

Economic Regulation

Current Challenges Facing Regulators

Introduction

Thank you very much for inviting me to speak to you today. As some of you may know, I was active in the Economics Society of Calgary back in the 1980's, when I also lived in Calgary, and I am very pleased to have this opportunity to renew my contact with the society.

When I was invited to speak, I asked what topic I should address and was told that I could choose whatever I wished. I decided upon 'Current Challenges Facing Regulators', particularly as the challenges relate to economic regulation. I chose this topic deliberately since it seems to me that these are particularly challenging times for regulators. On the one hand, regulators are being asked to respond to a broad-based desire to rely on markets where ever possible, - a desire based on the belief that in the long run a workably competitive market will provide a better allocation of goods and resources than regulators. On the other hand, regulators are being asked to assess critically whether the conditions exist to allow for a workably competitive market to come into existence - to not get caught up in a flavour of the month mentality. Finally, regulators are being asked to recognize that, even if a workably competitive market can come into existence, a move to greater reliance on markets may impose short-term but not necessarily insignificant costs on at least some parties. Regulators are being asked to act in a way that either prevents those costs from being realized or to apportion them fairly.

These are not insignificant challenges.

Historical Rationale for Regulation

In order to put my remarks in context, I thought that I would begin with a brief overview of the rationale for economic regulation. Anyone who has studied the history of regulation, in even the most cursory of fashions, knows that economic regulation is primarily a response to the arising of large natural monopolies in the 19th century and a concern that these monopolies would act to exploit captive consumers by restricting supply of product below competitive levels and charging prices for the product above the competitive level.

Accordingly, the initial goal of regulation was to prevent unwarranted restriction of supply,

unnecessarily high prices and undue price discrimination amongst buyers based on their elasticities of demand. To put it another way, the initial goal of economic regulation was to prevent the misallocation of resources and resulting efficiency losses that arose from a monopoly structure and instead set the price and quantity for a product or service as closely as possible to the levels that would occur if a competitive market existed.

In setting prices which reflected, as closely as possible, the prices that would be set by a competitive market, regulators hoped to achieve the benefits that prices set by a competitive market provide, without loss of the economies of scale and scope frequently associated with monopolies. What are these benefits?

First, competitive prices allow all costs of production to be covered, including a reasonable return on investment. Firms that don't recover their costs over the long-run, don't stay in business and don't continue to provide goods and services to consumers.

Second, competitive prices encourage efficiency. Since, in a competitive market, all sellers are price-takers, producers have an incentive to produce as efficiently as possible since this will govern the extent to which they make profits. Over the long-run, this should lead to innovation and improvement in production processes and increases in consumer choices.

Third, competitive prices reflect the cost to the producer and the value to the customer of the last unit of production of the good or service. In this way, competitive prices ensure that all consumers who are willing to pay the cost of the last unit of production are served but no one else is. As a result, the optimal amount of output is produced.

In a competitive market, prices provide all of these benefits simultaneously. Regulated rates do not. The same forces that prevent competitive prices from being established prevent the establishment of rates that simultaneously recover production costs, encourage efficiency, and assure that the optimal amount of the good or service is produced and allocated. As a result, from the beginning, regulators have been aware that they have had to make trade-offs between these benefits.

Over time, a standard model to address the questions of supply and price was developed based on the concept of cost plus. The cost plus model places primary emphasis on the first benefit of competitive prices, i.e. that prices should be great enough to allow the utility to recover all of the costs it incurs in the provision of its service plus a fair return on the capital it has invested to

provide its service. I would suggest that three reasons account for this. First, businesses that don't recover their costs over the long-haul do not stay in business. Assuming the business is providing a service that customers want, it is in no one's best interest to prevent businesses from recovering their costs. Second, the courts have tended to find that rates can only be appropriate or fair, just and reasonable, if this function is met. Third, it has been the easiest of the benefits for regulators to achieve. Put simply, it requires only that regulators determine the total cost of service, the volume of the service which was likely to be required and the division of the first by the second to obtain a rate.

The standard cost plus or cost of service model also places emphasis on the third benefit of competitive prices, i.e. ensuring that the optimal quantity of the good or service is produced and that it is allocated appropriately amongst customers. Regulators have attempted to mimic this benefit of competitive prices through a variety of means. With regard to ensuring that the optimal quantity of the good or service is produced, regulators have held hearings that examine the need for facility additions. Allocation of the good or service amongst customers has been addressed through the specific design of rates. However, here regulators have been less successful. Cost plus regulation has meant that utilities have had an incentive to over-build or to gold-plate facilities if the rate of return on equity set by regulators is above the required rate of return. This is known as the Averch-Johnson effect. With respect to allocation amongst customers, rates that reflect marginal costs may not return sufficient monies to the utility to allow it to remain in business. Accordingly, regulators have tended to set rates which reflect average costs, modified where possible to give more sophisticated pricing signals. For example, until relatively recently, electricity rates for residential customers often exhibited a declining block form.

Allocative efficiency may also be impaired as a result of the problems that arise when joint costs must be allocated amongst different types of customers. A desire to prevent unduly discriminatory pricing against customers with the most inelastic demand may lead to restriction in customer choice. Similarly, a desire to ensure that regulated activities do not subsidize non-regulated activities may also mean economies of scope are not fully exploited.

Finally, the cost of service model places little emphasis on the second benefit of competitive prices, i.e. the encouragement of innovation that leads to increased efficiency. In a competitive world, where suppliers are price takers, reductions in production costs lead to increased profits. In a strict cost plus regulatory world, it leads to decreased prices. Accordingly, regulators have not been able to rely on incentives within the utility to encourage it to find the least cost method

of producing its good or service. Instead, regulators have attempted to achieve this benefit through hearings that examine the prudence of incurred costs, either before facilities are built or with respect to their operations once they are in place, to ensure that lowest cost choices are made. The lack of incentive to innovate has also meant that utilities have tended to limit the range of service options presented to customers. Instead, there has been a tendency to provide a one-size-fits-all product.

Over time, attempts have been made by regulators to address these problems without losing the benefits associated with cost of service regulation. These efforts include attempts to set incentive mechanisms and performance based rate making to encourage efficiency and innovation by utilities, codes of conduct and transfer pricing policies to ensure that regulated portions of the business do not subsidize unregulated portions, and streamlined hearing processes to cut down on regulatory inefficiencies. However, while each of these efforts have led to improvements, none has been entirely successful in imitating a competitive market solution.

I should at this point make clear that I recognize that pure economic efficiency is not the only consideration regulators bring to bear in their determination of appropriate rates, nor was it ever intended that it should be. Most legislation contains language stating that the rates to be set by regulators should be “fair, just and reasonable” and not simply economically efficient. Indeed, academics have spent considerable time determining what criteria, in addition to economic efficiency should be embodied in a sound rate structure. These include considerations such as simplicity, understandability, public acceptability, feasibility of application and freedom from controversy as to proper interpretation. Nonetheless, economic efficiency within the constraints made unavoidable by the existence of the market imperfection has been a key goal.

Today’s Environment

In order to identify the challenges that regulators are facing today, I think that it is first necessary to determine whether the goal of economic regulation has changed. My personal view is that it has not. Regulators are still trying to minimize economic inefficiencies which arise from serious market imperfections and encourage economic efficiencies. This view can be seen in the four goals of the National Energy Board, one of which is “Canadians derive the benefits of economic efficiency.”

But if the goal has not changed, does it also follow that the regulators must continue to adhere to the standard cost of service model developed at a time when railways were first coming into

being? My answer is no. If circumstances have changed so that the cost of service model, with its attendant trappings, no longer is the most effective method of achieving the maximum level of attainable economic efficiency, then we should be ready to examine other means or methods of regulation. This is not to say that we should immediately move to new methods or throw out those parts of the cost of service model which still deliver benefits - any new method needs to prove that it delivers increased efficiency - but regulators should be open to new possibilities.

Have circumstances changed since the time the original cost of service model was developed? I believe they have. The traditional regulatory model assumes a single utility providing a unique product, e.g. natural gas distribution, within a given service territory. As a result, the utility is assumed to face no competitors. Like most models, this model has always been simpler than the reality it seeks to explain. In actuality, utilities have always faced some competition, if not from other utilities offering exactly the same product in the same service area then from companies offering products that provide similar services. For example, natural gas distribution utilities have faced competition for the space heating load from other energy form providers. However, the extent of competition is greater today for most utilities than it was even a few years ago.

The increased competition is occurring in both the upstream and downstream markets. In 1990, there were four major natural gas pipelines taking gas out of the Western Canada Sedimentary Basin. These were TransCanada Pipelines Limited, Foothills Pipe Line Ltd, and Alberta Natural Gas Ltd., which competed with each other to only a limited degree for gas from Alberta because of limited take away capacity and Westcoast Energy Inc. which had a pure monopoly on gas from British Columbia. TransCanada delivered gas into eastern Canada, Foothills had its terminus in Iowa through its affiliation with the Northern Border pipeline, and Westcoast delivered gas into the Pacific Northwest at Huntington and Kingsgate. And while Foothills, Westcoast and TransCanada all faced some competition in their US markets from deliveries of US gas over US pipelines, Westcoast had a monopoly on the transmission of gas to BC markets while TransCanada was the only supplier of note in central and eastern Canada.

Beginning in 1998, the situation changed significantly. Large increments of take away capacity from the Western Canada Sedimentary Basin have been or are being added through projects such as the 1998 Northern Border expansion (700 Mmcf/d), the 1998 TransCanada expansion (352 Mmcf/d), BC Gas' Southern Crossing project (250 Mmcf/d initial capacity), and of course, the new Alliance pipeline (1.324 Bcf/d of initial capacity), resulting in increased competition for the right to deliver western Canadian gas to markets. In addition, we have seen the development of new sources of gas and new pipelines to bring these alternate sources of gas to markets that were

once the domain of the older pipelines. For example, we have seen the development of the the Maritimes and Northeast Pipelines (530 Mmcf/d of initial firm capacity) bringing gas from the East Coast of Canada into the provinces of Nova Scotia and New Brunswick and the US Northeast as well as Vector (700 Mmcf/d initial firm capacity) bringing gas from Chicago to Ontario.

And new pipelines continue to be proposed which if approved will see the creation of new market hubs at Dawn and Leidy.

As an economist trained in the neo-classical tradition, I find it a bit awkward to suggest that increased competitive forces are somehow problematic. But the transition from an environment which conformed more closely to the classic natural monopoly model to an environment which contains increased competitive forces but is not yet, and may never be, completely competitive does pose challenges for regulators.

Therefore, the question becomes: how, in this new market, does a regulator ensure that the maximum amount of economic efficiency is obtained?

In a speech given last April at the Joint Conference of the Interstate Natural Gas Association of America and the Canadian Energy Pipeline Association, the Chairman of the NEB outlined three suggested principles for a transitional market. These are:

- Incumbent pipelines should respond in a competitive fashion, using their assets in creative ways to maximize value to their shippers and themselves.
- Parties should recognize that investments made by incumbent pipelines were made in heavily regulated markets.
- Incumbent pipelines often retain considerable market power and are not operating in fully competitive markets.

He went on to state that, with respect to the NEB's role in regulating natural gas transmission, economic efficiency means: promotion of a low cost transportation network; ensuring that transportation services meet shippers' needs with respect to service mix and options; and promotion of rational investment decisions.

This view of the role of the regulator in today's market environment is not unique to the NEB. In Order 637, the US Federal Energy Regulatory Commission indicated that it sees its role as ensuring that pipeline rates and services are just and reasonable and achieve two principles. First, the FERC should promote competitive and efficient markets. Second, the FERC should mitigate the market power of pipelines and prevent undue discrimination, especially for captive customers vulnerable to a pipeline's market power.

Current Challenges Facing Regulators

Having reviewed the historical rationale for regulation and the environment in which it was developed and the new environment in which we now find ourselves, let me now turn to the current challenges facing regulators. In identifying these challenges, I have assumed the following goals.

- We wish to establish a regulatory environment in which utilities with sound management practices have a reasonable opportunity to cover all costs of production, prudently incurred, including a reasonable return on investment, commensurate with the risk of the investment.
- We wish to provide utilities with an incentive to produce as efficiently as possible.
- We wish to provide customers with all the services and the full range of services for which they are willing to pay the true economic cost.

I see at least some of the challenges of meeting these goals as being related to finding the appropriate answers to the following questions.

- How far can we rely on the market to provide economic discipline? Are there sufficient market players to allow society to reap the benefits of competition?

I sometimes hear people say that markets provide better solutions than regulators. I agree as long as those markets are workably competitive. Nonetheless, the question remains: how do we decide if the market is workably competitive? How many parties need to be present in the market? Is it enough for parties to be able to enter the market, i.e. is the absence of significant barriers to entry enough? Can the rules for entry into certain markets be relaxed given the externalities associated with production of the commodity and the fact that in some areas natural monopoly conditions may still exist?

- What level of certainty should utilities enjoy with respect to recovering their costs? What does this mean for the proper trade-off between risk and reward for utilities and their customers?

In the standard cost of service world, utilities enjoy great certainty with respect to cost recovery which allows them to access lower cost forms of capital and lower depreciation rates (a benefit to customers) but may reduce the incentive to operate efficiently (a cost to customers). In a truly competitive world, the reverse is true.

How far should regulators go to protect shareholders' interest if we are also interested in encouraging efficiency? How should we trade off the potential for long-term efficiency gains due to innovation against immediately realizable increases in the cost of capital?

In addition, it should be recognized that the certainty of utility revenue recovery in the traditional cost of service environment is partially the result of reduced customer options, i.e. only the utility provides the product in the format it chooses. In today's world, customers are enjoying more options and some customers currently have the ability to leave utility service altogether, implying increased responsibility for costs for remaining customers. Should departing customers/ utility shareholders be required to pick up part of the cost of assets stranded by the departures or should a reverse survivor set-up be left intact?

- Does the changed environment mean that utilities require more pricing/service flexibility if costs are to be recovered? Some parties argue that increased risk from competition means the utilities should have greater flexibility to meet the risk/ If so, how do we continue to protect against 'undue discrimination'? Is what constitutes 'undue discrimination' the same as it was?

In the past, the Board has turned down certain proposals as being unduly discriminatory. However, does the assessment of what is unduly discriminatory change if the alternative is severe financial distress for a pipeline and significant negative impacts for captive customers?

- How do we ensure fair treatment between old and new pipelines? Are the rules governing utility service overly complex?

Do the rules governing utility service need to be changed to allow utilities to compete in the market? How do we ensure that utilities are allowed to compete fairly but not given undue advantages?

Incumbent utilities may enjoy advantages in certain areas, e.g. older and therefore lower cost facilities, while new utilities may enjoy advantage in other areas, e.g. terms and conditions more aligned with today's market. Is it possible to trade-off different kinds of advantages?

- What is the appropriate level of utility investment? How do we ensure proper incentives for new capacity? How do we determine who should be allowed to provide it?
- How do we trade off the different elements of economic efficiency I mentioned at the beginning of my remarks? For example, how do we trade-off the desire to encourage utilities to be innovative, leading to cost reductions over the long-run with the desire to limit discriminatory prices?

Some parties argue that certain economic costs should be borne now in order to arrive at a better future. However, how should these trade-offs be made if the recipients of the future benefits are not the same parties as bear the costs? How should we deal with the fact that there will be both winners and losers as a result of greater reliance on markets?

Closing

Obviously, I don't have answers to all of these questions. Indeed, I believe that it would be inappropriate of me to have the answers since I believe that these questions can only adequately be answered through a full dialogue with all interested parties. However, while the right answers are unclear to me, I do believe that this is the right time to be addressing these questions. I do not believe the environment in which we are living is going to grow less complicated and the sooner we begin to address these issues the better it is likely to be for all parties. We need to bring our knowledge, our ability to be innovative, and our desire for fair and efficient outcomes to the discussion of these questions.