CITY OF MESA
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Utilities Administration

January 11, 2007

Mr. John Li
Energy Services
Western Area Power Administration
Desert Southwest Customer Service Region
P.O. Box 6457
Phoenix, AZ 85005-6457

Dear Mr. Li:

In accordance with Western Area Power Administration (Western) Integrated Resource Planning (IRP) Regulations - 10 CFR Part 905, the City of Mesa (Mesa) hereby submits for your approval two (2) copies of its 2007 IRP report covering the January 2007 through December 2016 time period. This IRP submittal updates and replaces Mesa's 1996 IRP. Future annual reports will reflect the 2007 IRP.

I hereby confirm that all public participation requirements have been met. We have attached the City Council resolution approving and confirming the IRP.

If you have any questions regarding Mesa's submittal, please contact Pedro Serrano at (480) 644-6898.

Sincerely,

David C. Plumb
Utilities Manager
City of Mesa

Cc: Mr. Frank McRae
Mr. Pedro Serrano
Ms. M. Beth McMichael

640 North Mesa Drive
P.O. Box 1466
Mesa Arizona 85211-1466
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RESOLUTION NO. 8904

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MESA, MARICOPA COUNTY, ARIZONA, APPROVING THE CITY OF MESA INTEGRATED RESOURCE PLAN AND CONFIRMING THAT ALL REQUIREMENTS OF 10 CFR § 905.11 HAVE BEEN MET.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MESA, MARICOPA COUNTY, AS FOLLOWS:

Section 1: That the Integrated Resource Plan prepared by the City of Mesa Utilities Department for submission to the Western Area Power Administration is hereby approved and confirmed.

PASSED AND ADOPTED by the City Council of the City of Mesa, Maricopa County, Arizona, this 8th day of January, 2007.

APPROVED:

Leno Hawker

Mayor

CITY OF MESA CORPORATE SEAL MARICOPA COUNTY, AZ.

ATTEST:

City Clerk

CITY OF MESA
Great People, Quality Service!
UTILITIES DEPARTMENT

City of Mesa
Utilities Department
P.O. Box 1466
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2007 Integrated Resource Plan

City of Mesa Utilities Department
Maricopa County
State of Arizona

Table of Contents

Section 1.0 – Executive Summary

The City of Mesa Utilities Department's (Department) 2007 Integrated Resource Plan (IRP) addresses the Department's electric utility resource requirements for the 2007 to 2016 planning horizon. The Department's resource needs for this time frame are identified and plans to acquire the preferred resources are presented. This IRP will serve as a guide for the Department to continue meeting current and future load requirements in a reliable, economical and customer responsive manner. Additionally, this Plan also addresses a number of other issues such as whether Mesa should retain or divest itself of its electric generator sets (GENSETS) and how to address requests for interconnection of customer owned distributed generation. Below is a Loads and Resources (L&R) Plan summary, which indicates the current forecasts of customer demand, existing resources and recommended resource acquisitions for the years 2007 – 2011 of the 10 year planning horizon:

2007-2011 Peak Demand Loads & Resources					
YEAR	**2007**	**2008**	**2009**	**2010**	**2011**
Forecasted Peak Demand @ Supply, MW	95.1	95.5	95.9	96.3	96.7
Transmission Losses @ 3%, MW	2.4	2.4	2.4	2.5	2.5
Total Demand, MW	**97.5**	**97.9**	**98.3**	**98.8**	**99.2**
Existing Contracted Resources, MW	75.0	75.0	59.7	59.7	59.7
Mesa Generation, MW	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total Available Resources, MW	**75.0**	**75.0**	**59.7**	**59.7**	**59.7**
Deficiency, MW	(22.5)	(22.9)	(38.6)	(39.1)	(39.5)
New DSM Resources, MW	**0.3**	**0.8**	**1.4**	**2.2**	**3.0**
New Long-Term Resources, MW	**0.0**	**0.0**	**30.0**	**30.0**	**30.0**
New Short-Term Resources, MW	**10.0**	**10.0**	**0.0**	**0.0**	**0.0**
Ad Hoc Resources, MW	**12.0**	**12.0**	**7.0**	**7.0**	**7.0**

1.1 Existing Operations and Resources

The Department has developed a diverse resource portfolio comprised of long-term purchased power agreements, short-term and "as needed" purchases from the regional energy market and natural gas-fired electric generation facilities. The Department contracts for power from a

variety of entities to meets its customers' requirements thus, avoiding the issues of relying on a single supplier. Through participation in Western Area Power Administration's (Western) Resource Management Services (RMS) group, the Department exercises its access to the regional electric energy markets and acquires short-term (i.e less than 12 months) firm, as-needed, and non-firm resources to meet our customers' requirements that are not met through the acquisition of long-term agreements or owned generation. Mesa relies upon a variety of firm transmission service and substation facilities agreements with Western to provide for the reliable import and delivery of the Department's electric resources that Mesa is entitled to. Summarized below are the current power supply resources for the Department as of 2006:

- **Western**

  Long-term, firm capacity and associated energy from the Parker-Davis Project (P-DP) and Colorado River Storage Project (CRSP) hydroelectric generation facilities amounting to 14.85 MW of summer capacity and approximately 73,000 MWh of energy of per year.

- **Arizona Electric Power Cooperative (AEPCO)**

  Long-term, 15 MW firm capacity and associated energy, and reserve requirements from AEPCO's Apache Generating Station with "actual costs" based pricing structure. The contract expires December 2008 and AEPCO has declined to extend the agreement.

- **Public Service Company of New Mexico (PNM)**

  There are two, separate long-term agreements with PNM. The first agreement has three separate components amounting to 45 MW and expires after the summer peak of 2012. The second agreement is for 10 MW of firm, dispatchable capacity and associated energy that expires after the summer peak of 2013. All of the PNM agreements are fixed price.

- **City of Mesa Electric Generator Sets (GENSETS)**

  Mesa owns 16 natural gas-fired Internal Combustion (IC) engine generators (GENSETS) with a rated capacity of 800 kW per unit. Eight units are located at the Kellwood and Julian substations and the facilities contribute a combined net dependable capacity of 10.0 MW.

- **Resource Management Services**

  Mesa participates in Western's Resource Management Services program (RMS), which aggregates the loads and supply side resources of its members. Western dispatches and schedules the aggregated resources to minimize the costs to its members, in part, by "sharing" any hydroelectric resources. Over time, the amount of excess resources that are available for sharing amongst participants has diminished due to load growth in the participants' service areas. As a result, the Department must consider whether and to what extent to begin building generation capacity reserves to replace the declining availability of such shared resources.

1.2 Overview of Proposed IRP

The planning process used by the Department to develop this IRP is similar to the approaches used by many utilities. The Department's planning process and the proposed IRP have also been developed and will be administered to fully comply with the applicable federal regulations and exceed prudent utility management practices. The primary objectives of this project are to develop an IRP that is robust, flexible and economical while complying with Western's requirements.

- The IRP is robust in that a number of scenarios for assumptions that significantly impact the resource choices are analyzed so that the Department has confidence that the proposed IRP will be a "least cost plan" under wide variety of actual circumstances.
- The IRP is flexible in that the plan to acquire the selected resources can be accelerated or delayed based upon actual circumstances and conditions.

- The IRP is economical in that the DSM resources to be acquired have been extensively assessed using benefit / cost tests and any additional supply side resources will be acquired using present worth and system optimization techniques to compare the various options.

The IRP achieves these objectives and will increase our opportunities to enhance reliability by further diversifying our resource portfolio through the development of DSM programs that are focused on reduction of summer peak demands and the acquisition of resources from the competitive regional energy markets through a competitive solicitation. The Department also retains the ability to pursue the development of its own resources absent the availability of economically advantageous resources from the regional energy markets.

The main principles of the Department's IRP approach are:

- Customer / Community Participation
- Resource requirements forecasted, planned & acquired in timely & efficient manner
- Demand-side management (DSM) & supply-side (S/S) options compared on a "level playing" field
- Resource options selected & acquired based upon defined planning & selection criteria
- Compliance achieved with requirement of power supply contracts and federal regulations administered by Western Area Power Administration (Western)

The Department hosted two community meetings on November 14, 2006 and December 5, 2006. At the first community meeting, the Department discussed:

- The analytical steps and processes that the Department will pursue to develop its IRP;
- The identification of the various alternatives that will be assessed and evaluated for inclusion in IRP;
- The Department's potential resource selection criteria – to enable the Department to continue providing safe, reliable and economic electric utility services;

- The use of a 10 year planning horizon to identify resource requirements and to plan for resource acquisitions; and
- The solicitation of public input to assist with development of a "preliminary" IRP including resource alternatives to be evaluated.

At the community meeting on December 5, 2006, the Department presented its "preliminary" IRP for comment and input from its customers. The preliminary IRP was developed by assessing the economics of DSM alternatives by directly comparing with the costs of supply side alternatives using a Utility Benefit / Cost test (B/C test). The preliminary IRP included an identification of DSM programs for residential and commercial customers selected based upon the results of preliminary technical and economic feasibility assessments using the B/C test. The preliminary IRP also included plans to issue a competitive solicitation to acquire the identified supply side resources to supplement the proposed DSM programs to meet the Department's electric resource requirements in the near term.

One of the key issues in the process of developing an IRP is selecting criteria that will be used to select resources or combination of resources to meet our customers' requirements. The Department's selection and use of the B/C test is based upon the input at the community meetings as well as inquiries that the Department has received from customers over the course of the years that reflects their concerns about the price of electric utility services and their bills.

The proposed IRP identifies the Department's future resource needs and provides a clear indication of the next steps in acquiring the selected resources. The proposed IRP consists of the development and acquisition of two primary types of resources – DSM programs and supply side.

The DSM programs are a new approach and opportunity for the Department to meet its resource requirements. The DSM portion of the IRP was developed recognizing the potential value that peak demand reduction programs would generate by allowing the Department to reduce, defer, or avoid all together the acquisition of supply side resources. The majority of

the DSM programs and concepts developed and selected for inclusion in this IRP are focused on peak demand reduction thereby enabling the Department to avoid a portion of the costs of supply side resources that would otherwise be required. The development and selection of these DSM programs has been conducted using very conservative assumptions in order to insure that they are cost competitive with the alternative supply side resources.

The IRP's supply side plan relies upon the issuance and administration of a competitive solicitation to acquire the remaining resource needs. The results of the solicitation will be compared with conventional and renewable technologies that the Department might otherwise pursue development of. The Department will compare the present worth of total costs (which reflects the rate and bill impacts on customers) of the various options. Additionally, the resources with the lowest present worth of total costs will also be analyzed using a system optimization model that measures the economics of the prospective resource options when integrated with the Department's existing portfolio.

1.3 Three Year Action Plan

The IRP's Three Year Action Plan identifies the steps and objectives for the next 36 months once the Council approves the IRP. The Three Year Action Plan is separated into DSM and supply side components.

The table below indicates key data and information about the Three Year Action Plan for the DSM component of the IRP. The proposed DSM component of the IRP includes separate programs for residential and commercial customers. The programs for residential customers focus on the following areas for demand reduction:

- Lighting – e.g. replacement of incandescent lighting with compact fluorescent light bulbs;
- Heating, Ventilating and Air Conditioning (HVAC) – including programmable and communicating thermostats, air conditioner replacements with high efficiency units, and direct air conditioning unit control;
- High efficiency appliances; and
- Window treatments that reduce cooling requirements.

The DSM program areas for commercial customers include lighting, HVAC, high efficiency windows, high efficiency office equipment, high efficiency refrigeration, and time-differentiated pricing to reduce demand.

A key factor in the development and administration of the proposed DSM programs is the verification of the peak demand and energy savings forecasted for the programs. While conservative assumptions have been utilized to assess the economics of the programs, it is imperative that the programs' cost effectiveness be demonstrated to justify ongoing and enhanced funding.

PROPOSED DEMAND SIDE MANAGEMENT ACTION PLAN SUMMARY

CALENDAR YEAR ENDING*	2007	2008	2009
ANNUAL EXPENDITURES	$ 200,000	$ 280,000	$ 360,000
ADDITIONAL MANPOWER COSTS INCLUDED ABOVE	$ 100,000	$105,000	$ 110,000
ANNUAL PEAK DEMAND (kW) SAVINGS	317	475	633
ANNUAL ENERGY (kWh) SAVINGS	$ 700,000	$ 1,050,000	$ 1,450,000
ANNUAL DOLLAR SAVINGS**	$ 53,000	$ 133,000	$ 238,000

*Assumes program implementation begins January 2007.
**DSM Programs break-even in year 4 and achieve a benefit/cost ratio of 2.2 by year 10.

The supply side portion of Three Year Action Plan focuses on the final identification and acquisition of the resource or combination of resources to replace the AEPCO contract that expires on December 31, 2008. The primary effort of this Three Year Action Plan will be the issuance of a competitive solicitation and comparison of any responsive proposals with the development and / or acquisition of any technically and economically feasible electric generation options that the Department can develop within the 2007 to 2009 time frame.

1.4 Five Year Action Plan

The primary activities in the two years beyond the Three Year Action Plan are to plan for the expiration of the PNM resources in 2012 and 2013. These agreements account for more than 50 percent of the Department's resources at the time of system peak demand. There is the

possibility for the Department's participation as an owner in new large-scale facilities that could achieve commercial operation near these time frames. Large-scale facilities such as those currently being considered require significant lead times to develop and construct. The Department will consider the inclusion of such facilities in its next IRP if these facilities continue development at their current pace and are consistent with the Department's IRP resource selection criteria.

The other area of focus in this time frame will be the ongoing administration of the proposed DSM programs. Included in these efforts will be the ongoing verification of the economics of such programs.

Resource Portfolio Standard

Resource portfolio standards (RPS) are becoming popular mechanisms for requiring or committing electric utilities to acquire a prescribed amount of electric resources (e.g. 10% of annual energy requirements) from "renewable" sources (e.g. wind, solar, geothermal, hydro) to meet customer requirements. The Department is not currently subject to any state or federal regulatory or legislative requirement to set aside a portion of its resource portfolio to renewable resources. Currently, 19 percent of the Department's total annual energy requirements (16 percent of the system peak demand requirements) are met with energy generated from the hydro-electric generating facilities on the Colorado River. Electric energy generated from hydroelectric facilities is generally regarded as a renewable resource. The Department recommends that no RPS be set for the acquisition of renewable resources. The Department will continue to solicit proposals from developers and marketers of renewable resource based electric energy facilities. The Department, unless directed by the City Council otherwise, will present renewable resource proposals to the City Council for approval if they are competitive with other proposals.

Retain Or Divest GENSETS?

In the Fall of 2006, the Department performed an economic analysis to determine the conditions under which the GENSETS should be sold or ownership retained. The analysis

determined break-even rates for the costs of alternatives sources of electric capacity and associated energy and the price at which the GENSETS could be sold or otherwise divested. Current and forecasted prices in the regional energy market indicate that the Department should sell the GENSETS if a minimum value can be obtained. The Department has engaged in preliminary discussions to determine alternative structures to the direct sale of the GENSETS (e.g. a "lease" of the facilities to an energy marketer active within the Phoenix Metropolitan area) to achieve the maximum value for the Department's customers. Any direct sale of the GENSETS will require a bidding process to sell the assets. The Department will continue the discussions mentioned above and will acquire "indicative" offers prior to seeking approval to begin the bidding and sales process.

Customer Owned Distributed Generation Facilities - Net Metering

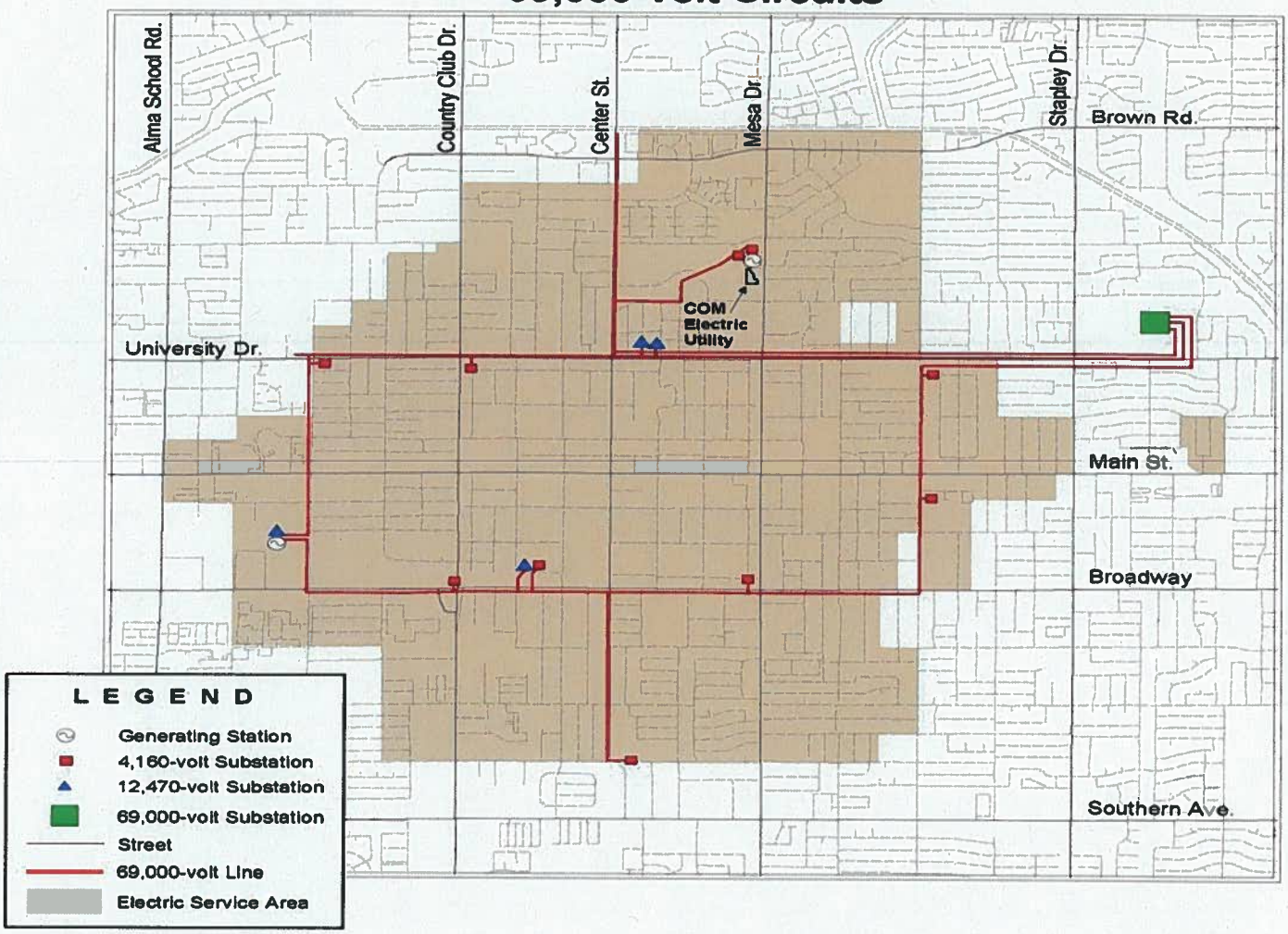
The Department evaluated options for compensating owners of Distributed Generation facilities. One of the options evaluated was "net metering". The Department's evaluation concluded that the net metering option is not cost effective for the Department or its customers, including the prospective owners of such facilities.

Section 2.0 City of Mesa – Electric Service Area Information

2.1 Electric Service Area Description

The City of Mesa is a full service Arizona municipality initially settled by pioneers in the 1870's and incorporated in 1883. Mesa is the State of Arizona's third largest city and has operated its own electric utility since 1917. The current electric service area (ESA) was established by the Arizona Supreme Court on September 15, 1954 and approximates the incorporated city limits as they were at that time. Mesa's ESA is about 5.5 square miles and encompasses the heart of the city, including the original town site. As of the end of FY 2006, service within this area is provided to approximately 16,000 customers of which 13,500 are residential and 2,500 are commercial. There are no industrial customers in the service area.

CITY OF MESA ELECTRIC SERVICE AREA
69,000-volt Circuits



The Salt River Project Agricultural Improvement and Power District (SRP) serves the areas surrounding Mesa's ESA. Mesa's service territory has minimal vacant land for new development and minimal growth in customer loads is forecasted in this IRP. The customer growth that is forecasted is attributed to in-fill residential growth trends and specific commercial and governmental developments and their related electric requirements.

2.2 Mesa City Council

The City's electric rates are established by ordinance and adopted by the City Council. Mesa's City Council is comprised of six council members and the mayor. Each councilmember is elected from one of six voting districts in Mesa, with the mayor being elected at large. The current City Council members are listed below:

City Council
Keno Hawker – Mayor
Claudia Walters – Vice Mayor / Councilmember, District 1
Mike Whalen – Councilmember, District 2
Tom Rawles – Councilmember, District 3
Kyle Jones – Councilmember, District 4
Rex Griswold – Councilmember, District 5
Scott Somers – Councilmember, District 6

2.3 Mesa Plan Responsibility

The Department is responsible for planning and acquiring the electric power resources required to meet the electrical service needs of its customers. Under the direction of the manager of the Department, the Resources Division is specifically charged with this task. Additionally, it is charged with monitoring and updating Mesa's integrated resource planning process. Department personnel responsible for this Plan are listed below.

David C. Plumb
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Section 3.0 City of Mesa Utility Departments Integrated Resources Plan Goals and Objectives

This IRP represents the Department's response to Western's Energy Planning and Management Program rules delineated by 10CFR Part 905. In addition to complying with federal regulations, the primary objectives of this project are to develop an IRP that is robust, flexible and economical:

- The IRP is robust in that will still be an appropriate plan under a variety of diverse scenarios. Thus, the proposed IRP will be a "least cost plan" under wide variety of actual circumstances.
- The IRP is flexible in that the plan to acquire the selected resources can be accelerated or delayed if actual circumstances and conditions are materially different than those assumed in the development of this plan.
- The IRP is economical in that the DSM resources to be acquired have been extensively assessed using benefit / cost tests and any additional supply side resources will be acquired through a competitive solicitation process ensuring that the least cost source of supply (without compromising reliability) will be acquired. The department will use present worth and system optimization techniques to compare the various options to determine "least cost".

Other objectives integral to this IRP are:

- Enhance the Department's ability to provide electric utility services to its customers in a safe, reliable and least cost manner, consistent with sound utility business principles;
- Contribute to customer financial stability by providing electric power at rates that allow for continued long-term enhancement in property and asset values;
- Identify the need and timing of new resources and develop an optimal planning strategy to respond to the inherent risks currently in the regional energy markets.

The IRP achieves these objectives and will increase our opportunities to enhance reliability by further diversifying our resource portfolio through the development of DSM programs that are focused on reduction of summer peak demands and the acquisition of resources from the competitive regional energy markets through a competitive solicitation. The Department also

retains the ability to pursue the development of its own resources absent the availability of economically advantageous resources from the regional energy markets.

Section 4.0 Existing Resources

4.1 Power Supply Overview

The Department's existing supply side resources portfolio is comprised of long-term purchased power agreements and owned gas-fired electric generation facilities. Mesa contracts for power from a variety of entities to supply its total load without relying on a single supplier and as a member in Western's Resource Management Services program (RMS), has access to the wholesale power supply market and the ability to engage in short-term firm and non-firm transactions. Mesa relies upon a variety of firm transmission service and substation facilities agreements with Western to provide the reliable delivery of the capacity and associated energy Mesa is entitled to in these agreements.

RMS aggregates the loads and supply side resources - electric generation and transmission, of its members and dispatches and schedules the resources to minimize the costs to its members. Additionally, RMS markets any excess resources of the members and acquires most of its members' supplemental and incremental needs. Western's aggregation of RMS members' loads and resources allows Western to meet Mesa's needs by acquiring standard sized market products which are typically lower in cost than non-standard products. Mesa has accrued significant benefits from its membership in RMS.

4.2 Existing Supply Resources Description

The Department currently purchases firm power from Western Area Power Administration (Western), Arizona Electric Power Cooperative (AEPCO) and Public Service Company of New Mexico (PNM) under firm purchased power contracts. Mesa also participates in the Parker-Davis Resources Exchange Program, along with similarly situated utilities, to integrate and exchange federal hydroelectric resources purchased from Western. The power and energy purchased from all of Mesa's resources is transmitted over Western's Parker-Davis and Pacific Intertie transmission systems to Western's 500kV and 230kV Pinnacle Substations and then to

the 230 kV Rogers Substation, jointly owned by SRP, Western and Mesa. The power and energy are then transmitted via Mesa's two 69 kV lines to the electrical distribution facilities operated by the Department's Electric Division and then distributed to Mesa's ESA customers. Detailed below are the current power supply resources for the City of Mesa Utilities Department as of 2006:

- **Western Area Power Administration**
  The agreements with Western are for firm capacity and associated energy from the Parker-Davis Project (P-DP) and Colorado River Storage Project (CRSP) hydroelectric generation facilities as detailed below:
  - Parker-Davis Project Generation: 10.45 MW Capacity (March – September); 8.0 MW Capacity (October – February); 49,582 MWH Annual Energy
    - Expires September 2028.
  - Colorado River Storage Project Generation: 4.40 MW Capacity (April – September); 3.30 MW Capacity (October – March); 23,000 MWH Annual Energy.
    - Expires September 2024.

- **Arizona Electric Power Cooperative**
  The agreement with (AEPCO) is for firm capacity, associated energy and reserve requirements. The power is supplied from AEPCO's Apache Generating Station and point of delivery is at the stations' 115 kV switchyard. The contract is for 15.0 MW of firm capacity and associated energy subject to *force majeure* conditions. The contract is set to expire at the end of December 2008. AEPCO has provided notice that it will not extend the contract term.

- **Public Service Company of New Mexico**
  Mesa has two agreements with PNM. The first agreement was assigned to PNM by American Electric Power (AEP) in December 2003. Mesa had originally contracted a three-part agreement with AEP for a total of 45 MW in January 2002 to replace expiring purchased power contracts. The contract was the result of a competitive bid process in association with ED-2. In December of 2003, Mesa negotiated a 10 MW reduction in Part 1 of its AEP agreement. Subsequently, AEP, also in

December 2003, assigned Mesa's remaining 35 MW power contract to PNM. In June 2004, Mesa executed an additional agreement with PNM for 10 MW as a result of a competitive bid process. These agreements are detailed below:

- PNM Agreement No. 1:
  - Part 1: 10 MW Firm Capacity (January-December); 7x24 Firm Energy (January-December); Expires May 2013.
  - Part 2: 15 MW (May-August), 20 MW (September) Firm Capacity; 7x16 Firm Energy (May-September); Expires September 2012.
  - Part 3: 10 MW Firm Capacity (July-August); 7x16 Firm Energy (July-August); Expires August 2012.

- PNM Agreement No. 2:
  - 10 MW Firm Capacity – Dispatchable Day Ahead; 7x16 Firm Energy (June-October: 0 – 24,480 MWH); Expires October 2013.

- **City of Mesa Utility Department Owned Generation**

  Department owned gas-fired generation facilities are located within the Mesa's ESA at the Kellwood and Julian Substations. The generation facilities consist of sixteen (16) natural gas-fired Internal Combustion (I-C) engine-generator sets (Gensets) with a net rated capacity of 800 kW per unit. Eight units are located at each substation site. For planning purposes, Mesa assumes these facilities to have a combined net dependable capacity of 10.0 MW.

- **Resource Management Services**

  The resource scheduling and utilization of Mesa's resources is managed through the Department's participation in the Resources Management Services program (RMS) administered by Western. The RMS group consists of the City of Mesa, Electrical District Number Two (ED-2), Town of Fredonia, Aha Macav Power Service, and Cortaro-Marana Irrigation and Drainage District. As part of the RMS group, these entities pool loads and resources to achieve the benefits of diversity and greater economics of scale when performing purchased power transactions. Western has been contracted to provide the necessary scheduling, dispatching and accounting functions to support the group plus purchase supplemental power as needed on a monthly, daily and real-time basis.

The following table summarizes Mesa's available supply resources as of 2006:

POWER SUPPLY RESOURCES	YEAR
FIRM CONTRACT PURCHASES (MW)	**2006**
AEPCO	15.3
PNM	45.0
PARKER DAVIS	10.4
CRSP	4.3
TOTAL PURCHASES (MW)	75.0
MESA GENERATION (MW)	
KELLWOOD/JULIAN	10.0
TOTAL LOAD RESOURCES (MW)	**85.0**

Section 5.0 Customer Requirements and Resource Needs Forecast

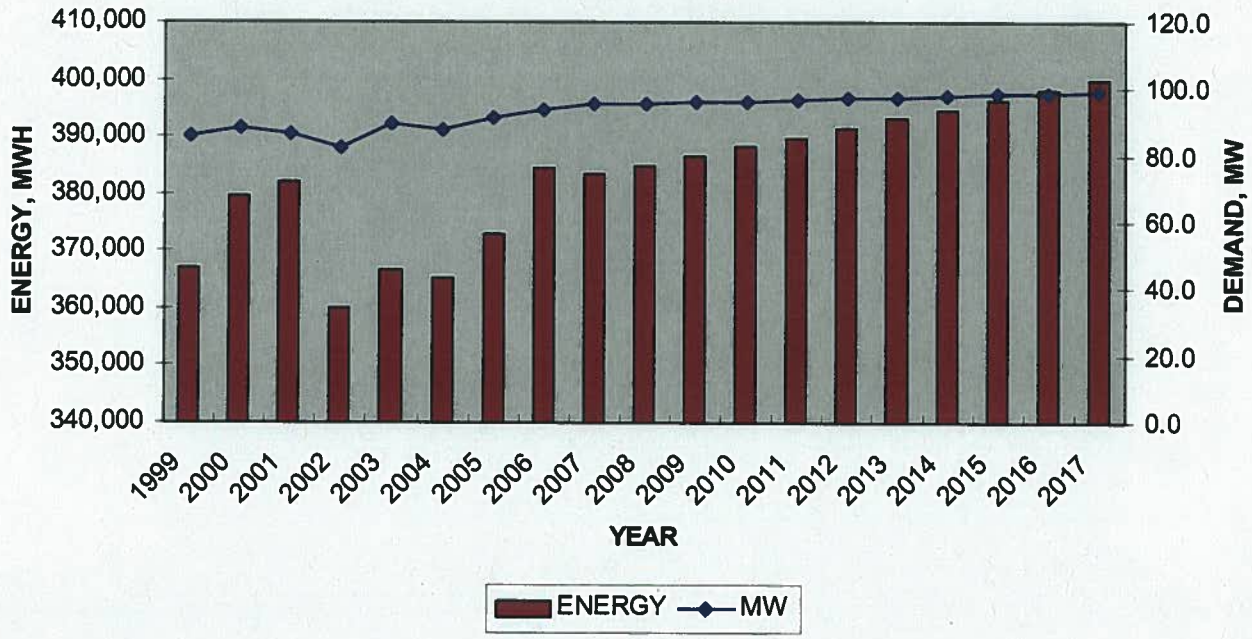
5.1 Customer Requirements Load Forecast

The Department's 2007-2017 peak demand and energy load forecast was developed based on recent historical load patterns on a total load demand basis as registered at Mesa's Rogers Substation point of delivery for its power resources, time series trend analyses of weather normalized customer sales as billed and by class, and the identification of discrete commercial developments and their projected electrical requirements within the ESA. Trend analysis on a customer class level indicate discernible growth patterns with the time series analysis identifying both the residential and commercial classes as exhibiting cyclic yet consistent customer growth patterns with no growth being noted in the "Other" class, which is comprised mainly of public authorities, schools and hospitals. And although there may be introduction of newer, more efficient appliances, the average consumption by customer patterns indicate a continued increase, although it is more pronounced in the residential class than in the commercial sector. This may be caused in part by the changing demographics of the ESA in that; although the long term existing customer base may be upgrading their appliances, new incoming residents may be using older, less efficient appliances thus, negating to some extent, the upgrade impact on average customer use. If this is an accurate assessment, then energy

efficiency programs such as demand side management programs may prove worthwhile, especially if utility incentives are provided. Conversely, the average consumption per customer in the Other customer class shows a definite decrease over time and may be the result of aggressive energy savings programs having been implemented by this customer class.

The following graph illustrates the historical demand and energy loads and growth trends in peak demand since 1999 and the projected demand and energy loads based on forecasted peak demand growth for 2007-2017.

City of Mesa Electric Utility Historical and Forecasted Peak Demand and Energy 1999-2017



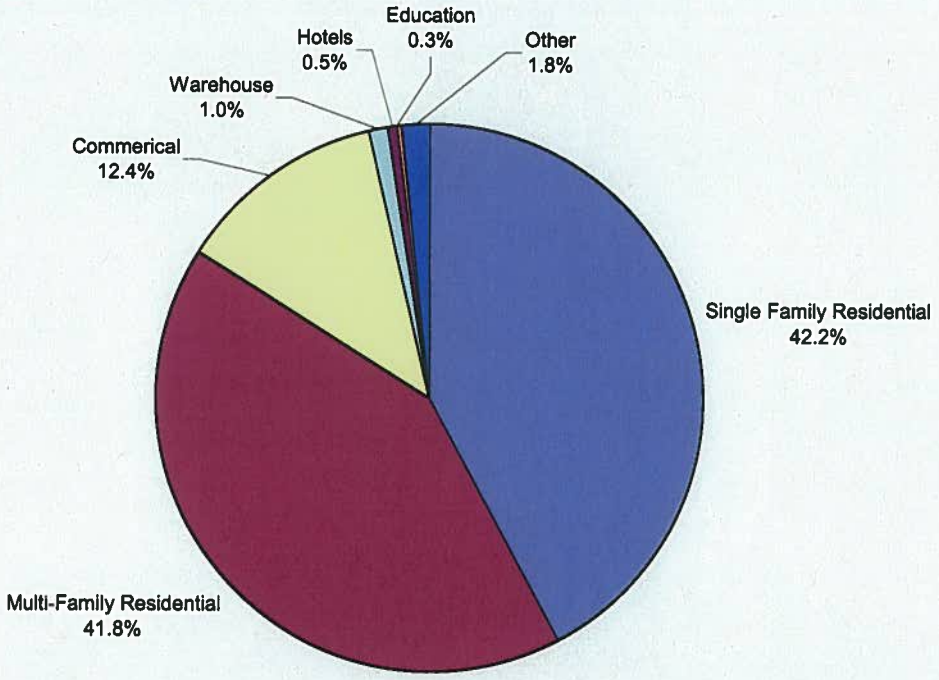
5.2 Customer Profile

The baseline market conditions within the Department's ESA were developed to more accurately assess the DSM technologies most applicable to Mesa's unique ESA. Mesa's service territory is not expected to grow significantly in the future due to minimal vacant land for new development and minimal forecasted growth in customer loads. The customer growth

that is forecasted is attributed to in-fill residential growth trends and specific commercial and governmental developments and their related electric requirements.

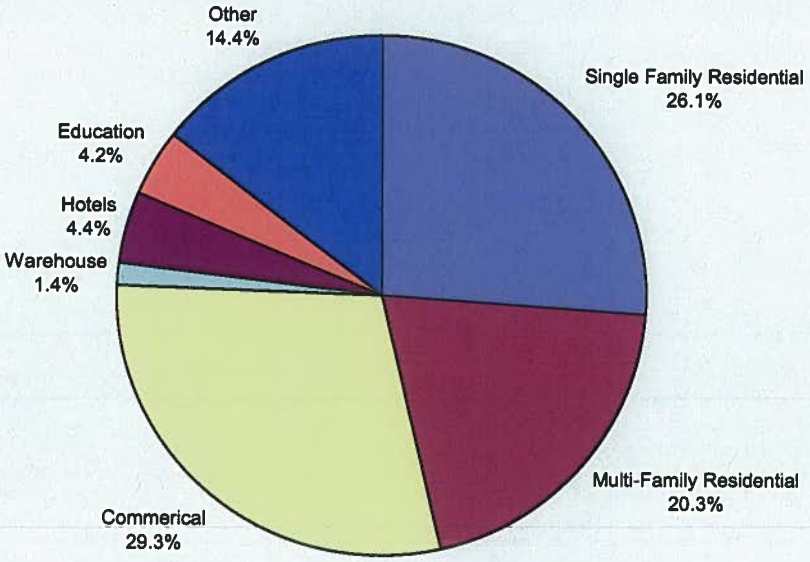
In order to better understand the market, the project team grouped land use data into the following end-use customer categories: single-family residential, multi-family residential, commercial, warehouse, hotels, education, and other (public facilities, transportation, vacant, institutional, other employment, and unknown). The relative shares of each end-use customer category by number of customers and by electricity usage for the month of September 2006 are shown in Figure 1 and Figure 2, respectively.

Figure 1. Mesa Utility- Market Profile by Number of Customers



Other: Public Facilities, Transportation, Vacant, Institutional, Other employment, Unknown

Figure 2. Mesa Utility- Market Profile by Energy Billed (kWh)



Other: Public Facilities, Transportation, Vacant, Institutional, Other employment, Unknown

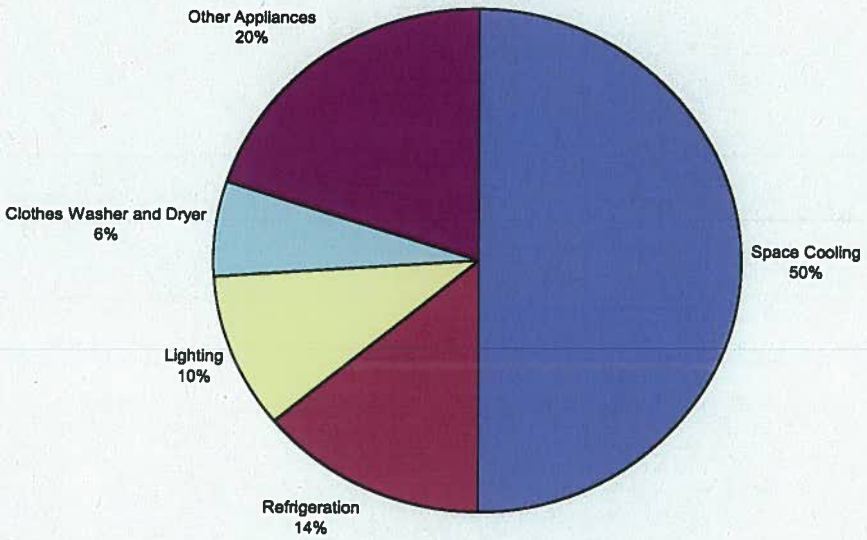
As can be seen in Figure 1 and Figure 2, the major end-use customer categories (i.e., market segments) in the ESA are single-family residential, multi-family residential, and commercial space which, in aggregate, comprise 96% of the total market by number of customers and 75% of the total market by billed electric energy use. These results are consistent with findings from previous research efforts conducted for other entities operating in the Arizona marketplace. The major building types within the commercial market segment likely include office, retail, restaurant, and grocery, with office and retail comprising a majority of the commercial facilities.

The future customer base will likely be very similar to the current customer base. The Department estimates future customer growth to be low due to minimal vacant land for new development.

Figure 3 and Figure 4 show the estimate of average annual electricity consumption by end-use for the ESA. For Mesa, the project team assumes that heating is fueled largely by natural gas and that cooling will constitute a greater portion of the electricity use in a Mesa building than in

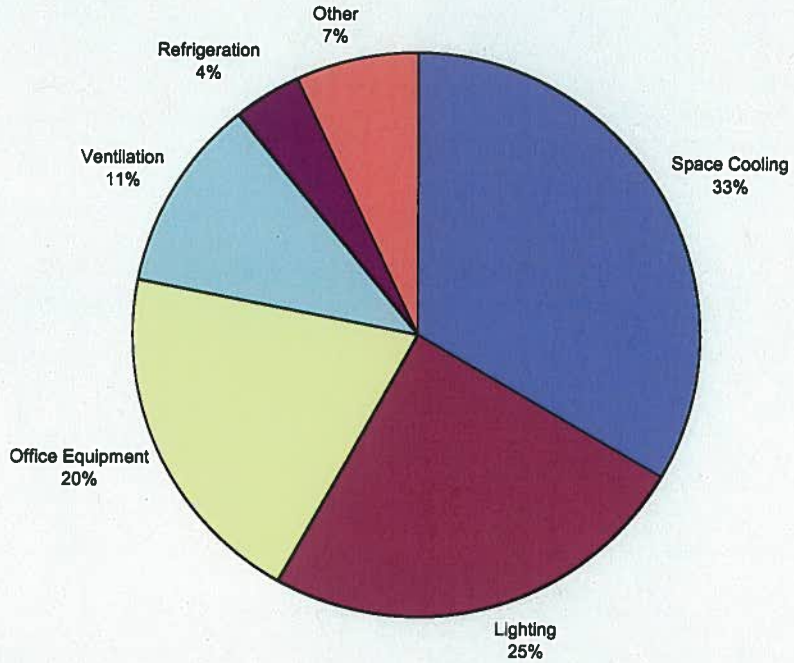
the average U.S. building. Therefore, the graphs for the Mesa region show 50% air conditioning use in terms of electric energy consumption.

Figure 3. Average Annual Electricity Consumption by End-Use for the Residential Sector for the Mesa Region



Other includes dishwasher, television, stereo system, and computer

Figure 4. Average Annual Electricity Consumption by End-Use for the Commercial Sector for the Mesa Region



Other includes conveyors, wrappers, vending machines, and escalators

Based on Mesa's current customer base and minimal forecasted growth in customer loads as well as current electricity use profiles in the ESA, the project team focused on DSM technologies in existing single-family residential, multi-family residential, office, and retail facilities located in the ESA.

5.3 Forecasted Resources Needs

The Department experiences its peak demand during the summer months, specifically in July or August. For 2006, the Department experienced a total system peak demand of 93.8 MW's (unadjusted for weather). Thus, to determine its 2007-2017 forecasted resource needs, a comparison was made of its existing and available resources with the forecast of customer requirements for the same period. Adjustments were made to reflect transmission losses and the disposal and non-availability of the Department's existing natural gas-fired internal combustion generator-engines (I-C Gensets) to serve load. The following table summarizes the Department's net resource needs at time of forecasted system peak demand.

2007-2017 FORECASTED RESOURCE NEEDS

YEAR	AEPCO	PNM	PARKER DAVIS	CRSP	GENSETS	Losses 3%	TOTAL SUPPLY (MW)	LOAD (MW)	(NEED) (MW)
2007	15.3	45.0	10.4	4.3	0.0	(2.4)	72.6	95.1	**(22.5)**
2008	15.3	45.0	10.4	4.3	0.0	(2.4)	72.6	95.5	**(22.9)**
2009	0.0	45.0	10.4	4.3	0.0	(2.4)	57.3	95.9	**(38.6)**
2010	0.0	45.0	10.4	4.3	0.0	(2.4)	57.3	96.3	**(39.0)**
2011	0.0	45.0	10.4	4.3	0.0	(2.5)	57.2	96.7	**(39.4)**
2012	0.0	45.0	10.4	4.3	0.0	(2.5)	57.2	97.1	**(39.9)**
2013	0.0	10.0	10.4	4.3	0.0	(2.5)	22.2	97.5	**(75.3)**
2014	0.0	0.0	10.4	4.3	0.0	(2.5)	12.2	97.9	**(85.7)**
2015	0.0	0.0	10.4	4.3	0.0	(2.5)	12.2	98.3	**(86.1)**
2016	0.0	0.0	10.4	4.3	0.0	(2.5)	12.2	98.7	**(86.5)**
2017	0.0	0.0	10.4	4.3	0.0	(2.5)	12.2	99.1	**(86.9)**

To meet the forecasted deficiencies, the Department has undertaken a substantive review and analysis of those resource options available to safely, economically and reliably meet its projected resource needs over the planning period. This is more fully discussed in Section 6.0 Resource Options.

Section 6.0 Resource Options

In developing a course of action to meet the Department's forecasted resource needs, both supply side and demand side management (DSM) resource options have been examined. For DSM, the Department contracted a consultant to conduct a DSM potentials study of its residential and commercial class ESA customers. The results of this study indicate a strong, albeit limited potential, to reduce the department's summer peak demand by implementing certain DSM programs as more fully described in Section 6.1. For Supply Side options, a technology review was conducted to assess the technical and economical feasibility of conventional and non-conventional generation resources including those classified as renewable. Prior and updated technology data was reviewed to select those generation technologies for further consideration. Additionally, a request for indicative offers was issued to allow assessment of the purchased power market for the 2009-2018 timeframe. Section 6.2 more fully discusses these generation and purchased power market assessments.

6.1 Demand Side Management Programs

A consultant, Summit Blue Consulting, was retained to conduct the DSM-study for this IRP. A broad list of potential demand side technologies was developed utilizing technically feasible alternatives appropriate to the Department's ESA. Consideration of consumer preferences and market potential was based on prior experience of Summit Blue in working on DSM programs within Arizona markets.

The following two tables (Summary of Residential Demand Side Technologies Considered and Summary of Commercial Demand Side Technologies Considered) provide a summary of the general technologies that were assessed. Based on characteristics of the customers within the ESA, the technologies highlighted in red were identified for further analysis for cost effectiveness.

Summary of Residential Demand Side Technologies Considered

Room Heating/Cooling

- Programmable Thermostats

- A/C Heat Pumps
- Split-System Air Conditioners
- Condensing Furnaces
- Evaporative Coolers
- Whole House Fans
- Refrigerant Charge Adjustments
- Duct Sealing
- High Efficiency Room A/C
- HVAC Diagnostics and Tune-Ups
- Direct Load Control (DLC)- Air Conditioning
- Communicating Thermostats
- Quality Installation

Lighting

- Compact Fluorescent Lighting

Thermal Envelope

- High Efficiency Windows
- Window Treatments (sunscreens, reflective or spectrally selective film, tinted windows)
- Weatherization and Insulation (ceiling, wall, floor)

Appliances

- Energy Star Refrigerators
- Refrigerator Recycling
- Efficient Clothes Dryers
- Energy Star Clothes Washers
- Energy Star Dish Washers
- Water Heater
- Heat Pump Water Heaters
- High Efficiency Water Heaters
- Water Heater Insulation
- Point of Use Water Heat
- Direct Load Control (DLC)- Hot Water Heaters

Other

- Faucet Aerators
- Low Flow Showerheads
- Pipe Wrap
- Efficient Pool Pumps
- Direct Load Control (DLC)- Pool Pumps
- Time Differentiated Rate Pricing

Summary of Commercial Demand Side Technologies Considered

HVAC

- Direct Load Control (DLC)- Air Conditioning
- Programmable and/or Communicating Thermostats
- Quality Installation
- HVAC Diagnostics and Repair
- High Efficiency Packaged Diagnostics

Lighting

- Compact Fluorescent Lamps
- De-lamping with Reflectors
- Electroluminescent or LED Exit Signs
- LED Traffic Signals
- Regular or Premium T8 with Electronic Ballasts
- Occupancy Sensors
- Daylighting Controls
- Dimming Ballasts
- Metal Halide
- Low Pressure/High Pressure Sodium
- Photocells
- Timeclocks
- Energy Management System Reduced Unoccupied Lighting Levels
- Small Area Lighting Sensor Controls

Thermal Envelope

- High Efficiency Windows
- Window Treatments (sunscreens, reflective or spectrally selective film, tinted windows, high performance glass)
- Cool (light-colored/reflective) Roofing
- Weatherization and Insulation (ceiling, wall, floor)
- Updated Ceiling/Roof Insulation for Older Buildings

Commercial Cooking

- High Efficiency Electric Fryer
- High Efficiency Gas Fryer
- High Efficiency Gas Griddle
- Hot Food Holding Cabinet
- Connectionless Steamer

Hot Water

- Circulation Pump Timeclocks
- Point of Use Water Heaters
- High Efficiency Water Heaters

- Domestic Hot Water (DHW) Circulation Pumps Controlled by Timeclock
- DHW Tank Insulation
- Tankless Electric Hot Water Systems
- Direct Load Control (DLC)- Hot Water Heaters

Other

- High Efficiency Office Equipment (copiers)
- Commercial Refrigeration Improvements (high efficiency evaporation for motors, high efficiency ice makers, strip curtains, night covers)
- Time Differentiated Pricing (real time pricing, time of use rates, critical peak pricing)
- Plug Load Reduction
- Premium Efficiency Motors
- Vending Machine Controllers
- Voluntary Demand Response

The cost-effectiveness of the selected DSM technologies and potential DSM program offerings were assessed using methodologies outlined in the *California Standard Practice Manual: Economic Analysis of Demand-side Programs and Projects* based upon estimated acquisition and implementation costs associated with the selected DSM technologies, Mesa's current avoided cost forecast and other financial assumptions, as well as revenue impacts that will likely be experienced by Mesa.

Indicated below are those Residential Demand Side Technologies selected for further assessment:

Lighting

- Compact Florescent Lights

HVAC

- Programmable Thermostats
- Hi-E Air Conditioning
- HVAC Repair and Diagnostics
- Quality Installation
- Communicating Thermostats
- Direct Load Control (DLC)-A/C

Building Envelope

- Window Treatments

Appliances

- Hi-E Appliances

List of Commercial Demand Side Technologies that Passed the TRC Test

Lighting

- CFLs
- Regular T8 w/ EB
- Premium T8 w/ EB
- Delamping w/ Reflectors
- LED Exit Signs
- Occupancy Sensors
- Daylighting

HVAC

- Hi-E Packaged DX
- Programmable Thermostats
- HVAC Repair and Diagnostics
- Quality Installation
- Communicating Thermostat
- Direct Load Control (DLC)-A/C

Building Envelope

- Hi-E Windows

Office Equipment

- Hi-E Office Equipment

Refrigeration

- Hi-E Evaporator Fan Motors
- Hi-E Ice Makers
- Strip Curtains
- Night Covers

Other

- Time Differentiated Pricing

The Utility B/C test measures the net costs of a demand-side management program as a resource option based on the costs incurred by the program administrator including incentive costs and excluding any net costs incurred by the participant. The benefits are the savings from the avoided supply costs and include: generation cost savings (energy and capacity), transmission cost savings, and distribution cost savings. The only costs that are included are the administration program costs and incentives paid to the participants. Passing the Utility B/C test is shown by a benefit-cost ratio of greater than 1.0.

It is therefore recommended that the Department undertake a residential and commercial DSM program beginning in 2007 and extending through the period covered by this IRP. The residential program would involve some combination of incentives relative to compact florescent lights, high efficiency appliances, window treatments, high efficiency air conditioning, programmable or communicating thermostats, HVAC repair and diagnostics, quality installation and Direct Load Control (DLC) air conditioning. The commercial program would consider inclusion of most of the same components as the residential program, but would potentially entail a greater variety of lighting improvement incentives, HVAC improvements, high efficiency office equipment, refrigeration improvement incentives, and time differentiated pricing.

Furthermore, the Mesa Community Action Network, in alliance with the City of Mesa, administers a low-income weatherization program that is funded through an Intergovernmental Agreement between the City of Mesa and the Arizona Department of Commerce. The Department would participate in this program for the benefit of low-income customers.

Many of the programs will involve a rebate for improvements that the utility customer will arrange for and implement. In these cases, verification of implementation will be by receipt for materials purchased, invoice from the contractor, customer affidavit, and sample check or field verification by Department personnel. Energy savings will be assumed to be within the parameters of the DSM study prepared by Summit Blue for this project. Conservative estimates for achievable savings were utilized in the methodology of the study to ensure that actual results are within the range of expected results.

In the case of programs like quality installation of new HVAC units, the Department will contract with third parties to ensure control over the program and attainment of expected results.

Quantitative and qualitative milestones will be developed during the initial phase of the DSM program ramp up, and annual status reports will be prepared to evaluate whether or not the mix of programs being implemented are successfully attaining projected savings.

6.2 Supply Side Options

The current environment in the electric industry seems to dictate that any and all potential power supply generation resources be considered in developing a resource portfolio especially those technologies considered *avant garde*, in harmony with the earth's environment and reflective of the altruistic desires of its customers. Notwithstanding this environment, the basic selection parameters addressing economics, reliability and environmental compliance were utilized to establish potential candidate technologies for meeting the Department's resource needs. Additionally, purchased power arrangements with third parties was also considered as a viable resource portfolio candidate given the economics and relative flexibility of managing such transactions. As previously discussed, a technology review was effectuated to identify those technologies best suited to provide power resources to the Department. Following is a list of those technologies considered.

Solar Derived

- Photovoltaic (PV) Panels
- Fixed
- Tracking
- Dish Sterling PV
- Wind Turbine
- Farm
- Central Thermal Tower
- Parabolic Collector

Geothermal

- Binary Cycle
- Flash Steam

Hydro-Electric

- Low-Head Hydro
- Pump Storage Hydro

Biomass

- Muni-Solid Waste
- Land-Fill Methane
- Wood Chip Burner – AFBC

Fuel Cells

- Alkaline (AFC)
- Phosphoric Acid – PAFC

- Proton Exchange Membrane (PEMFC)
- Molten Carbonate (MCFC)
- Solid Oxide (SOFC)

Customer – Owned Distributed Generation

- Photovoltaic
- Micro-Turbines

Conventional

- Coal
  - Atmospheric Fluidized Bed Combustion (AFBC)
  - Pressurized Fluidized Bed (PFBC)
  - Integrated Gasification Combined Cycle (IGCC)
- Natural Gas/Oil
  - Combustion Turbine (CT)
  - Combined Cycle (CC)
  - Internal Combustion Engine (IC Engine)
  - Micro-Turbines (MT)
- Nuclear
  - Pressurized Water Reactor (PWR)
  - Boiling Water Reactor (BWR)

Other

- Lead Acid Battery Storage (LABS)
- Compressed Air Energy Storage (CAES)

This list was reduced by using a subjective selection matrix considering the following parameters:

- Modularity
- Environmental Impact
- Public Resistance
- Technology Maturity
- 2009 Availability
- Fuel Diversity
- ESA Site Availability

The resulting selected generation technologies for further consideration were:

- Solar Fixed Flat Photovoltaic Panels
- Molten Carbonate Fuel Cells
- Natural Gas-Fired Micro-Turbines
- New Small Natural Gas-Fired Internal Combustion Generator-Engine Sets

- Existing Small NG-Fired Internal Combustion Generator-Engine Sets
- Customer Owned Distributed Generation Solar Fixed Flat Photovoltaic Panels

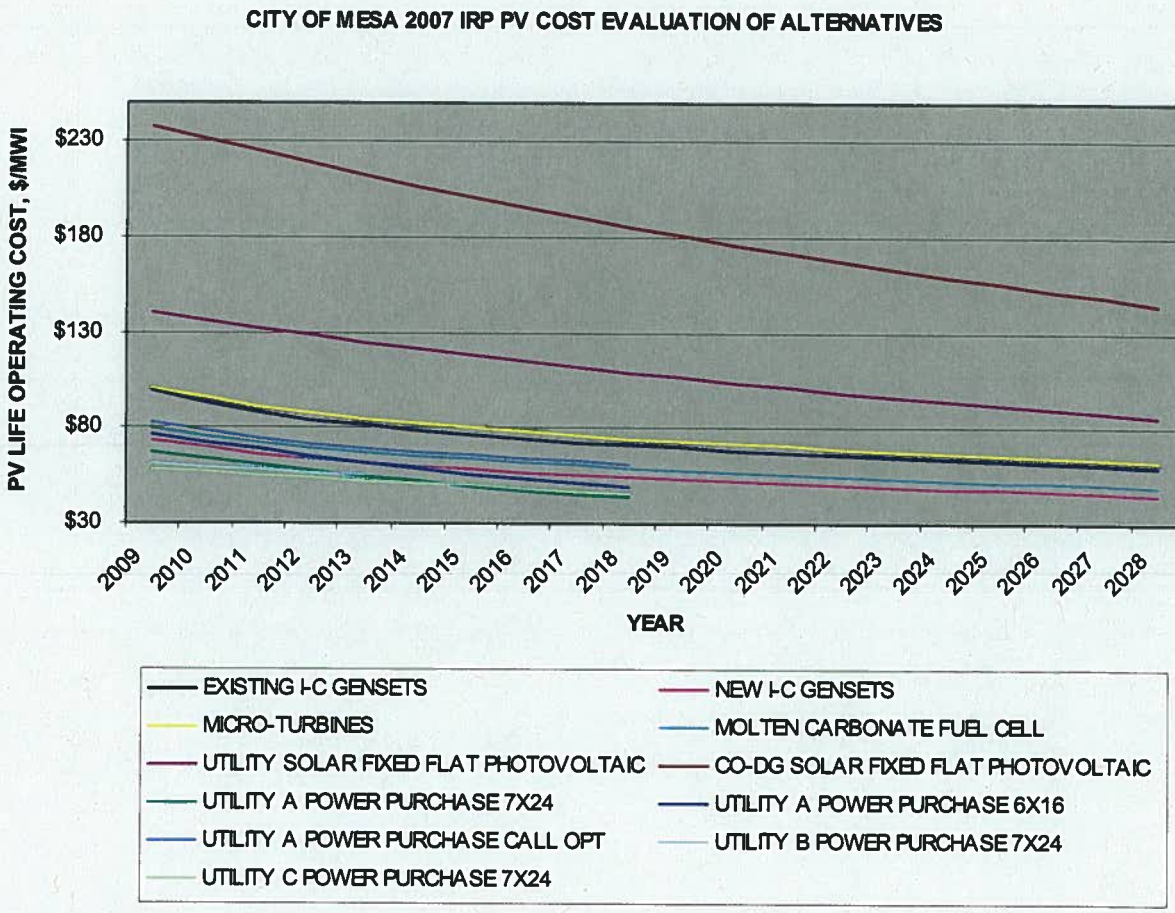
It is noted that the above technologies were selected on non-economic factors. As such, a final economic screen will determine the prime candidates to meet the Department's needs. Such comparison would include responses to a Request For Indicative Offers (RFIO) that was issued to certain southwest utilities requesting indicative prices for certain standard purchased power products for 10-35 MWs of power for the 2009-2018 timeframe. Three utilities responded and provided competitive offers reflective of the power market with a point of delivery at the Pinnacle Peak substation.

The combination of candidate generation resources and purchased power indicative offers form the basis for further evaluation in developing a resource portfolio for meeting the Department's resource needs for the period 2007-2017 as further described in Section 6.3.

6.3 Preliminary Evaluation and Selection of Resources for Further Evaluation /Consideration

The final evaluation and selection of the resources required to meet the Department's forecasted needs was based on economics. A 20-year present worth analysis was made of each resource candidate's projected operating and capital investment costs using the maximum resource output potential as a basis for determining the costs. Each resource candidate's results were developed and then compared. It is noted that DSM programs were not included, given that different economic tests were applied using the cost data from supply side resources as barometers of the DSM's programs economic feasibility.

The following graph illustrates the ranking of the resources. As can be noted, purchased power, new small gas–fired internal combustion gensets and the molten carbonate fuel cells provide the Department with economically viable resources and will be further considered.



6.4 Recommended Plan

The Department's plan will focus on the acquisition of a least cost combination of resources consistent with its resource needs. In the near term, 2007 to 2008, Mesa's resource requirements will be met using a combination of short-term and seasonal wholesale purchases that are acquired in close proximity to when they are needed, as has been Mesa's practice for several years. This approach enables Mesa to take advantage of the competitive wholesale markets and to minimize any risk associated with acquiring excess, uneconomic resources. Typically, these near term resources will be acquired through the RMS program. Mesa may administer its own competitive solicitations when the magnitude of Mesa's incremental needs are of sufficient size and duration to justify this approach.

The Department will issue a competitive solicitation in 2007 to determine the optimal combination of resources for delivery, beginning in 2009, to replace the expiring AEPCO 15 MW contract. The amount of resources required will be dependent on whether or not the Department also removes the Gensets.

Furthermore, as the PNM contracts expire, the Department will issue requests for proposals for interim short-term power purchases for the years 2013 and 2014 to be followed by an acquisition of a long-term resource. Such resource may be another long-term power purchase, reflect the acquisition of small-scale generation units, or involve participation in a large scale power project. The Department will perform ongoing evaluations of the peak demand and energy savings available from DSM programs to assess the amount of resource requirements.

This plan is illustrated by the following tables.

WITHOUT GENSETS
2007-2017

City of Mesa Peak Demand Loads & Resources

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Supply Resources											
FIRM CONTRACT PURCHASES (MW)											
AEPCO (15.3 MW)	15.3	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PNM1A-10 MW: 7x24, Jan - Dec	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
PNM 1B-15/20 MW: 7x16 May-Sep	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0
PNM 1C-10 MW: 7x16 Jul-Aug	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
PNM 2-10 MW: DayAhead (7-22,M-S), Jun-Oct	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0
PARKER-DAVIS (7.95MW; 10.379MW)	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
CRSP (3.407MW; 4.312MW)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Transmission Losses (72.6Non-Federal), 3%	(2.4)	(2.4)	(2.4)	(2.4)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)
TOTAL PURCHASES (MW)	72.6	72.6	57.3	57.3	57.2	57.2	22.2	12.2	12.2	12.2	12.2
MESA GENERATION (MW)											
KELLWOOD/JULIAN (10 MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEW LONG-TERM RESOURCES (MW)	0.0	0.0	30.0	30.0	30.0	30.0	40.0	40.0	75.0	75.0	75.0
NEW SHORT-TERM RESOURCES (MW)	12.7	12.6	0.0	0.0	0.0	0.0	25.0	35.0	0.0	0.0	0.0
AD HOC RESOURCES (MW)	9.6	9.6	7.3	6.9	6.5	6.1	5.7	5.3	4.9	4.6	4.1
TOTAL NET FOR LOAD RESOURCES (MW)	94.8	94.7	94.5	94.1	93.7	93.3	92.9	92.5	92.1	91.7	91.2
FIRM SYSTEM LOAD (MW)											
NET FIRM LOAD @ ROGERS (MW)	95.1	95.5	95.9	96.3	96.7	97.1	97.5	97.9	98.3	98.7	99.1
NEW DSM PROGRAMS (MW)	(.03)	(.08)	(1.4)	(2.2)	(3.0)	(3.8)	(4.6)	(5.4)	(6.2)	(7.0)	(7.9)
TOTAL LOAD, MW	94.8	94.7	94.5	94.1	93.7	93.3	92.9	92.5	92.1	91.7	91.2
(DEFICIENCY) / SURPLUS (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Assumptions: 1. GENSETS ARE SOLD, 2. CY07-17 Forecasted Peaks: 11/06/06 NFL Rogers 2006-2026 Peak and Energy Forecasts; PS 12.11.06

WITH GENSETS
2007-2017

City of Mesa Peak Demand Loads & Resources

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Supply Resources											
FIRM CONTRACT PURCHASES (MW)											
AEPCO (15.3 MW)	15.3	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PNM1A-10 MW: 7x24, Jan - Dec	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
PNM 1B-15/20 MW: 7x16 May-Sep	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0
PNM 1C-10 MW: 7x16 Jul-Aug	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0
PNM 2-10 MW: DayAhead (7-22,M-S), Jun-Oct	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0
PARKER-DAVIS (7.95MW; 10.379MW)	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
CRSP (3.407MW; 4.312MW)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Transmission Losses (72.6Non-Federal), 3%	(2.4)	(2.4)	(2.4)	(2.4)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)
TOTAL PURCHASES (MW)	72.6	72.6	57.3	57.3	57.2	57.2	22.2	12.2	12.2	12.2	12.2
MESA GENERATION (MW)											
KELLWOOD/JULIAN (10 MW)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
NEW LONG-TERM RESOURCES (MW)	0.0	0.0	20.0	20.0	20.0	20.0	30.0	30.0	65.0	65.0	65.0
NEW SHORT-TERM RESOURCES (MW)	0.0	0.0	0.0	0.0	0.0	0.0	25.0	35.0	0.0	0.0	0.0
AD HOC RESOURCES (MW)	12.3	12.2	7.3	6.9	6.5	6.1	5.7	5.3	4.9	4.6	4.1
TOTAL NET FOR LOAD RESOURCES (MW)	94.8	94.7	94.5	94.1	93.7	93.3	92.9	92.5	92.1	91.7	91.2
FIRM SYSTEM LOAD (MW)											
NET FIRM LOAD @ ROGERS (MW)	95.1	95.5	95.9	96.3	96.7	97.1	97.5	97.9	98.3	98.7	99.1
NEW DSM PROGRAMS (MW)	(.03)	(.08)	(1.4)	(2.2)	(3.0)	(3.8)	(4.6)	(5.4)	(6.2)	(7.0)	(7.9)
TOTAL LOAD, MW	94.8	94.7	94.5	94.1	93.7	93.3	92.9	92.5	92.1	91.7	91.2
(DEFICIENCY) / SURPLUS (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ASSUMPTIONS: 1. GENSETS ARE RETAINED; 2. CY07-17 Forecasted Peaks: 11/06/06 NFL Rogers 2006-2026 Peak and Energy Forecast; PS 12.11.06

Section 7.0 Public Participation

A public meeting was held on November 14, 2006. The meeting was publicized in a November 7 press release, on the City of Mesa webpage, and in Currents newsletter. Five members of the public signed in on the sign-in sheet. Approximately 14 people were in attendance, including City of Mesa employees.

A PowerPoint presentation outlining the principles behind Integrated Resource Planning and the steps that the study would undertake in developing a recommendation was made.

Questions from the public addressed billing options for customers with distributed generation (DG) capabilities and the possibility of net metering, the potential of recently passed utilities bonds to raise rates, the transfer of utility revenues to the general fund and the equity thereof, and what proportion of current Department resource mix is renewable.

A second public meeting was held on December 5, 2006. The meeting was publicized in a December 1 press release, on the City of Mesa webpage, and in Currents newsletter. Four members of the public signed the sign-in sheet. Approximately 12 people were in attendance, including City of Mesa employees.

The PowerPoint presentation reviewed the principles behind Integrated Resource Planning and summarized the findings of the study to date, including highlighting the DSM measures that had passed the Total Resource Cost Test and were being recommended for integration into the IRP.

Questions from the public addressed billing options for customers with DG capabilities and the possibility of net metering. The only written comment received following the meeting involved renewable resources, the IRP process, utilities revenue general funds transfer and billing options for customers with DG capabilities.

Appendix

Stacy Damp/utilities/mesaaz
11/07/2006 05:10 PM

To $UT-Utilities
cc Kathy Tellez/mgmtserv/mesaaz@mesaaz, Tomi Cable/mgmtserv/mesaaz@mesaaz, Kelly Pillar/mgmtserv/mesaaz@mesaaz, Cindy
bcc
Subject News release: Customers invited to community meetings on future electric needs

To keep you informed about what's happening in the Utilities Department, this news release was sent out today.

Stacy

For Release: November 7, 2006
Contact: Stacy Damp
Utilities Public Information Officer
480.644.4844 Tel
480.518.6754 Cell

Customers invited to community meetings on future electric needs

The City of Mesa Utilities Department invites customers to discuss and comment on the City's future electric needs at two upcoming community meetings. The City is developing an Integrated Resource Plan (IRP) for its electric system and hopes to enlist the help of residents, business owners, and community leaders in finalizing this 10-year plan.

The Plan outlines how the City will acquire its electric resources and identifies potential demand-side management programs (such as energy conservation audits, time of use pricing, and rebates for weatherization materials or programmable thermostats) to enable the City to continue providing safe, reliable and economical electric resources for its customers.

"The IRP outlines how we will serve our electric customers for the next 10 years," said Resources Division Director Frank McRae, who is coordinating the City's efforts to develop its IRP. "We encourage customers to provide us their comments, especially concerning the proposed demand-side management programs, since it is these customers that will be asked to take part in these programs, if and when they are implemented."

The first meeting will be held Nov. 14, 6 to 7:30 p.m., at the Utilities Building - Community Room, 640 N. Mesa Drive. This meeting will focus on the analytical steps and processes the Department has taken to develop the plan, including a review of the various alternatives to be assessed and evaluated. These include an evaluation of demand-side management programs, forecasting of customers' peak demand and energy requirements, and purchased power contracts.

A second meeting will be held Dec. 5, 6 to 7:30 p.m., at the Utilities Building - Community Room. Utilities Department staff will present how it assessed and incorporated input from the first public meeting into its analyses and resulting preliminary plan. Customers will have an opportunity to review the preliminary plan and provide input before it is presented to the City Council for approval.

The City Council is expected to review and approve a final 2007 to 2016 Integrated Resource Plan at a City Council meeting in December.

The City of Mesa must develop the IRP as part of long-term power supply agreements that allow Mesa to

receive federal hydropower, our lowest cost power source, from the Western Area Power Administration. Such a plan is required every five years, in accordance with the Energy Policy Act of 1992. Additionally, the IRP is necessitated by the fact that one of the City's long-term power supply contracts expires in Dec. 2008 and the best possible resource or combination of resources must be identified to replace this resource.

For more information on the IRP planning process, contact Frank McRae, Resources Division Director at 480-644-2273.

-end-

City of Mesa Utilities Department

2007-2016 Integrated Electric Resource Plan

November 14, 2006 Public Meeting

Sign-In Sheet

Name	Address or email	Phone
Steve Priebe + Donna DiFrancesco	463 N. Macdonald	480-649-7353
Darlynn Wennerstrom	1112 N. Center	(480) 969-0205
Ken McCarville	915 W Pueblo	
Ray E. Brown	1026 N. WEDGEWOOD DR	480-964-0223

For Release: December 1, 2006
Contact: Stacy Damp
Utilities Public Information Officer
480.644.4844 Tel
480.518.6754 Cell
stacy.damp@cityofmesa.org

Customers invited to second community meeting on future electric needs

The City of Mesa Utilities Department will hold a second community meeting regarding the development of the City's Integrated Resource Plan (IRP) for its electric system. The City hopes to enlist the help of residents, business owners, and community leaders in finalizing this 10-year plan that outlines how the City will meet its future electric needs.

The meeting will be held Dec. 5, 6 to 7:30 p.m., at the Utilities Building – Community Room, 640 N. Mesa Drive. Utilities Department staff will present how it assessed and incorporated input from the first public meeting into its analyses and resulting preliminary plan. Customers will have an opportunity to review the preliminary plan and provide input before it is presented to the City Council for approval.

The Plan outlines how the City will acquire its electric resources and identifies potential demand-side management programs (such as energy conservation audits, time of use pricing, and rebates for weatherization materials or programmable thermostats) to enable the City to continue providing safe, reliable and economical electric resources for its customers.

The City of Mesa must develop the IRP as part of long-term power supply agreements that allow Mesa to receive federal hydropower, our lowest cost power source, from the Western Area Power Administration. Such a plan is required every five years, in accordance with the Energy Policy Act of 1992. Additionally, the IRP is necessitated by the fact that one of the City's long-term power supply contracts expires in December 2008 and the best possible resource or combination of resources must be identified to replace this supply.

The City Council is expected to review and approve a final 2007 to 2016 Integrated Resource Plan at a City Council meeting in December.

For more information on the IRP planning process, contact Frank McRae, resources division director, at 480-644-2273.

-end-

City of Mesa Utilities Department

2007-2016 Integrated Electric Resource Plan

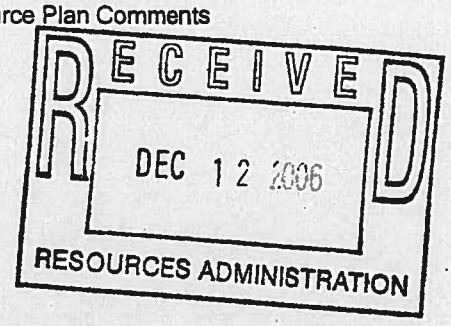
December 5, 2006, Public Meeting

Sign-In Sheet

Name	Address or email	Phone
Steve Prieba & Donna Difrancesco		480 649-7353
Chuck Skidmore	ccskidmore@aol.com	480 312-7606
Steve Ikeda	ikeda51@hotmail.com	480-461-1044

donna difrancesco
<dipreebo@cox.net>
12/12/2006 04:11 PM

To miki.zmolek@cityofmesa.org
cc
bcc
Subject Fwd: Dec. 5 Integrated Resource Plan Comments



Miki,

Thank you for making sure the city is in receipt of this document.

sp
Begin forwarded message:

From: donna difrancesco <dipreebo@cox.net>
Date: December 12, 2006 3:08:56 AM MST
To: mbeth.mcmichael@cityofmesa.org
Subject: Dec. 5 Integrated Resource Plan Comments

Thank you for the opportunity to comment on the city's current Integrated Resource Plan (IRP). From the recent public forums, I find it encouraging seeing that Mesa is looking at the possibility of implementing long-term electric conservation programs. However, I do have great concern that Mesa needs to generate revenue from power sales, and this fact appears to cause great conflicts in the city's decision to support conservation, renewable energy, and distributed generation systems.

It is my understanding that long ago a determination was made by city leaders to develop revenue generation with utility sales profits instead of property taxes. However, the current local and world crises caused by global warming, a reduction in our natural resource availability, and pressures due to tremendous population growth makes this current system of revenue generation outdated and, in my opinion, morally wrong. When utility sales generate much needed city revenue, conservation will likely be discouraged.

Added to that, I have several concerns about the IRP as follows:

1. Turnout for this public meeting was minimal (5-6 attendees). Promotion of the topic was technical and I would be curious how others across the country have promoted such a difficult topic to ensure greater public input. Also, the promotion of the meetings seemed minimal. Are there standard requirements for promoting public meetings, i.e. number of ads, size of ads, etc.?
2. The meetings appear to be a half-hearted attempt to satisfy a federal requirement. Fluorescent lights, efficient appliances and window treatments can provide energy savings, but a more effective IRP would include sustainable and renewable energy sources such as wind and solar.

3. Under Demand Side Management (DSM) several good ideas are listed, but the single most effective way to minimize bills (see page 9/slide 9 of the presentation) is through renewable energy sources such as solar and wind power. However, these items are NOT listed in that category.
4. The supply side (page 12/slide 12) relates to a shortage of capacity and energy...again, solar and wind generated power would be of significant assistance, but again it is not mentioned as an alternative. It has been indicated to me by city staff that peak solar production does not match peak demand needs by the electric department. However, due to the unique nature of our service territory (a great deal of retail, business, city, and industrial customers within the area), I would like to see the graphs showing actual peak needs of our service area. While residential usage may go down during the day, I would assume that usage for these other customers would be high during that time that our solar system generates its peak electricity.
5. ***No Good Deed Goes Unpunished.*** The city has expressed such an aversion to supporting distributed energy systems, that I am concerned that a) there will never be incentives offered by the city, b) my request for a small token of support by the city by net metering will never be granted, and c) I will actually be penalized by the city for our solar system. The city has proposed a special utility rate for me due to the installation of my system and I am concerned that it will provide no savings or may even cost me more than having no system in place.
    a. A previous correspondence has requested greater detail of the proposed utility rate mentioned above and a description of how it would affect my bill. I (and others in the audience) have been very confused when this special rate has been discussed and it is frustrating that the city has been unable to describe the rate in a way can be understood. However, my current concern is that from what has been explained, the city would like to bill me for distribution charges (the city's revenue generating line item on the bill) for the power that my solar system would generate. Making a citizen pay any amount for any reason for the power they generate would be an incredible slap in the face and would actually greatly discourage the use of renewables. I also believe that it would be illegal. My hope is that I have misunderstood the proposed rate and that city staff will clarify this rate for me clearly and quickly.
    b. All the information that I have researched on net metering show that it provides a variety of benefits for both the consumer and utility. Consumers benefit by getting greater value for some of the electricity they generate. Utilities benefit by avoiding the administrative and accounting costs of metering (meter hardware, interconnection cost, meter reading and billing cost) and purchasing small amounts of excess electricity produced by these small-scale renewable generating facilities. The city is proposing to attach extra meters and make extra reads eliminating their own 'avoided costs' benefit.
    c. Page 14 of the Dec. 5 presentation cites the Public Utility Regulatory Act (PURPA) of 1978. This act has been greatly modified with the passing of

the Energy Bill in 2005. Subtitle E states the following:

Subtitle E – Amendments to PURPA

SEC.1251. NET METERING AND ADDITIONAL STANDARDS

(a) ADOPTION OF STANDARDS. - Section 111(d) of the Public Utility Regulatory Policies Act of 1978 (11 U.S.C. 2621 (d)) is amended by adding at the end of the following:

"(11) NET METERING. – Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term 'net metering service' means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

6. The city states that due to the amount of power the utility provides that they are exempt from this policy. I am requesting documents that support that position.
    a. Even if the city can find a loophole to deny net metering, does that mean that it is the correct action to take? The city Electric service is already antiquated in its service options. Time differentiated pricing is not available, power lines, poles, and transformers are in need of upgrading, and rebate programs are unavailable. Yet I pay more for my electricity so that money can subsidize the city budget. Utilities here and across the country are continuing to grow their power portfolios to include renewables such as solar and wind energy. If the city cannot compete with APS and SRP, then should they get out of the business?
7. I would like to know why the city did not look into the "Clean Energy Bond Act of 2005" that enacted legislation designed to offer public power utilities and rural electric cooperatives incentives to develop renewable resources that are equivalent to the renewable energy production tax credits that have been made available over the past decade to investor-owned utilities.
8. During the course of the public IRP meetings, it was stated that the city does not provide a time differentiated pricing (tdp) plan (the recent energy bill also states that this can also be requested by customers). It was suggested by city staff that a customer be selected to try tdp as a test case. No tdp currently exists, but the city suggested developing a procedure to test this option. Meanwhile, I have offered our house and our solar array to do a test to see the 'real' impacts to the city, yet these offers have been declined.
9. Mostly my concern is that renewable sources are the best chance we have for our environment and the well being of all of us.
    a. The EPA has identified coal-fired power plants as the largest industrial emitters of mercury, producing more than a third of all mercury pollution in the U.S. This pollutes our waters and contaminates our fish.
    b. The National Institute of Health Journal (Feb. 28th, 2005) stated that "exposure to mercury pollution emitted by power plants causes a 'lifelong loss of intelligence in hundreds of thousands of American babies born

each year,' costing the nation's economy $8.7 billion a year in lost productivity."

c. Coal-fired production plants release large amounts of carbon dioxide, which contribute greatly to global warming. They also release the mercury mentioned above, as well as sulfur, nitrogen oxides, arsenic, and lead. These plants also release more radioactive elements than a properly functioning nuclear power plant.
d. Since 1980 coal generation has increased 75%.
e. Nuclear power requires large amount of fossil fuels for mining and refining uranium, to construct massive concrete reactor buildings, to transport and store radioactive waste. Large amounts of chlorofluorocarbon gas are emitted during the enrichment of uranium.
f. The Palo Verde nuclear power plant has been under tremendous scrutiny for safety failures and was just cited for having the 2nd worst safety-monitoring program in the country.
g. Nuclear power plants are obvious targets for terrorists.
h. Our burgeoning population has caused black outs, brown outs and transformer fires.

For each decision there are consequences. Many years ago, perhaps it was a misguided decision for city staff and council to do away completely with our property tax. I urge the city to support renewable energy and distributed energy systems. It is the right thing to do and it makes sense for our future.

Thank you for your time and consideration of these suggestions.

Steve Priebe
463 N Macdonald St
Mesa, AZ 85201
480-723-6739,