



# **INTEGRATED RESOURCE PLAN**

## **WELLTON-MOHAWK IRRIGATION AND DRAINAGE DISTRICT OF YUMA COUNTY AND THE STATE OF ARIZONA**

December 31, 2012

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## Profile Data

Wellton-Mohawk Irrigation and Drainage District (WMIDD or the District) is a combination reclamation project and electric utility. WMIDD was created and organized in 1952 under Section 75-442 of the Arizona Code of 1939, later revised and codified as Chapters 5 and 6 of Title 45 of the Arizona Revised Statutes, which then became A.R.S. Title 48 Chapter 19. At the time of its formation, the District began serving power customers of the previous Gila Valley Power District which had been providing service since 1921. WMIDD was authorized by Congress under the Gila Project Re-authorization Act adopted July 30, 1947. WMIDD obtained its original power purchase certificate No. 32C from the Arizona Power Authority on March 19, 1949.

WMIDD is governed by a nine-member Board of Directors elected from and by landowners within its service area. It is organized under a general manager with five separate departments, each headed by a sub-manager or department superintendent. There are 113 full-time employees engaged in the irrigation, drainage and utility operations.

The boundary of the WMIDD encompasses 204 square miles, of which 62,775 acres are irrigated with water delivered from the Colorado River by an extensive network of canals and pumping plants. A detailed description of WMIDD's service area is provided in **Appendix A**. Water is delivered to the farms through a distribution system, consisting of 370 miles of delivery and drainage canals. These lands are classed as prime and unique agriculture because of the quality of soils and the long growing season. The utility service area consists of 756 square miles overlaying the irrigation district and extending well beyond the boundaries of the district. WMIDD owns and operates all of the irrigation, drainage and utility facilities. Electric power is delivered over a common transmission and distribution system to provide service to retail power customers and supply the power requirements of the irrigation district. In 2011, the District served electricity to approximately 3545 customers with 49.06% of total energy sales going to the commercial class, 41.43% to residential customers, 1.02% to outside lighting and 8.49% to agricultural customers.

The service policies and rate schedules for power provided by WMIDD to its customers are determined and set by its Board of Directors. Copies of the District's current rate schedules are attached as **Appendix B**. The District's current Board of Directors and relevant contact persons are detailed below.

- **Board of Directors**

Bruce Williams —President  
Robert Woodhouse —Vice President  
Kent A Murdock  
Michael Blohm  
Patricia Ware

Marvin Marlatt  
Gary Wiechens  
David Sharp  
Jon Nickerson

## **Contact Persons**

Elston K. Grubaugh  
General Manager  
30570 Wellton-Mohawk Dr.  
Wellton, AZ 85356  
Ph: (928) 785-3351  
Fax: (928) 785-3389

Susan Lozier  
Power Procurement and Marketing  
30570 Wellton-Mohawk Dr.  
Wellton, AZ 85356  
Ph: (928) 785-3351  
Fax: (928) 785-9294

WMIDD purchases power from Western Area Power Administration (Western), and through the Aggregated Energy Services (AES) group for resale to utility customers. WMIDD is in the Western Area Lower Colorado (WALC) control area and participates in the Hoover Power Resource Exchange Program, the Integrated Resource Scheduling (IRS) agreement, and the AES contract with other utilities to aggregate, schedule, and integrate power loads and resources. The power and energy from the Arizona Power Authority, AES, and Western are transmitted over the Parker-Davis Project transmission system to the District's Wellton-Mohawk Ligurta, Hidden Shores, and KOFA substations. The power and energy are distributed to the customers of WMIDD over facilities owned and operated by the District.

The local economy is heavily dependent upon the agricultural industry. Of the District's ten largest customers, six are directly involved in agriculture. Impacts from traditional agriculture influences like pests and weather will cause short-term impacts upon the local economy.

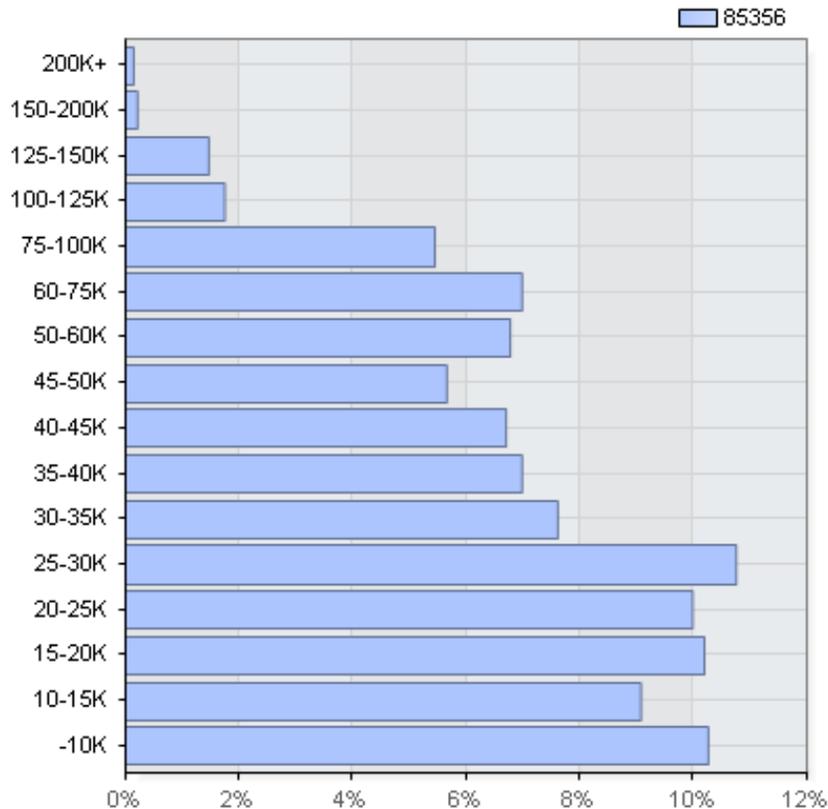
In addition to crop prices and operating costs, the overall financial feasibility of the farming operations is significantly impacted by water costs from irrigation pumping which is supplied with WMIDD electrical power.

The resource scheduling, load monitoring, and utilization of the District's resources are managed through Aggregated Energy Services (AES) which is administered through Western. AES along with the other resource programs has provided the necessary flexibility for the District to integrate and re-pattern its resources monthly to meet its changing load requirements. The District will use its current entitlements of Hoover, P-DP FES and CRSP resources aggregated and integrated with AES's other power resources to meet its projected retail loads through the five-year planning period.

## **District Goals and Objectives**

Provide reliable electric power at lowest practicable cost, consistent with sound business principles

## Household Income 85356



As evidenced by the above graph, the annual income of 40% of our retail customers is below the poverty level, as established by the U.S. Department of Health and Human Services, for a family of four (\$23,000).

## Supply Side Options

- **District Contract Information**

Arizona Power Authority (Hoover Power Contract)  
Western Area Power Administration (CRSP Contract)  
Western Area Power Administration Firm Electric Service (P-DP FES Contract)  
Western Area Power Administration (AES Contract)

- **Renewable Energy Activities:**

With 40% of the population within Wellton-Mohawk Irrigation and Drainage District boundary having an annual income of less than \$25,000 per year, it is difficult to add the cost of expensive renewables to our rates.

However, there are solar projects within our district with total generation capacity of 96 kW.

- **Regulations Applicable to District**

Energy Planning and Management Program

- **Regulations Applicable to District Customers**

Arizona Department of Water Resources

## **Load and Resource Information**

- **Five-Year Load Forecast**

Although the slump in the economy over the past 3 years resulted in a decrease in retail sales, the past year has shown an improvement which leads us to estimate our load increasing approximately 2% per year for the next 5 years, due to increased residential and commercial construction.

- **Load Profile Information**

For 2011, the energy sales for the District were divided among the customer classes in the following manner:

Residential—43%  
Commercial—47%  
Irrigation—9%  
Lighting—1%

- **Supply Side Resources**

The District's current federal resources under contract along with participation in AES and Southwest Public Power Resource Group (SPPR Group) will be used by the District to meet its monthly power and energy requirements through the short-term and long-term planning periods. Detailed below are the District's current contractual commitments:

Arizona Power Authority (Hoover)

- Hoover "A" Capacity & Energy
  - 2,910 kW (Maximum with Hoover Firming Capacity)
  - 9,570,000 kWh (Contract Entitlement)
    - Expires September 30, 2017

#### Salt Lake City Area Integrated Projects (CRSP)

- Summer Season: 132 kW CROD (Contract Rate Of Delivery) 320,783 kWh
- Winter Season: 404 kW CROD 996,974 kWh
  - Expires September 30, 2024

#### Parker-Davis Project Firm Electric Service (P-DP FES)

- Summer Season: 3,100 kW CROD 10,667,100 kWh
- Winter Season: 2,445 kW CROD 4,163,835 kWh
  - Expires September 30, 2028

#### Aggregated Energy Services (AES)

- Aggregated Energy Services contract is a contract, with other preference customers of Western's Desert Southwest Region that have allocations of Federal Hydro Resources, to aggregate, schedule, and integrate power resources which results in greater efficiencies and more economical use and dispatch of the District's power contracts. Participation in the AES group provides resources as needed to meet present power requirements beyond our long term power contracts.

#### Southwest Public Power Resource Group (SPPR Group)

- A group of 39 public power entities formed the SPPR Group, designed to identify and develop projects that match the needs of the various individual members while creating economies of scale that would not be possible if the members attempted to do it on their own. The District's participation in the SPPR Group will provide future resources. The group will analyze resources to consider potential sites, transmission requirements, environmental issues, and water requirements.

#### ● **Demand Side Resources**

The District has ongoing Demand Side Management (DSM) activities.

- Conservation information is distributed to customers.
  - In addition to bill flyers, we will add a quarterly booklet, eco@home, that will be direct mailed to our customers by APPA
  - Evaluating a light bulb exchange or reduced price for our customers to purchase energy efficient light bulbs.
- Load Management – when possible customers are encouraged to run large loads during the off peak.
- Lighting efficiency programs – new and replacement dusk to dawn light installations are high pressure sodium.
- All farm lands in the District are laser leveled which minimizes pumping therefore conserving electricity as well as water.
- Every year infrared tests are performed on switch gear, corner poles, line connections, and bushings are scanned to be sure they are not loose or

- leaking, etc. This is part of ongoing activities to ensure power reliability and increase energy efficiency.
- Customers are encouraged to replace older air conditioner units and upgrade to 13 SEER or greater models. The District stocks air conditioner units which are available for resale to customers at our cost plus a minimal handling charge.

## **Identification and Comparison of Resource Options**

The identification of options for additional resources within this IRP is coordinated through an examination of the costs and benefits for each resource. Because the District's largest customers already implement numerous irrigation and agricultural efficiency practices in their operations, opportunities for additional energy savings through DSM are very limited. However, the District will continue to look for other opportunities for energy savings from evolving technological advances in agricultural practices.

## **Designation of Options**

If additional resources are needed, the least-cost option is identified from a cost-benefit analysis. This information is used to develop an Action Plan for the District which conforms to the regulations and guidelines of the Energy Planning and Management Program. The selection of the District's Action Plan also includes consideration for reliability of service, economics, rate impacts and price elasticity as well as environmental effects, regulatory impacts, legal considerations and risks, competitive impacts, social acceptance, public considerations and any other factors which may be identified from time-to-time as pertinent in selecting or implementing an Action Plan.

## **Action Plan**

- **Resource Action Plan**

The time period covered by the District's Action Plan is the five-year period from 2012 through 2016.

The District has determined that to provide reliable electric power at the lowest practicable cost, consistent with sound business principles, the District will continue using its long-term entitlements of Hoover, CRSP and P-DP FES power to supply the District's projected long-term power requirements. Purchases of supplemental power needed to cover additional power needs will be made through AES and the SPPR Group. The District continuously reevaluates the possible need for new resources. An example would be new large industrial accounts. The District will require new power contracts to cover these loads. It

plans to structure the rate for these industrial customers around the new contract purchase. The District's participation in the SPPR Group will provide resources needed to supply future large commercial or industrial customers. The group will analyze resources to consider potential sites, transmission requirements, environmental issues and water requirements. Purchasing future resources through the group will ensure the lowest possible price for our customers.

The District will monitor any adjustments to the Plan for the long-term resource needs and will annually review its electric loads and resources for any significant changes. In the event the loads of the District are projected to materially increase above those levels represented in the Load and Resource Information section of this document, other than normal deviations due to cropping changes or weather impacts, the District will review its forecast and evaluate the need for modifying its IRP and notify Western accordingly. In any event, the District will evaluate its load forecast and resource information in detail every five years and refresh its IRP, in accordance with Western's regulations.

- **Conservation Action Plan**

While not required, the District has decided to continue certain conservation activities to promote and maintain energy efficiency of its distribution facilities for conserving electric resources.

**Period:** Calendar Year 2012 through 2016  
**Activity:** Power Factor Improvement Program  
Public Information and Education  
Pump Efficiency Computer Program  
Area Lighting Conservation Program

- **Validation and Evaluation**

**Power Factor Improvement Program**

For many years WMIDD has conducted a surveillance program to monitor system power factor, and where a correction was needed, has taken steps to do so. The District has an extensive system of drainage wells powered by induction motors. Each unit has capacitors switched with the motor.

The District's three pumping plants comprising fifteen units (totaling 35,000 horsepower) have been upgraded to solid-state excitation within the past five years.

The District runs a slightly leading power factor to provide VAR support for the Southwest Arizona Region of Western. This effort was financed jointly by Western and the District at a cost of \$2M – cost shared 25%/75% respectively.

## **Public Information and Education**

WMIDD believes its Information Dissemination Program will continue to elevate consumer awareness on the conservation of the District's power resources. The District will continue to provide updated conservation literature and "Energy Tips" to its customers.

## **Pump Efficiency Computer Program**

The District systematically conducts data acquisition on approximately 86 groundwater pumps which provides a data base for a customized computer program. The resulting report documents, on a monthly basis, the comparative statistical operational detail of each well and the changes that take place. From these reports, decisions can be made when work is necessary to improve efficiency, abandon or redrill marginal wells and to monitor overall drainage system operation and performance.

## **Area Lighting Conservation Program**

Within the past five years, all of the District owned Dusk to Dawn lights have been upgraded from mercury vapor to high pressure sodium lights. An annual savings to the District for converting 400 lights will be approximately 175,000 kWh.

## **Environmental Effects**

The District is required, to the extent practicable, to minimize adverse environmental effects of new resource acquisitions, and to document these efforts in the IRP. Under the District's current resource plan, the District utilizes hydro resources to meet the majority of its electric loads. To the extent the District utilizes the Arizona Power Authority's Hoover Resource Exchange Program and the Integrated Resource Scheduling procedures to exchange and better utilize the hydro resources of the District and other similarly situated utilities, such efforts should be environmentally beneficial since such increased utilization would offset steam generation purchases.

To maximize the efficient use of the Federal hydro resources, the District's landowners have made substantial investments for on-farm improvements which have resulted in the reduction of water demand and subsequent reduction of energy use for pumping. These are improvements that have ongoing benefit and will be further enhanced as opportunity arises. To the extent the District sponsors other conservation activities and

informational activities with its customers, the anticipated environmental impacts will be beneficial and economically sound.

## **Public Participation**

Thirty days prior to the February Board of Directors meeting, the IRP draft was posted in our office and on our website. Comment instructions were included in the postings.

The final IRP was presented to the Board of Directors for approval at the February 5, 2013 meeting.

. A copy of the notice is attached as **Appendix C**.

At the meeting, the draft IRP was presented to the Board. After discussion and the opportunity for public comment, the Board authorized the preparation of a final IRP, with such revisions, as the Board deemed appropriate. There were no public comments.

February 5, 2013

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Elston K. Grubaugh  
Manager, Secretary

Comments may be submitted in writing to the following address,

Wellton-Mohawk Irrigation and Drainage District  
Attention: Elston K. Grubaugh, General Manager  
30570 Wellton-Mohawk Dr.  
Wellton, AZ 85356

or, in person at the February 5, 2013 Board of Directors Meeting.