

**FIVE-YEAR (2009-2013)
INTEGRATED RESOURCE PLAN
BY
THE CITY OF AZUSA, CALIFORNIA**

November 4, 2008

CITY OF AZUSA, CALIFORNIA
FIVE-YEAR INTEGRATED RESOURCE PLAN
FOR THE PERIOD OF 2009-2013

BACKGROUND:

The City of Azusa, California (Azusa) submits this five-year Integrated Resource Plan (IRP) in fulfillment of the Electric Service Contract with the Western Area Power Administration (Western) for the Boulder Canyon Project.

The report is organized in five in five sections as follows:

- A. Historical Peak Demand and Energy Consumption and Forecast for the Future
- B. Description of power supply resources including renewable resources
- C. Description of demand-side conservation and energy efficiency programs
- D. Transmission resources
- E. Activities and initiatives to be engaged during the period of 2008 through 2012
- F. Conclusions

SECTION A – HISTORICAL PEAK DEMAND AND ENERGY CONSUMPTION AND FORCEAST

Azusa’s peak demand and energy consumption for the period of 2003 through present is summarized below:

<u>Fiscal Year Ending</u> <u>June 30,</u>	<u>Peak Demand (MW)</u>	<u>Energy Consumption (MWh)</u>
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2003	54.1	242,210
2004	59.1	265,672
2005	59.0	256,994
2006	59.9	259,086
2007	64.5	264,485
2008	65.8	264,957

(*) fiscal year spans from July 1 through June 30 of the following year

Azusa’s peak demand reached its all-time high on August 31, 2007. The energy consumption in 2007/2008 remained stable vis a vis previous year.

The following table summarizes forecast of Azusa's peak demand and energy consumption for the next five fiscal years:

<u>Fiscal Year Ending</u> <u>June 30,</u>	<u>Peak Demand (MW)</u>	<u>Energy Consumption (MWh)</u>
2009	66.5	267,606
2010	67.1	270,282
2011	67.8	272,985
2012	68.5	275,715
2013	69.2	278,472

We note that Azusa's peak demand and energy consumption continued a moderately upward trend in 2008 when adjusted by weather. The previously forecasted higher load growth rate is being adjusted downward due to depressed housing starts and slower redevelopment activities within the city. The City approved the development plans of Azusa Land Partner to develop up to 1,200 relatively high-end residential homes within the City in phases over the next few years as market demand for new homes supports such development. However, the development of this project has slowed considerably due to soft housing market. The City approved the 20-year master expansion plan of Azusa Pacific University in expanding its campus facilities within the City is ongoing and expected to be completed in the first quarter of 2009. It is expected Azusa may experience a slower demand and energy consumption growth in the foreseeable future. Thus, for this reporting period, we adjusted downward the growth rate to 1% per year. Adjustments will be made in a timely manner once these developments are under way and more refined one-time impacts are assessed.

SECTION B – POWER SUPPLY RESOURCES INCLUDING RENEWABLE RESOURCES

Azusa has acquired over the years the following long term and intermediate term power resources:

1. Three megawatts of electric capacity and the associated energy from Palo Verde Nuclear Generating Station Units 1,2, and 3 through the Southern California Public Power Authority (SCPPA) for the life of the Palo Verde Nuclear Generating Station
2. Thirty megawatts of electric capacity and the associated energy from San Juan Unit 3 (coal fired electric generating station located in Waterflow, New Mexico) through SCPPA for the life of the San Juan Generating Station
3. Four megawatts of electric peaking capacity and the associated peaking energy from Western under the Electric Service Contract extending through 2017

4. Six megawatts of electric capacity and the associated energy from HighWinds Project in Solano County, California from PPM Energy (PPM) for twenty years commencing September 1, 2003 through August 31, 2023
5. Fifteen megawatts of capacity and the associated super peak energy from the Department of Water Resources for May through September period of each year of 2007 through 2009
6. One megawatt of capacity and the associated energy from the San Gabriel Valley Municipal Water District's San Dimas small conduit hydro generating plant for 10 years commencing January 1, 2007. This resource is a certified renewable resource

Azusa also acquired over the past several years the following medium term power resource:

1. Twelve megawatts of summer peaking electric capacity and the associated peaking energy from Bonneville Power Administration (BPA) for the period of June through September of each year of 1999 through 2003. This contract expired on October 1, 2003
2. Eight megawatts of year-round electric capacity and the associated dispatchable energy from the City of Pasadena (Pasadena) for the period of 1999 through 2002. This contract expired on January 1, 2003
3. Fifteen megawatts of capacity and the associated on-peak energy from Duke Energy Trading and Marketing (DETM) for June through September period of each year of 2004 through 2007. This contract has been transferred to Barclays Capital effective August 1, 2006 due to DETM's exit of wholesale merchant business
4. Fifteen megawatts of capacity and the associated on-peak energy from Duke Energy (DEMA) for May through October period of each year of 2008 through 2014. This contract was bought out by DEMA effective February, 2006 due to DEMA's exit of wholesale merchant business

Azusa has entered into several new power purchase arrangements in FY 08 ending June 30, 2008. The new arrangements are as follow:

1. Six and a half megawatts of capacity and the associated energy from the Garnet Wind Project near Palm Springs under a twenty-year power purchase agreement. This resource is a certified renewable resource.
2. Four megawatt of capacity and the associated energy from four small hydro generators from the Metropolitan Water District through the Southern California

Public Power Authority (SCPPA) under a ten-year power purchase agreement.
This resource is a certified renewable resource.

The remainder of Azusa's power supply consists of short term purchases. The following table summarize Azusa's power supply portfolio used to serve Azusa's load requirement:

**City of Azusa
Peak Demand and Total Energy Purchased**

	Fiscal Year Ended June 30,				
	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Peak (MW)	59.1	59.0	59.9	64.5	65.8
Power Resource (MWh):					
PVNGS	15,931	16,236	13,426	16,678	15,968
Hoover	4,558	3,608	4,480	4,414	4,324
Spot or Short Term	53,941	29,743	53,665	44,058	73,756
San Juan Unit 3	<u>208,200</u>	<u>223,811</u>	<u>204,052</u>	<u>216,217</u>	<u>187,806</u>
Total Purchased	282,630	273,398	275,623	281,367	281,854
Less Transmission Losses	<u>16,958</u>	<u>16,404</u>	<u>16,537</u>	<u>16,882</u>	<u>16,897</u>
Net Power Requirements	265,672	256,994	259,086	264,485	264,957
Power Resource (MW):					
PVNGS	3	3	3	3	3
Hoover	4	4	4	4	4
BPA, PPM, DETM, Short Term	29	29	28	37	39
San Juan Unit 3	<u>30</u>	<u>30</u>	<u>30</u>	<u>30</u>	<u>30</u>
.....	66	66	65	74	76
Total Purchased					
Reserves	7	7	5	9	10
Net Peak Demand Requirement	59	59	60	65	66
.....					

**City of Azusa
Peak Demand and Total Energy Purchased**

	Fiscal Year Ended June 30,				
	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Peak (MW)	66.5	67.1	67.8	68.5	69.2
Power Resource (MWh):					
PVNGS	17,000	17,000	17,000	17,000	17,000
Hoover	4,500	4,500	4,500	4,500	4,500
Renewables, Lodi, Spot Purch	99,162	98,998	99,864	148,757	148,680
San Juan Unit 3	<u>163,000</u>	<u>166,000</u>	<u>168,000</u>	<u>122,000</u>	<u>125,000</u>
Total Purchased	283,662	286,498	289,364	292,257	295,180
Less Transmission Losses	16,056	16,216	16,379	16,542	16,708

Net Power Requirements.....	267,606	270,282	272,985	275,715	278,472
Power Resource (MW):					
PVNGS	3	3	3	3	3
Hoover	4	4	4	4	4
Renewables, Lodi, Spot Purch	42	42	42	42	42
San Juan Unit 3.....	<u>30</u>	<u>30</u>	<u>30</u>	<u>30</u>	<u>30</u>
Total Purchased	79	79	79	79	79
Reserves (15% of the Peak)....	10	10	10	10	10
Net Peak Demand Requirement	69	69	69	69	69
.....					

SECTION C – DEMAND-SIDE AND ENERGY EFFICIENCY PROGRAMS

As part of California law AB 1890, all California electric Utilities including the municipal electric utilities were required to collect through a Public Benefit Charge (PBC) to fund energy conservation, energy efficiency, low income assistance programs, renewable energy programs etc.

In compliance with the AB 1890, Azusa has collected the PBC from its retail customers and has implemented a variety of energy conservation, and energy efficiency programs to benefit its retail customers.

In compliance with the AB 2021 enacted into law in 2006, Azusa’s Utility Board/City Council adopted on September 24, 2007 the goal of achieving no less than 10% energy efficiency over the next 10-year period.

The engineering estimates of the net peak demand reduction and net annual energy savings are 464 kW in peak demand reduction and 2,395 MWh of energy saved during fiscal year 2007-08. The detailed energy efficiency program descriptions, budgets, and estimated savings calculations are summarized in the spreadsheet herein.

Azusa_EE Reporting
Tool 2008 V5. xls

We expect that Azusa will continue to collect PBC revenues and accelerate and augment the implementation of cost effective demand-side programs in the next 10 years. Any funding shortfalls from PBC revenues to achieve more aggressive energy efficiency goals will be supplemented by power resource budget as power procurement costs consistent with AB 2021 mandate.

SECTION D – TRANSMISSION RESOURCES

Azusa is a transmission dependent utility. Historically, Azusa has relied on transmission contracts with third parties to transmit its out-of-state power supply resources to Azusa’s load center. Since January 1, 2003 Azusa became a Participating Transmission Owner (PTO) in the California Independent System Operator (CAISO) markets. Azusa turned over to the CAISO all of its power scheduling rights under its transmission contracts for

CAISO's use, in exchange Azusa is able to schedule electric power and use the entire CAISO controlled transmission grid with no additional transmission charge. Azusa expects to continue to be a PTO in the CAISO's market for the foreseeable future.

SECTION E – ACTIVITIES AND INITIATIVES TO BE ENGAGED DURING THE PERIOD OF 2008 THROUGH 2012

E.1 – Renewable Energy

The City Council of Azusa adopted a Renewable Portfolio Standard (RPS) in May 2003 establishing a goal of reaching 20% renewable by 2017. On September 24, 2007 the Azusa Utility Board/City Council revised the RPS to reach 20% renewable by 2010 and no less than 33% renewable by 2020.

Azusa is currently purchasing from HighWinds wind project in Northern California which is providing about 10% of Azusa's peak capacity requirement and about 8% of Azusa's annual energy requirements.

Azusa successfully entered into three additional long term contracts in the past twenty four months for renewable power. In September 2006, Azusa entered into a 10-year contract with San Gabriel Valley Municipal Water District to purchase the output of its existing San Dimas small conduit hydro generating unit commencing January 1, 2008. We expect to use this resource to provide about 1% of Azusa's annual energy requirement.

In September 2007, Azusa entered into a 20-year contract with Garnet Wind LLC to purchase the output of Garnet Wind's new small wind farm located near Palm Spring, California. We expect to use this resource to provide about 9% of Azusa's annual energy requirement. Garnet Wind has completed the construction for the first phase and it is currently in the start mode for phase 1. The second phase is expected to be completed by the end of November 2008. The entire project is expected to be commercially operational by the first quarter of 2009.

In May 2008, Azusa entered into a 10-year contract with Southern California Public Power Authority to purchase the output of four small hydro generators from the Metropolitan Water District. The power delivery commenced as of November 1, 2008. We expect to use this resource to provide about 3% of Azusa's annual energy requirement.

The above mentioned four long term power purchase agreements from renewable resources combined will provide about 20% of Azusa's energy requirement by the end of 2009, substantially progressing toward Azusa's RPS goal of 20% renewables by 2010.

In addition, in November 2007 Azusa started participating in the development of Lodi #2 combined cycle natural gas fueled generating plant through the Northern California Power Agency. Azusa's participation is 7 MW of capacity and the associated energy. The

project is currently applying for an Application for Certification (AFC) with the California Energy Commission. The AFC process is expected to take about 12 months and the construction will commence shortly thereafter. The projected in service date of Lodi #2 Project is first quarter of 2012. When fully operational, Lodi #2 Project is expected to meet about 20% of Azusa's energy requirement from a clean and highly efficient natural gas fueled generating resource.

Finally, Azusa continues to be engaged through Southern California Public Power Authority (SCPPA) in evaluating additional renewable resources for contracting.

We continue to aggressively seek out cost effective renewable resources and other cleaner sources of energy to serve the LOAD GROWTH of the City and replace carbon intensive resources the City currently uses to serve its retail customers. We believe that 20% RPS goal by 2010 can be met or even exceeded with actions already taken and to be taken by the City up to this time.

E.2 – Supply Resource Procurement

As previously stated, Azusa's medium term power supply contracts have either terminated under their own terms; bought out by mutual agreement; or soon to expire. Commencing summer 2008, Azusa will have substantial summer peaking capacity and energy needs. Further, California is in the midst of redesigning its electric market under California Independent System Operator (CAISO) Market Redesign and Technological Update (MRTU) project in 2008/2009 timeframe. Recently, the California Public Utilities Commission (CPUC) also promulgated rules to implement Resource Adequacy (RA) programs to the state Investor Owned Utilities (IOUs). Such RA programs address both system and local reliability requirements of the CAISO control area.

Although Azusa is not regulated by the CPUC, Azusa fully recognizes the importance of such RA programs and accordingly has adopted an RA program in April 2006 to fulfill the spirit of CPUC's RA programs. Under Azusa's RA program, the City will procure sufficient capacity and energy plus 15% planning reserves to serve Azusa's customers.

Toward the RA goal, we have entered into several contracts to provide electric capacity and energy for the next several years. The contracts are as follow:

1. Fifteen megawatts of capacity and the associated super peak energy from the Department of Water Resources for May through September period of each year of 2007 through 2009
2. Fifteen megawatts of RA capacity with Reliant Energy from its Ormond Beach units for calendar year 2008
3. Ten megawatts of RA capacity with Reliant Energy from its Ormond Beach units for calendar years 2009 and 2010

4. Ten megawatts of RA capacity with Dynegy from its Moss Landing units for calendar year 2008
5. Ten megawatts of RA capacity with Coral from its La Rosita units for calendar year 2009
6. Contract with the City of Pasadena in various amount of capacity from Pasadena's local units for calendar year 2008
7. Fifteen megawatts of RA capacity with NRG from its El Segundo units for calendar years 2009 and 2010

In parallel, Azusa is actively engaging with other municipal utilities in the investigation of joint owned generation projects. On September 24th, 2007 the Azusa Utility Board/City Council conceptually approved Azusa's participation in the development of Lodi 2 combined cycle generation project being developed by Northern California Power Agency (NCPA). We expect to make a decision to participate in the Lodi 2 project once development work is completed in 2009.

We continue to aggressively and actively replace expiring power supply contracts with new power supply contracts and/or utility owned generation to meet Azusa's base capacity, energy and 15% planning reserve requirements.

E.3 – Demand Side and Energy Efficiency Programs

Azusa intends to continue to implement its existing demand side and energy efficiency programs, and is likely to expand both the scope and budget of demand side programs in the next five years.

Commencing July, 2006 Azusa has implemented a residential distributed solar program which will provide funding to customer initiated distributed solar projects. As part of this program, a net metering protocol is established to provide additional incentive for the residential customers to pursue technologically proven distributed solar projects.

We have expanded our distributed solar program starting 2008 to fully comply with SB 1 (distributed solar legislation) enacted in 2006. We anticipate an increase in the scope and the funding of our distributed program in the coming years.

The City continues to monitor an ice storage pilot demonstration project for the City Library's air conditioning system.

We are also implemented an intelligent control of air conditioning, heating, and ventilating system using the state-of-the-art Lime Energy system. We continue to monitor and evaluate the system. Potentially, this project could cover 80% of city owned facilities and thus providing substantial opportunity in controlling and realize savings in the air conditioning load.

In compliance with the AB 2021 enacted into law in 2006, Azusa's Utility Board/City Council adopted on September 24, 2007 the goal of achieving no less than 10% energy efficiency over the next 10-year period. We are currently evaluating the cost effectiveness of all programs and will modify the programs to achieve the established energy efficiency goal.

We intend to aggressively pursue cost effective energy efficiency, demand side, distributed customer small generation projects; and greenhouse gas reduction activities in the future. Implementation of additional programs will coincide with each progressive Fiscal Year budgeting cycle.

E.4 – Transmission Resources

We continue to evaluate the feasibility of additional participation in transmission projects that enhance the transmission reliability and promote renewable energy resources.

One such project is the Green Path project championed by Imperial Irrigation District and Los Angeles Department of Water and Power (LADWP). The project will connect geothermal resource rich region in Imperial Valley, California to Los Angeles basin. The project will not only provide means to access additional renewable energy sources but also greatly enhance the reliability of the existing transmission system. Azusa is one of the participants in the feasibility studies for Green Path.

We intend over the next five years to actively pursue additional joint transmission projects that promote renewable energy and enhance the reliability of the existing transmission system.

SECTION F – CONCLUSIONS

This report details Azusa's power supply, demand-side, and transmission resources planning in the past five years and the continued planning in the next five years. Major highlights of Azusa's IRP are summarized as follow:

1. Continue the existing menu of energy efficiency and conservation programs for Azusa's customers; and substantially expand the scope and the budget of demand side programs to serve City's load growth consistent with the established energy efficiency goal
2. Aggressively pursue cost beneficial renewable resources to serve Azusa's customers and achieve 20% renewable energy by 2010, and no less than 33% renewables by 2020
3. Continue to assess Azusa power resource needs that might experience one-time jumps in both demand and energy consumption due to new developments within Azusa; and aggressively replace the expiring short term and medium term power

supply contracts with new contracts and/or new joint owned generation resources to meet Azusa's capacity, energy and 15% planning reserve requirement

4. Aggressively pursue joint transmission projects that provide access to new renewable energy sources and enhance the reliability of the existing transmission system