Last summer SRP hosted three resource planning workshops for a diverse group of stakeholders and customers to explain the planning process, discuss future challenges, and receive input from stakeholders. Since then, SRP has updated assumptions, evaluated resource options and developed a final Resource Plan for Fiscal Year 2011. The resulting plan is one that strikes a balance among diverse stakeholder interests, while ensuring a reasonable, reliable supply of electricity to our customers over the next decade.

The Plan

SRP’s resource plan is designed to meet customer electricity needs by aggressively integrating more low-carbon and carbon-free resources into the resource mix. Specifically, SRP is planning to add energy efficiency and demand response, renewables, and natural gas resources to meet our needs over the next 10 years. Nuclear resources will be evaluated as a longer term option (post-2020) to meet expected baseload needs in that time frame. The plan was developed by assessing and balancing several key considerations, including:

- Customer/stakeholder input
- Customer and operational needs
- Cost and value (minimizing costs and maximizing value)
- Location/transmission
- Environmental/sustainability
- Fuel diversity and supply
- Water

Our resource plan covers a 10-year horizon and takes into account a reserve to help ensure reliability for extreme temperatures and unexpected outages. Beyond the formal planning horizon, SRP also considers a longer-term view for resources and developing technologies with long lead times.

Short-term (through 2014): Especially, when it comes to carbon emissions, our short-term effort focuses on sustainable resources and natural gas resources. We also are pursuing feasibility studies to assess the viability of nuclear generation as a potential new baseload resource in the future. We continue to be involved in research and development projects for carbon capture and storage, a technology that will be needed to facilitate new coal resources.

Medium-term (2015-19): Planning will continue to focus on sustainable resources, natural gas resources, development of carbon capture and storage technologies, and evaluation/development of nuclear as a potential long-term resource option.
**Long-term (2020 and beyond):** New baseload resources will be needed in this time frame. Growth in coal-fired generating capacity likely will be limited by restrictions on greenhouse gas emissions, the potential for mandated limits, and whether carbon capture and storage technologies are economically viable and commercially available. New nuclear generation may come online long-term, based upon feasibility findings. In today’s planning environment, it can take fifteen or more years to plan, site, permit, and build a new nuclear plant.

<table>
<thead>
<tr>
<th>Planned FP11 Resource Additions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Efficiency</strong></td>
</tr>
<tr>
<td><strong>Demand Response</strong></td>
</tr>
<tr>
<td>• Help customers to manage use</td>
</tr>
<tr>
<td>• Initial EE target at 3-4% of retail requirements</td>
</tr>
<tr>
<td>• Initial demand response target of about 100 megawatts</td>
</tr>
<tr>
<td>• Interruptible programs about 100 megawatts</td>
</tr>
<tr>
<td>• Price response programs about 100 to 200 megawatts</td>
</tr>
<tr>
<td>• Adjust programs with more experience</td>
</tr>
<tr>
<td><strong>Renewables</strong></td>
</tr>
<tr>
<td>• Add about 450 megawatts (nameplate) of new wind, geothermal, solar, and distributed generation resources by 2019</td>
</tr>
<tr>
<td><strong>Natural Gas</strong></td>
</tr>
<tr>
<td>• 500 megawatts power purchase by 2011</td>
</tr>
<tr>
<td>• New 820 megawatt plant by 2017 (dependent on economic recovery)</td>
</tr>
<tr>
<td>• New 540 megawatt plant by 2018</td>
</tr>
<tr>
<td>• Provides system support, flexibility, and firm resource to back intermittent sources</td>
</tr>
<tr>
<td><strong>Nuclear Baseload</strong></td>
</tr>
<tr>
<td>• Evaluate as a potential option after 2020</td>
</tr>
</tbody>
</table>

August 2010
Benefits of the Plan

1. *Meets Customer Needs*

Even with slowed growth in customers and usage, SRP must plan for steadily increasing demand for electricity in the future.
Expiring purchased power contracts over the next few years will also contribute to the significant projected resource need. Accordingly, SRP will need to add about 450 MW of demand side resources, as well as 2,200 MW of new supply side resources by 2019. The total amount of conventional supply side resources added will be contingent on economic recovery. However, because many types of resources require significant lead times for development, we must begin planning for them today. Additionally, SRP plans for a portion of its portfolio to be met with short-term purchases, providing the flexibility to quickly respond to changes in loads and resources. Short-term purchases totaling about 700 MW are expected to be added by 2019.
2. **Diverse Portfolio**

The plan results in a diverse resource portfolio, which helps SRP effectively minimize risk. All generation options have benefits and challenges, and there is no “silver bullet” when it comes to resource planning. As part of building a diverse and balanced resource portfolio, SRP is reducing coal-based resources in favor of sustainable and natural gas resources.

![Sustainable Resource Growth Energy Mix](image)

- **2005**
  - Coal: 61%
  - Gas: 11%
  - Nuclear: 18%
  - Other: 5%
  - Sustainable: 5%

- **2020**
  - Coal: 46%
  - Gas: 22%
  - Nuclear: 14%
  - Other: 1%
  - Sustainable: 17%

28,000 Gigawatt-hours

38,900 Gigawatt-hours

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3. **Commitment to Sustainable Resources**

SRP is committed to increasing the proportion of customer energy needs that are met with sustainable resources over the next 15 years. The SRP Board has set a target that 15% of Retail Requirements will come from sustainable resources by 2025. The current plan puts SRP ahead of schedule to achieve this goal. To help meet this target, SRP is planning to add 450 MW of new wind, solar, geothermal, and distributed generation resources by 2019.
SRP is also focusing on energy efficiency and demand response resources to help meet its targets. For the FY 2011 plan, SRP has greatly increased spending and the number of program offerings in an effort to take advantage of this low cost, carbon-free resource option. Increases in spending are planned throughout the next several years.

History of SRP Energy Efficiency Program Spending

![Graph showing History and Planned spending over fiscal years 1990 to 2014, with milestones such as Energy Policy Act, Industry Restructuring, Western Energy Crisis, and budget peaks.

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The spending increase will allow new programs to be added for both Residential and Non-Residential sectors in FY11.

### SRP EE Residential Programs

**FY 09**
- Appliance Recycling
- Cool Cash A/C Rebates
- Retail CFL – Ongoing, more retailers
- Premium Efficiency Appliance Rebate
- PowerWise Homes
- Low Income Weatherization
- Low Income Energy Education
- M-Power
- TOU Programs

**FY 10**
- **ADDED:**
  - CFLs – More retailers
  - LED Christmas Lights
  - More stringent standards
  - PW Homes
  - Home Check-up Pilot
  - Thermostatic Controlled Showerhead Program

**FY 11**
- **Will ADD:**
  - CFLs – More retailers
  - Home Performance Assessment with Energy Star
  - Duct Testing & Repair
  - Quality Installation Program
  - Home Characterization Retrofit Program
  - In Home Display Pilot
  - Support Stimulus Initiatives
  - Behavioral Programs

---

### SRP EE Non-Residential Programs

**FY 09**
- Standard Business
  - Lighting
  - Package A/C Units
  - Premium Efficiency
  - Motors & VFDs
  - Lighting – New Construction
  - Custom Business
  - Large Business Solutions Program
  - Compressed Air Solutions
  - SPATIA
  - Demand Response

**FY 10**
- **ADDED:**
  - Standard business
    - Occ. Sensors
    - Chillers
    - Refrigeration
    - Compressed Air
    - New Construction Program
    - RCx Program
    - Improved lighting rebate levels
    - Improved funding & customer caps

**FY 11**
- **Will ADD:**
  - Small business Direct Install Program – Financing Options
  - Self Direction Option
  - Increase funding & caps
  - Increase lighting rebates
  - Reduce Customer Eligibility Requirements for New Construction and RCx Programs
  - Increase DR Capacity

---

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Distributed generation also plays an important role in SRP’s sustainability initiatives. SRP supports and encourages sustainable distributed generation by developing customer programs, providing incentives, and engaging in partnerships and special projects.

SRP’s EarthWise Solar Energy Program incentivizes customers to install distributed solar electric and solar water heating technologies. A combination of federal solar tax incentive changes and falling equipment costs resulted in strong program growth in FY09 and FY10. This program provides an important option for customers who wish to directly support sustainable energy production on their own home or business.

### History of Distributed Solar Energy Program Installed Capacity

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Residential Capacity (kW-DC)</th>
<th>Commercial Capacity (kW-DC)</th>
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<tbody>
<tr>
<td>2005</td>
<td>0</td>
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<tr>
<td>2006</td>
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</tr>
<tr>
<td>2007</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>2008</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>2009</td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td>2010</td>
<td>7500</td>
<td>7500</td>
</tr>
</tbody>
</table>

August 2010
SRP has increased program options in response to strong customer participation and plans to implement a new Community Solar program in FY11 which will allow even broader participation.

### SRP Distributed Generation – Renewable Energy Programs

#### FY10

**EarthWise™ Energy**
- Installed 30 kW of solar photovoltaic (PV) projects on non-profit buildings using customer contributions to the program

**EarthWise™ Solar Energy**
- Residential and Commercial Solar PV:
  - Systems Installed: 1,016
  - Annual Load Reduction: 7.6 MW
  - Incentives Paid: $20.1M

- Residential and Commercial Solar Water Heating:
  - Systems Installed: 1,194
  - Annual Energy Savings: 3,461 MWh
  - Incentives Paid: $1.9M

**Special Projects**
- Partnered with Tessera Solar to install a 1.5MW concentrated solar power plant (Maricopa Solar) utilizing Stirling Energy SunCatcher™ technology. This project is the first of its kind in the nation.

#### FY11

**EarthWise™ Energy**
- Will install an additional 30 kW of solar photovoltaic (PV) projects on non-profit buildings using customer contributions to the program

**EarthWise™ Solar Energy**
- Residential and Commercial Solar PV:
  - Will continue to offer financial incentives for residential and commercial customers to offset the costs of installing solar electric systems on their homes and businesses

- Residential and Commercial Solar Water Heating:
  - Will continue to offer financial incentives for residential and commercial customers to offset the costs of installing solar water heating systems on their homes and businesses

**Special Projects**
- Will initiate a new community solar program where schools and residential customers can purchase a portion of their energy output from a 20MW PV plant
- Will initiate three programs utilizing ARRA stimulus funding including an income-qualified residential solar electric program, an income-qualified residential solar water heating program, and a school solar electric program
- Determine feasibility of initiating a low-impact hydroelectric project (2MW) at an SRP canal interconnection facility
4. **Reduces Emissions**

Consistent with SRP's commitment to resource stewardship and addressing climate change, the plan is designed to effectively reduce the intensity of carbon emissions over the next 15 years.
5. **Commitment to Provide Reasonably Priced Energy**

SRP is committed to providing reasonably priced electricity while making investments to preserve fuel diversity, support infrastructure and meet environmental requirements. Generally, renewable resources are more expensive than traditional energy sources and can have a significant impact on prices if not carefully acquired and integrated, so the plan incorporates the lower cost sustainable resources as they become available. This includes new wind, geothermal, solar, energy efficiency, demand response, and distributed generation resources. SRP employs a portfolio approach in securing a diverse mix of sustainable resources, avoiding technology-specific targets and minimizing the total cost of its sustainable portfolio.

At SRP, we embrace a dynamic approach to build a robust portfolio that manages the risks associated with fuel price volatility, climate legislation, plus cost and growth uncertainties. Accordingly, resource alternatives are evaluated in such a way that total resource value is recognized, helping us make wiser resource decisions. Fully integrated costs (including base technology, integration, delivery, and risk premiums) are considered in order to ensure resources are evaluated on a comparable and comprehensive basis. Understanding the total value of resources helps us make better resource decisions and maintain reasonable prices for our customers.

![Relative Generation Costs](image-url)
6. **A Flexible Plan**

Because changes are inevitable, the plan maintains the flexibility to respond to change as necessary. For example, plans to add over 1,300 MW of natural gas resources by 2018 are contingent upon economic recovery. If the economy recovers more slowly or quickly than anticipated, the planned resources can easily be scaled in terms of size and timing to better meet our needs. Additionally, SRP’s plan to meet a portion of its needs with short-term purchases greatly facilitates the ability to respond to changes in loads and resources. The relatively short lead times associated with planned renewable and energy efficiency resources also provide significant flexibility to our plan.
7. **A Well-Balanced Plan**

As a public power utility, SRP was founded on the principles of resource stewardship. SRP strives to preserve the balance between serving growing customer needs, managing costs, and protecting natural resources. This means planning for future facilities, resources and programs that use conventional, new and advancing technologies to produce cleaner power, boost efficiency, and improve operations. The plan also strikes a balance among diverse stakeholder interests by aggressively pursuing a combination of sustainable and natural gas resources in a manner that addresses environmental challenges in an economically responsible way, maintaining the ability to provide energy to our customers at a reasonable price.
## SRP Load and Resource Forecast
### Fiscal Year 2011-2016

### Resource Requirements

<table>
<thead>
<tr>
<th></th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
<td>2014</td>
<td>2015</td>
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<tr>
<td>IRP Retail Peak</td>
<td>6734</td>
<td>6807</td>
<td>6972</td>
<td>7228</td>
<td>7503</td>
<td>7777</td>
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</tbody>
</table>

### Demand Side Resources

1. SRP is implementing an extensive portfolio of new pricing and energy efficiency programs. The load and resource forecast will be updated as further study of these programs is completed.

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
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</thead>
<tbody>
<tr>
<td>Demand Response/Interruptible Programs</td>
<td>-145</td>
<td>-155</td>
<td>-165</td>
<td>-175</td>
<td>-185</td>
<td>-195</td>
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<tr>
<td>Residential TOU Programs</td>
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<td>-99</td>
<td>-105</td>
<td>-111</td>
<td>-119</td>
<td>-127</td>
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<tr>
<td>M-Power</td>
<td>-45</td>
<td>-46</td>
<td>-47</td>
<td>-48</td>
<td>-50</td>
<td>-52</td>
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<tr>
<td>Total Demand Side Resources</td>
<td>-289</td>
<td>-300</td>
<td>-317</td>
<td>-334</td>
<td>-354</td>
<td>-374</td>
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### Retail Peak

<table>
<thead>
<tr>
<th></th>
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<th>2012</th>
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<th>2014</th>
<th>2015</th>
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<tbody>
<tr>
<td>Total</td>
<td>6445</td>
<td>6507</td>
<td>6655</td>
<td>6894</td>
<td>7149</td>
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### Other Firm Loads and Sales

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<th>2012</th>
<th>2013</th>
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<tbody>
<tr>
<td>Total</td>
<td>526</td>
<td>519</td>
<td>65</td>
<td>65</td>
<td>65</td>
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### Reserves

<table>
<thead>
<tr>
<th></th>
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<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>719</td>
<td>786</td>
<td>767</td>
<td>805</td>
<td>841</td>
<td>872</td>
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</table>

### Total Supply Side Resource Requirement

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>7690</td>
<td>7812</td>
<td>7487</td>
<td>7764</td>
<td>8055</td>
<td>8340</td>
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### Existing Supply Side Resources

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
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</thead>
<tbody>
<tr>
<td>Conventional Generation</td>
<td>5743</td>
<td>5735</td>
<td>5724</td>
<td>5727</td>
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<tr>
<td>Renewable Generation(^2)</td>
<td>277</td>
<td>277</td>
<td>279</td>
<td>279</td>
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<td>279</td>
</tr>
<tr>
<td>Conventional Purchases</td>
<td>1663</td>
<td>1162</td>
<td>607</td>
<td>532</td>
<td>532</td>
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<tr>
<td>Renewable Purchases</td>
<td>196</td>
<td>194</td>
<td>194</td>
<td>194</td>
<td>144</td>
<td>144</td>
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<tr>
<td>Total Existing Resources</td>
<td>7879</td>
<td>7368</td>
<td>6804</td>
<td>6732</td>
<td>6682</td>
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</table>

### New Supply Side Resources (Committed and Planned)

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
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<th>FY15</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Future Short Term Purchases</td>
<td>95</td>
<td>154</td>
<td>159</td>
<td>267</td>
<td>552</td>
<td>664</td>
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<tr>
<td>Future Peaking/Intermediate Resources</td>
<td>0</td>
<td>512</td>
<td>512</td>
<td>512</td>
<td>512</td>
<td>694</td>
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<tr>
<td>Future Renewable Resources(^2)</td>
<td>2</td>
<td>38</td>
<td>88</td>
<td>278</td>
<td>328</td>
<td>328</td>
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<tr>
<td>Total Supply Side Resource Additions</td>
<td>97</td>
<td>704</td>
<td>759</td>
<td>1057</td>
<td>1392</td>
<td>1686</td>
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### Total Supply Side Resources

<table>
<thead>
<tr>
<th></th>
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<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td>7976</td>
<td>8072</td>
<td>7563</td>
<td>7789</td>
<td>8074</td>
<td>8368</td>
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</table>

### Reserve Summary

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Reserves (MW)</td>
<td>1005</td>
<td>1046</td>
<td>843</td>
<td>830</td>
<td>860</td>
<td>900</td>
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<tr>
<td>Planned Reserves (%)</td>
<td>16.8</td>
<td>16.0</td>
<td>13.2</td>
<td>12.4</td>
<td>12.3</td>
<td>12.4</td>
</tr>
</tbody>
</table>

\(^1\) Includes distributed generation.
**Terminology for SRP Load and Resource Forecast**

**IRP Retail Peak** – Projected peak demand for electricity of retail customers that does not take into account the impact of demand side resources that would reduce demand.

**Demand Side Resources** – Programs or price plans which incent behavior that results in a reduction of the expected peak demand for electricity of retail customers.

**Retail Peak** – Projected peak demand for electricity of retail customers that is reduced by the impact of demand side resources.

**Other Firm Loads and Sales** – Firm load and wholesale sales commitments that must be served in addition to retail load requirements.

**Reserves** – Targeted planning reserve margin of 12% to account for uncertainty in the load and resource forecast and ensure reliability.

**Existing Supply Side Resources** – Generation assets or purchased power agreements that are in place and providing capacity today.

**New Supply Side Resources** – Committed (agreements in place) or planned generation assets and purchased power agreements that are not yet online.

**Reserve Summary** – Reserves outcome that results from the load and resource forecast on a MW and % basis.