

**Infrastructure Status and Needs in
Southwestern Pennsylvania**
*Produced by the University of Pittsburgh Institute of Politics
Infrastructure Policy Committee
Update of August 2009*

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Introduction

In January 2009 the University of Pittsburgh Institute of Politics produced its first summary document on the status of Southwestern Pennsylvania's infrastructure. We hope to update the document twice a year. This is the first such update.

By far the most significant development since 2009 began is the passage in February of the federal \$787 billion American Recovery and Reinvestment Act (ARRA). Among the impacts of this stimulus legislation in Southwestern Pennsylvania:

- Navigable waterways projects in Southwestern Pennsylvania received \$115 million, including \$84 million for the Lower Monongahela locks and dams project, \$13 million for the Emsworth lock and dam, and \$18 million to address the substantial lock and dam maintenance backlog.
- Highway and bridge needs in the region received \$210 million, which has been allocated to 58 projects including 37 bridges.
- Transit funding coming into the region totals approximately \$141 million for 22 projects.
- PENNVEST received \$226 million for water and wastewater project funding and awarded these funds to projects across the state at its April and July meetings. More than \$69 million of that grant money came to Southwestern Pennsylvania. The Corps of Engineers, Pittsburgh District, received another \$19 million for flood control, water, and wastewater projects.

These funds will have significant impact, but, as explained in this edition of the primer, in each of the four affected sectors (waterways, highways and bridges, transit, water infrastructure) even ARRA stimulus money addresses only a small fraction of the identified needs or project backlogs. Also of importance, none of the ARRA infrastructure funds available for Pennsylvania infrastructure projects were allocated to rail freight projects, despite a significant backlog of investment opportunities to upgrade and expand the rail freight network in Southwestern Pennsylvania.

ARRA allocates \$8 billion for high-speed rail, a small amount relative to the number and scope of projects that may compete for this funding. Pennsylvania's four candidate projects include two from this region: a study to upgrade the Pittsburgh-Harrisburg rail connection, and development of maglev between Pittsburgh International Airport and downtown.

ARRA funding is also available on a competitive basis for a variety of broadband-related programs. Funding will support infrastructure deployment as well as particular technological applications such as distance learning and telemedicine, with emphasis on extending access to rural areas. Pennsylvania held three meetings in May to receive public input on development of its broadband plan.

While ARRA has accelerated the completion of dozens of “shovel-ready” projects, the quick timelines associated with stimulus funding have created a headache for some utilities. Road and bridge construction projects frequently require utilities to relocate facilities, such as a gas line connected to a bridge, temporarily. One utility has reported the need to reallocate funds from other, previously planned projects in order to accommodate the demands of accelerated highway and bridge improvements.

In other factual updates of note:

- The Port Authority of Allegheny County is moving toward fall adoption of its “Connect ’09” transit development plan. Its current fiscal year budget maintains existing service levels and projects a base fare increase on January 1, 2010. “Smart card” fare collection is in the pilot phase, with system wide adoption anticipated by the end of 2010.
- The Allegheny County Airport Authority notes that, due to declining air traffic, passenger facility charge revenues have declined from \$19 million to \$16 million per year.

As Pittsburgh’s turn to host world leaders for a G-20 meeting approaches, security concerns are particularly prominent. Staff at the local office of the federal Department of Homeland Security gave Pittsburgh high marks for its preparedness with regard to infrastructure security, and especially with regard to the level of cooperation among local entities through the Region 13 Emergency Response Task Force and the Pittsburgh Regional Business Coalition for Homeland Security (www.pittsburghcoalitionforsecurity.org).

We hope you will continue to find this document useful and we would appreciate your feedback—whether in the form of compliments, corrections, or suggestions. You may submit them to the Institute of Politics at (412) 624-1837 or iopadmin@pitt.edu.

Thank you for your interest in Southwestern Pennsylvania’s future and how an effective infrastructure can contribute to it.

Institute of Politics Infrastructure Policy Committee

*Paul Costa, Cochair
Member, PA House of Representatives*

*Patricia Kirkpatrick, Cochair
Armstrong County Commissioner*

Executive Summary

The University of Pittsburgh Institute of Politics Infrastructure Policy Committee has directed development of this Southwestern Pennsylvania infrastructure primer, describing regional infrastructure issues in the transportation, water-related, and utility sectors. Research and interviews have highlighted the following issues regarding each sector:

- The Pittsburgh area's **navigable waterways** system is in dire straits. Pittsburgh is the nation's second-busiest inland port, and the region's economy depends heavily on water transportation. But the timelines of major, urgently needed lock and dam projects have slipped dramatically due to funding shortfalls, and the federal system of funding these projects is also in disrepair. The Port of Pittsburgh Commission and the U.S. Army Corps of Engineers, Pittsburgh District, had \$500 million of project work ready for quick action prior to the passage of ARRA, which provided \$115 million for repairs and maintenance on the district's locks and dams.
- **Highway and bridge** funding in Pennsylvania remains unstable, particularly in view of the uncertainty of funding options envisioned by Act 44. The state has injected \$350 million of new funding into repairing deficient bridges and Southwestern Pennsylvania has virtually eliminated new capacity projects from its program to put more money into repairs and maintenance. The region's \$210 million of ARRA money has also gone predominantly to bridges, which represent 37 of 58 ARRA-funded projects. Even so, hundreds of deficient bridges remain and PENNDOT districts anticipate that keeping roadways in good condition will be a growing challenge.
- **Sewage management** has the distinction of being the one infrastructure sector significantly out of compliance with federal regulations. There is evidence that many water and sewage authorities in the region have deferred investment in infrastructure maintenance. Public drinking water and sewage authorities generally cover costs through user fees, but a statewide task force found that setting drinking water and sewage rates each at 1.5 percent of median household income—a substantial increase for most users—would not fully fund anticipated needs. Thanks to ARRA funding, PENNVEST has awarded grants to various communities facing some of the worst wastewater problems.
- All Pennsylvania **transit** systems face great fiscal instability due to the uncertainties surrounding Act 44. Worse, the Port Authority of Allegheny County anticipates significant capital funding shortfalls regardless of Act 44 funding.
- Despite cost-cutting measures related to decreased traffic, **Pittsburgh International Airport** has a substantial backlog of capital projects. Arnold Palmer Airport in Latrobe has made rebuilding commuter service a priority.

- The region's **railroad** network is functioning well, with help from some public investment in projects with regional economic benefit. A proposed CSX intermodal terminal is the largest potential improvement slated for the region. Regional and short line railroads also have many projects required to upgrade their lines to current industry standards.
- Private utilities appear to have maintained their infrastructure assets adequately, but representatives of the **natural gas** industry believe authorization to levy a Distribution System Improvement Charge like that used by water companies would provide more efficient funding for capital investments.

Navigable Waterways

Highlights

- *River transportation is essential for Southwestern Pennsylvania's economy, as about 40 million tons of freight pass through the Port of Pittsburgh each year, making it the nation's second-busiest inland port.*
- *Locks and dams on the Lower Monongahela and Upper Ohio Rivers are in extremely dire straits. On the Lower Mon, a project (begun in 1994) to upgrade two locks and eliminate one is more than a decade behind schedule. Meanwhile, the a study of navigation needs on the Upper Ohio remains uncompleted, and the Emsworth lock and dam on the Ohio are receiving emergency repairs. Further delays will result in more cases of inefficient emergency spending, perhaps even on a lock and dam slated for removal.*
- *Money to complete lock and dam improvements is in short supply, as the federal Inland Waterways Trust Fund has been depleted.*
- *The Port of Pittsburgh Commission and the U.S. Army Corps of Engineers, Pittsburgh District, had \$500 million of project work ready for quick action prior to the passage of ARRA, through which \$115 million has come to the region for construction and maintenance activities on its locks and dams.*

Background

Compared to the roads and bridges on which nearly everyone drives, river transportation is not on the daily radar screen of most citizens. Nonetheless, it is critical for the industries that depend on the about 40 million tons of freight, mostly coal and steel products, that pass through the Port of Pittsburgh each year.

Southwestern Pennsylvania's three major rivers have 17 lock and dam structures, maintained by the Pittsburgh District of the U.S. Army Corps of Engineers. Heading upstream in each case, they are:

- Ohio River: Montgomery, Dashiels, Emsworth
- Allegheny River: Locks 2 through 9
- Monongahela River: Lock 2 (Braddock), Lock 3 (Elizabeth), Lock 4 (Charleroi), Maxwell, Grays Landing, Point Marion

The Pittsburgh District also manages six locks and dams in neighboring states (downstream on the Ohio and upstream on the Mon), giving it 23 of the nation's approximately 200 such facilities. Most of them are 60 to 80 years old. Ten of the 17 structures located in Pennsylvania received grades of D or F on the ASCE's 2006 state report card. Since then the three troubled locks and dams on the Lower Mon, classified by the Corps of Engineers as "critically near failure," have continued to deteriorate. In

November 2008, the Corps of Engineers awarded a \$3 million contract for emergency repairs of Allegheny River Lock and Dam 6, where a severe erosion problem was detected the previous month. The Emsworth lock and dam, also seriously undermined by erosion and corrosion that left its gates dangerously thin, is in the midst of a five-year, \$163.8 million emergency repair project. The Corps of Engineers aims to complete by late 2011 a feasibility study on long-term reinvestment in the three Upper Ohio River locks and dams, which are the oldest and most deteriorated of the 19 on the main stem of the Ohio River.

The Lower Mon project, which intends to replace Braddock and Charleroi and remove the structure at Elizabeth, has been characterized by erosion of timelines as well as river bottoms. It was initially approved in 1994 as a \$750 million, 10-year project, but received inadequate funding to meet the target completion date. Meanwhile, costs rose and lock and dam conditions worsened. The anticipated completion date has slipped from 2004 to 2020 at best, even with an injection of \$84 million of ARRA funds; without another funding boost, the completion date may be pushed back still further. Interim measures may keep the Braddock lock operating for five to eight years, but further project delays will likely create the wasteful specter of emergency repair expenditures on a structure slated for removal five years ago.

According to Pittsburgh District staff, this problem of never-ending projects results from pressure to distribute shares of available funds to many competing needs across the nation. In the 1980s two Upper Mon rehabilitation projects, at Grays Landing and Point Marion, were efficiently funded and completed for \$80 to \$90 million each. Since then, however, large projects have staggered under the hindrance of inefficient funding. Consider the Olmsted Lock and Dam, designed to replace two 80-year-old locks on the lower Ohio River, described as the busiest point (in terms of total tonnage) in America's inland navigation system. It was authorized in 1988 and initiated in 1996; nearly \$1 billion has been spent so far, with about another \$1 billion to go. The Waterways Council lists Olmsted, Emsworth, and the Lower Mon as three of its 27 infrastructure priority projects.

Without a change in funding strategy, these deadlines will slip further, because the Inland Waterways Trust Fund, which shares the cost of lock and dam projects equally with direct congressional appropriations, is out of money. This trust fund raises \$90 million a year from the barge and towing industries through a 20-cents-per-gallon fuel tax. Created in 1986, the fund had a balance of \$352 million as recently as fiscal year 2005. Under existing funding mechanisms, there will be little money left to do anything but the Olmsted project until it is completed—sometime after 2014.

Nationally, Congress has given the Corps of Engineers an annual budget of about \$5.5 billion to cover its responsibilities for flood control, coastal emergencies, and inland waterways. The remainder goes to construction and maintenance. Damaging floods and hurricanes, of which the U.S. has had a few recently, significantly drain the Corps of Engineers' capacity, and every emergency like Emsworth and Allegheny Lock and Dam

6 depletes the remaining funds further. The shifting of maintenance funds to current emergencies adds to the likelihood of future emergencies.

The Obama Administration has proposed a lockage fee to replace the current 20-cent-per-gallon marine diesel tax on commercial towing vessels. The barge and towing industries have resisted an increase in their tax burden, noting that other river users do not pay into the trust fund at all and decrying Congress's practice of appropriating project funds on a year-to-year basis, which results in inefficient and expensive project delivery and constrains the Corps of Engineers' ability to deliver navigation benefits in anything approaching a reasonable timetable. The industry is particularly opposed to lockage fees, which would have an onerous and disproportionate impact on headwaters regions, such as southwest Pennsylvania, where many locks are required.

Prior to the passage of ARRA, the Corps of Engineers indicated that it had \$500 million of project work in the Pittsburgh District ready for quick action should funds become available. ARRA has provided nearly one-quarter of that amount—\$84 million for Lower Mon construction, \$13 million for Emsworth construction, and \$18 for overdue maintenance on locks and dams, for a total of \$115 million.

The Corps of Engineers and Port of Pittsburgh Commission acknowledge the difficulty of raising public interest in a problem that might become catastrophic a decade from now, but they emphasize that further delays only increase both project costs and risks. If not resolved, the threats to river transportation will eventually place at risk the economic stability of U.S. Steel's Clairton Coke Works, power plants, coal mines, and other industries that depend on timely barge shipments.

While decaying locks and dams are by far the most pressing threat to river navigation, the Corps and Port of Pittsburgh Commission indicate several other concerns:

- The American waterways system is not yet very high-tech, compared to Europe's satellite-aided river information systems.
- In the last federal transportation reauthorization, a provision to support "last-mile" connections from highways to other transportation modes was dropped from the final bill. Funding in this category could help with intermodal issues such as improving truck turnaround areas or signalization.
- There is some concern in the towing industry as to the adequacy of the future workforce. As with the trucking industry, the long periods of out-of-town travel make careers on the river unattractive to many.

Highways and Bridges

Highlights

- Financial limitations have virtually halted construction of new capacity on Southwestern Pennsylvania's road system. Even so, projected available funds will not be sufficient to maintain our existing road and bridge infrastructure in adequate condition.
- Southwestern Pennsylvania has more than 1,000 deficient bridges, with hundreds more edging toward deficient status. Even a major new state investment in bridge repair is only slightly reducing the backlog of deficient structures.
- Neither the state nor federal government has raised the gas tax in the last decade, and Pennsylvania's driver license and registration fees are also quite modest. Moreover, decreased driving and the advent of alternative-fuel vehicles are making per-gallon gas taxes a less effective revenue generator.
- PENNDOT and the Southwestern Pennsylvania Commission (SPC) are working to maximize the return on available funds through cost-effective programming.

Background

What is the infrastructure? Within the 10 counties of the Southwestern Pennsylvania Commission's region lie about 300 miles of interstate highway, 8,000 miles of PENNDOT-maintained roads, and 5,300 PENNDOT-maintained bridges. Counties and municipalities bear responsibility for roadways not on PENNDOT's system. Allegheny County, for example, has maintenance responsibility for numerous major roadways and bridges that it constructed, including 800 lane miles of roadway and 520 bridges, nine of which are major river crossings. The City of Pittsburgh owns 186 more bridges. In a particularly peculiar case—the Glenwood Bridge—Allegheny County owns the bridge structure, PENNDOT owns the pavement, and the City of Pittsburgh owns the sidewalks.

Three PENNDOT districts lie in Southwestern Pennsylvania. District 10 covers Armstrong, Butler, and Indiana Counties, along with two counties (Clarion and Jefferson) not in the SPC region. District 11 includes Allegheny, Beaver, and Lawrence Counties; District 12 covers Fayette, Greene, Washington, and Westmoreland Counties.

What condition is the infrastructure in? PENNDOT's central office has made **interstate highway** maintenance an elevated priority since 2007. The central office now takes money from the statewide allocation—before the remainder is distributed to metropolitan planning organizations, rural planning organizations, and PENNDOT districts—and directs it toward resolving the most serious maintenance problems on the interstates.

Deficient **bridges** are a pressing problem statewide, and certainly in Southwestern Pennsylvania. Enhanced inspection emphasis and scrutiny following the December 2005 collapse of a 60-ton bridge beam onto Interstate 70 in Washington County and the 2007 Minneapolis bridge tragedy have resulted in a further increase in the already high number of bridges identified as deficient. The Charleroi-Monessen Bridge was closed in February 2009, and the Donora-Webster Bridge—the next bridge downstream along the Monongahela—was closed in July.

PENNDOT District 12 has 34 bridges of 500 or more feet in length, and 15 of them—nearly half—were rated deficient as of early 2009. Overall, about 700 of the district's 2,360 bridges, or 30 percent, are deficient. District 12 is allocating about 75 percent of available highway funds to bridge repair and replacement and hopes to address 160 bridges in the next four years; however, even this level of funding would leave 540 bridges untouched, with perhaps another 400 approaching deficient status.

While District 12 has a more intense problem, partly because the average age of its bridges is about 10 years higher than the statewide average, District 11 reports 34 percent deficient bridges (representing 26 percent of total bridge deck area) and District 10 is at almost 28 percent. The region appears to be experiencing now the consequences of generations of underinvestment.

Pennsylvania has sought to address its impending bridge crisis by devoting \$350 million in bond funds to an Accelerated Bridge Program, which supported the rehabilitation of about 80 bridges in the region during the 2008-2009 state fiscal year. But the goal of reducing bridge deficiencies to the national average of 10 percent would take 20 years to reach, even if the present extraordinary levels of bridge spending continue.

Roads: Historically, SPC and PENNDOT have encouraged an 80-20 funding split between infrastructure maintenance and new construction; today, funding limitations and a maintenance backlog have pushed the maintenance/new capacity ratio closer to 90-10 or perhaps even 95-5. District 12 reports that completion of improvements on Route 22 in Westmoreland County, scheduled for 2010, will leave no major new-capacity projects on its district program. In District 11, the recent completion of the missing ramps at Route 60 and Interstate 79 and the ramp from Route 28 to Interstate 279 southbound leave no major capacity expansions in progress.

Routine maintenance—items like snow plowing, salting, repaving, line painting, pothole filling, and shoulder stabilization, along with the staffing to carry them out—is funded separately with money from gas taxes and license fees. District 10's budget for routine maintenance is around \$90 million a year; Districts 11 and 12 are at about \$110 million each. District 11 reports that it has seen improved roughness ratings on its roadways in recent years but may not be able to sustain that improvement as funds become tighter. District 12 believes its pavement life suffers due to the unstable soil strata in the state's southwestern corner. A "smooth roads initiative" was among PENNDOT's top road priorities in 2004-2007 before bridge deficiencies became even more critical.

Vehicle traffic increased by 60 percent and heavy truck traffic by 83 percent between 1986 and 2006, wearing down roadways faster. But rising prices for asphalt, diesel fuel, and road salt mean less money in the district budget for annual road paving. District 10, which has carefully analyzed the maintenance backlog on each category of roadway, suggests that roads on the National Highway System (which should be repaved every 10 years) may have to wait 16 to 30 years for attention under current revenue constraints and that District 10's minor but state-owned roads could go 100 years without a repaving.

The Pennsylvania Turnpike Commission has two major, partly completed highways on its construction program: the Southern Beltway in Washington and Allegheny Counties and the Mon-Fayette Expressway from Jefferson Hills to Pittsburgh and Monroeville.

Funding. At the regional level, highway and bridge projects are funded through the four-year Transportation Improvement Program (TIP), which is updated every two years. The current SPC TIP covers the fiscal years 2009-2012 and contains \$2.17 billion of projects, with a primary emphasis on rehabilitation and reconstruction of existing roads and bridges, as well as addressing deficiencies in existing infrastructure. As noted previously, in addition to the region's 4-year TIP funds, another allocation of approximately \$300 million a year is set aside for routine maintenance activities in Southwestern Pennsylvania's three PENNDOT districts.

The current four-year SPC TIP total of \$2.17 billion is up from the total of \$1.58 billion in the previous (2007-2010) TIP. Act 44, which authorized the use of \$450 million of bond funding (to be repaid with future Pennsylvania Turnpike revenues) for roadways and bridges statewide in 2009, provided the largest source of funds for this increase. As neither the tolling of Interstate 80 nor the leasing of the Pennsylvania Turnpike has been approved, the future of additional Act 44 funding remains uncertain and the anticipated spike in available money may not continue beyond 2010. Meanwhile, more efficient cars and a decrease in total vehicle miles traveled have made both the federal and state gas taxes, now at 18.4 and 32.3 cents per gallon respectively, less effective revenue generators.

The outlook for federal transportation funding is also unclear. Hamstrung by declining gas tax revenues, the federal Highway Trust Fund was fully depleted in September 2008 and received an \$8 billion emergency infusion. The federal transportation legislation bill is still awaiting reauthorization. In February 2009 the National Surface Transportation Infrastructure Financing Commission called for a 10-cent increase in the federal gas tax.

Anticipated funding deficits in the Highway Trust Fund are expected to approach \$20 billion through the end of fiscal year 2010, on top of the \$8 billion in additional funds provided so far in fiscal year 2009. New legislation is required in 2009 to renew the federal authorization for continued collection of transportation revenues. Congressional leadership has expressed an intention to significantly increase transportation revenues by almost doubling the overall investment compared to 2003 totals. The sources of any

proposed revenue increase remain uncertain. It is possible that the Obama Administration could extend the current legislation for another 18 months at the same levels of authorized spending as in 2009; however, the Highway Trust Fund deficits and the need for sustainable transportation funding will still need to be addressed.

The American Recovery and Reinvestment Act of 2009 (ARRA) is providing some assistance. ARRA funding for highway and bridge projects in the ten-county SPC region is about \$210 million. This money, representing about 7 months of regular TIP spending through the highway and bridge program, is being applied to 58 projects. As with the current TIP, ARRA-funded projects are heavily weighted toward bridge needs, which represent nearly two-thirds of the projects. However, 37 bridge improvements still leave hundreds of deficient bridges requiring attention.

Public-private partnerships have occasionally made new construction possible within tight public budgets, but the marriage of private money and public processes can be difficult. Local interest in economic development often results in the public side of the partnership putting up most of the money. On the other hand, some communities that have collected project fees from developers may have to return the money because funds for the public share of new construction have become so tight. One PENNDOT staff member commented: “There are a lot of disconnects between private money and our processes. Developers want to write a check for \$5 million and go away, but our money is programmed years in advance and every dollar is spoken for, so we can’t be the deep pocket for cost overruns.”

Workforce. The state’s accelerated emphasis on bridge work has raised concerns as to whether contractors will be able to staff bridge projects adequately, even as they move everyone with the requisite engineering skills from highways to bridges. The tight market for bridge contractors could also drive bid prices higher.

Policy issues and opportunities

Sources contacted for this study offered not only suggestions on how to generate more funds but also a variety of creative ideas that might help to reduce costs.

On the revenue side:

- The state gas tax increase recommended by the Transportation Funding and Reform Commission, which would be the first since 1997, has not yet been enacted. The federal gasoline tax has remained at the same level since the early 1990s.
- Policymakers may want to shift from per-gallon gas taxes to per-mile taxes on auto use, especially since some cars no longer rely solely on gas for fuel. A six-cent per mile toll is equivalent to a \$1.20 per gallon gas tax for vehicles averaging 20 mpg.

- Increasing driver license renewal and vehicle registration fees—currently set at \$28 and \$36, respectively—could generate additional transportation revenue.
- New projects may need to depend increasingly on nontraditional financing methods such as transportation development districts, development impact fees, public-private partnerships, and congestion pricing. As private investment in new construction becomes increasingly common, policymakers may wish to provide some guidance to the largely case-by-case decisions on how much each party contributes to a project. Federal and state processes could be redesigned and state legislation governing public-private partnerships could be enacted to make better use of private resources within those publicly regulated processes.

On the efficiency and cost-controlling side:

- “Project Region,” SPC’s long-range development plan, expresses a strong preference for more compact development patterns in corridors and existing communities to maximize the cost-effectiveness of infrastructure investments. It lists “revitalization and redevelopment of existing communities” and “maintenance of the existing transportation system” as top priorities.
- In several cases, adjustment of infrastructure ownership might help.
 - Traffic signal optimization can greatly improve drivers’ experience and reduce congestion, but is often hard to achieve because individual municipalities that own the signals lack the incentive or the resources to make equipment or operational improvements. Pennsylvania is one of only nine states that have no state ownership or maintenance of traffic signals. SPC believes that as many as 80 percent of the 2,600 signalized intersections in Southwestern Pennsylvania could be improved with equipment upgrades or retiming. SPC’s Regional Traffic Signal Program is currently working to advance over \$3 million in signal improvements with municipal partners in 16 corridors throughout the region.
 - The state may be interested in transferring lightly traveled rural roads to county or municipal management.
 - Allegheny County, which owns an unusually extensive and discontinuous collection of bridges and roadways, has proposed adoption of a more rational approach to road ownership based on functional classification, location, and traffic volumes. It would like to explore ownership transfer of its major bridges and up to 80 miles of major roads to PENNDOT, while acquiring other facilities as appropriate.
 - Distribution of liquid fuel tax funds to Pennsylvania counties is based on the amount of gas consumption in each county in the years 1928 to 1930. This

allocation method could be updated and could take into account each county's actual amount of road and bridge ownership.

- Controlling costs sometimes means saying no to things that the public might prefer. Every planned project that is delayed or dropped has its disappointed champions. Scheduling maintenance work on weekends and at night may reduce public impact but increases costs for overtime labor and special lighting. Users complain when bridges or roadways are closed completely rather than maintaining at least one alternating lane of traffic at all times; however, facilitating efficient rehabilitation often requires 50 or more continuous hours of complete closure.
- Administrative cost-saving steps that could become candidates for wider use include combining the design and build stages on project bids; combining multiple, similar bridge projects in a single bid; reducing duplicative inspection oversight; and more seal-coating instead of paving.
- Collaboration between infrastructure sectors could help to improve rideability—for example, by reducing the number of grates and manholes that lie where most vehicles' tires will hit.
- Some PENNDOT district staff would like greater flexibility to use newly developed construction materials; the extensive approval process can keep PENNDOT from using new technologies for several years after their emergence.
- State enabling legislation could facilitate the use of design-build and design-build-operate-maintain (DBOM) project contracting alternatives.
- Infrastructure and transportation costs have enhanced interest in encouraging greater use of "active transportation"—i.e., bicycling and walking.

Water and Sewage Infrastructure

Highlights

- *Southwestern Pennsylvania has perhaps the most imposing combination of water infrastructure challenges of any region in the United States.*
- *Maintaining and upgrading the region's water-related infrastructure, especially its aging and outdated sewage systems, will require billions of dollars of investment. Much of this investment is legally required under environmental regulations and consent orders.*
- *Increased state funding and user fees could fund much of the region's needed improvements. However, the Ohio watershed receives much less state and federal funding than other watersheds in the state with already established multi-state river basin commissions.*
- *The Southwestern Pennsylvania Commission voted to reestablish a regional water planning and management function. SPC has agreed to seek startup funds (\$2.7 million) and will seek other local, state and federal funding sources to sustain the effort.*
- *ARRA is supplying \$226 million for investment in water and wastewater projects in Pennsylvania. As a reflection of the backlog of needs, PENNVEST received applications for these funds totaling \$1.2 billion in value.*

Background

Problems. Southwestern Pennsylvania has one of the most imposing combinations of water infrastructure challenges in the United States. Problems include the nation's largest concentration of combined sewer overflows; severe flooding, exacerbated in some locations by suburban development; aging infrastructure; widespread abandoned mine drainage; overloaded sewage systems; soils that are unfriendly to on-lot septic systems; and bacterial contamination of rivers and streams.

The region's inability to solve these problems has frequently made news. In the 1990s Penn Hills became the first municipality to be convicted of criminal violations of the federal Clean Water Act after its employees falsified records of raw sewage overflows and treatment plant performance. The Allegheny County Sanitary Authority, which treats sewage from 83 municipalities, signed a consent decree in 2007, after seven years of negotiation that will require an estimated \$4 to 5 billion of investment in system improvements over the next 18 years. The City of Pittsburgh's infrastructure "wish list," released in December 2008, included \$432 million for water and sewer system improvements. Contamination of rural water sources by industrial pollution or abandoned mine drainage has significantly affected residents of numerous communities.

Who's responsible? Southwestern Pennsylvania's water and sewage infrastructure management is highly fragmented. More than 260 public authorities and many of the region's municipalities provide water or sewer service. An investor-owned company, Pennsylvania American Water, is the single largest drinking water provider. Many rural homes continue to rely on well water and septic systems; in six of the 11 counties covered by the Regional Water Management Task Force, fewer than half of households have public sewage.

Homeowners with wells and septic systems are responsible for their own infrastructure; public systems rely primarily on user fees for funding, with the average residential bills hovering around \$100 per quarter for drinking water and another \$100 for sewage. PENNVEST grants and low-interest loans have financed more than \$800 million of Southwestern Pennsylvania water infrastructure improvements in the last 10 years.

ALCOSAN is the largest example of many wastewater systems in Southwestern Pennsylvania where ownership of collection and treatment functions has been separated, with the result that downstream authorities are responsible for treating wastewater coming from tributary municipalities' collection systems.

Amount of infrastructure. 3 Rivers Wet Weather, which has played a prominent role in identifying and addressing water-related problems in Allegheny County, estimates that there are 6,000 miles of sewer pipe and about as much drinking water pipe in that county alone. These estimates do not count an approximately equivalent mileage of laterals—the lines connecting individual homes to the pipes—for which homeowners are responsible.

Pennsylvania American Water (PAW) has about 4,500 miles of water mains and 11,000 hydrants in its regional distribution system, which provides water to 200,000 customers. PAW operates 10 water treatment facilities in western Pennsylvania, along with numerous booster stations, water storage tanks, and related facilities. PAW reports that it expended approximately \$74 million in operating, maintaining, and improving its western Pennsylvania drinking water systems during 2008.

The Municipal Authority of Westmoreland County (MAWC) has 2,200 miles of pipe, four water treatment plants, and 120,000 customers. MAWC indicates that it has an annual budget of \$50 million, including \$34 million for operations and maintenance.

Maintenance concerns. With the infrastructure largely out of sight and rate increases unpopular, many municipalities and authorities have deferred maintenance. The Regional Water Management Task Force found a pattern of low customer rates and low levels of capital investment in lower-income communities, suggesting the possibility of a huge maintenance backlog.

The Governor's Sustainable Infrastructure Task Force, in its report of November 2008, projected total Pennsylvania water and sewer infrastructure system costs of \$113.6

billion for the next 20 years and total funding through current user rates of \$69.8 billion, leaving a gap of \$43.8 billion.

Two actions during 2008 made a down payment toward this infrastructure gap. The General Assembly approved \$800 million of spending on water, sewer, and dam safety projects, to be funded with gambling revenues and administered by the Commonwealth Financing Authority; in November, voters approved an additional \$400 million bond issue, with project funding to be administered by PENNVEST.

ARRA sent another \$226 million in Pennsylvania's direction for grants to water and wastewater projects. As a reflection of the backlog of needs in this sector, PENNVEST received 174 applications requesting a total of \$1.2 billion in funding. Grant awards were announced at PENNVEST's April and July board meetings; lists of project awardees by county are available at www.pennvest.state.pa.us. More than \$69 million of grant money was awarded to Southwestern Pennsylvania applicants, including multimillion-dollar grants to eliminate sewage overflow problems in Neville, Allegheny County; Apollo, East Franklin, and Kittanning, Armstrong County; Ambridge and Rochester, Beaver County; Greensboro-Monongahela Township, Greene County; Independence-Cross Creek, Washington County; and Arona, Westmoreland County.

Policy issues and opportunities

- *Full cost pricing.* Many water and wastewater providers' rate structures have remained far below the actual full cost of services, resulting in billions of dollars in deferred maintenance need. The Governor's Task Force believes that it is reasonable for providers to set drinking water and wastewater rates each at 1.5 percent of its service area's median household income. It calculated that setting rates at this level across the state would reduce the funding gap from \$43.8 billion to \$6.8 billion over the next 20 years. Generally, Pennsylvania customers are paying an amount closer to 1 percent of median income for each service. Implementation of such rate increases may necessitate creation of a payment assistance program like those available in other utility sectors.

Companies regulated by the Pennsylvania Public Utility Commission (PUC) are required to charge for the full cost of service. Some have suggested placing all water and wastewater systems, not only those subject to PUC regulation, under PUC or Department of Environmental Protection (DEP) oversight to ensure that they are also practicing full cost pricing.

- *Asset management.* To combat the time bomb of deferred maintenance, the Governor's Task Force recommended requiring all water and wastewater systems to prepare long-term asset management plans.
- *Regional collaboration.* Various studies during the past decade have called for establishment of a regional entity to plan or oversee water infrastructure. In November 2008, responding to recommendations by the Regional Water

Management Task Force, the Southwestern Pennsylvania Commission (SPC) voted to reestablish a regional water planning and management function. SPC has agreed to seek startup funds (\$2.7 million) and will seek other local, state and federal funding sources to sustain the effort.

- *Increase Ohio River Basin investment.* The Pennsylvania portion of the Ohio River Basin receives far less investment than do the Susquehanna and Delaware River watersheds. 3 Rivers Wet Weather analyzed the 2007 Pennsylvania budget and found more than \$11 million of state and federal funds going to the Susquehanna, \$4 million to the Delaware, and \$184,000 to the Ohio. Reinstating regional water planning at SPC may provide the vehicle for enhanced public funding comparable to other major Pennsylvania watersheds.
- *Right sizing.* Technical and regulatory requirements have become increasingly challenging for smaller authorities with limited resources. Some of these authorities have found relief through consolidation or collaboration with larger entities such as MAWC or the Indiana County Municipal Services Authority. Offering incentives for such consolidation and coordination may enhance management efficiency and quality.
- *Workforce.* There is some concern about replacing water and sewer expertise as current employees retire. Over two-thirds of authorities and municipalities responding to the Regional Water Management Task Force survey indicated an average employee age of 45 or higher.

Public Transit

Highlights

- Act 44 of 2007 had appeared initially to place Pennsylvania transit systems on more stable financial footing, but crisis could reemerge in 2010 if no funding source replaces the disapproved proposal to toll Interstate 80.
- Regardless of what happens with Act 44, the Port Authority of Allegheny County faces an unresolved financial future. Factors squeezing the Port Authority include a declining share of state funds (because of growth in central Pennsylvania transit systems) and a declining share of federal rail transit funds (as more cities have built rail lines) along with labor commitments. Without an influx of new funds the Port Authority could face significant deficits in 2010.
- Transit's spike in popularity during 2008 may encourage Congress to set higher funding levels for transit in the federal transportation reauthorization—or plummeting gas prices may change the political climate for transit before Congress acts.
- The American Recovery and Reinvestment Act of 2009 (ARRA) has provided \$141 million for 22 transit projects in Southwestern Pennsylvania to date. Other transit projects are competing for additional discretionary ARRA funding.

Background

Ten public transit agencies deliver transit and paratransit service in Southwestern Pennsylvania. The most visible component of their infrastructure is the buses owned by the transit agencies or by the private companies with which they contract for services. Public transit infrastructure also encompasses garages, maintenance facilities, park-and-ride lots, transit passenger centers, and vehicles (generally owned by separate contractors) used to provide paratransit service.

Two transit authorities were interviewed to obtain more detailed and illustrative insights:

- The Port Authority of Allegheny County provides 97 percent of the transit trips taken in Southwestern Pennsylvania. As of January 2009 the Port Authority owned 811 buses and 48 minibuses, which travel a total of about 27 million miles per year; 83 light rail transit vehicles; two inclines; 25 miles of light rail track; and 19 miles of dedicated transit-only guideway (i.e., busways and a transit tunnel). Other assets include six maintenance facilities and garages and 63 park-and-ride locations containing nearly 15,000 parking spaces. As part of its ongoing bus replacement schedule, the Port Authority has received 80 new buses since December 2008 and is to receive 20 hybrid buses in November 2009.

- The Westmoreland County Transit Authority (WCTA) provides services both for commuters to Pittsburgh and on routes within the county. It contracts for its operating service but owns its 35 buses, as well as a maintenance facility and a Greensburg transit center. WCTA plans to replace 20 buses in the next three years at a total cost of about \$6.8 million.

Public transit receives a combination of federal, state, and local funding along with passenger revenue. Federal funding comes through several programs, the two largest of which are a block grant for transit systems in urbanized areas (Section 5307) and capital funds (Section 5309). State or local matching funds of 5 to 20 percent are required in order to receive these federal funds. The region has received some specially earmarked federal transit grants, such as \$348 million for the Port Authority's subway extension to the North Shore.

The financial guidance statement for Pennsylvania's 2009 Transportation Program states that the Pittsburgh urbanized areas can anticipate receiving \$270 million of federal funds for their transit systems (or nearly \$68 million a year) during 2009-2012.

Act 44 of 2007 revamped the state's approach to transit funding, which had historically been relatively generous (fourth per capita behind Massachusetts, New Jersey, and New York) but unpredictable. Under Act 44, public transit in Pennsylvania received \$953 million in fiscal year 2007-2008. Sources included \$300 million from bonds that will be repaid from future Pennsylvania Turnpike revenues, along with funds from the state sales tax and the Pennsylvania Lottery. Act 44 funding is distributed for both capital and operating purposes, using formulas based on number of passengers carried, vehicle miles traveled, and vehicle hours operated. The use of cost-per-passenger performance criteria responds to the 2006 Transportation Funding and Reform Commission's call for improved efficiency.

Act 44 operating funds require a local match representing 15 percent of the state share or a 5 percent increase over the previous year's local share, whichever is less. The Port Authority's \$184.5 million share of fiscal year 2008-2009 operating funds thus required a \$27.7 million local match. Allegheny County has imposed taxes on alcoholic beverages and rental cars to raise the local funds necessary for transit. WCTA indicates that its county matching contribution was very close to the 15 percent level prior to Act 44.

Act 44's intent to place state transit funding on stable ground has been destabilized by the lack of progress in either leasing the Pennsylvania Turnpike or securing federal permission to impose tolls on Interstate 80. Without these funding sources, Act 44 statewide funding for transit is scheduled to drop from \$400 million in 2009-2010 to \$250 million the following year. According to transit representatives, PENNDOT is expressing reluctance to commit to new projects beyond 2010 due to the funding uncertainty. As one transit policymaker commented, "Without Act 44 money the operating side [of transit] is in big trouble."

The Port Authority's fiscal year 2008-2009 operating budget of \$350.3 million included \$206 million from the state, \$30.6 million from Allegheny County, \$25 million of federal funds, and \$88.7 million (25 percent of the total) in operating revenues. Its capital budget of \$241.8 million included 53 percent federal, 41 percent state, and 3 percent county funds. For 2009-2010, the Port Authority operating budget has increased to \$362.9 million, while the capital budget is down to \$155.2 million, of which \$69 million will advance the North Shore Connector toward its anticipated completion in 2011. WCTA has a capital budget of about \$2.5 million a year and an operating budget of \$4.9 million. Close to \$1 million of its operating revenues come from fares.

The Port Authority's labor costs have received considerable attention, but other factors contribute to making this agency's current financial state precarious. First, Act 44, while it increased transit operating money overall, also introduced a new funding formula that directed greater assistance to transit agencies outside the state's two largest cities. The Port Authority received an extra \$55 million in operating funds under Act 44, but had been receiving up to \$63 million a year under the interim "flex" solution of transferring highway monies to transit. So Act 44 did not provide a financial boost for the Port Authority. Moreover, federal rail transit assistance to the Port Authority has dropped as many U.S. cities have built or expanded rail systems over the past 20 years.

As a result, the Port Authority projects a \$188 million capital budget deficit over the four-year period of 2009-2012, even if it initiates no new projects.

Transit enjoyed a resurgence during 2008, especially after gas prices shot upward. The Port Authority, which carries 68 million riders a year, saw a ridership increase of 5 percent in 2008 and has retained that higher ridership level so far in 2009. WCTA had almost 20 percent more riders during July-October 2008 than in the same months of 2007. WCTA raised fares by 24 percent in February 2008, yet ridership went up significantly during the year. For the fiscal year ending June 30, 2009, WCTA reported a 12 percent ridership increase over the previous year.

Of the state's \$347 million ARRA allocation for transit, the Port Authority was awarded \$62.5 million, with other Southwestern Pennsylvania urban transit providers receiving about \$7 million. Counting rural and other sources, ARRA has provided \$141 million for 22 transit projects in the region, with additional transit projects competing for discretionary funding.

Other activities by the Port Authority during 2009 include progress on its "Connect '09" transit development plan, to be finalized this fall; initiation of the pilot phase of its "smart card" fare collection program, with full implementation scheduled for late 2010; and submission of a funding request to acquire up to 50 hybrid-electric buses. The use of smart cards should reduce loss of revenue due to equipment failure or fare evasion and should allow for easier connections between participating agencies.

Other policy considerations

- The logjam over Act 44 funding could result in a continued shift toward more local funding of transit. Many other U.S. metropolitan areas have approved broad local taxes, most commonly a sales tax increase, to fund transit.
- Regionalization of public transit has been broached periodically, but most observers believe it would not cut costs. Travel patterns and population distribution in the counties surrounding Allegheny do not appear to lend themselves readily to consolidation with the Port Authority.
- Putting more people in easy reach of transit makes transit more viable. Support for transit-oriented development (TOD) and establishment of transit revitalization investment districts (TRIDs) can effectively leverage existing investments in transit infrastructure. The Port Authority expects construction of an office development near its South Hills Village station to begin later this year and is attempting to advance TOD in Castle Shannon, East Liberty, and Beechview and along the West Busway.

Rail Transportation

Highlights

- *Rail remains a major mover of freight in and through Southwestern Pennsylvania. The state provides financial support to projects with public economic benefit. More investment could help to rebuild the significantly downsized rail network.*
- *Possibilities for commuter rail (especially between Pittsburgh and Westmoreland County) and expanded passenger rail service (especially to and from Ohio) exist, but may require complex collaboration with railroads for which passenger trains on their rights-of-way threaten efficiency.*
- *CSX has proposed development of a new intermodal facility in or near Allegheny County, which could carry substantial economic value for the region.*

Background

The railroad system in Southwestern Pennsylvania consists of 1,332 miles of track, operated by 17 railroad companies. Three large Class 1 railroads—Norfolk Southern, CSX, and Canadian National—operate in the region. Norfolk Southern owns 491 miles, or more than one third, of the region’s track; the Buffalo and Pittsburgh Railroad is second with 194.4 miles, just ahead of CSX. Although the 17 companies are privately owned, they also function as a rail network, depending on each other for connections that extend their geographic reach.

About 70 to 90 trains a day pass through the region on Norfolk Southern’s lines. The continuing increase in freight traffic (anticipated to double by 2050), along with rising fuel costs, highway congestion, and a shortage of truck drivers, has helped to push business to railroads. However, rail infrastructure development is an expensive and inflexible undertaking—once you lay track, you can’t move it. As such, railroads need a reasonable expectation of ongoing business before committing to major rail expansion or restoration projects.

Pennsylvania contributed about \$35 million to a major renovation project in the 1990s that permits Norfolk Southern to send tall “double-stack” rail cars across the state. Norfolk Southern still has an important choke point at Port Perry, near Duquesne, where a bridge crosses the Monongahela and enters a tunnel. The tunnel is double-stacked for one track only, creating backups. In addition, lock and dam improvements could eventually affect the bridge by raising the water level.

CSX wishes to establish double-stack capacity in Pennsylvania as part of its National Gateway rail modernization program, which proposes to invest \$168 million in Pennsylvania and to create a new intermodal terminal in the Pittsburgh area. Norfolk Southern currently operates an intermodal facility at Pitcairn; its accessibility from major highways is less than ideal.

The Buffalo and Pittsburgh Railroad serves various industrial locations with lines reaching from New Castle southward into Allegheny County and eastward to Indiana County. It completed an important rail restoration in 2005, building 16 new miles of track to reestablish service to a power generating station in Homer City, Indiana County.

The Wheeling and Lake Erie (W&LE) Railway maintains a line from Ohio through Washington County that snakes northward to suburban Pittsburgh and terminates at Connellsville, Fayette County. The W&LE moves about 8,000 carloads through the region, primarily carrying coal and steel products. However, it could have several times that number of carloads within two years due to anticipated industrial developments. The W&LE has spent \$2.5 million on maintaining its Pennsylvania trackage in the last five years. Other “short line” railroads also serve industries throughout the region. Most of these regional and short line railroads have a backlog of infrastructure projects necessary to bring their lines up to industry standards.

Pennsylvania state government recognizes the importance of rail transportation through its Rail Freight Assistance Program, which offers \$30 million a year (recently increased from \$20 million) to help private railroads with infrastructure improvements. Pennsylvania also awards funds to railroads through its capital budget and is considered one of the leading states in supporting rail freight, which carries about 1 billion tons a year through the state. Rail received a grade of B, the highest rating of any sector, in the American Society of Civil Engineers’ (ASCE) 2006 Pennsylvania infrastructure report card. The rail industry points out that it shoulders virtually the whole cost of maintaining its infrastructure, whereas the trucking industry receives an infrastructure subsidy through the public maintenance of highways. According to the ASCE, Pennsylvania’s public investment in rail helped remove 3.8 million trucks from highways during 2005 alone, greatly reducing congestion and road deterioration. Short line railroads also receive a federal tax credit for infrastructure reinvestment; however, this tax credit is set to expire at the end of 2009.

Passenger rail in Southwestern Pennsylvania now consists of four daily Amtrak trains stopping in Pittsburgh – the Capitol Limited between Washington D.C. and Chicago, and the Pennsylvanian to and from New York. In fiscal year 2007, 120,000 travelers boarded or got off Amtrak trains in Pittsburgh. Passenger rail travels on freight rights-of-way—with some inconvenience to both. Passenger trains receive preference and usually travel faster than freight trains, forcing freight shipments to pull off at sidings; getting all those freight trains out of the way can be difficult, causing delays on Amtrak trips. One rail representative said he tells advocates for increased passenger rail to “bring the capacity with you.”

Pennsylvania’s recent investment in passenger rail has occurred in the east, where high-speed trains travel the mountain-less corridor from Harrisburg to Philadelphia, as well as along the Northeast Corridor between Boston and Washington D.C. Two local passenger rail possibilities are under consideration: one going northeast from

Pittsburgh along the underutilized Allegheny Valley Railroad, and a proposal for daily commuter service from Latrobe and Greensburg to Pittsburgh.

Ohio's Department of Transportation has a major passenger rail initiative in development. The "Ohio Hub" plan envisions passenger trains traveling at 110 miles per hour in up to seven corridors, including Cleveland-Pittsburgh and (added subsequently because of public input) Columbus-Pittsburgh. Ohio intends to restore trackage in downsized corridors so as to separate passenger and freight traffic as much as possible. Ohio hopes to stimulate greater Pennsylvania interest in upgrading its Keystone passenger corridor west of Harrisburg. Congressman Jason Altmire has requested funding to study high-speed rail linking Pittsburgh and the Midwest through Cleveland.

Congress has authorized \$8 billion in economic stimulus funding for high-speed rail projects. In June, Pennsylvania submitted to the federal government four candidate projects, including two from this region:

- Pittsburgh High-Speed Maglev Project Phase I (Pittsburgh International Airport to Downtown Pittsburgh)
- Keystone West (Harrisburg to Pittsburgh) High-Speed Rail Feasibility and Business Plan Study

A planned nine-mile extension of the Kiski Junction Railroad in Armstrong County illustrates what a small amount of rail can do. Currently the Rosebud Mining Company ships 750,000 tons of coal each year from a mine at Logansport along the Allegheny River. Removing this coal requires 31,000 inefficient round trips by truck on a winding, hilly road poorly equipped for a constant diet of heavy loads. A rail connection could save an estimated 740,000 gallons of diesel fuel and enable Rosebud to increase production by 60 to 100 percent. With help from a recently awarded \$4 million state grant, this connection may be constructed within the next three years.

On the other hand, a pending project in northern Butler County illustrates the problems resulting from deferred maintenance on existing lines now operated by regional and short line railroads. The Buffalo and Pittsburgh Northern Subdivision, running 15 miles between Butler and Petrolia in northern Butler County, serves three major petrochemical firms employing approximately 1,000 skilled industrial sector workers. The three companies, all located at the end of the line in Karns City and Petrolia, depend on freight service over the Northern Subdivision, but the long-term future of this line is in question due to four large wooden trestles on the line. These trestles are over 80 years old, cannot carry a modern freight car, and require continuous maintenance. The current estimated cost to replace these four bridges is over \$12 million. Federal funds have allowed replacement already of a fifth, smaller trestle on the line. The railroad actively seeks additional public-private partnerships to replace the final four trestles. The future financial well-being of the customers and their employees served by this line depends on these trestles being addressed; the competitive nature of their markets will not absorb the additional costs of replacement truck transportation.

Regional railroads indicate that they have diversified their business activity so as not to be as dependent on a single industry; that they are sometimes aggressive in helping to recruit businesses to locate along their lines; that they can be important suppliers for emerging industries (e.g., delivering the sand used in Marcellus shale drilling); and that the funding assistance they receive for capital improvements is essential to their operations.

Reflecting the growing importance of intermodal transportation, one rail company said its biggest client is the trucking industry, which arranges to send shipments by rail over long distances and then carries them by truck to their final destination.

Overall, rail remains an efficient means of transportation with significant economic, environmental, and congestion mitigation benefits, but its increased use will require ongoing investment in rebuilding a downsized system.

Air Transportation

Highlights

- *Pittsburgh International Airport's capital improvement program significantly exceeds anticipated available funds. Airlines contribute to airport operating costs, but declining airport traffic is making the per-flight burden greater for airlines serving Pittsburgh.*
- *Arnold Palmer Airport in Latrobe is actively pursuing expansion of commuter service, as part of a larger effort to restore regional hub-and-spoke flights through Pittsburgh. This initiative may require some startup investment.*
- *General aviation airports play an important role in the region. Their expansion potential depends on their ability to demonstrate increased need.*

Background

Airports are the only aspect of Southwestern Pennsylvania's infrastructure about which an observer might say the problem is too much capacity. But the casual observer may forget that Southwestern Pennsylvania has more than one airport. In fact, along with two commercial airports in Allegheny and Westmoreland Counties, the region has publicly owned "general aviation" airports in every county except Armstrong, where a privately owned airport is available for public use.

General aviation airports receive federal Airport Improvement Program (AIP) funds distributed by formula through a block grant to the Pennsylvania Department of Transportation. The statewide apportionment is about \$15 million a year. Allegheny County Airport, the largest regional airport in this category, receives about \$250,000 a year from this source. (The AIP has not been reauthorized since September 2007 but has remained in existence through continuing resolutions of Congress.)

State government also operates an Aviation Transportation Assistance Program, which doubled in size to \$10 million for the current budget year. Greene County received a \$198,000 state grant in 2008 to plan improvements at its airport in Waynesburg. Armstrong's public-use airport recently received funding to pave a grass runway. Several other regional airports are interested in pursuing runway extensions. To receive additional funding for capital improvements they must demonstrate a need to the Federal Aviation Administration—not a desire to expand service, but strong evidence of future users beyond what the airport can currently accommodate.

The state also distributes about \$8 million a year through its Aviation Development Program, funded by a tax on aviation fuel. The Allegheny County Airport Authority (ACAA) receives approximately \$1 million a year from this program, \$2.5 million a year of federal entitlement funds for Pittsburgh International Airport, and \$10 million to \$20

million a year in competitive discretionary funds depending on the FAA's prioritization of its project proposals.

Pittsburgh International Airport has two main sources of user revenues. Each airline passenger's ticket includes a \$4.50 passenger facility charge (PFC), collected by the airlines and remitted (except for a small administrative fee) to the airport. This revenue source generates about \$16 million per year. The ACAA and other commercial airports believe that the PFC is an efficient way to fund airport improvements and would like to see it raised from \$4.50 to \$7.50, with authorization of subsequent increases tied to inflation.

In addition, under their agreement with the ACAA, air carriers fund Pittsburgh Airport's operating expenses through rental charges and landing fees. When airport usage goes down, fees go up so as to avoid a shortfall. This arrangement enables the airport to keep a balanced operating budget in the short term, but rising fees can encourage carriers to shift their business to other airports. About \$7 million a year of these charges goes into a separate account to assist with capital projects.

The ACAA's five-year capital improvement plan for 2009-2013 includes nearly \$140 million of proposed projects. The largest item is the last phase of a \$45 million stormwater treatment plant to handle runoff that contains deicing fluids. Other projects include improvements to runways, taxiways, runway safety areas, and the Pittsburgh Airport terminal. Another \$208 million of 2009-2013 projects, including additional runway upgrades and improvements to parking garages and the Pittsburgh Airport's people mover system, are listed as desirable but not achievable with anticipated funding. Airport pavement is much more expensive per mile than highway pavement—but one mile of runway, unlike one mile of highway, can enable users to move across the country.

Cuts in passenger service, especially by US Airways, have caused Pittsburgh Airport to close some gates. However, asset maintenance is essential to meet future needs and attract additional air traffic.

Arnold Palmer Regional Airport in Latrobe hopes to provide some of that additional traffic. Its commuter service to Pittsburgh was among the casualties of US Airways' cutbacks. An FAA program to sustain "essential air service" provides subsidies to regional airports at least 70 miles from a hub—like Johnstown, Dubois, and Altoona—but Latrobe is too close to Pittsburgh. Its only passenger service, a Northwest Airlines flight to Detroit, was eliminated earlier this year.

Along with colleagues in Erie and West Virginia, the Westmoreland County Airport Authority is negotiating with commuter airlines in the hope of initiating regularly scheduled commuter service to Pittsburgh. The larger goal is to rebuild a viable hub-and-spoke system, with affordable flights from numerous smaller cities connecting to Pittsburgh Airport and encouraging major carriers to increase their service to Pittsburgh.

The rebuilding of regional air service at Arnold Palmer Airport could require some initial funding assistance, such as the installation of updated kiosks.

Arnold Palmer Airport completed a runway extension in 2007 and is currently adding new hangar space. This airport's viability is enhanced by the presence of a Latrobe-based company that provides the pilots and scheduling for companies that have chosen to share fractional ownership of corporate jets (similar to a timeshare setup) rather than to purchase their own planes or depend on commercial service.

Dam Safety

- *More than 300 “high hazard” dams are considered deficient and the number is growing. Total repair costs could exceed \$1 billion. Pennsylvania will prioritize application of state bond funding to the dams at greatest risk, but additional money could help to keep problems from becoming worse.*

Pennsylvania has approximately 3,200 dams, one-fourth of which are categorized as “high hazard” because their failure could result in loss of life or substantial property damage. The Pennsylvania Department of Environmental Protection (DEP) has a Division of Dam Safety responsible for regulating these dams. Some of them are owned by the state Department of Conservation and Natural Resources (DCNR), the Fish and Boat Commission, or public water authorities, but many are privately owned.

The 12-county Southwestern Pennsylvania region has 637 dams; of these, 197 are classified as high hazard dams. The region’s dams are almost evenly split between public and private ownership.

Dam rehabilitations or replacements are frequently multi-million dollar projects. The Division of Dam Safety has documented more than \$35 million in expenditures on 20 dams since 1998. The money for these projects came from the state capital budget, PENNVEST, or Growing Greener.

Statewide, the Division estimates that 305 high hazard dams are deficient, and that this number will rise to more than 500 by 2010. Overall, it estimates the statewide rehabilitation funding need as \$1.2 billion for high hazard dams and \$1.44 billion for all dams. The Division has provided cost estimates for 15 state- or municipal-owned dams in Southwestern Pennsylvania:

- One DCNR dam (Ryerson Station, Greene County) is funded in the state capital budget at \$30 million.
- Eight Fish and Boat Commission dams are not funded and carry a total estimated rehabilitation cost of more than \$52 million.
- Six municipal-owned dams in DEP’s Southwest Region have a total estimated repair cost of \$14 million.

Of the \$800 million in bond funding for water-related projects that the General Assembly approved in 2008, \$35 million is reserved for unsafe dams. The Division of Dam Safety will use a risk prioritization tool to assess which dams are at the greatest risk and thus in greatest need of immediate attention. The Commonwealth Financing Authority will administer this program.

The Division has enforcement power over privately-owned dams, but Pennsylvania does not have a program to assist with private dam rehabilitation. Division staff indicate that other states have low-interest loan programs in which private dam owners can participate. On the other hand, funding is available to assist in removing dams. Where

a dam is not necessary, the Division encourages its removal, and private owners are often happy to comply because of the potential liability the dam poses. According to the Division, 51 Pennsylvania dams have been removed in the last two years.

The Fish and Boat Commission, with a projected need of \$100 million for 18 unsafe dams, has signed rehabilitation contracts for two of these dams, at recreational facilities in Cumberland and Lehigh Counties. In these cases, county and even township governments contributed funds to move the project forward.

A bill to create a \$200 million federally funded dam rehabilitation and repair program passed the U.S. House in October 2007 but did not pass the Senate.

Flood Control

Flooding, a longstanding problem in Southwestern Pennsylvania, has become even more disastrous for some downstream municipalities, endangering their viability, due to the consequences of ineffective stormwater management. More thoughtful approaches to development and stormwater control can reduce the volume of rampaging waters, but many established communities depend on existing or proposed flood control projects for protection.

Both the U.S. Army Corps of Engineers and the Pennsylvania Department of Environmental Protection (DEP) participate in flood control projects. Where the Corps becomes involved—usually with regard to larger waterways such as Chartiers Creek, which devastated numerous communities after Hurricane Ivan—it provides 65 percent federal funding. The DEP then splits the remaining 35 percent of the project cost with local governments.

The DEP maintains 17 flood protection projects in Allegheny, Beaver, Butler, Indiana, Washington, and Westmoreland Counties. All of these are considered to be in acceptable condition, although one of them, covering nearly two miles of Jacks Run in the Greensburg area, is rapidly deteriorating and slated for major rehabilitation. This is one of nine DEP projects scheduled for construction within the next five years, at a total estimated cost of \$52 million.

When the General Assembly approved \$800 million in bond funding for water projects in 2008, it reserved at least \$100 million of that money for flood control. The DEP Bureau of Waterways Engineering believes that these funds, along with yearly budget allocations, will help to complete programmed projects and maintain the Department's existing flood control infrastructure.

The Corps of Engineers is currently evaluating Girty's Run and Pine Creek, which flow (respectively) through the flood-ravaged towns of Millvale and Etna on their way to the Allegheny River, as possible project locations. The Corps of Engineers, Pittsburgh District, received \$10.9 million of ARRA funding designated for maintenance of 16 existing reservoirs related to flood control.

Various local initiatives can help to mitigate stormwater threats. Municipalities in northern Allegheny County are collaborating to develop new detention ponds that would slow down the rush of water into Girty's Run. State Rep. David Steil has proposed legislation authorizing creation of watershed authorities to prepare and implement more effective water plans. Low-impact development approaches, such as rain barrels, rain gardens, and less use of impervious surfaces, can help to reduce runoff. Municipalities may need to change building codes so as to permit stormwater to drain from a roof into the ground rather than into a pipe.

Natural Gas

Highlights

The private companies that handle natural gas transmission and distribution believe several state-level policy issues affect their ability to provide cost-effective and high-quality service. These include:

- *Granting gas distributors the right to impose a Distribution System Improvement Charge that would reduce their need to make periodic, complicated, expensive requests for rate increases.*
- *Giving gas companies, rather than individual customers, responsibility for maintaining the connecting lines that deliver gas to individual homes.*
- *Drilling for gas in the Marcellus shale formation, an activity that offers enormous energy yield possibilities but also has posed serious environmental concerns.*

Background

Unlike the natural gas infrastructure in most U.S. regions, Southwestern Pennsylvania's is split among four private companies. Three of them (Columbia Gas of Pennsylvania, Dominion Peoples, and Equitable Gas) each have several hundred thousand customers in the region; T.W. Phillips has 60,000. All four companies are regulated by the Pennsylvania Public Utility Commission.

These companies are responsible for the transmission and distribution of natural gas through about 20,000 miles of pipeline. The infrastructure also includes large underground gas storage facilities.

Funding to maintain the natural gas infrastructure comes from ratepayers and corporate investors. Along with regular maintenance (into which Columbia Gas alone invests an estimated \$20 million a year in this region), upgrade of aging pipes in older communities is becoming increasingly important. Columbia Gas indicates that it has approximately 2,400 miles of steel pipe, ranging from several decades to 100 years old, due for replacement. In 2007 Columbia Gas initiated a long-term upgrade plan for these pipes, at a projected total cost of \$1.4 billion.

In another unusual arrangement, most western Pennsylvania customers are responsible for the connecting lines that carry natural gas from the main distribution lines in the street to their gas meter. In other parts of Pennsylvania, as well as most of the United States, these service lines are owned by the utilities and are maintained and operated at the utilities' expense.

State law specifies that natural gas distribution companies may not make a profit on the supply of gas that they sell. (Thus the state's gas suppliers are distinct corporate

entities from the distribution companies.) Distribution companies submit quarterly filings to the PUC reflecting their costs of purchasing gas in order to qualify for recovery of these gas costs. Since they do not make a profit on the sale of gas, when the cost of gas goes down (as occurred in fall 2008) so does the gas supply cost passed on to the utilities' customers.

So how does the utility make a profit? The distribution companies are entitled to an approved rate of return on their costs of distributing the gas. To receive an increase in this charge they must file a "rate case" with the PUC. This is an extensive, public, negotiated process that requires a detailed review of the company's expenses and revenues, as well as projected costs for the next 12 months. Interested parties can review the rate case filing, ask questions, and sometimes negotiate an agreeable settlement with the utility. When settlements are not achieved the rate case is litigated before the PUC. In all cases the PUC must approve any rate change before it can take effect.

In January 2008, for the first time in 12 years, Columbia Gas submitted a rate case, seeking an increase of approximately 10 percent; through settlement negotiations the company eventually received a 6.4 percent increase that took effect in November 2008.

Because of the considerable cost (\$1-2 million) of pursuing a rate case, gas companies tend not to make frequent requests for smaller increases. As a result, rate cases often result in a spike in the distribution portion of customer charges, rather than a gradual increase.

Natural gas utilities would prefer an established, ongoing mechanism of recovering infrastructure investments comparable to the Distribution System Improvement Charge (DSIC) granted to water companies. Legislation for this purpose (HB 744, introduced by Rep. Tim Solobay of Washington County) was approved unanimously by the House Consumer Affairs Committee in May 2009 and is awaiting action in the Appropriations Committee.

The industry reports some difficulty in securing a qualified workforce, as some contractors have expressed concern about whether they can handle the work associated with infrastructure replacement. Labor organizations have supported the industry's request for DSIC authority, because they would prefer to see a stable funding source for long-term contracting opportunities rather than the stop-and-start approach fostered by the pattern of periodic rate cases.

Policy issues and opportunities

- *DSIC.* The natural gas industry believes approval of such a charge will contribute to more consistent, cost-effective infrastructure management by spreading the costs broadly over time and reducing the need for base rate increase filings, the costs of which are ultimately passed to customers. Former Public Utility Commissioner Terry Fitzpatrick addressed this issue at the Institute

of Politics retreat in September 2008. Industrial customers, however, may object to the impact of such a charge if it is based on usage levels.

- *Legislation on customer-owned service lines.* In other parts of Pennsylvania, when a leak occurs in a gas line between the street and the customer's meter, the gas company fixes the problem at no direct charge to the customer. In Western Pennsylvania, the company must turn the gas off and wait for the customer to arrange repair. The natural gas industry has expressed interest in a possible legislative change that would enable natural gas distribution companies to assume responsibility for all service lines, but this proposal has not yet received formal review by the PUC or legislative committees.
- *Infrastructure sector coordination.* Why dig a hole or fix a road repeatedly? When a gas company digs a trench along a roadway in order to repair or replace a line, it creates an opportunity for water and sewer repairs to happen at the same time; similarly, restoration work could be coordinated with road paving plans. Columbia Gas reports that it enjoyed cooperation with the city of York so as to combine gas line replacement with sidewalk improvements.
- *Marcellus shale.* It is believed that trillions of cubic feet of natural gas lie underground in the Marcellus shale formation, much of it in Western Pennsylvania. The Marcellus has been an expensive target due to its subsurface depth (usually a mile underground), but rising fuel prices in 2008 made drilling into the Marcellus more attractive, creating a significant economic opportunity for the region. In recent months, however, environmental concerns, related to the use of large amounts of water in fracturing Marcellus shale and the content of wastewater released, as well as declining natural gas costs have dampened enthusiasm about this opportunity.
- *Permitting.* Municipalities are prohibited from using the permitting process as a means of making a profit, but some have reportedly enacted large increases in permitting fees after learning that the gas company was planning repairs. Permitting policies also vary, with some municipalities charging up front and others imposing expensive restoration requirements—e.g., expecting a utility that digs up one shoulder of a road to repave the whole road.

Telecommunications

(This newly added section is based substantially on information provided by Verizon Pennsylvania.)

Background

Verizon Pennsylvania and Verizon North are two major operating landline telephone company providers which collectively serve several of the 10 counties comprising the Pittsburgh region. They are two of many telecommunications service providers in the fiercely competitive Southwestern Pennsylvania market. Other providers include other incumbent local exchange carriers (ILECs) such as Embarq, Windstream, and North Pittsburgh; many competitive local exchange carriers (CLECs); wireless service providers; and intermodal competitors like Comcast, Vonage, and other providers of Voice over Internet Protocol (VoIP) service. While some CLECs are resellers of ILEC services, many CLECs and other types of competitors have their own networks for providing services in Southwestern Pennsylvania which also fall within the scope of the infrastructure addressed. Additionally, one of the wireless service providers operating in the region with its own network infrastructure is a Verizon affiliate, Verizon Wireless.

Verizon PA and Verizon North provide a wide array of services to hundreds of thousands of customers in the region, ranging from residential plain old telephone service (POTS) to fiber-to-the-premises voice, data and video products, and sophisticated high-capacity, high-speed data services for large business customers. A robust and extensive network infrastructure extending to the premises of every customer supports the provision of these services. Most customers of Verizon are served by a traditional copper network that provides both voice and high-speed internet service. Within the past few years, Verizon has begun to deploy in parts of the region an advanced fiber network which can provide not only voice and ultrahigh-speed (50 Mbps+) internet services but also video services in a suite of services called FiOS. This fiber network is generally being installed as an “overlay” on the existing copper network, but in some cases (e.g., in a new residential development) is being installed as the sole network serving an area. Both the copper and fiber networks are the responsibility of the Verizon Network Engineering, Construction and Operations organizations which manage Verizon's network in the region as well as other areas of the state.

Verizon's conventional network is constantly being modernized and expanded through effective maintenance, repair, and replacement practices implemented by its experienced managers and technicians. The new fiber network is extremely durable and reliable, because it is less prone to weather and other environmental factors causing deterioration over time, and is expected to have a very long life cycle.

Funding. Verizon's infrastructure capital investment and maintenance/repair expenditures are internally funded by customer revenues and through Verizon Communications' issuance of publically traded securities. Although specific revenue

projections are proprietary, Verizon believes that its infrastructure funding will continue to be adequate for both new capital investment and ongoing operations in the region.

Because planning, budgeting and tracking of expenditures for expanding the availability of high-speed internet service on its conventional network and for building out the new FiOS network are not done on a regional basis, Verizon does not have an estimated cost for meeting these infrastructure improvement needs in the region. At the statewide level, Verizon generally estimates the cost of these activities planned for the coming budget year based largely on the recent actual costs of similar work done in other areas and the needs of the state.

Broadband status. Verizon cites two events in the past 20 years as most significant in increasing infrastructure deployment throughout Verizon's Pennsylvania service territory. One is the rollout of FiOS, as referenced above. The other is state legislation (66 Pa. C.S. §3001, et al.), originally enacted in 1994 and renewed by Act 183 of 2004, pursuant to which Verizon is obligated to make 1.544 Mbps or higher broadband service available to 100% of its retail access lines by December 31, 2015.

Act 183 also directed the state Department of Community and Economic Development's (DCED) to maintain a statewide inventory of broadband deployment. DCED's excellent electronic mapping program has proven to be very successful in this regard. DCED constantly updates and improves its electronic maps, populating them with information provided by ILECs, cable companies and other broadband providers, and makes them available for use by county and local economic development agencies and chambers of commerce and other interested parties throughout Pennsylvania.

Act 183 has likewise spurred effective public-private partnership approaches for broadband deployment in Pennsylvania by way of the Broadband Outreach and Aggregation Fund (BOAF), the Bona Fide Retail Request (BFRR) Program, and the Business Attraction and Retention Program (BARP), all of which were created by the Act. These all focus attention on identifying and stimulating demand for broadband services. The ILEC-funded BOAF educates consumers and businesses about present broadband availability and the statewide broadband build-out. The BFRR program allows residents to aggregate the broadband demand in their community in order to facilitate bringing such services to their community sooner than they would otherwise receive them under Verizon's broadband deployment program. The BARP allows start-up businesses and businesses looking to relocate in Pennsylvania to utilize DCED's mapping resources to determine where the broadband infrastructure is and obtain advanced services from Verizon or other ILECs. These initiatives stimulate increased or accelerated investment in network infrastructure and help identify areas where broadband service is unavailable. Businesses and consumers utilize all these resources to help stimulate demand and consequent network investment.

The American Recovery and Reinvestment Act included \$7.2 billion for broadband buildouts, to be administered by the Departments of Commerce and Agriculture and the Federal Communications Commission. The bulk of this money will be awarded in

competitive grants aimed at reaching unserved and underserved areas. The FCC is to prepare a national broadband strategy plan. Pennsylvania held three meetings during May to receive public input on development of the state's plan.

Policy Issues and Opportunities

According to Verizon, infrastructure success in the region will entail reaching two goals: (1) deploying the fiber network to all customers slated to receive it, by the end of 2010; and (2) making broadband service available to all customers by the end of 2015.

Tax incentives or exemptions granted to broadband providers would, by reducing the overall cost of investment in broadband infrastructure, accelerate its deployment. Any incentives aimed at encouraging deployment in unserved or underserved areas would have to be substantial enough to support the business case of investing in those areas. For example, in 1999 Montana authorized a 20 percent telephone company license tax credit for accelerated deployment of advanced telecommunications infrastructure improvements.

Public-private partnerships could fund more BFRR broadband deployments in rural portions of Southwestern Pennsylvania. With regard to construction of new facilities, public-private partnerships are best suited for building non-network facilities (e.g. wireless towers) that can support and help accelerate broadband network deployment. Such partnerships are less effective where the partnerships propose to own new broadband network facilities since Verizon and most other providers want to continue their traditional end-to-end ownership of their networks, mainly for system integrity and security reasons.

Electricity

(This newly added section is based substantially on information provided by Allegheny Energy.)

Highlights

The typical homeowner today relies on electricity 24/7. They rely on the power to keep them safe, warm and comfortable in their homes, schools, community centers, shopping malls, streets, highways and places they work. They depend on it to wake them in the morning, cook their meals, warm their homes and power their many entertainment devices. What happens when the power goes out?

In today's economy, the average consumer might think about turning off the light as they leave a room or waiting for a full load of laundry before running the washer. But there are many state, federal, and global issues looming that could change our habits. There is significant legislation that will require a reduction in energy utilization by controlling the timing of consumption or increasing costs to force a reduction in consumption. The "smart meter" required to be installed in homes by electric utilities will have the capability to regulate customers' energy usage. There is also legislation that could reduce the amount of power being generated and available for consumers. Other legislation is calling for the generation of green power from renewable resources such as wind and solar. The new "smart grid" technology will allow for more efficient and safer operation of the electric transmission system.

Since 1970, the average electrical demand per household has increased 30%. There has been very little infrastructure growth to keep pace with this demand. Power lines that were built in the 1970s to carry power from one utility to the next are being overloaded causing potential safety concerns as well as potential failures such as the one that happened on August 14, 2003 causing a major blackout that started in Ohio and went into Canada and New York placing a large percentage of the United States population in the dark. These types of blackouts or rolling brownouts could happen again if infrastructure is not updated.

Reliable, reasonably priced electric service is a key to a healthy economy, but at what cost? How and where does the balance begin?

Background

Electric utilities have been around for more than a century. Many began as a municipal system that grew beyond the municipal boundaries as the municipalities expanded along with the trolleys, railroads and roadways. As Pennsylvania's economy grew through the years following World War II, utilities invested in infrastructure such as power plants that were connected by transmission lines to substations. These substations were being built in regions along with distribution circuits to serve very specific electric demand that went hand in hand with economic growth in the region. In

the 1970s with the oil crisis and environmental legislation becoming stricter, utilities stopped building generating facilities. The downturn in the economy in the early eighties and the demise of the basic steel industry in Southwestern Pennsylvania caused some electric utilities to have more than enough power to serve their customers. Having some utilities in the state with excess power and others needing more power, this opened up opportunities for utilities to sell excess power to neighboring utilities and as well as other states. Regulations were also opening opportunities for non-traditional electric generators/suppliers, such as municipalities and industries utilizing their by-products to produce electricity, and requiring the major utilities in the state to purchase this non-traditional power whether it was needed or not.

Prior to 1999, when the Pennsylvania General Assembly voted to deregulate the electric industry, there were seven (West Penn Power, Pennsylvania Power & Light, Philadelphia Electric Company, Pennsylvania Power, Pennsylvania Electric Company, Metropolitan Edison and Duquesne Light) major utilities in the state that owned, operated, and maintained their own electric generation, transmission, and distribution facilities across the state. Most utility infrastructure was contained within the utility's service territory with some interconnection to neighboring utilities for reliability purposes. There are numerous rural electric cooperatives across the state that have limited generation and transmission facilities and purchase power from the seven major utilities.

Electric utilities in Pennsylvania are overseen by the Public Utility Commission which regulates the amount of profit they can earn on investments, requires them to maintain a certain level of reserve capacity in the generation of electricity, and assures they charged a reasonable price for such services.

With deregulation many utilities divested themselves of their generating facilities creating the need for power marketers. Today, utility transmission lines are under control of a Regional Transmission Operator (RTO) which controls the flow of electricity from multiple generators in multiple states through a network of transmission lines. These lines are still owned and maintained by the local utilities which must obtain permission to take a line out of service for repair or upgrades. The RTO also has the authority to approve a transmission upgrade or removal. In Pennsylvania, the RTO for most utilities is PJM based in central PA. PJM's area includes portions of 13 states and Washington, D.C. Its area has over 176,000 megawatts of generating capacity with 156,875 megawatts of peak load, 60,823 miles of transmission lines, 1,271 generation sources and over 500 members. Pennsylvania is just one part of this region but has historically been a net exporter of power.

Pennsylvania has numerous coal reserves and much of the electric (base load) generated in the state is from this source. The demand for green power is growing as wind farms and solar panel farms are being built across the state. This new electricity travels through aging infrastructure that has limited capacity. New electric infrastructure is needed in these areas to get the additional power to the customers. Even as plans

are underway to try to clean up the planet, people will still be demanding more electricity for other uses such as electric cars. Infrastructure needs will continue to grow.

Policy Issues and Opportunities

- *Federal Renewable Electricity Standards (RES)*. The state of Pennsylvania has already implemented a renewable electricity requirement including a broader mix of qualifying energy sources, generally tailored to the state's unique mix of resources.
- *Federal carbon capture and storage (CCS) legislation*. Early deployment of this act would create a nationwide wires charge on Electric Distribution Companies (EDCs) not on generators. The charge would be applied to kilowatt hours of electricity delivered that were generated by fossil fuels. This bill is designed to raise over \$1 billion to be used exclusively on large scale CCS projects.
- *Federal climate change legislation*. Climate change legislation presently before congress could negatively impact the electric utility industry.
- *Energy Efficiency and Conservation Program (EE&C)*. Pennsylvania Act 129 which was passed November 14, 2008 requires EDCs to adopt a plan to reduce electric consumption 1% by May 31, 2011 and 4.5% of the highest 100 hours of peak demand by May 31, 2013. The EE&C Program also requires that every home and business in the state be equipped with "smart meters" within 15 years. If EDCs fail to achieve such reductions in consumption, they are subject to civil penalties of not less than \$1 million and not to exceed \$20 million. EDCs have a large task ahead of them in educating customers and in acquiring new equipment and staffing to implement the program.
- *Marcellus shale*. Storage facilities for natural gas from the Marcellus Shale require compressor stations that in turn require electricity. Growing electricity demand for storage of this gas in rural areas that do not have adequate infrastructure is placing more pressure on the electric utilities to provide that service.
- *Permitting*. Municipalities are requiring permits for electric utilities prior to digging holes for installation of poles for utility distribution lines. This practice may increase costs and cause delays in electricity service provision.

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