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BCUC Indigenous Utilities Regulation Inquiry Exhibit A-8

**Re: British Columbia Utilities Commission – Indigenous Utilities Regulation Inquiry – Project No. 1598998
Scott Hempling – Utility Regulation Report**

Good afternoon:

Pursuant to Order in Council (OIC) No. 108, the British Columbia Utilities Commission (BCUC) is undertaking an Inquiry respecting the regulation of Indigenous utilities.¹ Section 3 of OIC No. 108 outlines the terms of reference for the Inquiry, whereby the BCUC must advise the Lieutenant Governor in Council on the appropriate nature and scope, if any, of the regulation of Indigenous utilities. The BCUC will be receiving evidence from Indigenous governments and community members, the provincial government, utility owners and operators, and interested members of the public, regarding the items in the terms of reference.

As part of the Inquiry, BCUC staff requisitioned a written report from an independent expert, Scott Hempling LLC, that will be added to the Inquiry's public evidentiary record. The BCUC stipulated that Mr. Hempling address the following scope items in his report:

1. Introduction: What is regulation and when is it used

- What are regulators, and how are regulators different from government?

2. Overview of public utility regulation (in the context of electricity, gas and district energy)

- Characteristics of public utilities, including vertically integrated and distributed utilities
- Rationale for the regulation of public utilities
 - What aspects of public utilities' activities may be regulated?
 - Outline of the spectrum of public utility regulation, from full regulation to light or no regulation

3. Assessing the need for regulation

- Identification of the interests of actors affected by public utilities that may need to be protected
- What are the costs and benefits of regulation, and balancing the extent to which these affect the need for regulation?
- What potential conflicts or consequences must be considered in the absence of regulation?

¹ http://www.bclaws.ca/civix/document/id/oic/oic_cur/0108_2019

Mr. Hempling's report is attached to this letter and will form part of the evidentiary record in this Inquiry. For clarity, while the contents of the report may inform the general discussion, it does not provide advice or recommendations to the BCUC or the Lieutenant Governor in Council on the specific subject matter of the Inquiry, nor is it intended to reflect the position of the BCUC with respect to any matter that it addresses.

Sincerely,

Original signed by:

Patrick Wruck
Commission Secretary

LK/ad

**Utility Regulation:
What Is It, Why Do We Have It, and How Does It Work?**

Scott Hempling, Attorney at Law

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Utility Regulation: What Is It, Why Do We Have It, and How Does It Work?

Scott Hempling, Attorney at Law¹

I. What is regulation and why is it necessary?

Regulation is the set of actions a government-created body takes to permit, limit, and guide the behavior of private individuals and businesses. With these permissions, limits, and guidance, regulation aims to promote the public interest² by preventing negative outcomes and producing positive ones.

Preventing negative outcomes: Government introduces regulation when private behavior, unregulated, would conflict with the public interest. Consider these common examples:

Speed limits: Without speed limits, each car driver would decide, individually, how fast to drive, and when to start and stop. He would pursue his own interests—getting to work on time, hurrying home to watch a ball game—without paying enough attention to other people's interests.

Car inspection: Most governments require each car owner to have her car inspected annually. Without that rule, some would avoid inspections to avoid the inconvenience and expense. But avoiding inspections harms others if the brakes fail or the exhaust fumes over-pollute.

Air traffic control: If the airport had no air traffic controller, each airline would fight for access to the runways and the airways. The inefficiencies and dangers would cost money and lives.

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² The phrase “public interest” is difficult to define because it has no fixed meaning. I attempt to define it at p.3 below.

Producing positive outcomes: Governments also introduce regulation when private individuals under-invest in things that would make life better for all. In the U.S., the law requires citizens to pay social security taxes when we are young, so that when we are old we can live on our savings instead of burdening others. Zoning regulation arranges roads, houses, and businesses to assist economic development while making life pleasant for all. Without that regulation, a community might under-invest in roads, or build roads in places that favored only the powerful.

In one sentence: *We use regulation to align private behavior with the public interest, in situations where private behavior, unregulated, would conflict with the public interest.* More technically, economists view regulation as a tool to reduce economic loss in markets with imperfections—imperfections like economies of scale, high entry barriers, unique products, and insufficient information. Absent regulation, these imperfections can lead to destructive competition, unanticipated scarcity, insufficient innovation, and overconsumption of goods that affect others negatively (for example, cigarettes, or fossil fuels—negative externalities); and under-investment in goods that affect others positively (for example, parks, roads, and schools—positive externalities).

The preceding paragraphs offer an objective view of regulation, as something that can benefit the community as a whole. There are also subjective views of regulation, views expressed by different interest groups. In the context of regulating utility monopolies, consider these eight examples:

1. Small consumers seek protection from high prices and poor service.
2. Large industrial customers seek low rates so they can compete in global markets.
3. Shareholders want the utility to earn a fair return on its infrastructure investment.
4. Lenders want the utility to have sufficient cash flow to pay off its loans.
5. Competitors want market conditions allow them to compete on the merits.
6. Low-income citizens need essential services to be affordable.
7. Environmental advocates want to minimize environmental damage.
8. Rural residents want to ensure universal service.

Some people describe regulation's role as "balancing" these differing interests. "Balancing" presumes that the different interests are necessarily opposing interests. But if interests are legitimate they are not opposed. When a utility performs efficiently, and has reasonable prices, good earnings, satisfied customers, and satisfied investors, benefits flow to everyone: consumers, shareholders, lenders, employees, the environment, and the community's infrastructure. What regulation must balance is not competing private interests but the various components of the public interest—long-term versus short-term needs, affordable rates versus efficient price signals, environmental values versus global competitiveness. That is how regulation serves the public interest.

Actions and actors: Given these goals—reducing negative results and producing positive results—what do regulators actually do? They regulate the actions of actors. Actors are the individuals and companies whose actions, unregulated, could harm others. When we regulate actions like driving and airline take-offs, we regulate actors like car drivers, airline companies, and pilots. Regulation identifies actions to be discouraged or encouraged; along with actors whose actions would, cause harm or fail to produce positive results. Universal, reliable, safe electric and gas service at reasonable rates doesn't happen by itself. So we use regulation to align private behavior with the public interest. Regulation defines standards for performance, then assigns consequences, positive and negative, based on actual performance. The purpose of regulation is performance.

What is the "public interest"? Regulatory statutes (laws passed by the provincial or federal parliament) require regulators to act for the "public interest." The phrase has no fixed meaning. But its purpose is to elevate the shared, long-term interests and needs of the entire community over the narrow, short-term interests of specific individuals and companies.

One feature of the public interest is economic efficiency—getting the "biggest bang for the buck." An inefficient outcome means someone is foregoing some benefit we could attain without cost to others. That is not a public interest outcome. But economic efficiency is not the only goal, because the public interest involves more than money. Safety, innovation, fairness to consumers and workers, diversity of choices—the public interest includes them all. One caution: Regulators' powers are limited by the laws that grant those powers. Laws that create utility regulatory commissions usually limit those commissions to matters related to the utility's economic performance. So the commission will not likely have authority to address issues like racial diversity or worker safety, or affordability or environmental effects, even though all those subjects are essential to the more general public interest.³

Take affordability. A utility's rates should reflect the reasonable costs of service. If the regulator sets those rates accurately, but a low-income individual cannot afford to pay those rates, the problem is not the rates; the problem is poverty. Poverty is a deep public interest problem, but it is not among the problems utility regulators have the legal power to solve. The solution must come from the legislative body, like the provincial or national parliament. The utility regulator should of course alert the legislative body to the problem and help design solutions, but the solution must come from the legislative body.

Costs of regulation: Regulation has costs, although in regulation as in life one person's cost can be another person's benefit. Regulation can prohibit or restrict actions that some people want to take. And regulation can order actions that some people would prefer not to take.

³ See, e.g., *National Association for the Advancement of Colored People v. Federal Power Commission*, 425 U.S. 662 (1976). In this famous opinion, the U.S. Supreme Court held that the Commission lacked authority to issue a rule prohibiting utilities from practicing racial discrimination. The Court held that although the phrase "public interest" appeared in the Federal Power Act (which created the Commission and gave it its powers), the phrase was limited by the Act's purpose, which was to ensure the economic performance of utilities.

People affected by restrictions or orders tend to view them as "costs" to themselves, even if those costs create larger benefits for others. People favor regulation when it protects; they oppose regulation when it obstructs.

Regulated entities, for example, might find regulation inconvenient when it imposes rules on safety for workers, responsiveness to customers, or reliability of service. Each type of rule raises costs. Customers can find regulation inconvenient when their supplier raises prices to pay for those rules. Monopoly incumbents who wish to enter new service markets chafe at regulatory rules designed to remove their unearned advantages so that competition can develop. In the electric industry, regulators impose special rate increases on those who live far from the distribution system, due to the extra cost of extending the system. Other rules prohibit people from tampering with electrical lines to steal power. People inconvenienced by these rules talk about regulation's costs.

Sometimes regulation appears to cause costs when it actually reduces costs—by placing existing costs on those who can best reduce them. Take environmental regulation. Air pollution causes costs: health costs, laundry costs, and food costs (such as when rivers and lakes become too polluted for fishing). When environmental regulation requires polluters to install pollution-reduction devices, it increases their costs, yes; but doing so reduces the environmental costs that others bear. Done cost-effectively, this type of regulation not only does not increase costs; it assigns responsibility to those who can most efficiently reduce costs.

Like any government action, regulation has its own costs. It requires a staff of experts. It uses decisionmaking procedures that consume time. Those experts and procedures identify problems to solve, gather facts, identify solutions, and receive comments on those solutions from affected citizens. Then regulation produces decisions, opinions, and explanations designed to satisfy the public and comply with the law. These steps require funding and time—costs.

Regulators incur extra costs when people and businesses try to influence regulatory decisions with political pressure unrelated to the merits of those decisions. Not all politics is wrong; regulators must listen to those affected by regulation. But political pressures, when unrelated a matter's merits, can cause regulators to depart from objectivity, making mistakes that cause unnecessary costs to investors and consumers. In this way, regulation does not differ from other types of public decision-making. What distinguishes utility regulation is the effort it makes, through independence, professional staff, and expert analysis of the facts and law (as discussed in Part III.F below), to discourage improper political pressure and minimize its effects.

II. What characteristics of public utility service make regulation necessary?

A. Public utilities in general

Most utilities are legal monopolies. The legislative body has passed a law, or a regulatory commission has issued an order, that does three things:

1. It draws the boundaries of a particular service territory.
2. It appoints a single company to provide some set of services to customers within that service territory.
3. It prohibits any other company from competing with the appointed company within that service territory.

We call this government action "granting a certificate of public convenience and necessity" or "granting a franchise." Governments grant these monopoly franchises when they find that the particular service, such as retail electric service or retail gas service, is a natural monopoly. A natural monopoly is a product or service having two main characteristics: (1) the per-unit cost of providing the service declines as output increases; and (2) the decline continues for the entire quantity sold within the defined market. If a service has these characteristics, costs to customers will be lowest if the market has only one company.

A monopoly faces no pressure from competitors. Vigorous competition—the possibility of losing one's customers to one's competitors—causes each seller to operate as efficiently as technology and human ability allow. Without competitive pressure, a monopoly will become inefficient—charging excessive prices and providing low-quality service. And monopolies discriminate, because discriminating is profitable: Economists tell us that charging higher prices to customers with fewer alternatives, and lower prices to those with more alternatives, produces more profit than charging the same price to all.

To address these two concerns—inefficiency and discrimination—most public utility statutes have two requirements:

1. The utility's rates must be "just and reasonable."
2. The utility must not grant any customer an "undue preference or advantage."

B. Electric utilities

The electricity industry consists of four major activities. *Generation* is the conversion of energy from fossil, nuclear, renewable, or hydroelectric sources into electric current. *Transmission* is the long-distance transportation of electric current over a network of high-

voltage lines, from the generation sources to substations close to load centers. (Substations reduce the voltage at different locations, because the voltage in your home is lower than the voltage at the generation station.) *Distribution* is the physical delivery of electricity over a network of wires and equipment from transmission system's substations to the consumer. *Aggregation* (sometimes called *marketing* or *customer service*) involves planning for the customers' total needs (called "load" or "demand"), and procuring sufficient energy resources to meet those needs. Aggregation includes all the activities necessary to serve customers reliably: forecasting customers' demand; acquiring (through construction or purchase) sufficient generation, transmission, and distribution resources to serve that demand; installing and maintaining meters to measure customer consumption; billing customers accurately; and processing customers' payments.

For much of the 20th century, most customers were served by vertically integrated utilities—entities that performed all four activities. Each utility owned and operated generation, transmission facilities, and distribution facilities; and also carried out the aggregation functions. By performing all of these activities, the utility provided to retail customers a single "bundled" product, electric service, within an exclusive local territory whose boundaries were defined by the legislative body or by the regulatory commission. Some vertically integrated utilities also had wholesale customers, such as cities, towns, and customer-owned cooperatives. Those wholesale customers would buy "bulk power" (generation and transmission) from the utilities, then handle the final two stages (physical distribution and aggregation) themselves. For a simple diagram of the traditional electric industry structure, see Figure 1.

Since the 1980s and continuing today, this vertical integration model has been challenged by technological developments. Generation—both fossil-fueled and renewables—can be built in smaller increments than before, so it can be owned by smaller companies independent of the traditional utilities. Thanks to long-distance transmission, that generation can be located remote from population centers. Generation companies independent of the traditional utilities have entered wholesale markets, selling their output to the monopoly utilities. Their entry has replaced some generation formerly owned and controlled by those utilities. As a result, some of these utilities have become distribution-only utilities (sometimes called "wires companies"); they buy their electricity at wholesale from the independent power producers, then deliver that third party's power to their retail customers.

Change is coming to the distribution sector as well. Most observers still consider physical distribution service to be a natural monopoly; competing distribution wires cluttering our neighborhoods would raise costs for all. But independent companies are developing assets and services that can substitute for physical distribution facilities: advanced meters (they measure usage by time of day rather than merely total usage over a month, therefore allowing for different electricity prices at different times of the day), storage, solar panels, energy conservation services, microgrids, community-owned solar farms, and other forms of "distributed generation." In the U.S., some states now allow consumers to shop among competitors for these services.

C. Gas utilities

The natural gas industry has six main categories of activity: (1) exploration and production, (2) pipeline transportation from gas fields to local markets, (3) sale of gas at wholesale by producers to local distribution companies, (4) physical distribution of gas from pipelines to consumers, (5) retail sales of gas to consumers, and (6) storage (which can occur at any of the previous stages).

Today, most consumers take their gas from a monopoly local distribution company (LDC). That local distribution company has at least three ways to buy its gas. First it could buy its gas at wholesale from large pipelines (which have bought the gas from producers). Second, the LDC could buy its gas directly from gas producers, then hire pipelines to transport the gas from the producers' wellheads to the LDC's service area. Third, the LDC could buy its gas from independent marketers, who themselves bought the gas from producers or pipelines, and then arranged for transportation to the local distribution company. Once the LDC company has bought and received the gas, it delivers that gas over its local distribution system to its customers. For a simple diagram of the traditional gas industry structure, see Figure 1.

Before the 1980s: Exploration and production companies found and produced the gas, then sold it to large, cross-country pipelines. These pipelines performed three functions: transporting gas over long distances to local markets, reselling the gas at wholesale to LDCs, and storing the gas for future sales. (The wholesale sales function is sometimes called the "merchant" function.) In their dealings with LDCs, the pipelines usually sold their transportation service and wholesale gas as a single "bundled" product. So an LDC had to buy its gas from the pipeline that transported it. And if an LDC was located near only one pipeline, the LDC was a captive gas purchaser; it could not shop for gas among multiple suppliers. There was competition among producers to sell gas to pipelines, but from a typical LDC's perspective there was little competition among pipelines to sell or transport the gas to the LDC. The LDCs, in turn, operated as government-franchised monopolies within government-defined service territories. They physically distributed and re-sold the gas to retail customers.

More recently: Pipelines have provided "unbundled" transportation service; meaning that an LDC could buy its gas directly from producers rather than from the pipeline; then hire the pipeline to transport the gas to the LDC's service territory. The LDC then would deliver the gas to its retail customers. The industry also has marketers and brokers. Marketers buy gas from producers (or other marketers), then resell it to LDCs or to retail customers. Marketers can be independent, or can be affiliates of producers, pipelines, or LDCs. Marketers can also re-bundle transportation service and storage (purchased from pipelines or released by LDCs) with the gas commodity. Brokers play a similar re-bundling role, except they do not take ownership of the gas or the pipeline capacity; rather, they match buyers and sellers for a fee. LDCs still sell the bundled product of physical distribution and gas commodity to retail customers. (As with electricity, some places now allow consumers to shop for retail gas service. And as with electricity, it is common for the monopoly gas distribution service to be subject to regulation.)

D. Publicly-owned utilities

Publicly-owned utilities are utilities that are owned by the government or by the customers themselves. These utilities differ from shareholder-owned companies in two important ways. First, they are ultimately accountable taxpayers or customers—so their leader can be removed by political actors. Second, they have no private shareholders, so there is no profit interest to cause conflict with the customers' interests. Given these two facts, some argue that an independent regulator is unnecessary; that these companies have every reason to regulate themselves. Others cite examples of nonprofit or government-owned utilities that are inefficient because they are monopolies, making regulation no less necessary than it is for for-profit utilities.

E. Current developments

Many decades ago, governments created utility regulatory commissions to regulate the sale of electricity and gas, because the sellers were monopolies. But the past 30 years have revealed a distinct reason for regulation: to bring competition to the markets controlled by these monopolies. Part II.B described how in some parts of the world competition has come to wholesale electricity and gas, retail electricity and gas, and electricity distribution services. These changes in market structure cannot occur unless regulation eliminates, or at least reduces, the incumbent utility monopoly's unearned advantages in the potentially competitive markets.

A prominent example of an unearned advantage: The historic utility can use its control of the electric transmission highways to prevent its new competitors from moving their generation output to their customers, leaving the utility free to move its own generation output to its own customers. Other advantages include (a) control of the physical interconnection that independent generators need for access to the incumbent utility's transmission or distribution network; (b) historic data on customers' consumption patterns and payment histories; and (c) control of sites desirable for the construction of new generation, transmission, or distribution. Unless competitors have access to these resources they cannot compete effectively. Regulation helps reduce these barriers to entry.

III. How do utility regulators do their jobs?

Part I explained that regulators regulate the actions of actors. For the electric and gas utilities described in Part II, what are the actions and who are the actors? When regulators regulate the actions of these actors, what subjects do they cover? What powers and procedures do they use? This Part III addresses these questions and others.

A. Regulated actions

When the utility is a monopoly, regulators regulate some or all of the following actions, because the utility might perform these actions less efficiently than it would if it were subject to competition:

- Selling gas or electricity to retail customers—the ultimate consumers.
- Selling gas or electricity to wholesale customers, who then resell to ultimate consumers.
- Selling gas or electricity transportation service to retail or wholesale suppliers.
- Selling storage service.
- Merging with or acquiring companies, or being acquired by other companies.
- Acquiring assets.
- Borrowing money or issuing stock, to finance infrastructure.
- Disposing assets used to provide utility service.
- Exercising the power of expropriation.⁴

The obligation to serve: The utility has an obligation to serve—the obligation to (a) provide the services defined by its franchise agreements and its statute, (b) maintain quality levels defined by commission rule, and (c) comply with commission rules and orders. The obligation to serve could include not only the traditional obligation to sell electric current or natural gas, but also an obligation to provide renewable power, smart meters, customer education, and energy efficiency services. The obligation to serve prevents a utility from discriminating against the desperate—extorting excessive rates by threatening to withhold service. The obligation to serve also includes an obligation to *plan to serve*, because the utility is responsible for its service territory's entire needs—its people and its economy—now and in the future.

The obligation to serve is not unlimited. Common exceptions include (1) customers who violate the tariff's safety provisions; (2) customers who reside remotely from the central population, unless the customer pays a special charge to cover the extra cost of connecting; and (3) customers who fail to pay their bills (although for low-income customers, some places prohibit the utility from shutting off service in the winter, and might also provide taxpayer funds or ratepayer funds to cover those customers' service costs).

⁴ The power of expropriation (known as eminent domain in the U.S.) is a government's power to take someone's private property for public use—provided the government compensates the private property owner for the property's market value. In the United States, most states grant this power to public utilities. The utilities then must exercise that power consistently with rules established by the legislative body or the regulator. Typically, those rules require the utility to demonstrate that taking the provide property satisfies three general requirements: (1) It provides a benefit to the public as a whole; (2) it is clearly necessary to ensure adequate utility service; and (3) it does not harm the environment or the orderly development of the region in which the property is located.

Utilities have discretion in how they carry out their responsibilities. But their failure to exercise that discretion timely and prudently can bring investigations and penalties.

B. Regulated actors

The regulator's statute will define the actors whose actions the regulator has the power to regulate. The main actor will be the utility that serves retail customers. In the electric industry, that utility might be a vertically integrated utility; or it might be a distribution-only utility.

If the government has introduced competition (as Part II.B explained), there could be other market actors whose actions affect the public and therefore should be regulated: Those actors can include:

Generation-only company: Sometimes called an "independent power producer," it sells power at wholesale to utilities, who then sell to retail customers.

Transmission-only utility: Sometimes called a "transco," it sells only transmission service to utilities, who then would use that transmission service to transport electricity purchased from independent power producers to the utilities' ultimate customers.

Independent marketer: This company does not own any infrastructure; instead it purchases transmission service and generation service from others; then bundles these separate products into electric service delivered to ultimate consumers.

Pipeline: In the gas industry, the pipeline provides transportation service that local distribution companies use to move gas they've bought from producers to their local customers.

C. Subjects of regulation

When regulating the actions of actors, regulators address five main subjects. These subjects are the topic areas within which actions take place.

Market structure: A market is a place where sellers and buyers meet to exchange goods or services for value—usually money. Market structure describes (a) the geographic area in which transactions occur; (b) the products and services being sold in that geographic area; (c) the identities, characteristics, and market shares of the entities that sell and buy those products and services in that geographic area; and (d) the ease with which sellers can enter and exit the market. Sellers serve customers well if the market structure is vigorously competitive; or if, absent competition, the regulator creates rules that replicate the pressures of competition. Only that way will sellers act efficiently, innovatively, and responsively.

In addressing market structure, regulators ask these questions: Are customers served best—efficiently, innovatively, and responsively—by a competitive market or by a regulated

monopoly market? Who has, and who should have, a right to sell which products and own which facilities? For competitive markets: Are there a large number of viable sellers with small market shares, so that they will compete vigorously, leading to a cycle of lower costs and higher quality? For monopoly markets: What should be the regulatory standards for pricing, quality, infrastructure adequacy, operational efficiency, financing, and corporate structure?

After asking and answering those questions, regulators take action: They license new suppliers, they require those who own monopoly transportation facilities to allow competitors to use those facilities, they monitor prices for reasonableness, and they review and condition mergers and acquisitions.

Sales of gas and electric service: In addressing sales, regulators ask these questions: For monopoly services, do the prices reflect efficient operations and wise decisions about infrastructure investment—or are they inflated by inefficient performance? Are the prices high enough to cover operating costs and necessary capital expenditures—and high enough to attract the investment dollars necessary to build, maintain, and modernize the utility's infrastructure? To prevent discrimination and promote efficiency, do the prices for different customer categories reflect the specific costs of serving those categories?

Financial structure: In addressing financial structure (also called capital structure), regulators ask these questions: How does, and how should, the utility finance its infrastructure and its operations? From whom does it raise the money it needs to build and maintain its system? What is the appropriate mix of debt and equity, so that bond ratings are positive, interest rates are reasonable, and private stockholders, if any, find the investment attractive?

Quality of service and safety: A restaurant faces pressures. Daily, it has to offer attractive dishes, make the menu distinct, serve fresh food hot and timely, keep the ovens working, and heed all health rules. Long-term, it needs to anticipate changes in customer tastes, recruit good chefs, and arrange financing to replace equipment. Within a single square mile, a dozen competing restaurants are doing the same things. So each restaurant must excel, or lose its customers to others. A monopoly utility, protected by the government from competition, doesn't have competitors. So the pressure for excellence must come from the regulators; specifically, their power to establish and enforce quality standards. Those standards typically cover these areas, among others:

Reliability involves the frequency and duration of outages, and has two components: adequacy (Does the utility have enough infrastructure to accommodate demand?) and security (Do the utility's operations keep the delivery system stable?).

Product quality, for electricity, involves voltage stability. For gas, product quality involves the level of impurities that can corrode pipes or create toxic fumes.

Safety affects customers, employees, and the public.

Customer service involves things like meter and billing accuracy, outage reporting, and timely interconnection for new customers.

In this quality-of-service space, regulators can address both inputs and outcomes. Inputs involve actions—verbs—like installing meters or trimming trees. Outcomes involve results—nouns—like limits on the frequency and duration of outages, reductions in estimated (as opposed to meter-read) bills, and the time customers wait for repairs. When the regulator sets standards for outcomes, it leaves the utility free to choose the actions.

Corporate structure: Corporate structure addresses these questions: What business activities, conducted through what types of transactions, should exist within a utility's corporate family? How do mergers and acquisitions affect a utility's accountability to the public?

D. Regulatory powers

1. In general

To align private behavior with the public interest, a utility regulator establishes standards for performance, then sets rates that compensate the utility based on its performance. To do those jobs, the regulator needs legal powers, sometimes called its "jurisdiction."

The source of a commission's legal powers: Legislation establishing a commission's jurisdiction specifies the actors and actions to be regulated, and the goals the regulation must seek to achieve. A utility commission has only those powers granted by the legislative body. That legislative body typically grants the commission the power to set rates and to oversee the utility's performance. A utility commission's powers can include the power to set standards—leaving it to the utility to determine what actions to take. The powers can include the power to order specific actions—either actions to eliminate a problem of safety or service adequacy, or actions to improve performance beyond current levels or provide new services.

Regulatory legislation distributes regulatory powers among various entities—the legislative body, the government ministry, the utility commission, and the courts. And it can distribute powers between the national and provincial governments.

A regulatory commission can also receive directives from the government ministry, if that ministry itself has the power to issue directives. Finally, a commission's actions can be constrained by the courts—such as if the commission exceeds its powers, or fails to use proper procedures.

The regulatory commission's discretion in using its powers: When establishing the regulator's powers, a statute can either order the regulator to act, or merely authorize it to act. For example:

1. The statute can order a commission to take specified actions under specified circumstances, such as issuing a rule on energy conservation or on natural gas quality, or acting on a merger application or rate increase request within a stated time period.
2. Or the statute can merely authorize the commission to act, implicitly leaving the commission with discretion on how to act—and the discretion not to act. The commission can exercise its discretionary power affirmatively, such as by issuing rules on corporate structure or instituting enforcement proceedings on service quality. Or it can exercise its discretionary power reactively, such as by waiting for a customer to complain about a rate or a service problem, then investigating and acting.

In summary, a full understanding of any utility commission's powers and responsibilities requires attention to a nation's and province's specific statutes, ministry directives, and court precedents.

2. The rate-setting power and other powers

The regulatory power receiving the most public attention is the regulatory power to set a utility's rates. Without competitors and without a regulator, a monopoly utility could raise prices at will, restrained only by its customers' ability to cut their usage to reduce their costs. To prevent this abuse, regulatory statutes direct regulatory commissions to set rates that are "just and reasonable." That standard addresses the legitimate interests of the customers and the utility. Not only must the regulator protect the consumer from unreasonable costs; the regulator must also provide the utility a reasonable opportunity to recover its reasonable costs; and, if it is a for-profit utility, to earn a fair return on investments that are prudently incurred, and useful to customers.

To satisfy the just-and-reasonable standard, regulators usually set a utility's rates based on its reasonable costs: costs that a specific utility has actually incurred or reasonably expects to incur. Those costs include both fixed costs (examples: generators, pipelines, pumps, land, headquarters building, and vehicles); and variable costs (examples: fuel, labor, and taxes). Using data on the utility's fixed and variable costs (sometimes historic, sometimes predicted, sometimes both), the regulator sets rates calculated to give the utility a reasonable opportunity to recover its prudent costs and earn a "fair" return on capital prudently invested—again, as long as the infrastructure associated with the invested capital is useful to the utility's customers. Those calculations are based on assumptions about the likely number and type of customers and level of sales. Rates calculated this way are known as "cost-based rates." They result from procedures variously labeled "rate of return regulation," "rate base regulation," "embedded cost regulation," or "revenue requirement regulation." A brief description of the calculation method appears in the Appendix.

Commissions set rates in formal proceedings, described in the next subsection. Once a commission determines the appropriate rates, it issues an order establishing those rates. The order will require the utility to file with the commission a set of "tariffs." A tariff is a legal

document describing the following: (a) the rates for each category of customers (for example, residential, commercial, industrial), (b) the description of the types of customers that are eligible to receive service within a category, and (c) any terms and conditions accompanying the rates. These tariffs establish the legal rights and responsibilities of the utility and its customers. Under a legal principle known as the "filed rate doctrine," the utility must charge only the rates that are in the regulator's public files, and no other rates. Because the tariff is a public document, customers can always compare the rate they are charged with the rate stated in the public files. This ability helps prevent the utility from discriminating—from charging different rates to different customers within the same category.

In the rate setting process, the legislative body, the regulatory commission, and the court play distinct roles:

The *legislative body* declares the policies. It can define ratemaking methodologies and criteria for deciding which costs can be recovered through the rates. Or it can leave that decision to the regulator. Some statutes allow the regulator to grant discounts to low-income individuals, or to industrial customers that are subject to global competition. Other statutes allow or require special, favorable ratemaking treatment for particular generation technologies, like solar, wind, or nuclear.

Regulatory commissions have discretion over how they carry out the legislature's policies—unless the legislation, or the ministry applying that legislation, has limited the commission's discretion. Because ratemaking is a technical task requiring special expertise, statutes typically leave the commission discretion to balance various concerns like reliability, cost, and economic development.

Courts make sure that the regulators' decisions are lawful. When someone—such as a customer or the utility—challenges the regulator's decision, the reviewing court determines whether the decision complied with legal requirements, in terms of substance and procedure. If the regulator's decision does comply, the court must defer to that decision rather than substitute its own judgment.

Other regulatory powers: While setting rates is the most prominent utility regulatory power, there are others. Part III.C, about the subjects of regulation, described some of them. On *market structure*, regulators decide when to introduce competition into historically monopolistic markets, and when to prevent competition where competition might raise costs or lower service quality. When the law permits competition, regulators decide what rules should guide the competition, and when how to penalize competitors who violate those rules, such as by behaving anticompetitively or abusing customers. On *quality of service*, regulators determine reliability standards and the penalties for violating those standards; then they impose those penalties after following proper procedures. When regulators identify new technologies that will improve service quality, they can order utilities to install those technologies. On *financial structure*, regulators determine what mix of equity and debt should make up a utility's capital structure; then guide the utilities' efforts to attract that equity and debt. On *corporate structure*, regulators

can decide what mix of businesses may take place within the utility's corporate family, and how those businesses may interact with the utility business. Regulators use all these powers to carry out regulation's purpose: aligning private behavior with the public interest.

E. Regulatory procedures and decisions

Utility commissions make different types of decisions using different types of procedures, both formal and informal. Commissions gather information, issue rules that establish policies, and issue orders that resolve specific disputes. They also impose fines or penalties, or seek court enforcement, when a utility has disobeyed an order or violated a rule.

These actions must conform to procedural law, as established by statutes, the Constitution and a commission's own rules. Procedural law ensures accountability. It does so by granting the public the right to observe the decision-making process and influence the decisions, and by granting to courts the power to assess the lawfulness of the results. Procedural law also ensures fairness to the utility and customers by prohibiting arbitrariness—regulatory actions lacking in facts, logic, or legal authority.

When setting rates, and in some other situations, the regulatory commission uses procedures similar to court procedures. In these formal proceedings, expert witnesses submit testimony, usually in writing. Opposing parties have an opportunity to ask those witnesses written questions about their testimony, in a process called "discovery." Then, in a formal hearing before the commission (sometimes run by a hearing examiner or administrative law judge), opposing parties can cross-examine the witnesses. Following this formal hearing, the commission will issue a written decision deciding all the disputes involved in the case. That decision must address all the evidence presented in the case, along with the applicable law. During this entire formal proceeding, the parties may not communicate with the regulators in private. All communication must be in public. And the regulators may not speak about the case to the public, except during the formal public proceeding. These procedures help to ensure that no interested party has greater opportunity to influence the commission than any other party.

How do proceedings begin? Three ways: A commission can initiate a proceeding on its own—such when it wants to create a new policy. Or a utility can initiate a proceeding by submitting a request, such as a request for a rate increase. Finally, a consumer representative, a member of the public, or a competitor of the utility, can ask the commission to start a proceeding, such as a proceeding to lower rates or to investigate service quality problems.

Once a commission has issued an order, a party that participated in the case and disagrees with the order can ask a court to overturn it. But a court cannot substitute its own view of how the case should have been decided; the court can look only at whether the agency failed to follow the statute, failed to explain its reasoning, or failed to base its decision on evidence that was formally presented to the commission.

This public process, of experts presenting evidence, opposing parties cross-examining the witnesses, and the commission issuing a formal order, is called an "evidentiary hearing" or an "adjudicative hearing" or a "formal hearing," or a "trial-type hearing." In large, important cases, commissions also hold a different type of hearing, called a "public inquiry." At these events, which are not formal, members of the public offer comments in person to commissioners or staff. These comments are not formal evidence because they are not expert comments.⁵

F. Regulatory independence and professionalism

1. Independence

By law, regulators are supposed to be independent of the political decision-making that occurs within legislative bodies and other government bodies. What does "independent" mean? A regulator is never independent of facts and laws—facts about physical and financial realities, and the laws that define the commission's powers. But regulators should be independent of financial influences—like stock ownership in the utilities they regulate, bribes, and promises of future employment. They also should be independent of arguments that are emotional rather than factual, legal, and logical. The law assists each regulator's independence by making his or her job guaranteed for a specified term. Regulators can be removed only for misbehavior, not because the utility, the consumers, the ruling party or anyone else disagrees with their decisions.

Also assisting independence is the frequent requirement that a regulator have particular expertise or experience. That expertise or experience reduces the possibility of making decisions based on political pressure or emotion instead of facts and logic.

2. Professional staff

Regulatory decisions are legal decisions: They establish rights and responsibilities. In making those decisions, regulators rely on expertise contributed by at least five professions.

Lawyers advise on the regulator's substantive powers and duties; on sellers and buyers' rights and obligations; and on the procedures required to make decisions lawfully.

Accountants deal with dollars. They track costs and evaluate expenditures. Cost-tracking catches cross-subsidies and helps economists assign costs to cost-causers. Evaluating expenditures protects customers from paying for excess costs.

⁵ For a guide to adjudicative hearings, see my article, "Litigation Adversaries and Public Interest Partners: Practice Principles for New Regulatory Lawyers," *Energy Law Journal* (Spring 2015), available at <http://www.felj.org/sites/default/files/docs/elj361/14-1-Hempling-Final-4.27.pdf>.

Finance experts study the utility's capital requirements, recommend the proper mix of debt and equity, evaluate financial risks, and apply cost-benefit analyses to short- and long-term investments.

Economists aim for economic efficiency by making cost-causers the cost-bearers. They recommend rate designs and evaluate the reasonableness of the utility's expenditures. Where regulators use competition to discipline seller behavior, economists measure and monitor the market's competitiveness.

Engineers explain how things work. They evaluate the utility's performance by identifying the best available technology and by assessing the infrastructure's adequacy and reliability.

G. Public records and public meetings

Part III.D.2 explained that a utility's tariffs are always public, available at the commission's offices and usually at the utility's offices. In addition, utility regulatory commissions typically keep records of their decisions (rules, orders), and require reports from the utilities. Commissions make these records and reports available to the public. Reports from utilities can involve their plans for future resources (that is, the supply resources necessary to serve their customers), their predictions of future customer requirements, their budgets (for operating expenditures and capital expenditures), their financial condition, their safety records, the sources of their financing, the cost and condition of their equipment, and their governance structure and procedures (executive leadership, internal organization and board leadership). Commissions also hold their official meetings, where they announce their decisions, in public. Commissions vary in terms of whether deliberations among commissioners can occur in private or must occur in public.

Appendix on Cost-Based Ratemaking

Cost-based cost ratemaking uses two simple equations. The first equation describes the "annual revenue requirement": the total revenues the utility needs to receive during a specified future year (called a "rate year") as reasonable compensation for providing service. If the utility sells enough service to receive those dollars, it can cover its reasonable expenses (e.g., operating expenses, taxes, and depreciation) and the interest on its debt; and still have enough left for its shareholders to receive a reasonable return on their investment. Here is the equation:

$$\textit{Annual revenue requirement} = \textit{expenses plus cost of capital}$$

Where—

Expenses include operations and maintenance costs (e.g., labor and fuel), taxes, and depreciation; and

Capital costs consist of (a) interest and principal payments to lenders plus (b) return on shareholder equity (the latter defined as commission-authorized return on equity multiplied by total equity).

Terminology note: The phrase "cost of capital," which refers to the cost of debt plus the return on equity, is sometimes referred to as "rate of return" multiplied by "rate base." In that definition,

- (a) rate of return is the weighted rate of return for debt and equity; and
- (b) rate base is the sum of all capital investment, whether funded by debt or equity, less accumulated depreciation.

The second equation converts the revenue requirement the utility needs to receive into the rates customers must pay. The utility receives its revenue because its customers pay for their service. The second equation therefore converts the annual revenue requirement into a rate per unit consumed:

$$\frac{\textit{Annual Revenue Requirement (in \$)}}{\textit{Expected sales in units of volume}}$$

(where units of volume could be in kWh, gallons, minutes, mcfs). This fraction produces a \$/unit rate, such as \$/kWh, \$/gallons, \$/Mcf, cents/minute.

The arithmetic just described creates an average price, developed by dividing the annual revenue requirement by the expected sales in a year. For decades, utilities charged that same average price for every one of the 8760 hours in a year. But costs are not the same in every hour. On hot summer afternoons, utilities use generators that sit idle most of the year, waiting for these

periods of peak demand. Those generators are usually dirtier and less efficient than other generators. So the cost of producing electricity for those hours is higher than average. For gas, costs are higher than average during cold winter months. Today, some utilities and commissions are replacing average prices with prices that vary during the, week, or year, to reflect actual costs. With prices closer to cost, customers can reduce or shift consumption in ways that reduce everyone's cost.

Figure 1: Electricity and Gas Stick-Figure Diagrams

