Briefing Paper

Highlights of Public Utility Regulation in 2005

The National Regulatory Research Institute

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EXECUTIVE SUMMARY

Industry consolidation, increasing needs for infrastructure investment, price increases, technological change, and far-reaching new federal energy legislation were among the defining developments in public utility regulation in 2005. Besides markets and government, nature made its mark with unmistakable force. Hurricane Katrina, closely followed by her sister Rita, devastated New Orleans and surrounding areas of the Southeast, reminding regulators just how essential are electricity, natural gas, telecommunications, and water and wastewater treatment for life and commerce. State regulators were pressed to fulfill their traditional responsibilities, including a surprising upsurge in rate cases, as well as to examine their role in a policy area where the service is local but the economy is global. Numerous multi-state mergers called for regulators to weigh the potential for competition as well as dangers of possible corporate abuse. Infrastructure needs in the energy and water sectors loomed large in regulatory problem identification and decisions. Affordability of service was an issue across all utility sectors because of price rises in the energy sector, vast infrastructure needs in the water industry, and the fast-evolving structure of the telecommunications industry. Technological change was most evident in the telecommunications industry, which continues its wild ride into innovations that give consumers new choices for individual or packaged information, whatever the conduit and whether the content is voice, text, or video. The hurricane damage raised the alert level for natural disasters, already high for man-made threats to critical infrastructure.

This briefing paper is intended as a straightforward, bare-bones prequel to the Commissioners Only Summit, to be held Jan. 7-9, 2006 in San Antonio, Texas. NRRI researchers review some of the major highlights and trends in utility markets and their regulation to contribute to the background information commissioners will bring to the Summit. There the commissioners will identify and discuss major issues facing regulators in the coming 12 to 18 months. There are many ways the information could be organized; here we use utility sector—electricity, natural gas, telecommunications, and drinking water and wastewater. A brief summary concludes the paper.

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ELECTRICITY

The EPAct of 2005 was the most far-reaching development in electricity regulation this year.

The Energy Policy Act of 2005 (EPAct or the Act) signed by the President August 8 was the most far-reaching development in electricity markets and regulation this year. High gas prices were a strong influence on electricity market issues. The growing interdependency of electricity and gas markets means that electric generating facilities have becoming increasingly hostage to high natural gas prices. (Natural gas issues are discussed in detail in the next section of the briefing paper.)

The State of the Market

Market Structure

Thirty states are under traditional electricity market regulation, and 20 have full or partially restructured retail markets, a number that has remained stable since 2003. (See http://www.nrri.ohio-state.edu/Electric/map-of-electricity-restructuring/view.)

Prices in 2005

The number of mergers and acquisitions is expected to increase significantly in the wake of PUHCA repeal.

According to the Energy Information Administration (EIA), average retail prices for electricity rose approximately 5 percent to 7.95 cents per kilowatthour (kWh) for the first eight months of the year compared to the same period last year. Average use rose 3.1 percent over that same period, stimulated by an unusually hot summer. Along with Alaska and Hawaii, the New England region saw the steepest increases in prices (9.4 percent so far this year compared to last year), reflecting their higher reliance on natural gas as a fuel source.

Price Forecasts for 2006

EIA predicts that the price for electricity should rise to 8.0 cents/kWh in 2006. Of course, future prices are dependent on the volatile and rising prices for natural gas and oil. Prices for coal have been steadily gaining, rising 18.6 percent over the last two years. In the short term, however, EIA estimates that households heating with electricity can expect a 7 percent increase in winter heating costs, compared to 38 percent and 21 percent increases for homes heating with natural gas and oil, respectively.

Mergers

The number of mergers and acquisitions is expected to increase significantly in the wake of the repeal of the Public Utility Holding Company Act of 1935 (PUHCA), effective on Feb. 6, 2006. State and federal regulators can expect mergers among geographically distant companies and diverse activities within holding company structures. Most states have authority to approve and condition mergers but may lack authority or experience in reviewing the transactions.

Electricity-Natural Gas Interdependency

State commissions, especially in New England and other regions where natural gas is increasingly used in electric generating facilities, are concerned about the tighter interdependency between the electric and natural gas sectors. With natural gas burned in large quantities in the generation of electricity, there is apprehension over the impact on both energy sectors. Likely effects include higher prices for both electricity and natural gas and, perhaps, less reliable service in both sectors. Another concern is the predominance of non-firm pipeline

commercial transactions involving gas-fired electric generating facilities.

Resource Adequacy

State regulators as well as other policymakers are concerned that over the next several years new generation capacity will not keep pace with the growing demand for electricity. Regulatory barriers, financial constraints, and the inherent boom-and-bust cycle phenomenon of competitive commodity-like markets could all hamper investments in new generating capacity. In most markets "resource adequacy" is not problematic since prices equilibrate to balance supply and demand in addition to providing incentives for investments. But because the electric industry has distinct characteristics—namely, uncertainty over future market design, inactive demand-side responsiveness to price, and various market flaws in wholesale and retail markets—many analysts question whether the market on its own will guarantee adequate generation resources in the coming years. Several issues surround future capacity needs: (1) the amount of generation capacity that will be needed, (2) entities that will build this capacity, (3) location of new capacity, (4) financing, (5) market participants paying for new capacity, and (6) regulatory changes that may be needed at the state level to incent new investments.

Hurricane Recovery

Most of the damage caused by hurricanes to the bulk power system has been repaired. Gas and oil production from the Gulf is recovering more slowly, however.

Federal Legislation: EPAct of 2005

The passage of the EPAct marks a shift toward national and regional governance of the bulk power grids and wholesale trading markets. Among many important provisions, EPAct creates:

- An Electric Reliability Organization with authority to enforce mandatory reliability standards
- A federal "backstop" transmission siting authority at the Federal Energy Regulatory Commission (FERC)
- A requirement for states to evaluate five new Public Utility Regulatory Policy Act standards, including net metering, fuel diversity, and interconnection
- A guarantee for distribution utilities to use firm transmission rights to deliver energy to meet native load service obligations
- State-FERC joint boards to study security-constrained economic dispatch (FERC established four regional boards in October)

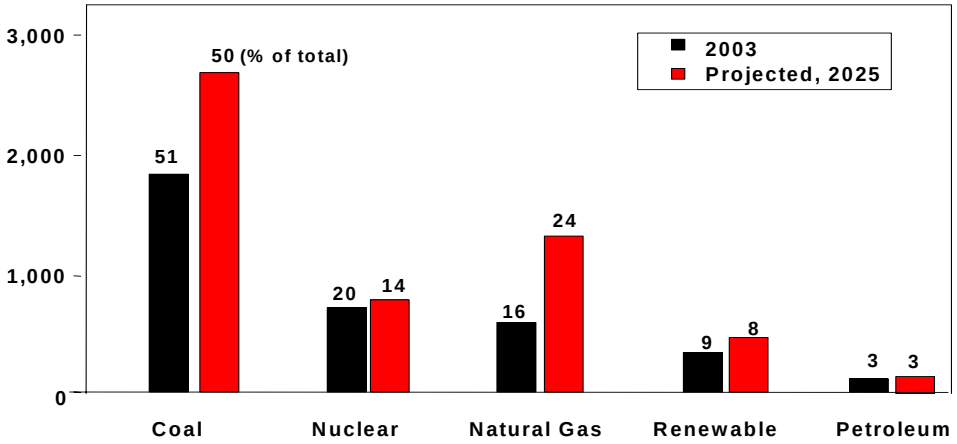
EPAct 2005 marks a shift towards national and regional governance of the bulk power grids and wholesale trading markets.

The State of Regulation

Emphasis on Fuel Diversity for Electric Generation

The issue of electric-natural gas interdependency is closely intertwined with the highly topical issue of fuel diversity, where specifically the debate is over how the United States can shift emphasis away from gas-fired electricity generation to other sources of fuel, including coal, nuclear and renewables. The tightening of the wholesale natural gas market over the last few years has heightened interest by a wide spectrum of stakeholders and policymakers in diversifying the future portfolio of electric generation technologies and fuels. Projections for the next 20 years call for a higher share of natural gas in electric generation (see Figure 1).

Policymakers are concerned that addition of generation capacity will not keep pace with demand.



Source: EIA, AEO2005.

Fig. 1. U.S. electricity generation by fuel, 2003 and 2025 (billion kWhs).

Wholesale Market Transparency

Under EPAct, FERC was given authority to prescribe wholesale market transparency rules, but is not required to do so. FERC issued a request for comments on wholesale and retail competition in October 2005.

New Rules on Qualifying Facilities

Following EPAct, utilities no longer have to purchase electricity at avoided cost from PURPA qualifying facilities (QFs, such as small renewable facilities). The removal of ownership restrictions on QFs will require monitoring to assure that purchase obligations originating from contract or statute are the products of competitive markets.

Rate Cases

In many states with restructured electricity markets price caps and rate freezes will be coming off in the near term, resulting in rate increases. Even regulated states will see an increase in rates because of purchased power adjustment clauses and fuel adjustment clauses. Most states have not dealt with rate cases since the early 1990s, so in light of turnover, commission staff may require training in rate cases.

The year was an active one for the filing of cases before commissions. Eighteen utilities have received return on equity (ROE) determinations as of the end of the third quarter, an increase from eleven at the same time the previous year, according to Regulatory Research Associates.

NERC predicts adequate fuel supply this winter and until 2009. After that, reliability is less certain.

Reliability

This Winter

The North American Electric Reliability Council (NERC) predicts that fuel supply should be adequate to meet demand this winter, but Florida, Texas, and the areas served by ISO-New England and the Western Electricity Coordinating Council face possible fuel and power shortages (see ftp://www.nerc.com/pub/sys/all_updl/docs/pubs/winter2005-06.pdf). New

England is especially susceptible given that a third of its generation comes from natural gas and depends heavily on pipelines from the Gulf region. If winter weather is extreme, natural gas may be diverted to home heating under firm supply contracts and could result in rolling blackouts.

NERC Forecast

NERC projects that generation capacity will be adequate to meet customer demands until 2009, but the reliability of the system beyond that date is less certain and more dependent on construction of new generation capacity and associated new transmission lines, along with the supply and cost of fuel (see Figure 2). However, markets will be operating with smaller margins: NERC forecasts a continued decline in average generation reserve margins from approximately 20 percent in 2004 to 9 percent in 2014 (see ftp://www.nerc.com/pub/sys/all_updl/docs/pubs/LTRA2005.pdf.).

Transmission Investment

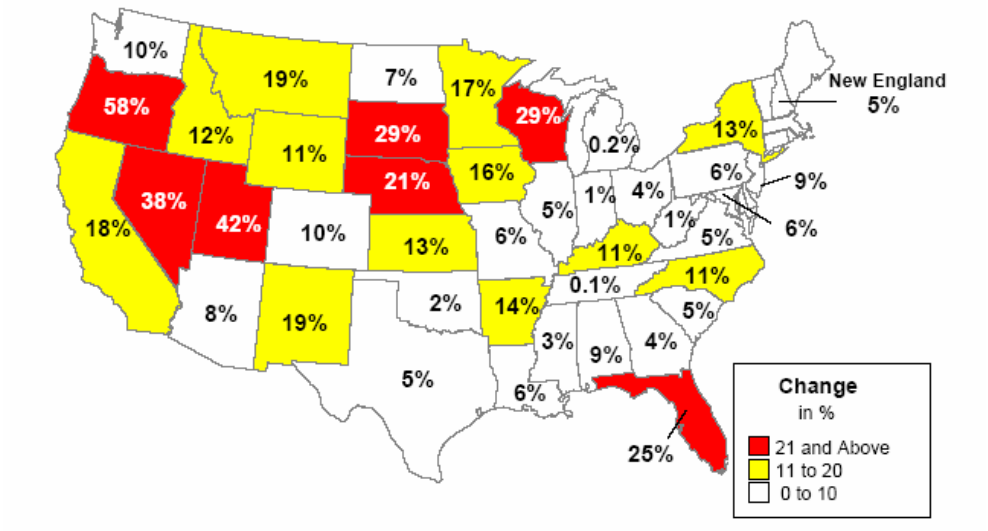
NERC regards the current transmission system as adequate for purposes of reliability. EPAct requires FERC to establish incentive-based rates in the coming year to attract new investment to transmission and reduce the cost of delivered power by reducing congestion.

Technologies

Integrated Gasification Combined Cycle

The last year has seen advances in the technology of electric generation. In September, AEP and GE announced plans to begin construction of the country's first commercial generation facility to turn coal into gas. Regulators can expect to see applications for such Integrated Gasification Combined Cycle (IGCC) plants in the coming years. Utilities are likely to seek higher rates for IGCC plants, but the plants offer a much more attractive emissions profile, comparable to natural gas. The gasification also allows for the

Technological advances have increased the probability of commercialization of IGCC; and it's just possible that a new generation of nuclear plants could be built.



Source: NERC, *2005 Long Term Reliability Assessment*, September 2005, Figure 6, p 16.

Fig. 2. Amount of planned new generation, 2005-2014, as a percentage of 2004 capacity.

separation out of CO_2, an important step towards carbon sequestration.

Nuclear Power

Rising costs of natural gas and coal will make nuclear power more cost-competitive. On top of this, growing concern about CO_2 and other emissions has brought more attention to nuclear energy from political leaders and some environmental groups. The passage of EPAct provides a 1.8 cent/kWh production tax credit, loan guarantees, and coverage for financial losses arising from litigation or licensing delays caused by the Nuclear Regulatory Commission. The EPAct provisions will lessen the risks of designing and constructing new nuclear plants. Several nuclear industry groups are pursuing new reactor designs. Siting is most likely to take place at existing nuclear plant locations that were previously licensed for multiple plants that ended up being cancelled. For example, the NuStart consortium has chosen Entergy's Grand Gulf (Mississippi) and TVA's Bellefonte (Alabama) nuclear plant sites for its application.

The average price of wholesale natural gas this year is the highest in history.

The effort to establish Yucca Mountain as the national permanent waste repository has slowed, and the project is unlikely to reach its targeted 2010 opening date. In November 2005, Congress cut funding for the project by $127 million, a reduction of 27 percent.

NATURAL GAS

As in recent years, in 2005 high natural gas prices have permeated both market and regulatory events. Most of the regulatory initiatives in 2005 revolved around high and volatile natural gas prices. This is expected to continue in 2006.

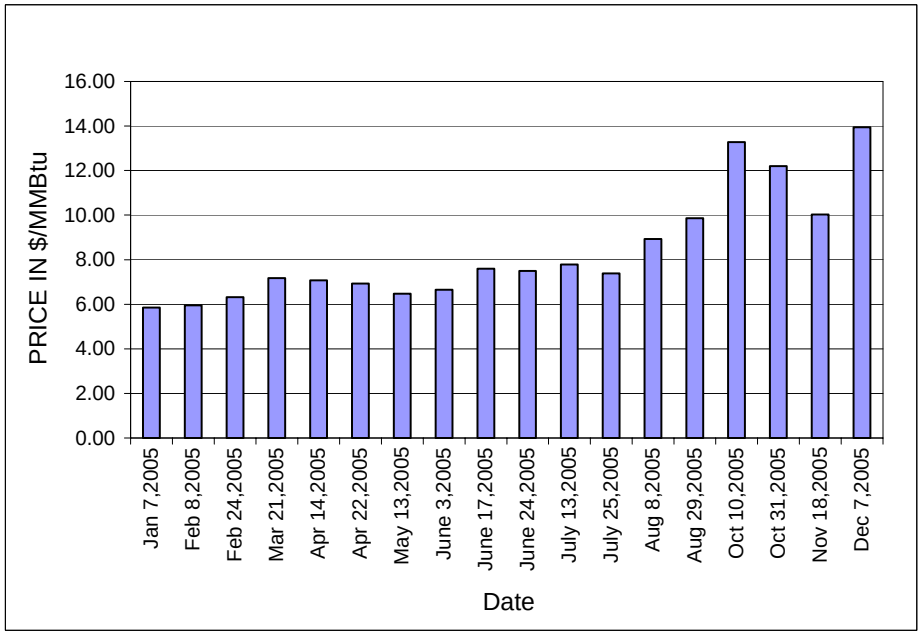
The State of the Market

Prices in 2005

This year the average price of wholesale natural gas will be the highest in U.S. history. The year began with the Henry Hub price below $6 per Mcf. Prices escalated at least through the beginning of October. The Henry Hub price soared to over $13 post-Katrina/Rita. (About 20 percent of the natural gas produced in this country comes from the Gulf area.) Even before the hurricanes, natural gas prices began rising because of hot weather in the late summer and high oil prices (see Figure 3). Contributing to the increase has been the lower than expected storage levels, caused in part by the hurricanes and the high use of natural gas in electric facilities. Prices sharply fell in early October from their peak levels after the hurricanes, but starting in late November rose again to high levels. Most analysts have projected shockingly high heating bills for this winter. In early December EIA projected that households heating with natural gas, on average across the country and under normal weather conditions, will see close to a 40 percent increase in their gas bills this winter compared with last winter.

Uncertainty over Future Prices

Anyone following the natural gas industry over the last several years readily knows the high uncertainty attached to projecting gas prices, even for only a month or so into the future. The tightness of the natural gas market has caused prices to be highly volatile and difficult to predict. But it has become more plausible, based on movements in gas prices over the last few months, to predict that we are entering a new era of gas prices ascending to yet another unprecedented plateau. Relief may await gas consumers in 2006, but in



Source: New York Mercantile Exchange, various reports.

Fig. 3. Henry Hub natural gas prices, 2005.

EIA projects the demand for natural gas will grow by 40 percent during 2005-2025, but that domestic gas supplies will increase by only 15 percent.

most likelihood it won't happen until after this upcoming winter heating season. For example, EIA projects Henry Hub prices will fall in the second and third quarters of 2006 to levels comparable to the first half of this year. A warm winter combined with a cool summer will be most welcoming. A cold winter this year could easily elevate the natural-gas price problem to the most urgent short-term energy challenge facing the United States. Looking longer term, many analysts project natural gas prices to settle around $7 per Mcf, which is equivalent to $40 West Texas Intermediate crude oil.

Gap between Demand and Supply

The gap between the demand for gas and supplies from traditional supply sources is expected to continuously grow over the next twenty years. According to the latest EIA long-term outlook (See *AEO2005* at http://www.eia.doe.gov/oiaf/aeo/index.html), the demand for natural gas in the United States will grow by 40 percent during 2005-2025, with domestic gas supplies projected to increase by only 15 percent over the same period. This translates to an increase in the gap of 5.9 trillion cubic feet (Tcf) by 2025, or about 15 percent of current consumption, which means that additional foreign supply sources—namely, Canadian gas and liquefied natural gas (LNG)—will be required to serve the U.S. market. The United States consumes about 25 percent of the natural gas in the world but has only about 3 percent of the world's proven gas reserves.

Industry observers now see the changed post-1999 market conditions as structural, with sustained effects, rather than cyclical. Most analysts expect no significant relief in natural gas prices until 2008 or later. In contrast, price spikes experienced in the 1990s were short-lived, caused largely by brief periods of unusually cold weather or regional pipeline bottlenecks. In terms of the effect on the economy,

most analysts see the combination of high natural gas and oil prices slowing down short-term economic growth in addition to contributing to inflationary pressures.

One serious consequence of high gas prices is continued shut-down of industrial facilities.

Demand Destruction

One serious outcome of high gas prices has been the continued shut-down of industrial facilities, especially in the chemical industry and nitrogen fertilizer sectors. Sustained higher gas prices over the past few years have led to permanent demand losses with the closing of industrial facilities and the migration of plants and facilities overseas to areas with cheaper gas prices. Also because of high gas prices, we have also seen the closing of several gas-fired generating facilities. Although the magnitude of the impact is unclear, the continuation of high prices will likely further erode the use of natural gas by the industrial sector.

Federal Legislation: EPAct 2005

Like most of the government and market events in 2005, the gas provisions of the EPAct 2005 are directed at moderating the future price. These provisions include the clarification of FERC's exclusive authority to permit LNG terminals, the promotion of energy efficiency through financial incentives, and the encouragement of fuel diversity in electric generation. Most industry analysts do not expect the Act to have an immediate, or even short-term, effect on natural gas prices. Any noticeable reductions in gas prices that might be stimulated by the Act will have little impact on natural gas prices for a number of years: industry and regulatory inertia, in addition to the expected market delays in responding to the changed policies embodied in the Act, will preclude any overnight "miracles" for the currently tight natural gas market. Consumers can therefore expect high, in addition to volatile, gas prices for the upcoming heating season as well as over the next few years.

Major natural gas regulatory initiatives were provoked by high and volatile prices:

- *Portfolio approaches to procurement*
- *Proliferating rate cases*
- *Promotion of energy efficiency*
- *A new look at long-term contracts*

The State of Regulation

Portfolio Approach

Turning to the states, major state natural-gas regulatory initiatives in 2005 also were provoked by high and volatile natural gas prices. State commissions have recently been more proactive in their oversight of the gas procurement and hedging activities of gas utilities. Increasingly, both gas utilities and state commissions have become more receptive to a portfolio approach to gas procurement, where tradeoffs typically need to be made between the often conflicting objectives of least-cost gas purchases, and price stability and predictability.

Proliferation of Rate Cases

In recent years, state commissions have seen the filing of numerous rate cases by gas utilities. These filings, for some utilities the first in over a decade, are the result of eroding profits caused by a combination of higher costs; required capacity expenditures, partly the result of customer growth and new safety regulations; and flat demand growth. Commissions are being challenged by gas utilities to approve new rate designs and other ratemaking practices in view of recent market developments. Proposals include shifting of fixed costs from the commodity charge to the customer or demand charge, recovery of bad debt through a tracker, and weather-normalization adjustments.

Energy Efficiency

Also largely because of high gas prices, state commissions have shown greater

interest in promoting energy efficiency. Many industry observers view energy efficiency as the most effective option to soften gas prices over the next few years. Gas utilities themselves seem to be supportive of energy efficiency as long as it does not adversely affect their shareholders. Accordingly, some of them have proposed "revenue decoupling" or what some gas utilities call "conservation tariffs" as a ratemaking mechanism that would eliminate their disincentive to promote energy efficiency.

Long-Term Contracting

Another issue that started to surface in 2005 revolves around the financing of new gas-delivery infrastructure. Specifically, the issue is whether long-contracts are required for project sponsors to obtain financing for new capital infrastructure, including storage facilities and pipelines. Starting in the early 1980s, with the inception of restructuring of the natural gas sector from a highly regulated industry to a more market-oriented one, commercial trading arrangements have become radically shorter term and more flexible in both price and terms and conditions. We have observed this phenomenon throughout the natural gas sector, from gas procurement, gas storage, retail transactions, to capacity contracting for pipeline services. There is consensus on the need for new infrastructure investments, with some studies projecting the market requirements at over $150 billion of new capital investments in distribution, storage, and pipelines over the next 20 years. But whether and to what extent state commissions should encourage long-term financial commitments by gas utilities to new infrastructure is currently being debated. In October, FERC held a conference on the state of the natural gas infrastructure, which focused on regulatory impediments and other issues pertaining to the development of the natural-gas pipeline infrastructure. (See the opening statement of Chairman Kelliher at http://www.ferc.gov/press-room/statements/kelliher/10-12-05-kelliher.pdf).

Affordability

Several commissions are grappling with how to buffer the economic effects of high gas prices on consumers, especially low-income households. State legislatures and governors are increasingly asking commissions what initiatives should be taken to alleviate this serious problem. High gas prices have become a visible political problem that will not subside until prices start to fall. Several states have in particular addressed the impact of high prices on low-income customers through a combination of education, subsidized-weatherization and financial-assistance initiatives.

Market and technological convergence continued to roil telecommunications regulation.

TELECOMMUNICATIONS

Market and technological convergence continued to roil the world of telecommunications regulation in 2005. Multiple platforms are able to deliver functionality that approaches or exceeds traditional voice-grade service. Broadband access technologies such as broadband over power lines (BPL), broadband in gas (BiG),[1] cable modems, and digital subscriber line (DSL) create opportunities for consumers to bypass traditional local providers via voice over the Internet protocol (VoIP). On the wireless side, not only do wireless providers provide increasingly competitive services to consumers concerned more with individual connectivity than with locational connectivity, but Wi-Fi and Wi-Max wireless broadband technologies will enable wireless VoIP.

Regulators are struggling to integrate new technologies into regulatory goals that traditionally presumed wired connections.

Regulators are scrambling to integrate these technologies into a regulatory framework that traditionally presumed mainly wired connections. Consumer protection, quality of service, and E911 provision are crucial issues. Although technology and convergence will bring benefits to many consumers, especially those who are technologically adept, less savvy consumers may be harmed if traditional networks do not continue to offer straightforward, simple transparent service.

The State of the Market

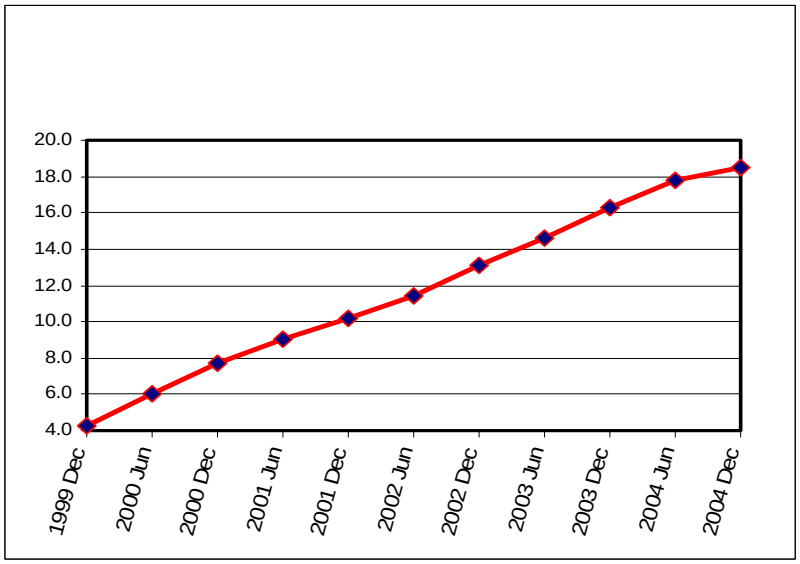
Competition

It is likely that 40 million or more broadband connections are available as the year ends.

Competition to incumbent telephone companies continued to develop in 2005. At year-end 2004, competitors served 18.5 percent of wireline connections nationally. One conspicuous statistic is that the total number of wireline connections fell from 192.5 million at the end of 2000 to 177.9 million at the end of 2004. Over the same period, wireless subscribers grew from 101 million to 181 million, passing the number of wireline connections for the first time during 2004 (see Figure 4).

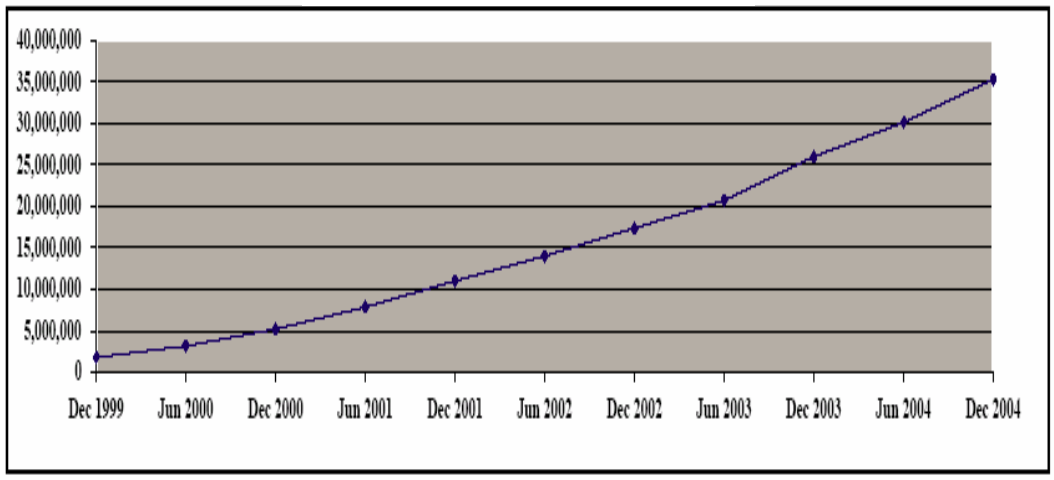
Growth of Broadband

At year-end 2004, over 35 million residential and small business customers had high-speed (broadband) internet access lines (see Figure 5). Cable modem connections were still dominant (60 percent), but DSL lines accounted for 37 percent of connections and were growing faster than cable modem connections. High-speed connections were growing at a rate of about 5 million per year, so it is likely that 40 million or more broadband connections are available at year-end 2005. It should be noted that, although recent estimates put VoIP user numbers at about 3.6 million in September 2005, each broadband connection is a potential VoIP user.[2] Moreover, the existence of VoIP may be one factor driving broadband takeup rates, since to the extent it reduces voice service expenditures, VoIP can subsidize broadband fees.



Source: Data from *Local Telephone Competition: Status as of December 31, 2004*, Federal Communications Commission, July 2005, Table 1.

Fig. 4. Percentage of competitive local exchange carriers 1999-2004.



Source: Data from *High Speed lines for Internet Access: Status as of December 31, 2004*, Federal Communications Commission. July 2005, chart 5.

Fig. 5. Number of residential and small business with high-speed lines.

Mergers

The SBC/AT&T merger and the Verizon/MCI merger each involved a large incumbent telephone company and a large long-distance company. Each was approved by the Federal Communications Commission (FCC) and by the state commissions that reviewed it. The FCC and some states, however, conditioned their approval on behavioral conditions—including a two-year freeze in unbundled network element (UNE) rates and offering "naked DSL" (The colorful term refers to a telephone company offering broadband DSL service without a requirement that customers also buy circuit-switched voice service.). These conditions are intended to limit possible anticompetitive impacts of combining major local and long-distance companies, each of which competed in the other's market.

It is too soon to assess the impact of the mergers. Opponents argued that these combinations would increase market power, harm competition, likely raise wholesale rates charged other carriers, and remove major voices from the policy process. Proponents claimed that the mergers would result in economies of scale and scope that would result in better deals for consumers.

The possible anticompetitive impact of the mergers may be blunted by intermodal competition from wireless providers and from the spread of VoIP, especially as offered aggressively by cable providers. In the wireless space, mergers of Sprint/Nextel and AllTel/Western Wireless raised fewer concerns.

The FCC and some states attached behavioral conditions to their approval of the SBC/AT&T and Verizon/MCI mergers.

Hurricane Recovery

The hurricanes in the Gulf of Mexico reinforced the need to ensure the survivability and recoverability of critical communications networks as well as the operability of emergency communications systems.

Federal Legislation and Federalism

Rewrite of Telecommunications Act

In a major policy departure, NARUC resolved that a revision of the Telecommunications Act might not retain traditional end-point jurisdiction.

It is almost certain that The Telecommunications Act of 1996 will be rewritten; what is not certain is when that will take place and what will be left for the states. Predictions that the rewrite could happen in 2005 proved overly optimistic, and 2006 might be too soon, too.

The Federal-State Partnership

In July 2005, NARUC adopted a resolution that suggests that any new regulatory framework recognize the particular expertise and interests of federal, state, and local government. The resolution says that any new regulatory framework should allow the states to perform a strong consumer-focused role.

NARUC Telecommunications Committee Chair Tony Clark testified before a Congressional committee that a federal framework should assign regulatory functions on the basis of who can perform each function most effectively. He noted that states excel at responsive consumer protection, efficiently resolving intercarrier disputes, ensuring public safety, assessing the level of competition in local markets, and tailoring national universal service and other goals to the fact-specific circumstances of each state. He suggested a technology neutral approach that includes vigorous and flexible procedures for consumer protection, interconnection, public safety, and universal service.

His positions reflected NARUC's July 2005 Resolution on NARUC Telecom Legislative Reform and the accompanying NARUC Legislative Task Force *Report on Federalism and Telecom*,[3] which suggested that a major revision of the Telecommunications Act might not retain traditional end-point jurisdiction as the basis for state oversight, especially with regard to newer services like VoIP.

Loss of this jurisdiction would represent a major departure from NARUC's long held position covering several decades. However, eliminating current jurisdictional underpinnings without providing for continued state oversight would be bad for consumers, public safety, competition, and universal service. Therefore, the resolution says end-point jurisdiction should be reconsidered only if it is replaced by an appropriate alternate basis for allocating jurisdiction such as functional jurisdiction, which would allocate state and federal responsibility primarily on the characteristics of the function and the core competencies of different levels of government.

The State of Regulation

Retail Rates

Legislation in 13 states revised the way telecommunications companies are regulated. The trend was towards lighter regulation or deregulation.

In 2005, legislation in 13 states had the effect of revising the way telecommunications companies are regulated. The trend was generally towards lighter regulation or deregulation of certain services or areas. Legislation was considered but not passed in several other states, and commissions in several states (including California, New York, Oklahoma, and Colorado) are considering revising their regulatory regimes.

Quality of Service and Consumer Protection

Several states, including Michigan and Virginia, have revised their service quality rules and/or adopted "bills of rights" for consumers. The new service quality rules are adapted to evolving technology and growing competition.

As states reduce the level of direct economic regulation, consumer protection becomes more important. For example, the Texas PUC recently ordered AT&T to pay over $1 million in penalties, credits and refunds for billing errors and cramming violations dating back to January 2004. Some commissions have considered or endorsed "bills of rights" for consumers, considered rules on early termination fees for wireless carriers, and made moves to set wireless service quality standards. In addition, broadband service quality and consumer protection issues are of interest at the FCC and in some states.

Interconnection and Wholesale Market Issues

Triennial Review Remand Order

In February 2005, the FCC released its Triennial Review Remand Order (TRRO).[4] The TRRO revised the FCC's rules on unbundled elements, eliminating UNE-platform (UNE-P) and line sharing for DSL going forward and providing a one-year phase out of existing UNE-P lines and DSL line sharing. The TRRO also set impairment standards for transport and revised UNE pricing rules. The TRRO was consistent with the FCC's desire to promote facilities-based competition. The phase-out period ends in March 2006; states are likely to be involved in arbitrating interconnection agreements as competitive local exchange carriers (CLECs) adopt other arrangements. The Progress and Freedom Foundation called for an end to mandated interconnections, claiming market forces will lead to negotiated arrangements.

Intercarrier Compensation

Intercarrier compensation includes both local reciprocal compensation and toll access charges. This issue is before the FCC,[5] which has indicated that it wants a uniform plan that can be applied to all traffic. The current system is considered unsustainable in a convergent environment because it varies compensation depending on the source, technology, and destination of traffic. These charges are especially important to rural carriers who are dependent on access charges and universal service support for a large portion of their revenues. The simplest "bill and keep" model in which carriers recover their costs from their own end users is considered untenable by those who believe that network owners should be compensated by originators of traffic that transits or terminates on their network.

Consistent with the FCC's goal of promoting facilities-based competition, the Triennial Review Remand Order revised rules on unbundled network elements.

Some plans provide for rural carriers to receive special support that would be similar to existing high-cost support for universal service. A major question is whether states will control intrastate access charges or a uniform national system will prevail.

The National Association of Regulatory Utility Commissioners' (NARUC) position is that the FCC lacks jurisdiction to impose a unified, national plan. NARUC's intercarrier compensation task force has held numerous workshops and brought advocates of various positions together to determine both common ground and areas of disagreement.

The archaic system of intercarrier compensation is being revised by the FCC.

Separations

With the separations freeze scheduled to end in 2006, the Separations Joint Board will be considering proposals to revise jurisdictional cost allocation rules. Proposals have included ending the separations process and dividing entire categories of plant between federal and state jurisdictions.

Regulation of Broadband

Even as incumbent local exchange carriers have been granted more favorable unbundling rules from the FCC, they are facing increased competitive threats from broadband and wireless technologies, many of which are outside traditional regulatory boundaries.

The FCC determined that DSL is an information service, which may raise problems for state regulators' ability to protect consumers.

Wireline Broadband

The FCC's wireline broadband order,[6] which attempted to level the playing field between DSL and cable modems after the Supreme Court's Brand X decision,[7] determined that DSL was an information service—specifically that the transmission component of wireline broadband Internet access is not a telecommunications service.[8] This determination may raise problems for state regulators if it is interpreted as stripping them of the authority to impose consumer protection, public safety, and universal service funding rules on DSL providers.

Federal universal service funding is facing reform, and several proposals are on the table.

If state regulators are preempted from regulating broadband—even with respect to consumer protection, public safety, and universal service—the growth of VoIP will, over time, leave little effective jurisdiction in the states. States need to counter the argument made by the industry that regulation severely limits their incentives to invest in advanced technology networks and services.

The FCC's recognizes these issues, and has sought comment on the need for any non-economic regulatory requirements necessary to ensure that consumer protection needs are met by all providers of broadband Internet access service, regardless of the underlying technology.[9] NARUC has resolved to file comments in support of an appropriate state role.

Naked DSL

Some states have determined that requiring naked DSL service benefits competition. A resolution endorsing naked DSL was tabled at the NARUC annual convention in November. Among the concerns was its impact on rural carriers. States actively monitoring the status of competition may be basing deregulation on the progress of competition. Though the CLEC's market share was still growing, the rate of growth had slowed. The effect of the withdrawal of UNE-P as a mandated offering will be seen as CLECs shift to other arrangements.

Affordability

Federal universal service funding (USF) is likely to be reformed in the next few years. Members and staff of the Universal Service Joint Board have proposed several plans. Other groups, including the Progress and Freedom Foundation, have proposed reforms such as capping the total size of the fund. Though some large incumbents support reform, rural carriers are wary of reform proposals because they might reduce their funding.

One factor driving reform is the fall in intrastate revenues, which resulted in the USF contribution factor exceeding 11 percent for part of 2005. Some speakers at NARUC's convention favored connection or number-based funding methods rather than the current revenue-based method.

Another factor is the growth of competitive eligible telecommunications carriers (ETCs, many of which are wireless), which tends to put upward pressure on the size of the fund. In March 2005, the FCC issued new guidelines for states to use in certifying ETCs and new reporting and build-out requirements.[10]

This has led some states to modify their rules for certifying ETCs.

Possible issues for the future include whether USFs should support broadband and whether broadband providers should receive USF support.[11]

On the low-income side, the FCC and NARUC are cooperating in an initiative to increase awareness of the Lifeline and Link-Up assistance programs.

Technology may be making it more difficult to measure the success of universal service programs. The FCC estimates that six percent of households rely on wireless service for their telephone connection. In addition, some households may have wireless access and wired access via VoIP through a broadband connection. These factors may make subscribership data somewhat unreliable.

DRINKING WATER AND WASTEWATER

State of the Industry

The water and wastewater industries are growing rapidly for three reasons: stricter environmental compliance standards, new responsibilities to protect critical infrastructure from bio-terrorism and other intentional acts, and population growth, particularly that associated with new housing developments.[12] In some states, for example, Arizona, California, and Florida, population increases are exacerbating existing water scarcity and supply challenges. Water supplies in many areas of the country may be impacted by dry weather, as illustrated in Figure 6.

Workforce shortages are expected within five years, due to expected retirement of baby boomers. Nevertheless, a majority of utilities, 74 percent, do not have neither a succession plan nor a knowledge management plan to address associated loss of undocumented, tacit knowledge that departs with experienced staff. This is important, as much as 80 percent of useful water utility operating knowledge is estimated to be tacit or generally understood but not documented.[13]

The water and wastewater industries are growing rapidly.

Small Systems

Small wastewater and water systems frequently find it more difficult to operate successfully over the long term. They lack economies of scale and access to internal and external capital—capital they surely will need for rehabilitating, replacing and maintaining infrastructure. State commissions typically work closely with small utilities via special small systems regulatory programs such as staff-assisted rate cases, simplified rate case processes and assistance in developing a comprehensive tariff. In addition, acquisition incentives in the form of acquisition adjustments and single tariff pricing are used by some commissions to encourage consolidation and reduce the number of small systems. To foster acquisitions of small, troubled systems, some state commissions have approved positive acquisition adjustments accomplished in the case of a merger via an increase in the valuation of the rate base. The acquiring utility may then earn a return on a rate base valued at a higher amount. Twenty-two state commissions have permitted utilities to implement single tariff pricing, with one price for all of a utility's operating divisions.[14] A constraint to use of acquisition incentives is their potential to reward an underperforming operator at the time of sale.[15]

Small systems face difficulties operating successfully over the long term.

Decentralized Wastewater Systems

Decentralized wastewater systems are proliferating in tandem with population

Decentralized wastewater systems are proliferating.

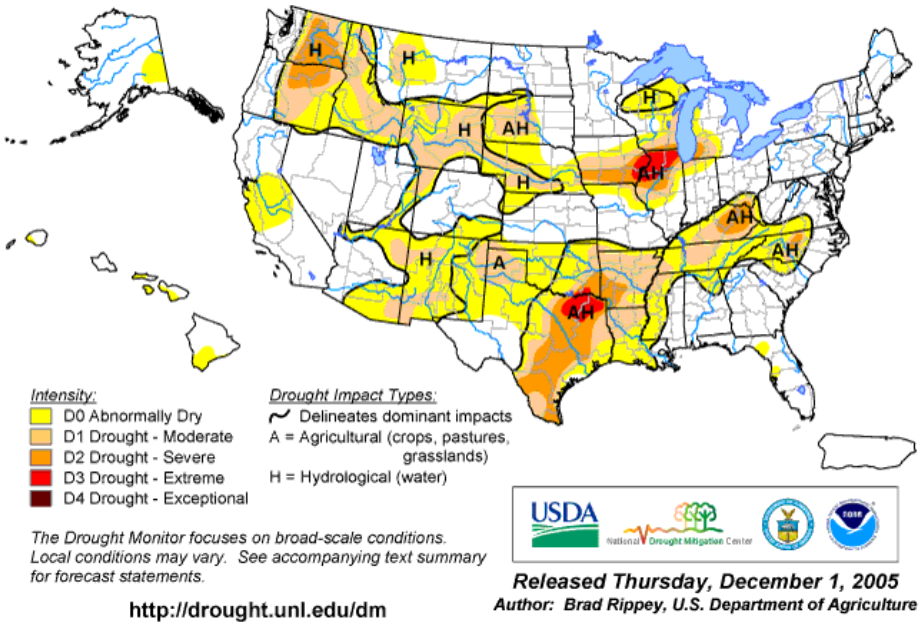


Fig. 6. U.S. drought monitor as of Nov. 29, 2005.

As with other regulated industries, the impact of water utility mergers on customers is a concern.

growth in outlying areas that cannot readily be served by a centralized sewer system. The U.S. Environmental Protection Agency (U.S. EPA) told the Congress in 1997 that "adequately managed decentralized wastewater systems are a cost-effective and long-term option for meeting public health and water quality goals, particularly in less densely populated areas."[16] In order to ensure that decentralized systems have the necessary managerial, technical and financial capability to sustain operations, the Tennessee Regulatory Authority, for example, recently joined with state environmental regulators to prevent creation of unqualified decentralized systems, discipline errant utilities and, if necessary, revoke authority to operate. Commissions in states with rural, growth areas will likely find their workload increasing. Thirty-two state commissions currently regulate wastewater.

Mergers and Divestments

RWE AG announced plans to sell American Water Works in late October marking its abandonment of a five-year, $17 billion expansion into the regulated water industry. RWE intends to complete the sale by 2007. The American Water Works companies operate in 29 states and Puerto Rico. While it is reported that credit analysts view the move as sensible for RWE, affected state commissions will need to consider the impact of the proposed sale on ratepayers and formally approve the transaction before it is concluded in each jurisdiction. On a smaller, incremental basis, larger water utilities are continuing to acquire both private and public drinking water and wastewater systems.

Infrastructure and Capital Needs

Need for Investment

Water and wastewater utilities have entered the infrastructure replacement era because of both the age of many existing systems and a lack of ongoing asset management and replacement activities by utilities of all sizes and ownership types. Many systems were installed more than 100 years ago and have historically operated in an inefficient, reactive mode whereby infrastructure is left alone until failure occurs, for example a main break necessitating repair or replacement. Some of this deferred maintenance is due to insufficient funding. The GAO found in 2002 that funds obtained from ratepayers and other local sources of revenue were less than the cost of service for over a quarter of drinking water utilities surveyed. And four out of ten wastewater utilities took in total revenues locally that were less than their cost of providing service.[17] In a June 2005 report, the U.S. EPA estimated a total national need for drinking water investment of $276.8 billion over the next 20 years.[18]

Asset Management

Even the largest utilities are relative newcomers to comprehensive asset management. American Water Works is in the beginning phase of a five-to-ten year process to create and deploy an integrated asset management system.[19]

Critical Infrastructure

Terrorist threats and other intentional acts require efforts and investments to make water and wastewater utilities more secure. Equally important, and typically less costly, are changes in operating procedures and practices made as part of a more security-focused culture among water utility personnel and education of customers and other stakeholders. Neighborhood watch programs are important supplements to installations such as fences, alarms, cameras and other investments. All systems were required by the Bioterrorism Act of 2002 to complete vulnerability assessments and emergency response plans by June 2004.

Federal Legislation: Safe Drinking Water Act and Clean Water Act

Drinking water and wastewater utilities are required to comply with the federal Safe Drinking Water Act and the Clean Water Act. Depending upon the size of the utility, its source of supply, and its location, new regulations on both the water and wastewater side can compel costly investments in new plant, processes, and personnel and additional monitoring and reporting. Small utilities typically have the most difficulty in funding new, compliance-related hires and equipment purchases. A more stringent arsenic standard takes effect in January 2006. State programs provide assistance, training, and regulatory guidance to small systems, enabling some of them to operate successfully.[20] Although no major amendments to the foundation legislation for water and wastewater were enacted in 2005 and none are contemplated in 2006, potential cuts to appropriations for the Clean Water State Revolving Fund were pending in early December 2005.

New state regulatory mechanisms have emerged for encouraging badly needed infrastructure replacement.

The State of Regulation

Infrastructure Replacement

Mechanisms for addressing infrastructure replacement have emerged, including system improvement surcharges, low interest loan programs, and guidance on best practices in asset management. Some have suggested utilization of routine rate case filing cycles (as is done in the United

Today's affordability programs for water utility customers could eventually lead-to a federal water assistance program modeled on LIHEAP.

Trends toward integrated management, interagency cooperation, and stakeholder involvement will likely continue.

Kingdom and California) to foster timely investment and cost recovery. NARUC has endorsed distribution system improvement charges as providing benefits to ratepayers,[21] which include reducing the frequency of rate cases. A NARUC resolution in 2005 deemed Distribution System Improvement Charges or similar surcharge mechanisms "best practice" use in some jurisdictions and worthy of consideration in others.[22] On the other hand, "improvements in pipe-replacement technology and other asset rehabilitation and replacement techniques may reduce the degree to which rates rise to support the investment."[23]

Certification and Licensing of New Systems

Certification (approval-to-operate) regulations and the staff who implement them are the first line of defense against systems that are unable to successfully and reliably operate over time. Prospective water and wastewater providers are typically required to demonstrate their managerial, technical or operational, and financial capability to run a water or wastewater company. Utilities seeking to operate must provide information (for example, business and facilities plans), demonstrate the need for services, disclose whether others have an interest in serving the customers in question and, in some states, project rates out to 80 percent or more of capacity. Prospective owners typically need to be able to fund operations until a threshold number of customers begin taking service. Some commissions are revisiting their certification processes in order to make them more stringent or tailor them to local circumstances and types of providers. See example from Alaska below:

Affordability

As funds are expended for infrastructure replacement and protection and for compliance with new regulations, and as the price of electricity continue to rise, water rates will also increase. For some customers, water rates will become unaffordable and customer assistance programs or alternative rate structures for qualifying customers will become more common among water utilities. A 2002 Government Accountability Office (GAO) study found only 14 percent of drinking water and 13 percent of wastewater utilities provided some type of rate relief or other subsidy for lower income customers.[24]

Affordability programs and needs at state commissions, regulated water utilities and state consumer advocate agencies are the subject of ongoing NRRI research sponsored by the NARUC Committees on Water and Consumer Affairs. Some regulators see potential merit in a federal water assistance program similar to the low income home energy assistance program (LIHEAP). Examples of existing programs may serve as models for utilities or commissions seeking to address water and/or wastewater affordability. Such programs are consistent with regulators' desires to serve the public interest and recognize that, for the most part, utility companies and their customers are in the same boat. Working out individualized payment arrangements, or creating and enrolling customers in assistance programs, honors and manages a relationship that will ultimately endure.

Intergovernmental Cooperation

Traditionally, water service was focused on a service territory and primary activities included securing and maintaining reliable source waters, constructing and

operating a treatment and distribution system, and collecting revenues from customers. Those functions are beginning to be carried out in a broader context that explicitly considers related watershed protection needs, wastewater management, stormwater, ecosystem, or other environmental impacts and other influencing factors. At the state commission level, it is noteworthy that only two of fifteen commissions responding to NRRI's 2002 water supply survey had *not* participated at all in collaborations with other state entities.[25]

Regional Approaches

Since many factors outside traditional jurisdictional boundaries and roles can impact water and wastewater service to customers, trends toward integrated management of drinking water and wastewater and toward interagency cooperation and stakeholder involvement in broadly-construed water and wastewater issues are expected to continue.

As water utilities expand operations, and in some cases expand into wastewater, and as state commissions strive to work more closely with state environmental regulators, an appreciation of the benefits of managing water supply, treatment, and delivery in accord with the hydrologic cycle and on a watershed basis is increasing. As well, recurring rainfall shortages, droughts, and extreme weather events such as hurricanes and floods remind policy-makers that water supply issues do not conform to political, jurisdictional boundaries. Intergovernmental memoranda of understanding, working groups and citizen-based groups are becoming more common as entities in charge of a small piece of the regulatory pie work to understand how it fits into the bigger water supply picture. The U.S. EPA is seeking to make water and wastewater programs more complementary. Infrastructure replacement issues for water and wastewater (including stormwater) are similar. Stricter wastewater standards, for example, improve source water used by water utilities.

SUMMARY

Interesting decisions, developments and trends drove and defined all four of the regulated utility sectors in 2005, giving participants in the upcoming Commissioners Only Summit a sumptuous menu of possibilities for in-depth discussion. The issues brought up here are of course not exhaustive for the regulated industries. Nor have we reviewed the many issues that focus on the commissions themselves, such as organizational development or ethics and transparent processes. Much of the excitement and intellectual engagement at the Summit will derive from the facilitated group effort to single out the four or five issues that commissioners believe are the most important in the next 12 to 18 months, and then to talk about those in substantial depth.

Commissioners have a sumptuous menu of possibilities for in-depth discussion at the Commissioners Only Summit.

Much of the excitement and intellectual engagement at the Summit will come from group efforts to single out a few issues that commissioners believe will be most important over the next year.

Electricity

The electricity sector saw the passage of the EPAct. This legislation contains several provisions that will have a large impact on the future development of the electricity industry. For example, EPAct shifts governance of the bulk power grids and wholesale trading markets toward national and regional entities. 2005 also saw renewed interest in nuclear power and new market developments in IGCC technology.

Natural Gas

In 2005, the natural gas industry once again was plagued by high prices. Prices rose to unprecedented levels and the biggest concern centers around this winter's heating bills. State commissions have become more active in overseeing gas utilities' procurement strategies. State legislatures and governors have become more involved in finding options to the high gas-price problem. Concerns have also centered on the increased use of natural gas for electric generation. A renewed interest in energy efficiency was also a major development in 2005.

Telecommunications

For telecommunications, the FCC announced it will address major issues, including intercarrier compensation reform, VoIP, 911 and reform of the universal service fund contribution. At the state level, commissions are grappling with competition and consumer issues, as well as considering a revision of their service quality rules. Rapid technological developments have confronted both the FCC and the state commissions with new challenges.

Drinking Water and Wastewater

For the drinking water and wastewater industries, a major concern was the larger capital expenditures that will be needed to upgrade the infrastructure. State commissions will face hard choices of how to pass these costs on to consumers. The problems of small water and wastewater utilities continue to trouble the industry. As water and wastewater rates increase, there is increased concern over affordability. The year saw continuing developments in the integrated management of drinking water and wastewater, as well as interagency cooperation and stakeholder involvement.

Notes

[1] BiG refers to "Broadband in Gas."
[2] See "Cable is the Voice of VOIP," *Light Reading*, Nov. 15, 2005. Available at http://www.lightreading.com/document.asp?doc_id=84312&WT.svl=news1_5.
[3] Available at http://www.naruc.org/associations/1773/files/federalism_s0705.pdf
[4] FCC 02-290, released Feb. 4, 2005.
[5] Being considered in CC docket 01-92.
[6] FCC 05-150, released Sept. 23, 2005.
[7] *National Cable and Telecommunications Association v. Brand X Internet Services*, 125 S. Ct. 2688 (2005).
[8] FCC 05-150, ¶ 4.
[9] Ibid.
[10] FCC 05-46, released March 17, 2005.
[11] This would likely require revision of the rules for certifying ETCs.
[12] Myron A. Olstein, *Managing the Coming Drain Brain*, Journal AWWA, June 2005.
[13] Ibid 1.
[14] The U.S. Environmental Protection Agency (U.S. EPA) Joint Report, *Consolidated Water Rates: Issues and Practices in Single Tariff Pricing*, September 1999, p. 59.
[15] Frederick Butler and Peter Cook, in *2005 NAWC Water Policy Forum Summary Report*, April 2005, p. 22.
[16] The U.S. EPA, *Response to Congress on Use of Decentralized Wastewater Treatment Systems* (EPA 832-R-97-001b) 1997.
[17] United States General Accounting Office (GAO), Report to Congressional Requesters, *Water Infrastructure: Information on Financing, Capital Planning and Privatization*, GAO–02-764 (Washington, D.C.: August 2002).
[18] The U.S. Environmental Protection Agency, *Drinking Water Infrastructure Needs Survey and Assessment: Third Report to Congress*, EPA 816-R-05-001 (Washington, D.C.: June 2005).
[19] Paul G. Foran, *American Water's Asset Management Program: An Integrated Approach*, PowerPoint presentation and author's notes (Austin, TX: July 26, 2005).
[20] Gregg Grunenfelder, Remarks before the Second National Drinking Water Symposium, author's notes, Colorado Springs, October 2003.
[21] NARUC, Resolution Endorsing Distribution System Improvement Charges, Feb. 25, 1999.

[22] NARUC, Resolution Supporting Consideration of Policies Deemed as "Best Practices", July 27, 2005.
[23] Edward G. Means III et al., *Ten Primary Trends and Their Implications For Water Utilities*, Journal AWWA, July 2005.
[24] Ibid 3.
[25] Melissa J. Stanford, *Water Supply Assurance and Drought Mitigation Options for State Regulatory Commissions and Key Stakeholders*, NRRI, (Columbus, Ohio: November 2002).

The National Regulatory Research Institute
1080 Carmack Road
Columbus, Ohio 43210-1002
Phone: 614-292-9404
Fax: 614-292-7196
www.nrri.ohio-state.edu

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