REMARKS OF ROBERT J. CUPINA, PRINCIPAL DEPUTY DIRECTOR, OFFICE OF ENERGY PROJECTS U.S. FEDERAL ENERGY REGULATORY COMMISSION

"STATE OF COMPETITIVE ELECTRICITY AND NATURAL GAS MARKETS IN THE U.S."

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Introduction

Thank you for inviting me to this important conference. I appreciate the opportunity to review the state of competitive U.S. electricity and natural gas markets, and discuss current U.S. competition policy.

Nature of U.S. Electricity and Natural Gas Markets

Before I turn to competition policy, I should begin with a brief review of the nature of the U.S. wholesale power and gas markets.

Electricity

Electricity markets in the United States are not national in nature, but regional. Depending on how you define them, the U.S. has 8 to 10 different regional power markets. Since the U.S. is fully interconnected with Canada and parts of Mexico, some of these regional markets are also international.

The United States is the largest generator of electricity in the world, generating about 24 percent of the world's electricity. The U.S. has significant diversity in its fuel sources used for electricity generation, relying on coal, natural gas, nuclear, hydropower, and other renewable energy sources (Figure 1).

The primary fuel for U.S. electricity generation is coal, which accounts for 50 percent of total U.S. generation. Coal is likely to remain the dominant primary

fuel for U.S. electricity generation for some time to come.

One of the striking aspects of the U.S. electricity market compared to other countries is the disaggregation of generation ownership. In many countries, generation ownership is concentrated in a small handful of companies. By contrast, the U.S. has hundreds of power generators. The largest U.S. generator controls less than four percent of total generation, and the top 20 generation owners combined control only 45 percent of total generation (Figure 2).

The disaggregation of generation ownership is a strength for the United States, since it means as a general matter generation market power in the U.S. is more diffused than in other countries. That increases the prospect of success of competitive power markets in the United States.

Wholesale power markets in the United States are also hybrid in nature. Structurally, some of our regional power markets are organized markets, with centralized markets operated by regional transmission organizations or independent system operators. Competition in other regional markets is governed by bilateral transactions.

Regional power markets in the U.S. are competitive, but the nature of the competitive market varies from region to region. The Federal Energy Regulatory Commission (FERC) does not favor any particular market design, and does not seek to impose a preferred structure on the various regional markets. We believe both the organized wholesale markets and the bilateral wholesale markets can be workably competitive.

U.S. power markets are hybrid in another sense. The United States has different classes of competitors in the generation sector. The principal competitors are independent power producers, vertically integrated utilities, and utility affiliates or affiliated power producers. Over the past 25 years, independent power producers have been responsible for the bulk of generation additions in the United States. During the last major generation build in the United States from 1996 to 2004, when we added 242 gigawatts in generating capacity, independent power producers accounted for nearly three-quarters of U.S. generation additions. That balance has shifted somewhat more recently, with utilities accounting for a larger share of generation additions.

The United States is poised for another major build of new generation. Electricity demand in the U.S. continues to rise as our economy grows. There are

a range of projections, but according to some estimates the U.S. may have to add 230 gigawatts to its generating capacity over the next 15 years.

The United States has the most extensive bulk power grid in the world, encompassing about 200,000 miles or 320,000 kilometers (Figure 3). However, the U.S. does not have a national power grid, but a series of regional power grids. At the same time, the U.S. transmission grid is fully interconnected with Canada and parts of Mexico. For that reason, some power grids are both regional and international.

One of the striking aspects of the U.S. electricity market is the disaggregation of transmission ownership (Figure 4). While many foreign countries might have a single transmission owner and operator, the U.S. has over 500 grid owners. The disaggregation of transmission ownership poses challenges with respect to transmission operation, planning, cost allocation, and investment.

While the U.S. transmission system is extensive, it has suffered from inadequate investment levels for many years. The last sustained period of adequate investment in the U.S. power grid took place in the 1970s. We are taking steps to reverse that trend.

Over the past two years, FERC has approved rules governing transmission incentives to increase grid investment and granted incentives in a series of orders. Those rules are having an effect. Grid investment in the United States is on the rise, and is moving in the right direction. Yet we have not yet erased the effects of the sustained period of underinvestment that began in the 1970s. Transmission investment in the United States has not yet achieved the level necessary to assure reliability and support competitive markets.

Up to this point, siting of transmission facilities was the exclusive preserve of state governments. Before the Energy Policy Act of 2005, transmission siting in the U.S. reflected an unspoken assumption that the bulk power system was local in nature. That is no longer the nature of the grid. The new federal transmission siting role reflect a recognition that the power grid is regional in nature.

We also have acted to strengthen transmission planning. Historically, grid planning was conducted by the individual transmission owners for the benefit of their individual systems, not on a regional basis. It is important that transmission planning reflect the regional nature of grid operation. For that reason, FERC issued new rules requiring jurisdictional utilities to conduct regional planning.

In the wake of the August 2003 Northeast blackout, we have also taken steps to assure reliability of the bulk power system. Previously, the United States relied on voluntary compliance with unenforceable reliability standards to assure reliability. No more. FERC has approved mandatory reliability standards and established a new regulatory regime to enforce those standards.

Natural Gas

The United States is relatively self sufficient in natural gas, compared to other countries (Figure 5). Currently, domestic production accounts for 84 percent of demand. In recent years, we made up our shortfall in domestic production with Canadian imports. The U.S. exports natural gas to Mexico, [and is the largest exporter of natural gas to Mexico].

Perhaps the greatest success of U.S. competition policy with respect to energy markets can be seen in domestic natural gas production. The U.S. once maintained price controls on natural gas. Those price controls resulted in a steady decline in U.S. natural gas production. This decline was not caused by declining reserves but by regulatory policy. In the late 1970s, the U.S. changed course on policy, decontrolling natural gas prices. Domestic production recovered in response to this regulatory policy change. This experience is a reminder that poor regulatory policy can retard development of essential energy supplies.

The U.S. expects to roughly maintain current levels of domestic natural gas production. Improved technology makes it easier to locate and produce natural gas. However, the U.S. impairs domestic gas production levels through restrictions of development of promising reserves offshore and in other areas, although the effect of these restrictions is much less than price controls of the past.

The United States has the most expansive natural gas pipeline network in the world, encompassing 300,000 miles or 480,000 kilometers (Figure 6). As is the case with our power grid, our gas pipeline network is fully interconnected with Canada and part of Mexico, so again this energy infrastructure is North American and not national in scope.

The U.S. has had great success is strengthening our pipeline network. Over the past seven years, FERC has approved over 11,000 miles in pipeline expansions. This was only possible due to sound regulatory policies that encourage investment, as well as the high level of administrative efficiency FERC has displayed in

reviewing pipeline expansion proposals.

Regulatory certainty is an important element in attracting private sector investment into energy infrastructure. Investors must see that decisions by regulators are based on the law and the facts. It is important that there be some level of predictability and constancy in regulatory decisions. FERC pipeline regulation is characterized by a high level of regulatory certainty.

Our administrative efficiency in this area has allowed the U.S. to maintain strong levels of domestic natural gas production. As promising gas reserves are developed, FERC has been able to increase pipeline takeaway capacity in a timely manner. That allows continued development of new gas reserves.

Natural gas markets in the United States are undergoing fundamental change. However, I would submit there no longer is a "U.S. gas market." Our natural gas market is North American, not national, and has been ever since the U.S. was no longer self sufficient in natural gas supply and relied on Canadian imports to make up the shortfall in domestic production.

However, Canadian gas imports are no longer sufficient to make up the shortfall in domestic gas production. As a result, the U.S. is increasingly relying on liquefied natural gas (LNG) to meet domestic demand. LNG currently is the fastest growing source of U.S. natural gas supply, and is projected to account for 17 percent of U.S. demand by 2025.

Our natural gas market is changing, and is becoming more international. It is no longer North American, and no longer neatly bounded by the Atlantic and Pacific Oceans. The United States and North America are part of the Atlantic basin LNG market, and are poised to soon enter the Pacific basin market with operation of the Baja LNG project. In our view, North America is competing with Europe and Asia for LNG supplies; and it is important that we are successful in that competition.

While we often consider energy markets as distinct, one development in U.S. energy markets is the increased integration of the power and natural gas markets. Natural gas is frequently the marginal fuel for power in regional power markets, so the power and gas markets increasingly influence each other.

Competition Policy in the United States

At the beginning of my remarks, I took care to say I would discuss the state of "competitive" power and gas markets rather than "deregulated" markets. Notwithstanding perceptions to the contrary, deregulation is not and has never been U.S. national policy with respect to power and gas markets. The term "deregulation" suggests an absence of regulation, and U.S. power and gas markets have never been unregulated.

U.S. national policy with respect to electricity and natural gas markets is more accurately characterized as promoting competition rather than deregulation. Competition is U.S. national policy in both electricity and natural gas markets. That national policy was reaffirmed by the Energy Policy Act of 2005, which represents the third major law in the past 25 years to establish competition as policy in wholesale power markets. A series of other laws over the same period have established competition as national policy in natural gas markets.

In the wake of the California and Western power crisis of 2000-2001, there was a national debate in the United States about whether competition was the correct policy. Properly understood, the California and Western power crisis should be seen as a failure of regulation, not a failure of competition. With enactment of the Energy Policy Act of 2005 that debate is over, competition is national policy in both power and natural gas markets, and will remain national policy. In my view, the U.S. will not retreat from competition policy.

The role of the Federal Energy Regulatory Commission (FERC) is to successfully implement competition policy, to use the expanded regulatory tools Congress gave us to make wholesale power and gas markets work better.

Competition policy has been a success in the United States. It has assured security of U.S. electricity supply at a reasonable cost for 25 years. Competition, when combined with effective regulation, can deliver the greatest benefits to the public and the nation. There have also been spectacular failures, such as the California and Western power crisis of 2000-2001. Our job is to reinforce and perpetuate the successes of competition policy.

However, competition policy does not seek to displace regulation altogether. The United States relies on both competition and regulation to assure just and reasonable wholesale power and natural gas prices. We seek to develop the best possible mixture between competition and regulation, and believe that combination can deliver the greatest benefits to the public and the Nation.

I find it unremarkable that U.S. electricity and natural gas markets are governed by both competition and regulation. All competitive markets in the United States are governed by some kind of regulation or market rules, whether they be rules established by a regulatory body such as FERC or antitrust laws enforced by antitrust agencies. The notion that a competitive market must be free from all regulation and free from all market rules is simply false.

We recognize that there can be tension in the marriage between competition and regulation. However, there is little doubt that competition contributes to improved performance of public utilities. For that reason, competition should be permitted where feasible. At the same time, unregulated competition is infeasible, provided that an industry is properly treated as a public utility in the first place.

The development of competition policy in the U.S. has taken place over the past 25 years. During that period, the U.S. has enacted a series of federal laws and FERC has issued a series of policy directives to promote competition in both wholesale power and gas markets. Development has been incremental in nature, moving steadily in a coherent policy direction of promoting competition and necessary regulatory reform.

The nature of regulation has changed, of course, to reflect structural changes in both markets. Competition policy has been characterized by regulatory reform, by significant changes in the nature of our regulatory scheme, not by deregulation.

The reality is that competition policy is not an event. It is a long process that requires strong and sustained political commitment, and continuous reform. The U.S. has been pursuing competition policy in both electricity and natural gas markets for 25 years, and the process is not yet complete. I would go further and argue that the process will probably never be complete. Discussions of the "transition" to competitive markets suggest there is some kind of perfect end state, and that once that end state is realized all reform can cease.

I believe that notion is also false. The reality is that electricity and natural gas markets are highly dynamic, that changes will continue to occur in these industries, and those structural changes in turn will spur regulatory reforms. If at some point in the United States we were to achieve the perfect mixture between reliance on competition and regulation in power and natural gas markets, some structural change in those markets will force us to once more adjust the mixture.

This is not to depreciate the importance of regulatory certainty in highly

capital intensive industries such as the power and natural gas industries. In my view, regulatory certainty is absolutely necessary in countries that rely on private sector investment in power and natural gas infrastructure. But there is a difference between regulatory certainty and static regulatory policy. To me, regulatory certainty is not absolute. It does not promise static regulatory policy, but promises that regulatory policy will be based on the law and the facts, will not be arbitrary and capricious, and will protect reasonably based expectations. I believe the regulator has a duty to constantly seek improvements in regulatory policy, since static regulatory policy is doomed to fail when the regulated industry itself is highly dynamic and subject to structural change.

The series of laws that established competition as national policy in power and natural gas markets also have granted FERC new regulatory powers. As the U.S. has promoted competition, the role of FERC in power and natural gas markets has changed significantly. Frankly, I would note that role is smaller than it was 25 years ago. But the role is clearly different.

The principal mission of FERC in its regulation of wholesale electricity and natural gas markets has been to guard the consumer from exploitation by noncompetitive power and gas companies. That was true in 1935, it remains true today. The way we discharge that role has changed dramatically. In the 1930s, we guarded the consumer by setting rates for individual power sellers. We set rates at a level that prevented the seller from charging monopoly rent. Rate regulation can effectively regulate profit levels. But traditional rate regulation tended to create substantial excess capacity, whose costs were recovered in rates. It also provided no incentive to lower cost, no incentive to improve efficiency, no incentive to reduce environmental impact, and no incentive to deploy new technologies. Competition policy was intended to remedy these failures.

The realistic goal for competitive wholesale power and gas markets should be workable competition rather than perfect competition. By that standard, we have workable competition in both the U.S. power and natural gas markets. There has been significant new entry into both power and natural gas markets and barriers to entry are relatively low. There is good market access, with some room for improvement in power markets. There is a robust power and natural gas infrastructure, with significant investment needs. Open access to network facilities such as the bulk power system and pipeline system has been established, and we have recently adopted landmark rules to provide more perfect access to the bulk power system. FERC provides for contract certainty. There is good transparency in both markets, and we have proposed reforms to provide greater transparency in

gas markets. We continue to make progress on good market rules. We have established new rules to prevent market manipulation and accumulation of market power, and are exercising our new authority to police market manipulation. Perhaps the greatest need for improvement is in demand response, in order to improve price elasticity.

Conclusion

In conclusion, the United States remains committed to competition policy in wholesale power and gas markets. Competition policy was developed in response to the shortcomings of traditional rate regulation. In promoting competition, the U.S. has not abandoned regulation altogether, but instead engaged in a series of major regulatory reforms. In my view, reliance on a mixture of competition and regulation can deliver the greatest benefits to the public and the Nation. Competition policy has been a success, but it requires constant attention of regulators to find the best possible mixture between competition and regulation. Competitive markets also must be supported by a strong energy infrastructure.