps as early as 2012.

Figure 30



Proposed Future DSM Plan

Over the next five years—2007 through 2011—Platte River plans to continue its current DSM programs (with some modifications) and add to them. The new combined goal is to achieve additional demand savings of 6 MW and energy savings of 32,000 MWh/yr by the end of 2011. Compared to the previous five years, these goals provide a similar summer peak demand reduction, but nearly 80% more energy savings. This is close to the mid-level case evaluated by Nexant. The total five-year cost of running the programs required to achieve these savings is estimated as $5.8 million. It is proposed that funding be increased incrementally, by about $180,000/yr (from the current level of $600,000/yr) to about $1.5 million/yr in 2011. The actual level of expenditure by Platte River will depend on market acceptance of DSM programs, DSM expenditures made by the member municipalities, program performance over time and future annual budget review. Future DSM programs will be prioritized based on their cost per unit of energy saved, with the lowest cost programs implemented first. Higher-cost programs may be increased in priority if they produce savings at times that higher-cost resources typically operate. Program selection will also be impacted by the need to offer at least some programs to each customer class (residential, commercial and industrial) in each municipality. Other (non-financial) benefits provided by programs (emission reductions, etc.) will also be considered.

The municipal rate impact of the proposed level of DSM is estimated as about 0.2% (by 2011). Proposed efficiency program expenditures are about 1% of Platte River's total expenses anticipated between 2007 and 2011.

In addition to these formal DSM programs, Platte River will continue to provide energy and customer services, many of which also help customers reduce energy consumption. These services include conducting energy audits for commercial and industrial customers, providing educational materials aimed at energy-efficiency, and assisting customer in evaluating distributed generation projects.

2. DSM Programs Operated by the Member Utilities

Each municipal utility also operates its own conservation and efficiency programs. A summary of current activities and future plans for the municipalities is provided below.

Town of Estes Park

For the past 13 years, Estes Park has offered a popular and effective electric heat thermal storage program for residential and small-commercial customers, which shifts winter peak load to off-peak hours using thermal-storage electric heaters. Cumulative peak reduction (winter season) through the end of 2005 is a little over 3 MW. The Estes Park Utility Department provides energy-auditing services for commercial and residential customers as well as blower door testing. The utility also emphasizes the specification of low-loss distribution transformers.

Future plans are to continue with all of these programs and to work closely with Platte River DSM staff to identify and facilitate implementation of commercial efficiency and load shifting projects.

Fort Collins Utilities

Fort Collins Utilities efforts in DSM come from both a historical commitment to help customers manage their electricity use and from the Electric Energy Supply Policy (adopted by City Council in March 2003). The primary goals of the Energy Policy are to maintain high system reliability, maintain competitive electric rates and reduce the environmental impact of electricity generation. One percent of electric rate revenues are directed towards energy efficiency programs and services.

The Energy Policy adopted the following specific objective for DSM:

- Develop and promote DSM programs and services
- Reduce per capita electric consumption 10% by the year 2012; and
- Reduce per capita peak day electric demand 15% by the year 2012.

The following tables summarize the residential and commercial energy efficiency programs and services offered by Fort Collins Utilities in 2005. Note that some of the programs described herein are the same programs as have been described in Platte River's DSM section. Programs and service are of two general types, those that provide verifiable electricity and demand savings (DSM programs) and those that promote energy efficiency and conservation awareness and education (Community Energy Programs). Several of the programs and services have aspects of both types, resulting in direct energy savings as well as meeting other customer service objectives.

2005 Residential Energy Efficiency Programs and Services

Program	Description
Refrigerator and Freezer Recycling Program	Rebate, in-home pickup and comprehensive recycling of unwanted refrigerators and freezers
Residential Lighting Program	Discounted compact fluorescent light bulbs through local retailers, halogen torchiere turn-in program
Clothes Washer Rebate Program	Rebate for purchase of ENERGY STAR clothes washer
Cooling Rebate Program	Rebate for high efficiency air conditioners
ZILCH	Zero interest loans for energy saving home improvements
REACH	Free home weatherization (based on income eligibility)
HotShot Water Heater Control	Radio frequency control of electric water heaters for coincident peak demand savings
Home Performance with ENERGY STAR	Contractor training and support for whole-house approach to improve energy performance of existing homes
Energy Score	Support for home energy ratings
Education and Awareness	Energy efficiency education and awareness activities include The Power to Save campaign, What to Look for in a New Home, the Utilities website, Environmental Program Series and various community events.

Note: The Cooling Rebate Program is operated by Platte River with support from Fort Collins Utilities.

2005 Commercial Energy Efficiency Programs and Services

Program	Description
Electric Efficiency Program	Incentives for projects that reduce summer peak demand or annual electricity consumption
Cooling Rebate Program	Rebates for high efficiency air conditioners
Integrated Design Assistance Program	Funding and expertise for integrated design of energy efficient new buildings
HotShot for C&I customers	Radio signal for customer control of coincident peak demand
Technical Assistance and Energy Assessments	Free energy assessments to help customers implement energy efficency projects
Electri-Connect	Provides online access to interval electric data for large commercial and industrial customers
Keep Current	Electronic newsletter, web information resource and “Ask an Expert” tool
Education and Awareness	Energy efficiency education and awareness activities include The Power to Save campaign, the Utilities website, the Business Environmental Program Series and commercial accounts luncheons.

Note: The Cooling Rebate Program and Electric Efficiency Program are operated by Platte River with support from Fort Collins Utilities.

The cost of conserved energy is used as a metric for cost-effectiveness of energy efficiency programs. The following tables summarize 2005 DSM program results and the annual energy and demand savings for 2002 through 2005. Funding for the Cooling Rebate Program and the majority of funding for the Electric Efficiency Program comes from Platte River. Program effects are for Fort Collins Utilities customers. The results for these two programs are included in—and are not in addition to—Platte River's reported DSM effects.

2005 Energy Efficiency Program Results						
Program	**Activity**		**Annual Energy Savings (MWh)**	**Annual Demand Savings (kW)**	**Program Cost**	**Cost of Conserved Energy ($/kWh)**
Clothes Washer Rebate Program	901	rebates	101	12	$22,525	$0.025
Cooling Rebate Program	513	rebates	202	294	$154,975	$0.075
Refrigerator and Freezer Recycling Program	626	units	564	64	$105,598	$0.028
Residential Lighting Program	70,498	bulbs	1,738	0	$144,240	$0.012
Residential subtotal			**2,604**	**370**	**$427,338**	$0.021
Electric Efficiency Program	31	projects	6,122	658	$285,050	$0.005
Commercial subtotal			**6,122**	**658**	**$285,050**	$0.005
Total			**8,726**	**1,028**	**$712,387**	**$0.010**

The Hot Shot demand response program controls residential electric hot water heaters and provides a signal for commercial customers to manage their coincident peak electric demand charges. In 2005 the combined residential and commercial systems controlled approximately 1.7 megawatts of demand on a monthly basis.

DSM Program Energy Savings 2002 - 2005 (MWh)

Program	2002	2003	2004	2005	Total Program Savings
Clothes Washer Rebate Program	NA	149	223	101	473
Cooling Rebate Program	190	190	246	202	828
Refrigerator and Freezer Recycling Program	NA	NA	819	564	1,383
Residential Lighting Program	NA	NA	140	1,738	1,878
Electric Efficiency Program	242	1,492	2,237	6,122	10,092
Integrated Design Assistance Program	748	111	617	45	1,521
Total Annual Savings	1,180	1,941	4,282	8,771	16,175

DSM Program Demand Savings 2002 - 2005 (summer kW)

Program	2002	2003	2004	2005	Total Program Savings
Clothes Washer Rebate Program	NA	17	25	12	54
Cooling Rebate Program	269	274	358	294	1,195
Refrigerator and Freezer Recycling Program	NA	NA	94	64	158
Residential Lighting Program	NA	NA	0	0	0
Electric Efficiency Program	40	224	423	658	1,346
Integrated Design Assistance Program	249	35	214	11	509
Total Annual Savings	558	550	1,115	1,039	3,262

DSM programs play a significant role in reducing Fort Collins energy consumption and peak demand power needs. However, other factors play markedly larger roles in affecting the patterns of energy use from year to year. Weather conditions have the largest impact on peak power demands, as demonstrated in 2005 with several record setting hot days in a row. Economic factors also play a large role, as demonstrated by general growth in the Front Range and shifting regional economic patterns.

For 2005, DSM program energy savings represented 0.6% of Fort Collins total energy use, accounting for nearly one half of the year-to-year reduction in per capita energy use. Again for 2005, DSM program demand savings represented 0.3% of the annual peak demand, which still increased by 2.5%.

Reaching the objectives of the Energy Policy requires a decrease in per capita energy use of nearly 1% per year and a decrease in per capita peak demand of over 2.0% per year. In order to reach the targets of the Energy Policy, on-going and new DSM programs and services will need to:

- reach many more customers through higher participation rates, and
- focus on reducing summer peak demand (targeted specifically within each rate class and customer type).

Funding levels will remain at one percent of electric rate revenue, or approximately $700,000 per year. Increased funding and new program offerings from Platte River will be integrated into Fort Collins Utilities existing portfolio of efficiency and demand response programs.

The following new or updated DSM programs are planned for 2006 and beyond.

- ***Integrated Design Assistance Program:*** This program will be revised with a new code baseline, a whole building option and a prescriptive component based option. Both design and performance incentives will be available.
- ***Residential Cooling:*** This new program will target summer residential cooling demand reductions through a comprehensive set of measures. The program will target load reductions in new and existing homes, promotion of alternatives to refrigerant based air conditioning, improved installation practices of home cooling systems and demand response control of air conditioning systems (see next bullet).
- ***Hot Shot Demand Response:*** The existing Hot Shot system was upgraded in 2006 with a new personal computer based front end. A maintenance program was initiated to increase the number of working residential control units. The new system will enable a robust program for commercial customers on the GS-50 and GS-750 rate structures and the pilot of a residential air conditioning control program.

It is estimated that programs operated by Fort Collins Utilities will lead to energy savings of about 76,000 MWh and peak demand savings of about 7 MW by 2011. These are in addition to savings associated with Platte River programs provided to Fort Collins' customers.

Longmont Power & Communications

Longmont Power and Communications (LPC) has been providing energy services and DSM programs for its customers for nearly 10 years.

LPC provides resources to help its customers make wise energy-efficiency choices. Free energy audit services are provided to residential and commercial customers. Longmont maintains a web site with a comprehensive summary of energy efficiency programs, guidelines, resources, tools, and links to other government and non-profit agency web sites on energy conservation. Longmont also provides to its residential and commerical customers free publications, guidelines and resource information on energy efficiency.

In addition to providing information, LPC provides direct financial support of customers' energy-efficiency upgrades. For several years Longmont has provided incentives for commercial lighting efficiency projects through the Commercial Lighting Incentive Program. This program has ended in favor of providing support through the Electric Efficiency Program and LightenUP, offered in partnership with Platte River. Longmont supports these programs by assisting with program promotion and by providing $40,000 per year in additional incentive money for its customers, boosting Platte River's incentives by about 40 percent. On the residential side, the Light Lease Program, which leased compact fluorescent lamps to residential customers, has ended. However, Longmont currently has a budget of $25,000, which it is using to offer incentives for Energy-Star-rated appliances such as clothes washers, dishwashers, and compact fluorescent lamps. A refrigerator-recycling program is also being considered, contingent upon funding approval by the City Council. A $5,000 budget has also been approved to support a new program offered in partnership with Boulder County that will provide subsidized professional residential audit services.

Longmont also plans to continue its voltage reduction program, which reduces voltage within the acceptable range during times of peak electrical consumption, reducing peak power and energy use.

Loveland Water and Power

The Loveland Department of Water and Power (LWP) has made DSM, especially regarding peak demand management, a top priority for its community as it continues to grow.

The primary strategy for DSM will be a direct load control program directed at air conditioning units. For this program, Loveland has budgeted $1 million and are expecting 3.9 MW of peak load control. LWP is still in the planning stages of this program but anticipates activation of the program for the summer of 2007, with a three-year ramp up period. This program will initially focus on residential load, but will eventually be expanded for management of commercial load.

LWP will continue to operate its Thrifty Light Project, not only offering peak demand savings for the winter but also energy efficiency throughout the year. Through the Thrifty Light Project, residential customers purchase compact fluorescent lamps from the city to replace incandescent lamps in thousands of residential lampposts for which the city provides energy and also for indoor use. This shaves the winter peak demand by an additional 8 kW for each year's new sales, saves off-peak energy and enables residents to avoid the need to change lamps as often. LWP has also begun providing incentives in addition to those provided through Platte River's Electric Efficiency Program. Loveland will evaluate the impact of this additional incentive level in 2007 to determine continued co-funding support in 2008.

3. Combined DSM Projections

The combined impact of the municipalities' and Platte River's DSM programs are expected to provide system peak savings (summer season) of about 17 MW and energy savings of about 108,000 MWh per year by 2011.

IX. Recommended Actions

Recommendations of this IRP are summarized below.

1. Install a 138 MW GE7FA gas peaking unit by 2009

As described earlier in this plan, the GE7FA unit has minimal environmental impacts, meets the peak growth needs of the municipalities, is cost effective and provides low operational, environmental and financial risk. Installation by 2009 is recommended given that all four of Platte River's resource reliability criteria are very close to the planning limits in 2009 and there are several uncertainties that could quickly tighten the load/resource balance within the next few years. These include the potential for large new facilities locating within the municipalities, uncertainty in weather, expansion air conditioning use, uncertainty regarding DSM program impacts, potential annexations by the municipalities, changes in population and tightening of capacity available from regional markets at time of system peak.

2. Execute the proposed DSM Implementation Plan

Staff recommends increasing the current level of DSM expenditures that was approved by the Board in 2001. The current budget is $600,000/yr for program costs (or about $750,000/yr including staff salaries and benefits). We recommend increasing this total to the "medium" case developed by Nexant, or $1,500,000/yr, incrementally between now and 2011. This would represent an annual increase of about $180,000 each year (2007 to 2011), with a total five-year expenditure of about $5.8 million. By 2011, annual energy savings would amount to about 35,000 MWh/yr, or about 1% of total annual energy generation and about 10% of the municipalities' energy growth (through 2011). Municipality DSM programs will also be expanded. The combined impact of the municipalities' and Platte River's DSM programs are expected to provide system peak savings (summer season) of about 17 MW and energy savings of about 108,000 MWh per year by 2011.

3. Continue implementation of the Renewable Energy Supply Policy

The policy outlines an estimated need of approximately 380,000 MWh/yr of renewable energy by 2018, or about 10% of the total energy supplied to the municipalities at that time. Actual amounts acquired will depend on implementation of standards dictated by the four municipalities, as well as customer voluntary interest. Staff will continue to seek the most cost effective options from the set of qualified resources identified in the policy. At this time, Renewable Energy Certificates from wind projects appear to provide the most cost effective source, but all qualified resources will be evaluated over time as technologies evolve and markets for renewable energy expand. A copy of Platte River's Renewable Energy Supply Policy is available upon request.

4. Monitor development of regional generation and transmission resources

Xcel Energy, Tri-State, Colorado Springs or other utilities in the region may consider development of joint projects in the future. Platte River will continue to maintain relationships with these entities to ensure participation options in any new resource that may be beneficial to us. New technologies such as integrated gasification combined cycle (IGCC) may be developed, which offer environmental and other benefits. Equally vital to the reliable supply of electricity is coordinated transmission planning. Platte River works with the Front Range Planning Group and the Colorado Coordinated Planning Group to review issues associated with transmission constraints and the need for new projects in the region. Platte River will continue to monitor future generation and transmission studies as they develop. The outcomes of such integrated needs assessments are critical to our resource planning efforts not only because favorable opportunities for joint participation in resource development projects may arise, but also because the actions taken by other entities may directly affect the availability and pricing of electric energy, capacity, fuel, transmission, and ancillary services, all of which have implications for the economics of future Platte River projects.

5. Monitor load forecasts and evaluate contingencies

There was a dramatic difference between the pattern of peak-load growth observed during the early 1990's and the growth pattern of more recent years. Another shift in the pattern may well be observed over the next few years. In addition, the impact of decisions by large commercial and industrial customers to locate in this area could dramatically change resource needs. The need for new resources and the timing of planning, permitting, and public information processes is strongly dependent on actual load growth. Platte River staff will continue to update load forecasts annually and will continue to seek opportunities to enhance forecasting and resource planning techniques. Staff will also actively pursue contingency options in the event that forecasts or other market factors change significantly over time. These include seeking expanded market purchase options, close coordination with WAPA to maximize value of hydropower resources and minimize supply reductions, evaluation of new transmission paths for power delivery and monitoring of customer generation technologies.

X. Public Participation

Several public communications processes of recent years have influenced the content of this IRP. Frequent interactions between Platte River, the member utilities, municipal boards and councils, and the citizens of member communities have facilitated an effective exchange of information on the public issues of electric load growth, resource supply, and environmental stewardship. These exchanges include:

- Surveys of customers by Platte River and the municipal utilities, soliciting citizens' views on the importance of renewable resources, DSM activities, and environmental concerns, as well as system reliability, cost, and customer service.
- Community surveys assessing attitudes and levels of interest in the addition of wind generating resources to Platte River's resource portfolio. A follow-up survey was also commissioned by Fort Collins Utilities and funded by the Colorado Governor's Office of Energy Conservation.
- Public hearings and permitting proceedings for the gas-peaking units A, B, C, and D at the Rawhide Energy Station and for the upgrading of transmission and substation installations.
- Periodic presentations to key account customers regarding resource planning issues, electric industry trends, renewable energy and DSM.
- Frequent interactions with residential and commercial/industrial customers in each member community while administering DSM programs.
- News releases and advertisements relating to renewable energy and DSM program offerings, construction of new facilities, public hearings for prior IRPs.
- Meetings with the Fort Collins Electric Board, the Loveland Utilities Commission, the Estes Park Board of Trustees Utilities Committee and Longmont City Council to discuss electric energy supply policy, electric system reliability, DSM activity, and renewable energy programs.
- Additional meetings were conducted to specifically review the draft IRP with the Estes Park Board of Trustees Utilities Committee, the Fort Collins Electric Board, the Longmont City Council and the Loveland Utilities Commission.
- A draft IRP was provided to Platte River Board members, managers/administrators of each municipality, municipal utility staff and Platte River staff.
- Copies of the draft IRP were made available at the public libraries in each municipality and at Platte River's offices.
- Public notice of the draft IRP availability and notice of the public hearing (see below) were made in each of the municipalities' major newspapers.
- On September 28, 2006, the Platte River Board held a public hearing, where a summary of the draft IRP was presented and time was provided for public comment.

The final 2007 IRP was approved by the Platte River Board (via Resolution 16-06) after the public hearing on September 28, 2006. This resolution authorizes Platte River staff to implement the action items described herein. This document will also be submitted to Western Area Power Administration, in accordance with Integrated Resource Plan requirements of the 1992 Energy Policy Act.