AW

# 2001

# Integrated

# Resource

# Plan

SCE&G®

A SCANA COMPANY

## Introduction

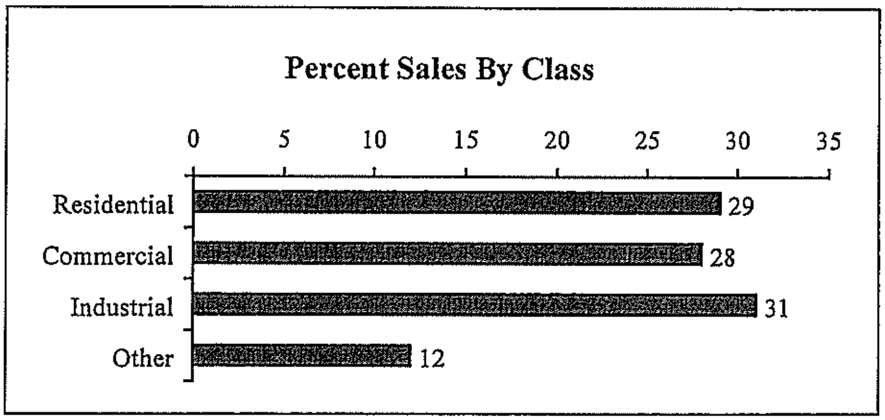
This document presents South Carolina Electric And Gas Company's (SCE&G) Integrated Resource Plan (IRP) for meeting the energy needs of its customers over the next fifteen years, 2001 through 2015. The Company's objective is to provide reliable and economically priced energy to its customers.

## The Load Forecast

Total energy sales on the SCE&G system are expected to grow at 2.0% per year over the next 15 years. The summer peak demand and winter peak demand will increase at 2.0% and 2.2% per year respectively over this forecast horizon. The table below contains the projected loads.

| | Summer Peak (MW) | Winter Peak (MW) | Energy Sales (GWH) |
|---|---|---|---|
| 2001 | 4,189 | 3,864 | 22,777 |
| 2002 | 4,344 | 4,004 | 23,466 |
| 2003 | 4,427 | 4,106 | 24,110 |
| 2004 | 4,515 | 4,187 | 24,550 |
| 2005 | 4,612 | 4,283 | 25,081 |
| 2006 | 4,711 | 4,381 | 25,602 |
| 2007 | 4,796 | 4,468 | 26,046 |
| 2008 | 4,876 | 4,546 | 26,488 |
| 2009 | 4,961 | 4,626 | 26,922 |
| 2010 | 5,050 | 4,714 | 27,393 |
| 2011 | 5,122 | 4,785 | 27,798 |
| 2012 | 5,195 | 4,869 | 28,208 |
| 2013 | 5,292 | 4,972 | 28,760 |
| 2014 | 5,399 | 5,085 | 29,403 |
| 2015 | 5,510 | 5,205 | 30,044 |

The energy sales forecast for SCE&G is made for over 30 individual categories. The categories are subgroups of our seven classes of customers. The three primary customer classes: residential, commercial and industrial, comprise about 90% of our sales. The bar chart shows the relative contribution to territorial sales of each class. The other classes are street lighting, other public authorities, municipalities and cooperatives. Sales projections to each group are based on statistical and econometric models derived from historical relationships.




The forecast of summer peak demand is developed using a load factor methodology. Load factors for each class of customer are associated with the corresponding forecasted energy to project a contribution to summer peak. The winter peak demand is projected through its correlation with annual energy sales with appropriate adjustments for winter temperature departures from normal. By industry convention, the winter period is assumed to follow the summer period.

**Demand-Side Management**

There are two primary demand-side management programs at SCE&G: the standby generator program and the interruptible service program. The Company relies on these programs to help maintain the reliability of its electrical system. There are 282 megawatts of capacity made available to the system through these programs. The table below shows the peak demand on the system with and without these programs. The firm peak demand is the load level that results when the DSM is used to lower the system peak demand.

| | System Peak (MW) | DSM Impact (MW) | Firm Peak (MW) |
|---|---|---|---|
| 2001 | 4,471 | 282 | 4,189 |
| 2002 | 4,626 | 282 | 4,344 |
| 2003 | 4,709 | 282 | 4,427 |
| 2004 | 4,797 | 282 | 4,515 |
| 2005 | 4,894 | 282 | 4,612 |
| 2006 | 4,993 | 282 | 4,711 |
| 2007 | 5,078 | 282 | 4,796 |
| 2008 | 5,158 | 282 | 4,876 |
| 2009 | 5,243 | 282 | 4,961 |
| 2010 | 5,332 | 282 | 5,050 |
| 2011 | 5,404 | 282 | 5,122 |
| 2012 | 5,477 | 282 | 5,195 |
| 2013 | 5,574 | 282 | 5,292 |
| 2014 | 5,681 | 282 | 5,399 |
| 2015 | 5,792 | 282 | 5,510 |

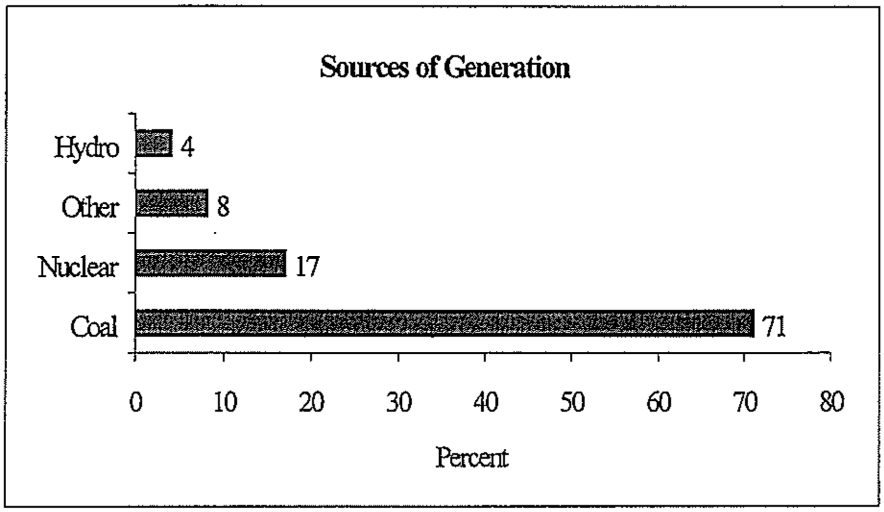
The programs mentioned above are directed toward load management. The Company is also committed to energy conservation and the wise use of electricity. We offer conservation rates and time of use rates to allow customers the opportunity to save on their electric bill. Additionally all our rates are designed to provide correct price signals and thereby encourage our customers to use energy wisely especially during the peak season. The Company has other programs for customers that provide education and services to foster the wise use of energy.

**Existing Supply Capacity**

The following table shows the generating capacity that will be available to SCE&G in 2001.

| 2001 Planning Capacity | | |
|---|---|---|
| | In-Service Date | Summer (MW) |
| **Coal-Fired Steam:** | | |
| Urquhart – Beech Island, SC | 1953 | 236 |
| McMeekin – Near Irmo, SC | 1958 | 250 |
| Canadys - Canadys, SC | 1962 | 396 |
| Wateree – Eastover, SC | 1970 | 700 |
| Williams – Goose Creek, SC | 1973 | 615 |
| D-Area – USDOE Savannah River Site | 1995 | 35 |
| Cope - Cope, SC | 1996 | 422 |
| Cogen South – Charleston, SC | 1999 | 91 |
| Total Coal-Fired Steam Capacity | | 2,745 |
| **Nuclear:** | | |
| V. C. Summer - Parr, SC | 1984 | 644 |
| **I. C. Turbines:** | | |
| **Burton, SC** | 1961 | 29 |
| Faber Place – Charleston, SC | 1961 | 10 |
| Hardeeville, SC | 1968 | 14 |
| Urquhart – Beech Island, SC | 1969 | 38 |
| Coit – Columbia, SC | 1969 | 30 |
| Parr, SC | 1970 | 60 |
| Williams – Goose Creek, SC | 1972 | 49 |
| Hagood – Charleston, SC | 1991 | 92 |
| Urquhart No. 4 – Beech Island, SC | 1999 | 48 |
| Total I. C. Turbines Capacity | | 370 |
| **Hydro:** | | |
| **Neal Shoals – Carlisle, SC** | 1905 | 5 |
| Parr Shoals – Parr, SC | 1914 | 14 |
| Stevens Creek - Near Martinez, GA | 1914 | 9 |
| Columbia Canal - Columbia, SC | 1927 | 10 |
| Saluda - Near Irmo, SC | 1930 | 206 |
| Fairfield Pumped Storage - Parr, SC | 1978 | 560 |
| Total Hydro Capacity | | 804 |
| Other: Long-Term Purchases | | 25 |
| Grand Total: | | 4,588 |

The bar chart shows the 2000 generation by fuel source. SCE&G generates the overwhelming amount of its energy from coal and nuclear fuel. This will not change during the forecast horizon.




**Supply Reserve Margin**

The Company provides for the reliability of its electric service by maintaining an adequate reserve margin of supply capacity. The appropriate level of reserve capacity for SCE&G is in the range of 12 to 18 percent of its firm peak demand. The table to the right shows the three components that comprise this margin, i.e. operating reserves, supply reserves and demand reserves as well as a range of appropriate values. These components are discussed below.

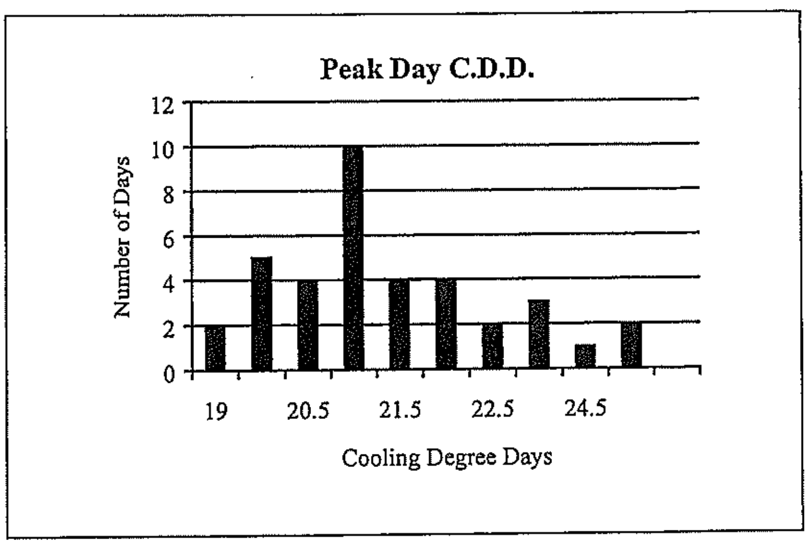
| Component | Megawatts |
|---|---|
| Operating Reserves | 199 |
| Supply Reserves | 200-425 |
| Demand Reserves | 100-150 |
| Total Reserve Margin | 499-774 |
| Reserve Margin (%) | 12 -18 |

The level of operating reserves required by the SCE&G system is dictated by operating agreements with other VACAR companies. VACAR has set the region's reserve needs at 150% of the largest unit in the region. SCE&G's prorata share of this capacity is 199 megawatts.

Supply reserves are needed to balance the risk that some capacity may be forced out on any particular day because of mechanical failures, wet coal problems or environmental limitations. The amount of capacity forced-out or down-rated will vary from day to day. The table to the right shows the distribution of capacity unexpectedly forced out on each summer day of the last three years. SCE&G has traditionally set the supply component of its reserve margin at 200 megawatts to address this loss of capacity. This equates to the 50th percentile in the distribution of daily summer capacity forced out (206 MWs out) which means it would be sufficient to replace the capacity forced out on 50% of the summer days. A higher level for the supply reserves such as 425 megawatts would cover about 85% of the time. This level has the added advantage of being sufficient to replace the outage of any of our generating units except the two largest: Summer Station and Williams Station.

| Summer Capacity Forced Out | |
|---|---|
| Percentile | MWs Out |
| 90th | 495 |
| 75th | 319 |
| Median | 206 |
| 25th | 112 |
| 10th | 58 |

The last component of reserve margin is the demand reserve. This is needed to cover unexpected increases in load above our peak demand forecast. This can be the result of a hotter than normal summer or forecast error. Through statistical analysis SCE&G has estimated that its peak load will increase above forecast about 25 to 30 megawatts per cooling degree-day above normal. A cooling degree-day (CDD) is the positive difference between the average daily temperature and 65 degrees. The bar chart shows the distribution of CDD on the peak days from the past 36 years. The average or normal CDD is 21, which is equivalent to an average daily temperature of 86 degrees. Based on this chart a very hot summer, one that may occur every 10 years or so, will have 3 to 3.5 CDDs above normal which will result in a 75 to 105 megawatt increase in



summer peak load. SCE&G has added a 100 megawatts to the reserve margin to cover this weather contingency. To address the forecast error, we add another 50 megawatts to the demand reserve for a total of 150. Thus a reasonable range for the demand reserves is 100 to 150 megawatts.

By maintaining a reserve margin in the 12% – 18% range as shown in the table, the Company addresses the uncertainties related to load and to the availability of generation on its system as well as provides its share of support for the VACAR transmission grid. SCE&G will monitor its reserve margin policy in light of the changing power markets and its system needs and will make changes to the policy as warranted.

**Projected Loads And Resources**

The table on the following page shows SCE&G's projected loads and resources for the next 15 years. Known capacity additions include: the Urquhart Re-powering project in 2002, the uprate at Fairfield Pumped Storage Facility in 2003 and 2004 and a combined cycle plant in 2004. The Company's total firm load obligation includes a firm contract sale for the years 2004 through 2012. The Company believes that this supply plan will be as benign to the environment as possible because of its reliance on efficient, gas fired generation and that it will keep the cost of energy service competitive since the generating units being added are competitive with other units being added in the market.

## SCE&G Forecast of Summer Loads and Resources

| YEAR | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Load Forecast** | | | | | | | | | | | | | | | |
| 1 Gross Territorial Peak | 4471 | 4626 | 4709 | 4797 | 4894 | 4993 | 5078 | 5158 | 5243 | 5332 | 5404 | 5477 | 5574 | 5681 | 5792 |
| 2 Less: DSM | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 |
| 3 Net Territorial Peak | 4189 | 4344 | 4427 | 4515 | 4612 | 4711 | 4796 | 4876 | 4961 | 5050 | 5122 | 5195 | 5292 | 5399 | 5510 |
| 4 Firm Contract Sales | | | | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | | | |
| 5 Total Firm Obligation | 4189 | 4344 | 4427 | 4765 | 4862 | 4961 | 5046 | 5126 | 5211 | 5300 | 5372 | 5445 | 5292 | 5399 | 5510 |
| **System Capacity** | | | | | | | | | | | | | | | |
| 6 Existing | 4588 | 4588 | 4938 | 4962 | 5861 | 5861 | 5861 | 5861 | 5861 | 6011 | 6161 | 6161 | 6161 | 6161 | 6161 |
| Additions | | | | | | | | | | | | | | | |
| 7 Urquhart Re-Powering | | 350 | | | | | | | | | | | | | |
| 8 Fairfield P.S. | | | 24 | 24 | | | | | | | | | | | |
| 9 Combined Cycle CT | | | | 875 | | | | | | | | | | | |
| 10 Undecided | | | | | | | | | 150 | 150 | | | | | 150 |
| 11 Total System Capacity | 4588 | 4938 | 4962 | 5861 | 5861 | 5861 | 5861 | 5861 | 6011 | 6161 | 6161 | 6161 | 6161 | 6161 | 6311 |
| 12 Firm Annual Purchase | 100 | | 100 | | | | | | | | | | | | |
| 13 Total Production Capability | 4688 | 4938 | 5062 | 5861 | 5861 | 5861 | 5861 | 5861 | 6011 | 6161 | 6161 | 6161 | 6161 | 6161 | 6311 |
| **Reserves With DSM Impact** | | | | | | | | | | | | | | | |
| 14 Margin | 499 | 594 | 635 | 1096 | 999 | 900 | 815 | 735 | 800 | 861 | 789 | 716 | 869 | 762 | 801 |
| 15 % Reserve Margin | 11.9% | 13.7% | 14.3% | 23.0% | 20.5% | 18.1% | 16.2% | 14.3% | 15.4% | 16.2% | 14.7% | 13.1% | 16.4% | 14.1% | 14.5% |
| 16 % Capacity Margin | 10.6% | 12.0% | 12.5% | 18.7% | 17.0% | 15.4% | 13.9% | 12.5% | 13.3% | 14.0% | 12.8% | 11.6% | 14.1% | 12.4% | 12.7% |
| **Reserves Without DSM Impact** | | | | | | | | | | | | | | | |
| 17 Margin | 217 | 312 | 353 | 814 | 717 | 618 | 533 | 453 | 518 | 579 | 507 | 434 | 587 | 480 | 519 |
| 18 % Reserve Margin | 4.9% | 6.7% | 7.5% | 16.1% | 13.9% | 11.8% | 10.0% | 8.4% | 9.4% | 10.4% | 9.0% | 7.6% | 10.5% | 8.4% | 9.0% |
| 19 % Capacity Margin | 4.6% | 6.3% | 7.0% | 13.9% | 12.2% | 10.5% | 9.1% | 7.7% | 8.6% | 9.4% | 8.2% | 7.0% | 9.5% | 7.8% | 8.2% |