CITY OF RIVERSIDE

INTEGRATED RESOURCES PLAN-IRP

Prepared by City of Riverside, Public Utilities Department
November 27, 2002

RIVERSIDE
PUBLIC UTILITIES

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INTRODUCTION

The City of Riverside provides electric utility service to approximately 95,000 customers within its boundaries. To meet this load demand, Riverside's firm resource portfolio includes: 39 MW of San Onofre Nuclear Generating Station; 12 MW of Palo Verde Nuclear Project; 123 MW of Intermountain Power Project (coal); 30 MW of Hoover Dam Project; a 52 MW base load contract with Deseret Generation & Transmission Co-op (coal); an 83 MW summer peaking contract (31 MW in winter) with Bonneville Power Authority (system sale); a 53 MW summer peaking contract with California Department of Water Resources (system sale); and 40 MW peaking capacity from Riverside's new Springs Generating Station (four 10 MW single-cycle units).

The City of Riverside has been a licensed Scheduling Coordinator with the California Independent System Operator since 1998. Riverside is also the Scheduling Coordinator for the City of Banning on a contractual basis.

The basis for the load demand information reported herein is the 2002 Load Forecast, as compiled by City of Riverside Power Resource Planning staff.

IRP DEVELOPMENT PLAN

The City of Riverside endorses and adopts the concept of Integrated Resource Planning (IRP) as a selection process that evaluates a range of alternatives, including new generating capacity, power purchases, energy conservation and efficiency, and renewable energy resources. In selecting the lowest impact long-term supply plan, appropriate consideration shall be given to environmental concerns, resource diversity, reliability, feasibility and other factors of operational and financial risk. While demand-side programs may be adopted to meet certain utility goals and customer needs, these programs should generally pass the California Energy Commission's ratepayer cost test.

Riverside's goal in the IRP process encompasses the following measures:

- Examine a wide range of supply-side and demand-side investment options.
- Balance short-term and long-term strategic goals.
- Quantify as many costs and benefits as practical.

To achieve this, Riverside draws together the following elements for consideration and economic analysis:

- Load forecast uncertainty.
- Supply-side options.
- Demand-side options.
- Retail rate impacts.
- Financial stability and risk management.

FORECASTING

AND

SUPPLY SIDE RESOURCES

ENERGY SALES (MWh)

FY 2001-02

Month	Native Load Energy [1]	Distribution Losses [2]	ENERGY SALES BY CLASS				Total Energy Sales
			Residential	Commercial	Large Comm. Industrial	Misc [3]	
July	173,833	11,125	56,948	42,304	58,575	4,881	162,708
August	191,532	12,258	62,746	46,611	64,539	5,378	179,274
September	168,098	10,254	55,245	41,039	56,824	4,735	157,844
October	155,056	8,373	51,339	38,138	52,806	4,400	146,683
November	135,800	7,333	44,963	33,401	46,248	3,854	128,467
December	139,660	6,145	46,730	34,714	48,065	4,005	133,515
January	140,339	6,175	46,957	34,883	48,299	4,025	134,164
February	126,415	5,562	42,298	31,422	43,507	3,626	120,853
March	137,817	6,064	46,114	34,256	47,431	3,953	131,753
April	135,862	5,978	45,459	33,770	46,758	3,897	129,884
May	147,047	7,941	48,687	36,168	50,078	4,173	139,106
June	163,429	9,969	53,711	39,900	55,246	4,604	153,460
Totals	**1,814,888**	**97,177**	**601,199**	**446,605**	**618,376**	**51,531**	**1,717,711**

Notes:

[1] Energy delivered to City gate (Vista)

[2] Electrical line/transformer losses from City gate to customer (5.4% annually, more in summer, less in winter).

[3] Street lights, traffic signals, agriculture, etc.

ENERGY SALES (MWh)

FY 2002-03 thru 2006-07

Fiscal Year			ENERGY SALES BY CLASS				
	Native Load Energy [1]	Distribution Losses [2]	Residential	Commercial	Large Comm. Industrial	Misc [3]	Total Energy Sales
2002-03	1,827,251	98,672	605,003	449,431	622,289	51,857	1,728,579
2003-04	1,862,880	100,596	616,800	458,194	634,422	52,869	1,762,284
2004-05	1,899,241	102,559	628,839	467,137	646,806	53,900	1,796,682
2005-06	1,936,349	104,563	641,125	476,264	659,443	54,954	1,831,786
2006-07	1,974,218	106,608	653,664	485,579	672,340	56,028	1,867,610

Notes:

[1] Energy delivered to City gate (Vista)

[2] Electrical line/transformer losses from City gate to customer (5.4% annually, more in summer, less in winter).

[3] Street lights, traffic signals, agriculture, etc.

DEMAND SIDE RESOURCES

DEMAND SIDE RESOURCES

This section of the Integrated Resource Plan provides a general overview of the demand side resource efforts at Riverside Public Utilities. With the passage of California Assembly Bill 1890, a rethinking; of the role and scope of demand side resources is taking place. Considering time and staffing; constraints, and the still evolving; utility operating environment, the IRP Coordinating Committee determined the most effective approach would be to put limited efforts into a two and five year plan of demand side resources.

A. DEMAND SIDE RESOURCE PROGRAMS

Riverside Public Utilities has a history of promoting efficient use of electricity though various demand side resource (DSR) programs. Programs are targeted to each of the three customer classes, residential, commercial, and industrial. Basic cost benefit tests are utilized in the analysis of each DSR program.

The utility identified four load shape objectives that DSR programs are to fit into:

1. **Load Shifting** - shifting electric usage from peak to off-peak periods.
2. **Peak Clipping** - lowering the system peak demand.
3. **Strategic Conservation** - lowering electricity demand during all times.
4. **Valley Filling** -increasing the use of electricity during off-peak periods.

Equivalent weight must be given to DSR marketing efforts to assure the programs achieve effective customer acceptance or penetration levels. This may simply involve educational programs, but may also entail incentives to establish the desired participation levels.

Table A lists 13 Riverside Public Utilities DSR programs by customer class, load objective and program duration. Table B provides projected cumulative energy reductions associated with these programs for a seven year planning period, fiscal year 1999-2000 to fiscal year 2006-2007.

Table A

Demand Side Resource Program	Customer Class	**Load Change Objective**	**Program Duration**
Off-Peak Swimming Pool Filter Pump Use (Pool Saver Program)	Residential	Load Shifting	February 1979 - present
Residential Weatherization for Seniors And Disabled (WeCare Program)	Residential	Strategic Conservation	March 1983 – present
Thermal Energy Storage Incentives for Cooling Equipment Replacement (TES Program)	Commercial / Industrial	Load Shifting	January 1988 – present
Non Residential Air Conditioning Replacement/New Incentive	Commercial	Peak Clipping / Strategic Conservation	January 1992 – present
Energy Management Technical Assistance Program	Commercial / Industrial	Strategic Conservation	July 1992 -June 1993 December 1998 – present
Energy Management Control System	Commercial	Strategic	September 1999 - present
		Conservation	
Efficient Refrigerator Incentives (Cool Rewards/ Energy Star)	Residential/ Commercial	Strategic Conservation	January 1992 -June 1994 December 1998 – present
Residential/Commercial Air Conditioner Replacement Incentive (Cool Cash)	Residential/ Commercial	Peak Clipping	January 1988 -June 1996 December 1998 – present
Low Income Weatherization program For Electrically Heated Dwellings (Mandated by CA SB 1601)	Residential	Strategic Conservation	July 1996 – present
Energy Efficient Lighting	Commercial / Industrial	Strategic Conservation	December 1998 – present
Outdoor Security Lighting	Commercial / Industrial	Strategic Conservation	December 1998 – 2002
Energy Efficiency for Motors Program	Commercial / Industrial	Strategic Conservation	December 1998 – present
Efficient Cooling Equipment Replacement & Variable Speed / Frequency Motor Drives	Commercial / Industrial	Strategic Conservation	December 1998 – present February 2000 – present December 1999 – present
Energy Star Rebate Program	Residential/	Strategic	August 2000 - present
	Commercial	Conservation	
Refrigerator Recycling Program	Residential	Strategic Conservation	April 2000 – present

Table B

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	13,126	15,750,028
Fiscal Year 2000-2001	15,458	16,251,065
Fiscal Year 2001-2002	18,132	25,793,908
Fiscal Year 2002-2003	20,068	27,083,603
Fiscal Year 2003-2004	22,456	28,437,786
Fiscal Year 2004- 2005	23,578	29,859,675
Fiscal Year 2005- 2006	24,756	31,352,658
Fiscal Year 2006- 2007	25,978	32,845,641

1. Off-Peak Swimming Pool Filter Pump Use (Pool Saver Program)

This program offers residential customers a $5.00 per month credit on their statement when they shift their swimming pool filter pump usage to the utilities off-peak period.

Through fiscal year 2001 - 2002 there was an average of 3,284 customers enrolled in this program. Useful life of the measures installed as part of this program is more than 30 years. Projected cumulative kilowatt capacity reductions are based on 1.13 kilowatts per participant. Kilowatt-hour reductions can be projected based on kW demand times the number of peak hours. Participant growth in this program is projected at less than 1% per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	3,315	33,150
Fiscal Year 2000-2001	3,348	33,480
Fiscal Year 2001-2002	3,710	37,100
Fiscal Year 2002-2003	3,747	37,470
Fiscal Year 2003-2004	3,784	37,840
Fiscal Year 2004-2005	3,822	38,220
Fiscal Year 2005-2006	3,860	38,600
Fiscal Year 2006-2007	3,898	38,980

2. Residential Weatherization for Seniors and Disabled - (WECARE Program)

This program is offered as a free complementary service to encourage senior and disabled residential customers to be more energy efficient. WeCare is an acronym for Wise Energy use Campaign Aid the Retired and Elderly. Senior part-time utility staff visit the home and perform an energy audit, water audit, and install weather stripping and low flow shower heads. If the water heater is electric then a water heater blanket is installed.

This program began in March 1983. From 1983 through fiscal year 2001-2002 there were 14,726 customers who had participated in this program. Useful life of the measures installed as part of this program is more than 15 years. Projected cumulative kilowatt-hour reductions are based on 561 kWh per participant. There are no associated kilowatt reductions with this strategic conservation program. Participant growth in this program is projected at around 1% per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	NA	7,993,128
Fiscal Year 2000-2001	NA	8,073,059
Fiscal Year 2001-2002	NA	8,261,286
Fiscal Year 2002-2003	NA	8,343,898
Fiscal Year 2003- 2004	NA	8,427,336
Fiscal Year 2004- 2005	NA	8,931,609
Fiscal Year 2005-2006	NA	9,020,925
Fiscal Year 2006-2007	NA	9,111,124

3. **Thermal Energy Storage Incentives for Cooling Equipment (TES Program)**

This incentive program assists customers with funds when they consider an Off-Peak Cooling system at their existing facilities. These cooling systems can be for space conditioning as well as for process cooling applications. To help with the cost of a feasibility study the utility will provide 50% match, up to $5,000 toward the cost of a study. If the customer goes ahead with construction of an Off-Peak Cooling system then the utility has an incentive of $200 per kilowatt of demand shifted from on-peak to off-peak.

Presently, there are seven Off-Peak Cooling systems in the utility service area that were installed to shift existing load from on-peak to off-peak. They are:

- University of California, Riverside campus - 3 systems
- Public Utilities Operations Center - 1 system
- Riverside Unified School District - I system
- Riverside City Hall - 1 system
- Riverside County Circle

Through fiscal year 2001 - 2002 there were seven facilities that participated in this program. Useful life of the measures installed as part of this program is more than 30 years. Projected cumulative kilowatt reductions are based on 1,000 kW per measure installed. There are no associated kilowatt hour reductions with this load shedding program. Participant growth in this program is projected to be one new measure installed per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	1,000	NA
Fiscal Year 2000-2001	2,000	NA
Fiscal Year 2001-2002	3,000	NA
Fiscal Year 2002-2003	4,000	NA
Fiscal Year 2003-2004	5,000	NA
Fiscal Year 2004-2005	7,000	NA
Fiscal scar 2005-2006	8,000	NA
Fiscal scar 2006-2007	9,000	NA

4. **Non-Residential Air Conditioner Replacement Incentive**

This program offers incentives to commercial customers when they replaced older less efficient central electric air conditioners with new high efficiency units. Rebates ranged from $400 to $500 based on size and efficiency rating of the new units.

In fiscal year 2001-02 there were eleven customers who had participated in this program. Useful life of the measures installed as part of this program is more than 15 years. Projected cumulative kilowatt-hour reductions are based on 1,090 kWh per participant. Projected cumulative kilowatt capacity reductions are based on 1.09 kW per participant. Participant growth in this program is projected at around 1% per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	1,090	1,090,000
Fiscal Year 2000-2001	1,101	1,101,000
Fiscal Year 2001-2002	1,212	1,212,000
Fiscal Year 2002-2003	1,224	1,334,160
Fiscal Year 2003- 2004	1,236	1,347,240
Fiscal Year 2004-2005	1,248	1,360,320
Fiscal Year 2005-2006	1,260	1,373,400
Fiscal Year 2006-2007	1,272	1,386,480

5. **Energy Management Technical Assistance Program**

This program offers all commercial / industrial customers a comprehensive energy audit using a software program designed specifically for businesses. Demand rate and Time of Use customers can receive the services of a technical consultant in addition to the audit.

Through fiscal year 2001-2002 there were 7 customers who had participated in this program. Projected cumulative kilowatt reductions are based on 390 kW per participant. Participant growth in this program is projected around 1% per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	6,240	NA
Fiscal Year 2000-2001	7,410	NA
Fiscal Year 2001-2002	8,580	NA
Fiscal Year 2002-2003	9,750	NA
Fiscal Year 2003-2004	10,920	NA
Fiscal Year 2004-2005	13,650	NA
Fiscal Year 2005-2006	16,380	NA
Fiscal Year 2006-2007	19,020	NA

6. **Energy Management System Assistance**

This program offers all non-residential customers an incentive of 50% of the purchase price or $50,000 (whichever is less) for installing an energy management system that will control the time the lights, heating and air-conditioning equipment, motors, etc. are turned on and off for optimal energy use.

There were 3 energy management systems installed during the fiscal year 2001- 2002. There was a saving potential of 3,899,668 kWh.

7. **Efficient Refrigerator Incentives (Cool Rewards Program)**

Riverside Public Utilities offers a rebate for energy efficient refrigerators purchased for residences when such purchases were made to replace an existing refrigerator. The amount of the financial incentives offered, ranging from $75 to $100, was based on the ENERGY STAR`S rating of at least 20% more than a standard refrigerator of comparable size. The Refrigerator Rebate program has since merged wit the Energy Star Program. Rebates for refrigerators can be obtained through the Energy star Program.

The program was approved in December 1998, with active participation beginning in December 1999. Target participation is expected to be approximately 1,000 per year. Useful life of the measures installed as part of this program is more than 15 years. Projected cumulative kilowatt-hour reductions are based on 150 kWh per participant. Projected cumulative kilowatt capacity reductions are based on 0.2 kW per participant. Participant growth in the program is projected at around 5% a year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	200	150,000
Fiscal Year 2000-2001	210	300,000
Fiscal Year 2001-2002	220	490,050
Fiscal Year 2002-2003	230	600,000
Fiscal Year 2003-2004	240	750,000
Fiscal Year 2004-2005	250	900,000
Fiscal Year 2005-2006	260	1,200,000
Fiscal Year 2006-2007	270	1,500,000

8. **Residential Air Conditioner Replacement Incentives** (Cool Cash Program)

This program offers incentives to residential customers when they replaced older less efficient central electric air conditioners with new high efficiency units. Rebates ranged from $50 to $400 based on size and efficiency rating of the new units. This program was discontinued on June 30, 1996, and started again December 1998. Program guidelines were updated to include financial incentives to participants who installed new high efficient central systems or replaced existing inefficient window units with new high efficiency central systems.

Program participation began in December 1998. Useful life of the measures installed as part of this program is more than 15 years. Projected cumulative kilowatt-hour reductions arc based on 1.090 kWh per participant. Projected cumulative kilowatt capacity reductions are based on 1.09 kW per participant. Participant growth in this program is projected at around 5% per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	1,090	1,090,000
Fiscal Year 2000-2001	1,145	1,145,000
Fiscal Year 200 I –2002	1,200	1,200,000
Fiscal Year 2002-2003	1,255	1,255,000
Fiscal Year 2003-2004	1,310	1,310,000
Fiscal Year 2004-2005	1,365	1,365,000
Fiscal Year 2005-2006	1420	1,420,000
Fiscal Year 2006-2007	1475	1,475,000

9. **Low Income Weatherization Program for Electrically Heated Dwellings - (Mandated by California State Assembly Bill 1601)**

The utility offers a free service to low-income customers who beat their dwellings with electricity. Participants receive up to two free water-saving showerheads and a blanket for an electric water heater. It is estimated that 3,500 customers qualify at any one time for this program. This represents approximately 4 % of the utilities total residential customers.

This program began to be offered in fiscal year 1996-1997. It is targeted that 350 low-income customers will participate each fiscal year in this program. Useful life of the measures installed, as part of this program is more than 15 years. Projected cumulative kilowatt-hour reductions are based on 175 kWh per participant. There are no associated kilowatt reductions with this strategic conservation program. Participant growth in this program is projected at less than 1 % per year.

	PROJECTED CUMULATIVE	PROJECTED CUMULATIVE

TIME PERIOD	KILOWATT CAPACITY REDUCTION	KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	NA	57,750
Fiscal Year 2000-2001	NA	115,500
Fiscal Year 2001-2002	NA	173,250
Fiscal Year 2002-2003	NA	231,000
Fiscal Year 2003-2004	NA	288,750
Fiscal Year 2004-2005	NA	291,637
Fiscal Year 2005-2006	NA	294,553
Fiscal Year 2006-2007	NA	297,469

10. **Energy Efficient Lighting Program**

This program offers incentives to commercial / industrial customers when they replace older less efficient lighting with high efficiency lighting. The incentives are 5 cents per kilowatt-hour energy savings for one year. This program was approved in December 1998.

The energy savings vary because of technology and differences in operating hours. The program is based on financial incentives with a goal to issue $175,000 per year. There is a maximum incentive account of $50,000 per account. It is too early to project energy savings because of the many different types of lighting on the market; however, savings can be estimated by program budget amount ($175,000) divided by financial incentive (5 cents per kWh). Participant growth in this program is projected at upwards of 5% per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	NA	3,500,000
Fiscal Year 2000-2001	NA	3,535,000
Fiscal Year 2001-2002	NA	9,103,083
Fiscal Year 2002-2003	NA	9,558,237
Fiscal Year 2003-2004	NA	10,036,148
Fiscal Year 2004-2005	NA	10,537,955
Fiscal Year 2005-2006	NA	11,064,852
Fiscal Year 2006-2007	NA	11,591,749

11. **Outdoor Security Lighting Program**

This program offers incentives to commercial / industrial customers when they replace older less efficient outdoor security lighting with high efficiency lighting. Incentives range from $10 - $35 per fixture. This program has been deleted as of the 2002-2003 fiscal year.

This program was approved in December 1998. The energy savings vary because of technology and differences in operating hours. The program is based on financial incentives with a goal to issue $50,000 per year. There is a maximum incentive account of $500 per account. Projected energy savings can be estimated by program budget amount ($50,000) divided by financial incentive ($35 per 175-Watt fixture.) Participant growth in this program is projected at 1% per year.

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	1.75	NA
Fiscal Year 2000-2001	1.87	NA
Fiscal Year 2001-2002	2.04	NA
Fiscal Year 2002-2003	NA	NA
Fiscal Year 2003-2004	NA	NA
Fiscal Year 2004-2005	NA	NA
Fiscal Year 2005-2006	NA	NA
Fiscal Year 2006-2007	NA	NA

12. Energy Efficiency for Motors Program

This program is intended to promote market transformation that means to encourage the widespread use of the most energy efficient motors available. Incentives are offered for replacing older inefficient motors with equipment that exceeds the federal minimum standards. Rebate amounts are approximately one half the incremental cost increase from standard efficiency to premium efficiency motors.

This program was approved in December 1998. The energy savings vary because of technology and differences in operating hours. The program is based on financial incentives with a goal to issue $75,000 per year. There is a maximum incentive account of $50,000 per account. Participant growth in this program is projected at 1% per year.

13. Efficient Cooling Equipment Replacement & Variable Speed / Frequency Motor Drives

This program offers incentives for cooling equipment replacement and variable speed / frequency motor drives. The program is designed to encourage improvements to equipment that will increase energy efficiency and reduce the energy consumption of existing or new equipment. Cooling equipment incentives are for replacing older inefficient chillers and refrigeration equipment. This closes the gap in cost between standard equipment and high efficiency equipment. The anticipated program target is to issue a minimum of $50,000 in incentives for energy improvements associated with chiller and refrigeration replacements and/or efficiency improvements. Variable speed/frequency motor drives incentives are based on the new unit's electrical energy reduction in relationship to the replaced unit of similar size. This is a downstream incentive program that helps reduce the cost of new equipment. The anticipated program target is to issue a minimum of $50,000 in incentives for energy improvements associated with improvements to variable speed/frequency motor drives efficiency.

This program was approved in December 1998. The energy savings vary because of technology and differences in operating hours. There is a maximum incentive account of $50,000 per account. Participant growth in this program is projected at 1 % per year.

14. Energy Star Rebate Program

This program offers incentives for buying new high efficiency Energy Star rated products that use less electricity than standard units of comparable size. The Energy Star Rebate program was our most popular program during the fiscal year 2001- 2002.

There was a total participation of 9,861 customers with rebates totaling $3,339,997. The approximate savings based on the program participation was 3,697,875 kWh. Program growth was 197% over the estimated participation. There is no way to determine how much of the 3,339,875 kWh is savings as these were not necessarily replacement appliances.

15. Refrigerator / Freezer Recycling Program

This program offers incentives to residential customers for recycling old operating refrigerators and stand-alone freezers picked up and transported to a recycling facility for dismantling and processing.

This program is scheduled to begin in April 2000. Target projections are estimated to be 2,500 participants annually. The projected kW demand is based on kWh reduction divided by annual operating hours (8,760). Projected cumulative kilowatt-hour reductions are based on 1,656 kWh per participant, based on similar programs. Participant growth in the program is projected at around 5% a year

TIME PERIOD	PROJECTED CUMULATIVE KILOWATT CAPACITY REDUCTION	PROJECTED CUMULATIVE KILOWATT HOUR REDUCTION
Fiscal Year 1999-2000	189	1,656,000
Fiscal Year 2000-2001	198	1,738,800
Fiscal Year 2001-2002	208	1,977,264
Fiscal Year 2002-2003	217	1,903,600
Fiscal Year 2003-2004	227	1,988,520
Fiscal Year 2004-2005	238	2,084,880
Fiscal Year 2005-2006	240	2,102,400
Fiscal Year 2006-2007	242	2,1119,920

TRANSMISSION PROJECTS

City of Riverside

TRANSMISSION PROJECT DESCRIPTION

The following is a description of the Transmission Projects the City is involved in.

1. **Mead-Phoenix**
   The line runs from Westwing Station in Phoenix, Arizona, to Marketplace Station near Boulder city, Nevada. Power from our entitlement in the Palo Verde Nuclear Generating Station will be delivered through our 12 MW share of the line.

2. **Mead-Adelanto**
   The line runs from Marketplace Station near Boulder City, to the Adelanto Station in Adelanto, California. Riverside has an entitlement of 118 MW in this line, which will deliver Riverside's shares in Palo Verde, to California, and provide capacity for future power.

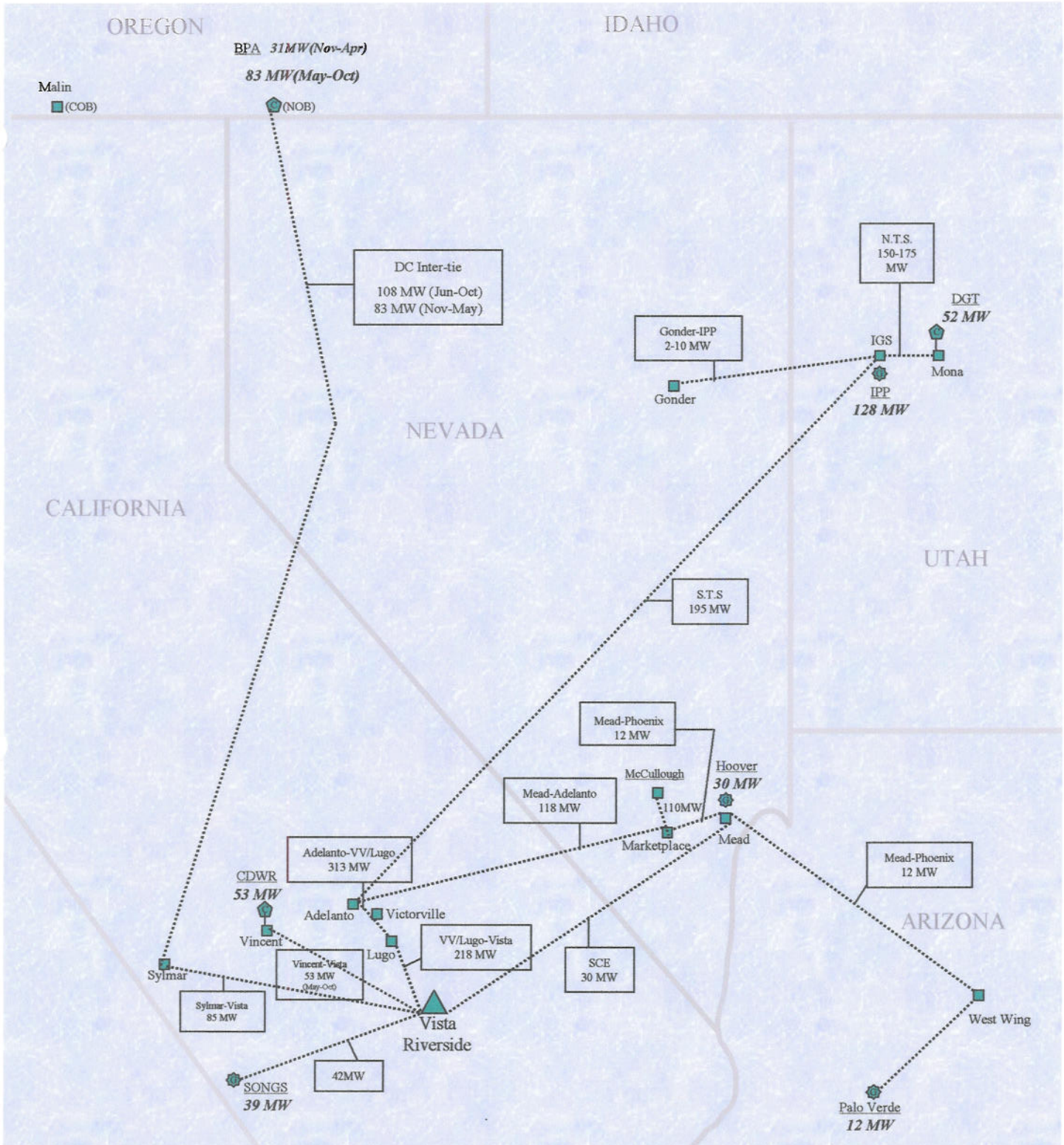
3. **Southern Transmission System (STS)**
   The STS runs from Intermountain Power Project (IPP) in Utah to Adelanto Station. Riverside has an entitlement of 195 MW on this line, which will deliver the City's share in IPP and Deseret to California, and provide capacity for additional transactions.

4. **Northern Transmission System (NTS)**
   The Northern Transmission System consists of two segments:

   a. A transmission line extending from IPP to the Gonders Station near Ely, Nevada.
   b. Two Transmission lines extending from IPP to the Mona Station in Utah.

   Riverside entitlements on the NTS are 20 MW and 145 MW, respectively.

5. **Pacific DC Tie**
   The DC tie extends from Sylmar, California to Celilo, Oregon. Riverside's entitlement is 108 MW thru 2002 with a reduced share 2003 and beyond. This satisfies the City's contracted power from the North. Additional transmission will be acquired thru the Ca. ISO-FTR/CRR Auction process.



AVAILABLE TRANSMISSION PATHS and EXISTING RESOURCES

RIVERSIDE PUBLIC UTILITIES

Transmap - Rev 4/00

APPENDICES