Coal-Based Electricity Generation: Affordable, Essential, Reliable and Increasingly Clean

March 2001
Coal-Based Generators are Critical to Our Nation’s Economy

<table>
<thead>
<tr>
<th>Industry</th>
<th>Annual Revenues</th>
<th>Direct Employment</th>
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<tbody>
<tr>
<td>Shareholder-Owned Utilities*</td>
<td>$16.1 billion</td>
<td>400,000</td>
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<tr>
<td>Electric Cooperatives*</td>
<td>$19 billion</td>
<td>59,200</td>
</tr>
<tr>
<td>Public Power Entities*</td>
<td>$33 billion</td>
<td>100,000 (est.)</td>
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<tr>
<td>Coal Producers</td>
<td>$19 billion</td>
<td>120,000</td>
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<tr>
<td>Railroads</td>
<td>$36 billion</td>
<td>265,000</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$271 billion</strong></td>
<td><strong>944,200</strong></td>
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*These figures are reflective of the entire electric utility industry, including coal-based generators and others.
Electricity Growth and Economic Growth are Closely Linked

The U.S. economy is highly dependent on affordable and reliable electricity. Since 1970, electricity growth has closely tracked the rise in GDP, while overall energy use has grown more slowly.
Electricity Demand is Growing

To meet increased demand and to offset retirements of existing power plants, DOE forecasts that 1,310 new power plants will be needed by 2020, with a total of 393,000 megawatts of capacity.

As recent events in California and western markets illustrate, America needs to construct new electricity generation utilizing all of the nation's diverse energy resources, including coal-based electric generating facilities.
Coal is a Reliable Energy Source

Coal is a secure domestic energy source that is not subject to unreliable weather or climate conditions, price volatility or a dependence on foreign suppliers.

The coal industry also has a fully developed distribution infrastructure, offering predictability and reliability of supply.
Coal-Based Generation is also Increasingly Clean

Since 1970, coal-based electric generation has increased 234% and coal use in power plants has increased 270%, yet emissions from coal-based power plants have steadily declined - and dramatically so for sulfur dioxide (SO₂) emissions.
Coal Supplies over 50% of Our Nation's Electricity Today

A diverse fuel mix protects against contingencies such as fuel unavailability, price volatility and changes in regulatory practices.

Current Generation Mix

- Coal: 51%
- Gas: 16%
- Nuclear: 20%
- Hydro/Other Renewables: 11%
- Fuel Oil: 3%

*Note: Values exceed 100% due to rounding.
Sources: Form EIA-860 and Form EIA-861.
Coal is Abundant and Affordable

Total U.S. coal resources are estimated to last over 250 years based on current consumption rates.

Coal-based electricity generation is a low-cost energy source. In fact, 23 of the 25 lowest operating-cost electric generation plants in the U.S. today are fueled by coal.
Coal Faces Many Regulatory Challenges

2001

SIP emit compliance (NOx)

2005

Sec 126 compliance (NOx)

Regional Haze BART (SO2 Scrubber/NOx SCR on every unit)

8-hour ozone attainment (NOx)

POSSIBLE
8-hour ozone
Sec. 126 Petitions

2010

Revised 8-hour ozone attainment (60% NOx Reduction)*

POSSIBLE
NOx TMDLs

POSSIBLE
PM2.5 Sec. 126 Petitions

Mercury compliance (75% to 95% Reduction)

POSSIBLE
Secondary 8-hour NAAQS

2015

POSSIBLE
Secondary PM2.5 NAAQS

POSSIBLE
PM2.5 attainment (60% SO2 and NOx Reduction)

POSSIBLE
Hg TMDLs

*Assumes 8-hour ozone standard revised because of Supreme Court challenge.

Obtained and made public by the Natural Resources Defense Council, March/April 2002
Recommendations

Recognize Coal's Role in a National Energy Policy

To preserve coal-based generation, our National Energy Policy should:

- Maximize the diversity of fuels and technology options available for the generation of electricity;
- Provide appropriate incentives for energy generation, distribution and transportation; and
- Develop and commercialize clean coal technologies and provide adequate funding for coal R&D (S. 60 - National Electricity and Environmental Technology Act).
Recommendations

Adopt Balanced Environmental Policies

Congress and the Administration should adopt balanced environmental policies. Such policies should:

- Rely on sound science and demonstrable public health benefits;
- Consider fuel costs, and security and reliability of electric supplies;
- Establish practical compliance schedules;
- Provide reasonable certainty for investments in environmental controls and new generating facilities; and
- Give states appropriate flexibility in implementing these policies as contemplated by the Clean Air Act.
Recommendations

Adopt Balanced Environmental Policies

Specific policy initiatives should:

Reform the New Source Review program to permit routine maintenance and protect reliability;

Provide states with more time to implement the NOx rules and harmonize the compliance deadlines;

Review the science and health justification underlying EPA’s potential mercury rulemaking;

Give states greater flexibility in implementing the regional haze program; and

Support programs for voluntary reductions of greenhouse gas emissions and technology solutions, and oppose ratification of the Kyoto Protocol or other international treaties that harm the U.S. economy and lack binding commitments from all nations.
Change in Coal-Based Electricity Generation, Coal Consumption, and Emissions since 1970

Source: EPA 1986 and EIA 2000

Obtained and made public by the Natural Resources Defense Council, March/April 2002
The Outlook for Coal

A number of pending or proposed environmental regulatory initiatives could further restrict coal-based generation and raise our nation’s electricity prices.

These regulatory challenges are significant and can be duplicative, contradictory, complex and unnecessarily costly, and create enormous uncertainty.

Despite the importance of coal to our energy security and electricity reliability, federal government funding and support for research and development of clean coal technologies have been inadequate.
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Tradable Tax Credits for Renewable Energy or Environmentally Sound Energy Technologies—Providing Comparable Incentives to Consumer-owned Electric Utilities

In light of ongoing energy supply shortages and environmental challenges throughout the nation, Congress and the Administration are reviewing legislative options to promote the production of domestic, low-cost, efficient and clean energy supplies. Tax and investment credits made available to investor-owned utilities and privately-owned energy production companies do not create incentives for publicly-owned or rural cooperative electric utilities. Publicly-owned and rural cooperative electric utilities operate on a non-profit basis and therefore do not have federal income tax liability against which to apply credits. In order to provide consumer-owned electric utilities with useful tax incentives comparable to those available to private sector market participants, public power and rural cooperative entities must be permitted to sell the tax credits to private entities that can utilize them. The proceeds from the tax credit sales provide the incentive for consumer-owned utility investment in renewable and clean energy production.

Benefits of Providing Tradable Tax Credits

As the electricity market opens to competition, the market rewards efficient energy production. Because renewable energy sources and environmentally clean, advanced technologies usually are more expensive to operate than traditional alternatives, the federal government needs to provide investment incentives to encourage utilities to build these facilities. The rewards are cleaner and renewable resources, energy security and independence, and energy diversity. Combined, publicly-owned and rural cooperative electric utilities represent almost 5000 entities and 25 percent of the nation's electricity load. To offer incentives that are not usable by this significant segment of the market represents a lost opportunity to employ the existing capacity of players able to deploy their expertise and resources. Without the incentives, consumer-owned utilities may not be able to afford to make these investments. With comparable incentives to investor-owned utilities, Congress and the Administration can expect greater investment from consumer-owned utilities.

Nature of a Tradable Tax Credit Program

A consumer-owned electric utility would build an energy facility and would be authorized to receive a federal tax credit that would be comparable in amount to that made available to its private counterpart. The utility would be permitted under the Internal Revenue Code to sell, transfer, assign or otherwise dispose of the credits directly or indirectly to any taxpayer. For a non-profit entity, neither the credits nor the proceeds derived from their disposition would result in federal taxable income. Taxpayers receiving the credits will not have their alternative minimum income taxes increased as a result of their use. Projects receiving renewable energy production incentive program funds or other federal grants would not be eligible for refundable tax credits.

It is anticipated that consumer-owned utilities will net a smaller amount from the credits than their private counterparts. Investor-owned utilities will be able to use the full amount of the credits assuming they have sufficient tax liability. Consumer-owned utilities will have to offer them at a discount to encourage their purchase by taxpayers and will have to incur transaction costs to effect the disposition.
ELECTRICITY MARKET ISSUES

- Dysfunctional wholesale electricity markets are increasing prices, undermining reliability and threatening some regional economies. Necessary improvements are needed that:
  - Create truly independent Regional Transmission Organizations (RTOs).
  - Allow for federal siting authority to encourage construction of new transmission facilities where needed.
  - Provide the necessary authority and support for rigorous Federal Energy Regulatory Commission (FERC) oversight of the wholesale market to prevent market abuses.
  - Assure FERC approval of market rates for wholesale sales only in markets that can be defined as competitive, requiring only cost-based rates in those that are not.
  - PUHCA should only be repealed if new consumer protections are established in its place.
  - Create a self-regulating reliability organization overseen and backstopped by FERC.

ENVIRONMENTAL ISSUES

- Environmental and energy policy should achieve both environmental quality and energy supply goals by, among other things, ensuring a diversified fuel mix. Initiatives should promote the cleaner use of coal, maintain and where possible increase, supplies of natural gas, nuclear, hydro, wind, biomass, landfill gas, solar and other alternative resources.

- APPA supports an integrated approach to controlling health-based pollutants and voluntary actions to reduce greenhouse gases. Since carbon is not a health-based pollutant and no control technology exists to control its emissions, carbon should be managed through flexible and aggressive initiatives such as increasing efficiencies, promoting conservation and pursuing emissions free power generation provided by hydropower and other renewables such as wind, solar and landfill gas to energy projects.

TAX ISSUES

- Existing tax policy is not in balance with the evolving electricity markets. Legislation is needed to address municipal financing concerns and related private use restrictions. The Electric Power Industry Tax Modernization Act from the 106th Congress is the proper solution. Similar legislation will soon be reintroduced.

- Tradable tax credits should be provided to publicly-owned utilities and cooperatives as a comparable incentive when tax credits are provided to investor-owned utilities. These credits can then be traded or transferred to any tax paying entity (such as a generation equipment manufacturer) in return for some value.
American Public Power Association

Executive Committee Briefings
Priority Energy, Electricity, Tax and Air Quality Issues
March 20&21, 2001

The American Public Power Association (APPA) is the national service organization representing publicly-owned, community, state and locally-operated not-for-profit electric utilities in every state except Hawaii. There are more than 2000 public power systems providing the electric power needs of about 40 million consumers, or almost 15 percent of all electricity consumers in the U.S. Some of the largest cities with public power systems are Los Angeles, Phoenix, San Antonio, Sacramento, Memphis, Seattle, Jacksonville, Austin, Nashville and Omaha. Public power systems also serve some of the nation's smallest communities. In fact, 75 percent of our members are located in cities with populations of 10,000 people or less. More than 1,200 public power systems serve 3,000 or fewer customers.

ENERGY SUPPLY ISSUES

• APPA supports the development of national energy policy legislation and advocates actions to increase overall production of electricity, enhance the energy and environmental viability of traditional fuels used to generate electricity, promote greater use of alternative sources of electricity, increase energy conservation and provide adequate energy assistance to low-income households.

• In particular, comprehensive energy policy should emphasize a diversified portfolio of fuels. This would entail:
  • Aggressive development and use of alternative energy resources.
  • Increased investment in clean coal technologies to allow continued and clean use of the nation's most abundant energy resource.
  • Reform of the hydro relicensing process combined with appropriate classification of hydro as a renewable.
  • Promotion of landfill gas to energy projects at existing sites. Landfill gas, which is about 50% methane and 50% carbon dioxide, could be captured and used by deploying existing technologies.

• National energy policy should promote policies to increase domestic supply by providing incentives on a comparable basis. For example, where investor owned electric utilities are given tax credits, tradable tax credits should be made available to publicly-owned electric utilities.
American Public Power Association
The National Organization for Community-owned Electric Utilities

Association Services
APPAs provides a wide variety of services to its members:

- Representation before Congress, federal agencies, and the courts;
- Educational programs and services in technical, management, and policy areas;
- Collection, analysis, and dissemination of information through a variety of periodicals, publications, and the Internet;
- Funding for member energy research and development projects;
- Recognition of utilities and individuals for excellence in management and operations, and commitment to public power;
- Hometown Connections, a subsidiary that provides a portfolio of competitively priced operational and retail products and services for local public power systems and communities.

In addition, APPA serves as a resource for state and local officials, news reporters, other organizations, and the general public on public power and utility service issues.

Public Policy Positions
APPAs policy positions are established through a democratic process with participation of all members. Public policy positions are developed to:

- Ensure reliable electricity service at competitive costs;
- Promote competition in the wholesale electricity marketplace;
- Protect the environment, and the health and safety of electricity consumers;
- Advance the consumer and community interest in energy policy and utility service debates.

The electric utility industry is going through a major restructuring. APPA advocates that a properly structured interstate wholesale electricity marketplace is the key to lowering consumer electricity costs, and that the federal government should play a strong role in ensuring the public interest in the flow of electricity along the interstate transmission system. At the same time, APPA believes federal policy should respect state and local decision-making on many energy policy matters.
APPAN Members
Most public power systems are owned by municipalities, with others owned by counties, public utility districts, and states. Regular APPA membership (with voting and committee privileges) is open to public power systems, joint action agencies (state and regional consortia of public power systems), rural electric cooperatives, Canadian municipal/provincial systems; public power systems within U.S. territories and possessions; and state, regional, and local associations in the U.S. and Canada that have purposes similar to APPA.

APPAN also encourages and accepts associate memberships from entities and individuals that have an interest in doing business with public power systems, and from cities and towns interested in the possibility of establishing public power systems.

Public Power Facts
Public power systems represent and serve America's diversity:

- Approximately one in seven Americans (40 million people) receives electricity from a public power system.
- There are more than 2,000 public power systems in the U.S. They are in every state but Hawaii.
- Some of the largest cities with public power systems are Los Angeles, Phoenix, San Antonio, Sacramento, Memphis, Seattle, Jacksonville, Austin, Nashville, and Omaha.
- Public power systems also serve some of the nation's smallest towns. More than 1,200 public power systems serve 3,000 or fewer customers.
- More than two-thirds of public power systems are distribution-only utilities, purchasing power at wholesale for resale.
- Public power systems are governed democratically through the local government structure. Most—especially the smaller ones—are governed by a city council, while others are governed by an independently elected or appointed board.
- Public power is an American tradition that works. By the end of the year 2005, about 500 public power systems will have celebrated their centennials.
- Public power's not-for-profit, hometown attributes hold down electric rates. According to U.S. Department of Energy statistics, private power company residential customers pay average electricity rates that are about 18% more than those paid by public power customers. Private power commercial customers pay average electricity rates that are about 9% more than those paid by public power customers. Public and private power industrial rates are about the same. Studies show that public power's low rates are due primarily to its not-for-profit status, and operating and managerial efficiencies.

Public Power Locations

There are more than 2,000 public power systems
Public Power:
An American Tradition that Works

More than 2,000 communities across the country have chosen to provide for their own electricity services. They have created public power systems — not-for-profit electric utilities that are owned by the communities and governed democratically. Public power provides for the electric power needs of about 40 million Americans — or almost 15 percent of electricity consumers.

Every public power system is different due to its community's population, geography and climate, natural resources, economic and social resources and challenges, and local government structure and goals. However, all public power systems have in common their purpose: to provide adequate, reliable, not-for-profit electricity at a reasonable price with proper protection of the environment.

Public Power is Hometown Power

Public power systems are operated primarily by municipalities, as well as by counties, public utility districts, or other public bodies. A number of states also operate public power systems.

Public power systems are rooted in the American tradition of local people providing for their basic community needs. Public power systems provide a public service — electricity — at a reasonable price. Most public power systems — especially the smaller ones — are governed by a city council, while others are governed by an independently elected or appointed board. Community ownership and governance provide wide latitude to make local decisions that best suit local needs and values, as well as changing market conditions.

Citizens have a direct voice in utility decisions and policies about electric rates and services, generating fuels, clean air and water, and other issues that affect them through public meetings, the ballot box, and open policy board meetings.
Other Kinds of Electric Utilities

About 240 privately owned electric companies have franchise agreements to serve 74 percent of all consumers in the United States. The private power companies are generally large and an ever increasing number are controlled by holding companies with interests in more than one state or even by overseas investors. While frequently referred to as "public" utilities, and often using the word "public" in their corporate names, these investor-owned companies are not owned by the public. They are owned by stockholders.

About 900 rural electric cooperatives serve the remaining 11 percent of electricity consumers. They are private, member-owned, and primarily non-for profit.

"Customers First" is Public Power's Only Purpose

Public power's first and only purpose is to provide excellent, efficient service to its citizens. Unlike private power companies, public power utilities do not have to serve stockholders as well as customers. Public power systems' measure of success is how much money they can keep within their communities through low rates and contributions to the city budget, not how much can be taken out to send to distant stockholders who are not part of the community.

Hometown Power Holds Down Costs For All Customers

Electricity prices drive local economies. Lower prices help residential customers better manage household budgets. They also allow commercial and industrial customers to grow and thrive, contributing to the overall prosperity of communities and the nation.

Public power has a proven track record of providing customers with lower-cost electric rates than private power companies on a national average. According to information reported to the U.S. Department of Energy:

- Private power company residential customers pay average electricity rates that are about 18% more than those paid by public power customers;
- Private power company commercial customers pay average electricity rates that are about 9% more than those paid by public power customers;
- There are only small differences in average rates paid by industrial customers of public and private power companies.

The rate differential is due primarily to public power's not-for-profit status, and efficient management and operations.

Public Power Means Partnership

Public power systems work in partnership with their citizens and communities. Through the public decision making process, they create policies and services that are responsive to and can anticipate citizen needs.

Hometown electric utilities are an integral part of their communities, with skilled managerial and engineering staffs. They are often called upon to find innovative solutions to community needs, working with other city and community institutions. They have become leaders in supplying an array of infrastructure services that are related to the provision of electricity and other essential public needs, such as telecommunications services.
Public power systems also work in partnership with each other through more than 60 joint action agencies. These organizations are consortia of public power systems that own or purchase power supplies, or take part in other activities in which they can obtain economies of scale through their partnership.

In addition, public power systems can obtain economies of scale through the American Public Power Association's Hometown Connections subsidiary that provides a portfolio of competitively priced operational and retail products and services.

Public Power Boosts Local Economies

Public power's low electric rates are a magnet for community economic development. So is its ability as a local government arm to provide streamlined "one-stop shop" customer services that encourage existing business customers to maintain and expand their operations, and attract new businesses. Strong, stable employers mean strong, stable jobs for local citizens. Low electric rates also hold down consumer costs, stimulating the local economy.

While public power utilities are "not-for-profit" organizations, they make major economic contributions to their communities. Public power systems, on average, return to state and local governments in-lieu-of tax payments and other contributions that are equivalent to state and local taxes paid by private power companies.

Municipal Bonds Keep the Lights On

As not-for-profit state and local government entities, public power systems have a right to issue tax-exempt bonds for various infrastructure needs. These bonds carry a lower interest rate than taxable bonds, which helps hold down the cost of developing and maintaining a wide range of essential public services.

Public Power Thrives in the New Marketplace

Public power's hometown advantages—low rates, commitment to local communities, not-for-profit operations, public accountability, local decision making, and a customer service ethic—have become readily apparent as the electric utility industry restructures. Public power has remained true to its fundamental obligation to its citizen-customers—the obligation to serve.

Restructuring failures in some parts of the country have enhanced the benefits of hometown power and made it an even more attractive option, both for those consumers it currently serves as well as for many whose private power companies have not kept promises made about competition, service, and rates.

Many communities across the country are now exploring the possibility of taking control of their energy futures by creating municipal utilities.

Public power is an American tradition that works for local communities and consumers across the country. It will continue to work well throughout this new century.

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Public Power Facts

- Public power systems provide electricity to about 40 million consumers — about one in seven Americans.
- There are more than 2,000 public power systems in the U.S. They are in every state except Hawaii.
- About two-thirds of public power systems do not generate their own electricity. Instead, they buy it on the wholesale market for distribution to their customers.
- Public power utilities, on average, return to state and local governments in-lieu-of-tax payments and other contributions that are equivalent to state and local taxes paid by private power companies.

On a national average, private power company commercial customers pay about 9% more for electricity than public power customers, while public and private power industrial rates are about the same.

- The first municipal electric utility was established in 1882. By 1885, four of today's largest public power utilities — in Anaheim, Jacksonville, Tacoma, and Austin — were up and running. By the end of the year 2005, about 500 public power systems will have celebrated their centennials.

- Public power is a pro-competitive and pro-consumer institution that helps to protect all consumers — in public and private power communities — from private company price and efficiency abuses.
- Public power is a big city and a small town phenomenon, although more than 1,200 public power systems serve 3,000 or fewer customers. Some of the larger cities that operate their own electric utilities are Los Angeles, San Antonio, Seattle, Phoenix, Austin, Memphis, Orlando, Omaha, Jacksonville, and Sacramento.

- Public power systems are governed democratically through the local government structure. Most — especially the smaller ones — are governed by a city council, while others are governed by an independently elected board.

- Appa
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