THE REGULATORY COMPACT AND ASSET VALUES AFTER PRIVATISATION: A DISCUSSION PAPER

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Public Version

Prepared for

Epic Energy

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Note

This version of the Report is an edited version of the original. References in this version to "[this information has been deleted. See NOTE at start of Epic Energy Submission 1]" are to the note that appears at the commencement of the version of Epic Energy Submission 1 dated 15 December 1999 appearing on the website of the Office of Gas Access Regulation.

Introduction and Context

In our October 1999 paper, *Proposed Regulatory Model for the Dampier to Bunbury Natural Gas Pipeline,* we outlined an approach to the establishment of tariffs for the DBNGP. The approach taken is consistent with the proposition that there was a "regulatory compact" formed between Epic Energy and the Western Australian Government in the process of Epic's acquisition of the DBNGP. Our proposed regulatory model employed the linkage between acquisition value and tariff path in the DBNGP privatisation, in a way that protects the interests of both consumers in WA and DBNGP shareholders. Our model does *not* calculate the initial tariff based on the acquisition value. Under demand growth scenarios that are now plausible, but not anticipated at the time of the DBNGP sale, *Epic will not recover the DBNGP acquisition value using the tariffs in our model*. The model employs the tariff path bid by Epic (and selected by the Government) in a way that gives Epic the *opportunity* to recover its full investment over the life of the facilities, but only if demand growth occurs that is sufficient to justify full recovery. Under our proposal Epic is put "at risk" for any acquisition value not recoverable in future cash flows at the tariff rate associated with its bid for the DBNGP.

While our proposal in no way "guarantees" that Epic will recover its full investment in the DBNGP assets, we pointed out that to deny Epic and its shareholders the *opportunity* to recover its full acquisition value would impose "asymmetric risk" on Epic and its shareholders, in contravention of the regulatory compact. Failure to uphold the regulatory compact in this case would set an unfortunate precedent for WA. It would have a potentially chilling effect on future private investment in WA infrastructure assets, which would seem to be especially important given that other state-owned enterprises are currently in the process of being sold.

In some of the comments submitted to O*ff*GAR in response to our proposal, it is asserted that there is no such thing as a "regulatory compact" in this or other international contexts. In this paper we review the precedent for such a compact in more detail. We describe the nature of such compacts and how their existence is confirmed in the United States and Europe by regulatory practices concerning opening asset valuation for pricing purposes, and "stranded asset" value recovery prompted by government-imposed changes in the regulatory regime. We discuss the economic efficiency foundations for regulatory compacts and how a proper interpretation and consistent application of the concept ties together the regulatory models typically used in the U.S. and the U.K. with our proposal for the DBNGP.

The Concept of a Regulatory Compact and Privatisation

What is a regulatory compact, and how does it relate to privatisation of natural monopoly industries? The concept of a regulatory compact does not require an explicit written contract between the government and the regulated firm for its validity. In their recent book, *Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States,* Professors Sidak (Fellow in Law and Economics at the American Enterprise Institute) and Spulber (of Northwestern University) suggest that instead of explicit written ***contracts*** between the government and regulated utility companies, the regulatory compact is embodied in "a bundle of utility statutes, utility commission precedents, adjudicatory decisions, rulemakings, hearings on the record, formal notices of proposed rulemaking, and public commentary." [1] Professor Schmalensee of MIT makes a similar observation in his book *The Control of Natural Monopolies:*

> Conventional regulation is well characterized by what Goldberg[2] has called an administered contract. Even though commissions, buyers, and sellers are not noticeably bound by explicit contracts, the implicit contractual structure of due process requirements and statutory and precedential restrictions serves to establish rules within which disputes are settled. Under workable alternative social control structures, this same sort of relationship would prevail, as it does in many nonregulatory contexts.[3]

Such statutes, rules and procedures define over time the obligations placed on the regulated firm, in return for which it is permitted to charge prices sufficient to provide its shareholders with the expectation that they will earn a "fair return" on their invested capital. The obligations may vary depending on the industry or circumstance, but they usually include such requirements as a duty to provide access or universal service at published, non-discriminatory rates. Most regulatory statutes and/or access codes applying to these industries further require that the prices for the services provided should be "fair and reasonable" or "just and reasonable." A regulatory compact develops when the state and the regulated utility each confers a benefit on the other conditional upon the receipt of a benefit in exchange. Thus, the regulatory compact simply means that the regulatory regime is designed to offer the shareholders of the regulated firm a fair *ex ante* opportunity to earn a competitive rate of return, and the regulated firm undertakes to further the interest of consumers through reasonable charges and other obligations, which

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[1] Sidak, Gregory and Spulber, Daniel, *Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States*, Cambridge University Press, 1997, p. 109-10.

[2] Goldberg, V.P., "Regulation and Administered Contracts," *Bell Journal of Economics*, Vol. 7, Autumn, 1976, pp. 426-428.

[3] Schmalensee, Richard, *The Control of Natural Monopolies*, Lexington Books, 1979, pp.50-51.

balances the interests of consumers and shareholders fairly.[4] Sidak and Spulber describe the compact as follows:

> Such an arrangement, known as the *regulatory contract [or compact]*, enables the regulators to reconcile their ceilings on the earnings of utilities with the requirement that, in terms of actuarially expected value, prospective investors be offered a competitive rate of return on their investments. The regulator is thus said to have entered into a bargain with the public utility: In return for assuming an obligation to serve and charging not more than "just and reasonable" prices on a non-discriminatory basis, the utility is guaranteed a franchise protected by entry regulation and income sufficient to recover and to earn a competitive rate of return on its invested capital. [citing *General Motors Corp. v. Tracy,* 117 S. Ct. 811, 823 (1997)][5]

Effect of Privatisation

Privatisation of formerly state-owned enterprises introduces other issues into the interpretation of the regulatory compact that applies to the enterprise after privatisation, but the central notion of the regulatory compact is unchanged.

The process of privatisation itself involves a different form of regulatory compact, between the firm's new owners and the government. Here the benefit or "consideration" provided by the new owners takes the form of the sum paid to the government, the willingness to accept constraints on future tariffs, and other obligations such as a third-party access or an obligation to serve. The proceeds from the sale are a direct benefit to the state's citizens and taxpayers. They can be used to provide additional services to citizens, to pay off debt or to reduce taxation. In return for the proceeds, the commitment to reasonable future tariffs and the other obligations, the investors receive ownership rights in the firm. To have value, these ownership rights must be accompanied by the government's commitment, duly enforced by courts or administrative agencies, to allow a competitive return on the purchase price at the reasonable tariff level. This obligation of the government completes the "regulatory compact."

A difficulty with privatisation, as will be discussed below in the experience of the United Kingdom, is that the government's desire to maximise the value received by the Treasury for the assets may conflict with its desire to prevent large price increases following privatisation after the fact. Because of this conflict of interest, there may be great merit in an approach to the tendering of the assets that links the price bid for the assets to the tariff price to be charged to customers, as was done in the DBNGP sale. This

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[4] The *Gas Pipelines Access (Western Australia) Act 1998* is no exception. See the Preamble which states in part (at page 2): "…so that a uniform national framework applies for third party access to all gas pipelines that -- …(d) provides rights of access to natural gas pipelines on conditions that are fair and reasonable for the owners and operators of gas transmission and distribution pipelines and persons wishing to use the services of those pipelines…"

[5] Sidak and Spulber, *op. cit.,* p.4.

approach links the interests of the Treasury and taxpayers in the value received for the assets with the interests of consumers of the services of the pipeline, who will pay the proposed tariff over time.[6] But such an approach to privatisation only has merit (and long-term credibility) if the link between asset acquisition value and tariff price is followed through by the government and the regulator after the acquisition.

Thus, in the context of privatisation, the regulatory compact fundamentally involves a promise of consistency in treatment relative to expectations at privatisation. Investors must have confidence that future cash flows allow them an opportunity to recover their investment plus a fair return. Consumers expect that future prices will not permit the taking of excess profits relative to what was paid for the assets. If such consistency is not achieved, investors/consumers are exposed to "asymmetric risk" which will impose additional costs and inefficiency on the market, including the potential to distort investment decisions in future planned privatisations.

[6] Note that in industries such as natural gas, electricity, water and telecommunications, there is likely to be a significant overlap between the taxpayers that benefit from the asset sale and the consumers that must pay for utility services post-privatisation.

Application of the Regulatory Compact to Asset Valuation: International Experience

The application of the concept of a regulatory compact to asset valuation has arisen internationally over the last 10 to 15 years, particularly in the natural gas and electric power industries. In the U.S., the concept has been applied to the issue of whether regulated utilities should be permitted to recover the value of assets "stranded" due to liberalisation of the regulatory regime governing them. As we will discuss below, such recovery has been permitted to varying degrees in both the natural gas and electric power industries.

In the U.K., the privatisation of state-owned enterprises in the late 1980's without a well-defined regulatory regime led to disputes over the most appropriate asset valuation methodology for the development of tariff price controls. In the end, the U.K. has recognised the principle of maintaining consistency with investor expectations at privatisation, and its regulators have employed the use of market or flotation value at privatisation as the asset valuation principle for setting prices in its natural gas, electricity and water industries.

The "Regulatory Compact" in the United States

Gas, electric and other utilities in the United States have nearly always been private ("investor-owned") undertakings.[7] Consequently, United States legal and administrative history is rich in illustrations of the "regulatory compacts" under which regulated industries have assumed investment burdens and obligations in return for certain protections and benefits. The notion of the regulatory compact is recognised in Supreme Court cases dating back to the nineteenth century.[8] For example, the 1837 *Charles River Bridge v. Warren Bridge* opinion of the U.S. Supreme Court recognised the doctrine as a form of contract between the enterprise and the government.[9] In his concurring opinion in that case, Justice McLean put it this way:

> Where the legislature, with a view of advancing the public interest by the construction of a bridge, a turnpike road, or any other work of public utility, grants a charter, no reason is perceived why such a charter should not be construed by the same rule that governs contracts between individuals.[10]

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[7] Priest, *op. cit.,* p. 305: "…for the provision of almost all public utility services, American cities relied exclusively on private capital for initial and subsequent investment."

[8] For analysis of the historical origins of the concept, see Priest, George L. "The Origins of Utility Regulation and the "Theories of Regulation" Debate", 36 *Journal of Law and Economics*, 289 (1993).

[9] Rossi, Jim, "The Irony of Deregulatory Takings", *Texas Law Review*, Vol. 77, No. 1, 297-320 (November 1998).

[10] 36 U.S. (11 Pet.) 420 (1837) at 558.

And as Rossi points out:

> Later opinions, such as *Russell v. Sebastian* [233 U.S. 195, (1914)] also endorsed the basic notion that regulation is based on contractual principles. There, Justice Hughes, in assessing a gas company's rights pursuant to the State of California's modification of a municipal franchise, stated that "(t)he company, by its investment, had irrevocably committed itself to the undertaking and its acceptance of the offer of the right to lay pipes, so far as necessary to serve the municipality, was complete.[11]

George Priest traces the history of regulation by commission in the United States,[12] and concludes that in many ways modern regulation is simply an extension of the earlier common arrangement where public utilities were "regulated" by cities and municipalities under franchise contracts:

> Municipal regulation by franchise resembles a peculiar form of long-term relational contracting. The city council or citizenry on the one hand and the utility on the other are at once buyers and sellers of the other's services or assets. The city council is buying services on particular terms at the same time that it is selling control over the public right-of-way. The provisions of the initial franchise and the adjustments introduced in subsequent years represent the mutual pushing and tugging of buyers and sellers linked over time in a complicated contractual relationship…. Regulation by commission is no different.[13]

Later cases have articulated the nature of the regulatory compact in the context of providing investors in utility enterprises with the opportunity to earn a "fair rate of return" on their investments. The 1944 *Federal Power Comm'n v. Hope Natural Gas* opinion of the U.S. Supreme Court requires regulators to have regard to the long-term financial viability of the enterprise:

> The investor has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock… By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial

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[11] Rossi, *op.cit.,* p.298.

[12] Priest, *op.cit.*.

[13] *Ibid, p.323.*

> integrity of the enterprise, so as to maintain its credit and to attract capital.[14]

That case effectively resolved in the U.S. context that the use of an original cost less depreciation measure of asset value for pricing purposes was acceptable as long as the "overall effect" or "total effect" was sufficient to compensate investors. Following *Hope*, the debate in the U.S. primarily focused on the determination of the appropriate rate of return.

The prevailing economic interpretation of the *Hope* ruling is that investors are fairly compensated as long as they can expect to earn the cost of capital, defined as investors' expected rate of return in capital markets on assets or investments of similar risk. According to this concept, customers expect to pay and investors expect to earn a fair and reasonable rate of return on the actual costs of their investments as recorded in the rate base, as long as such investments were prudently incurred.[15] Again, this system is consistent with investor expectations in that U.S. utilities were always privately owned, and it satisfies what we refer to as the "NPV Test." The NPV Test states that *the present value of capital charges (i.e., depreciation plus return on investment) collected in prices over time should not exceed the present value of the capital outlays associated with the construction or purchase of the assets involved.*

The Compact and "Stranded Costs" in the United States

While the broad concept of a "regulatory compact" has been well-recognised in U.S. jurisprudence and academic literature, the boundaries of the compact have been the subject of much dispute in recent years. The debate has arisen in the context of whether utilities whose assets have been devalued as a result of regulatory restructuring or deregulation (incurring so-called "stranded costs") should be allowed to obtain compensation from customers via surcharges on tariffs or other mechanisms.

As utility markets in the United States have been deregulated or restructured, utilities have faced "stranded costs" due to the divergence between average costs in the regulated market and marginal costs in the competitive market. Stranded costs arise from assets that no longer generate adequate revenues to cover their undepreciated capital costs in the competitive environment. Stranded costs therefore present a similar issue to the question of appropriate opening regulatory asset bases for pricing purposes after privatisation. Stranded costs do not concern the commencement of an investment decision under a regulatory regime, but they concern the completion of capital recovery when a significant change in regulatory regime is proposed. The consistency with original investor expectations, and the government's commitment to those expectations, are central to the stranded cost debate.

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[14] 320 U.S. 591 (1944), p. 603.

[15] Kolbe, A. Lawrence and Tye, William B., "The 'Duquesne' Opinion: How Much "Hope" is there for Investors in Regulated Firms?" *Yale Journal on Regulation*, Vol. 8, No. 1, p. 118-57 (Winter 1991).

There are important efficiency reasons for allowing stranded cost recovery as a way of respecting the regulatory compact. The regulatory compact is efficient because optimal investment levels will only occur if investors expect to earn the cost of capital on average. A decision to undertake a specific investment will only be efficient if an investor's exposure to earning less than the cost of capital is offset by a symmetrical opportunity to earn above the cost of capital. Denying stranded cost recovery will deter efficient investment decisions by introducing a fundamental asymmetry. Traditional regulation is structured to prevent utilities from earning above the cost of capital. Exposure to a large one-side loss on the transition to deregulation will mean that, in retrospect, investors cannot have expected to earn the cost of capital on average.[16] Failure to honour the original regulatory compact will make investors hesitant to expose themselves to further asymmetries in the competitive environment. The "cost of capital" can be expected to increase[17] and insufficient investment can be expected. This reasoning was first published by two partners of The Brattle Group, Larry Kolbe and William B. Tye.[18]

Insufficient investment has several ramifications. The hesitance of investors can deprive the market of additional effective competitors,[19] reduce the quality of service, and stifle innovation.[20] Additionally, failing to honour the regulatory compact can create incentives for opportunism and free riding. Stranded cost recovery helps ensure a continued level of service and adequate investment following deregulation.

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[16] Kolbe, A Lawrence and Tye, William B., "Compensation for the Risk of Stranded Costs", 24 *Energy Policy*, 1025-50 (December 1996).

[17] The cost of capital is a technical term that has been used in different senses. In one sense it refers solely to one component of project risk: the portion correlated to broader market outcomes. Other elements of project risk can be modeled by calculating "expected" cash flows in a statistical sense, which implies a balancing of alternative lucrative and poor investment outcomes. If abandoning the regulatory compact is not correlated to broader market conditions, then it does not strictly affect the cost of capital—it simply biases expected cash flows so that even efficient investments will not be undertaken. However, we have noticed that industry observers will often say that the "cost of capital" is increased in such a situation. They apparently use the term to indicate that, in a regulatory context, a higher rate of return must be allowed to prompt efficient investment decisions if asymmetric risks would otherwise bias the expected cash flows downward. Because this use of the term does not strictly comply with the definition found in economics texts, we place it in quotes in this context.

[18] *See* Note 17.

[19] As long as the recovery mechanism is properly structured, stranded cost recovery can be compatible with efficient competition.. Joskow, Paul L., "Does Stranded Cost Recovery Distort Competition?", *Electricity Journal*, April 1996. Opponents argue that by allowing stranded cost recovery, the development of competitive markets may be slowed by reducing utilities' incentives to lower costs and delaying entrance of other competitors. To the extent that utilities are overcompensated for the risk they actually assumed, they are advantaged over new entrants, who do not receive such compensation from the state and regulators (Hovenkamp, Herbert, "The Takings Clause and Improvident Regulatory Bargains", *Yale Law Journal*, Vol. 108, No. 4, p. 801-834 (January 1999)). However, these arguments presume both over-compensation and vertically-integrated incumbents, who could use "war chests" to outcompete downstream entrants. The arguments therefore do not apply in the case of Epic.

[20] Sidak, Gregory and Spulber, Daniel, "Deregulation and Managed Competition in Network Industries", *Yale Journal of Regulation*, Vol. 15, No. 1, p. 117-147 (Winter 1998).

Academics who specialise in law and economics have made the same efficiency arguments with respect to property rights in general. Similar to the regulatory compact, property rights themselves can be seen as a form of compact between the government and the private individual. Individuals are allowed to retain the fruits of their property, which the government protects with laws against theft and trespass. In exchange, individuals accept constraints on their behaviour imposed by the government. Professors Armen Alchian and Harold Demsetz use the example of land ownership to make the point:

> To "own land" usually means to have the right to till (or not to till) the soil, to mine the soil, to *offer* those rights for sale, etc., but not to have the right to throw soil at a passerby, to use it to change the course of a stream, or to *force* someone to buy it. What are owned are socially recognized rights of action.[21]

Alchian and Demsetz evaluate the strength of ownership by the extent to which an owner's decisions determine the use of an asset.

Economists see well-defined property rights as crucial in inducing the efficient use of society's resources. The absence of strong property rights weakens incentives to put resources to their highest value uses. Professor Demsetz continues with the land example:

> Suppose that land is communally owned. Every person has the right to hunt, till, or mine the land. This form of ownership fails to concentrate the cost associated with any person's exercise of his communal right on that person. If a person seeks to maximize the value of his communal rights, he will tend to overhunt and overwork the land because some of the costs of his doing so are borne by others. The stock of game and the richness of the soil will be diminished too quickly.[22]

In particular, weak property rights discourage investment in resources: "Because of the lack of control over hunting by others, it is in no person's interest to invest in increasing or maintaining the stock of game."[23] Strong property rights, in contrast, give incentives to efficiently use and invest in resources:

> The resulting private ownership of land will internalize many of the external costs associated with communal ownership, for now an owner, by virtue of his power to exclude others, can generally count on realizing the rewards associated with husbanding the game and increasing the fertility

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[21] Alchian, Armen A., and Demsetz, Harold, "The Property Rights Paradigm,"*Journal of Economic History*, Vol. 33, Issue 1, p. 17.

[22] Demsetz, Harold, "Toward a Theory of Property Rights," *The American Economic Review*, Vol. 57, Issue 2, p. 354.

[23] Demsetz, *op. cit.,* p. 351.

> of his land. The concentration of benefits and costs on owners creates incentives to utilize resources more efficiently.[24]

Thus, when the government interferes with property rights it can be seen as more than the violation of a fundamental compact, undesirable for equity reasons. Government interference with property rights is harmful for efficiency reasons. The resulting weakening of property rights discourages investment and promotes the inefficient use of resources.

Scholars have supported stranded cost recovery on equity and efficiency grounds by explicit analogy to property rights. Sidak and Spulber have published extensively on stranded cost recovery. They conclude that the regulatory compact is a fundamental property right, that stranded cost recovery is essential to honouring the regulatory compact, and that the failure to respect the regulatory compact is effectively a confiscation of property.[25]

Electric Utility Stranded Cost Policy

The concept of the regulatory compact has played a key role in electricity restructurings in the U.S., supporting several decisions to permit stranded cost recovery.[26]

The Federal Energy Regulatory Commission (FERC) and the California Public Utilities Commission (CPUC) have both instituted policies intended to permit full compensation for electric utility stranded assets. The policies have been grounded on the principle of a regulatory compact. The FERC characterized the issue as whether utilities "should now be held responsible for failing to foresee the actions this Commission would take to alter the use of their transmission systems," and referred to "recent significant statutory and regulatory changes" as being central to the problem.[27] Similarly, the CPUC in its electricity market restructuring order concluded that "many of today's high costs result from past regulatory promises made by the Commission."[28]

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[24] Demsetz, *op. cit.,* p. 356.

[25] Sidak, Gregory and Spulber, Daniel, *Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States*, Cambridge University Press, 1997.

[26] McArthur, John B., "Avoiding Mistakes of FERC's and California's Full Stranded-Cost Recovery", *Electricity Journal*, Vol. 11, No. 2 (March 1988).

[27] Order No. 888, 61 Federal Register at 21,629-30; Federal Energy Regulatory Commission, Order No. 888-A, 62 Federal Register 12,274, 12,375 (1997).

[28] California Public Utilities Commission, Order Instituting Rulemaking on the Commission's Proposed Policies Governing Restructuring California's Electric Services Industry and Reforming Regulation, at 110 (December 12, 1995, modified January 10, 1996).

The FERC and the CPUC recognised the economic efficiency reasons for honouring the regulatory compact. The FERC was concerned that unrecovered costs "could erode utilities' ability to attract capital" and the "financial ability of a utility to continue to provide reliable service."[29] The FERC's efficiency rationale for upholding the regulatory compact in the form of stranded cost recovery was just recently affirmed and endorsed by the U.S. Court of Appeals for the D.C. Circuit in its judicial review of Order No. 888.[30] Similarly, the CPUC reasoned that by ensuring compensation for stranded costs it would "assure the continued integrity of the utilities," and that financial integrity was "an important goal of this proceeding."[31] California was the first state to restructure its electricity industry and to decide in the process that utilities should be permitted full stranded cost recovery.

Massachusetts has also allowed stranded cost recovery. The decision in Massachusetts was explicitly made despite any finding that the regulatory compact implied an enforceable legal obligation. Rather, the decision was supported entirely by the belief that, even absent a formal legal obligation, strong efficiency and equity reasons supported stranded cost recovery as a matter of public policy. The Massachusetts Department of Public Utilities (DPU) determined that the electric companies had not established a legal entitlement to stranded cost recovery. This did not mean that no legal entitlement existed, just that the DPU and courts had never addressed the issue. Instead, in its restructuring order the DPU stated that:

> …as a matter of sound public policy, the Department reaffirms that allowing electric companies a reasonable opportunity to recover stranded costs is in the public interest because such recovery would: 1) *ensure the provision of sound electric services during transition to competition*; 2) affirm *reliability of commitments,* which is an essential element of any future industry structure; 3) promote federal and state coordination and ensure equal treatment of similarly situated utilities; and 4) avoid costly, reform-delaying litigation."[32]

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[29] Order No. 888, 61 Federal Register at 21,630; Federal Energy Regulatory Commission, Order No. 888-A, 62 Federal Register 12,373 (1997).

[30] *Transmission Access Policy Study Group, et al., v. Federal Energy Regulatory Commission*, U.S. Court of Appeals for the D.C. Circuit, decided 30 June 2000. "We affirm FERC's stranded cost policy in all respects, except we vacate that portion of the orders dealing with the treatment of energy costs in the market option and remand to FERC for further explanation…. Unless utilities are able to recover stranded costs, FERC reasoned, their ability to compete and attract investor capital in a deregulated market may be seriously impaired." Slip opinion available at http://pacer.cadc.uscourts.gov/common/opinions/200006/97-1715a.txt.

[31] California Public Utilities Commission, Order Instituting Rulemaking on the Commission's Proposed Policies Governing Restructuring California's Electric Services Industry and Reforming Regulation, at 111, 119 (December 12, 1995, modified January 10, 1996).

[32] Massachusetts Department of Public Utilities, *Electric Industry Restructuring Plan: Model Rules and Legislative Proposal,* December 30, 1996, (D.P.U. 96-100), emphasis added.

In summary, the U.S. electricity market shows clear precedent for acknowledging and honouring a regulatory compact to promote efficiency and equity as a matter of public policy. The traditional compact is viewed as allowing investors an opportunity to expect full capital cost recovery, while protecting consumers and avoiding monopoly prices.

Gas Pipeline Regulatory Restructuring in the U.S. and Stranded Costs

Restructuring of the electricity industry was heavily influenced by the U.S. experience in restructuring the natural gas market. During the 1980s U.S. regulators introduced a series of measures that encouraged third-party access to gas pipeline systems to promote competition. Gas pipelines in the U.S. had previously offered only "bundled" service, which included both gas supplies and the transportation of that supply under long-term contracts. Part of the regulatory compact between the regulated pipelines and the government embodied in the 1938 *Natural Gas Act* involved an obligation on interstate pipelines to provide such service to local distribution companies (LDCs). To meet this obligation, pipelines had entered into long-term take-or-pay contracts with producers that mirrored to a great extent the pipeline's long-term contractual obligations to supply.

The advent of third-party access on many pipelines, and certain regulatory changes that abrogated the contractual obligations of LDCs to purchase bundled pipeline supply (e.g., FERC Order 380 of 1984), led to the creation of a spot market in gas supplies. Because of a surplus in gas supply availability at the time, this created severe take-or-pay liabilities for the pipelines under their historically high-priced purchase contracts with producers. These pipeline-producer contracts became "stranded assets." By the early 1990s these contracts posed a significant problem across the industry, and threatened to impede the development of full third-party access. For example, FERC estimated that $8.8 billion had been paid to producers to re-negotiate such contracts as of 1989, of which pipelines had absorbed $3.4 billion (a large portion had been passed on to customers), and that $2.3 billion in potential liabilities remained.[33]

In 1991, three partners of The Brattle Group were commissioned to prepare a report on pipeline risks on behalf of the Interstate Natural Gas Association of America ("INGAA").[34] The INGAA report specifically raised the prospect of stranded long-term contracts as a potential violation of the regulatory compact that would have adverse long-term efficiency consequences. Moreover, the report demonstrated logically the asymmetric risk profile created by stranded cost exposure: the previous terms of pipeline regulation could not already have provided investors sufficient compensation to offset such exposure. The report was later published as a book, *Regulatory Risk: Economic*

[33] Order No. 500-H, Final Rule, FERC Stats. & Regs. ¶30,867 (Dec. 13, 1989), p. 45.

[34] *Risk of the Interstate Natural Gas Pipeline Industry,* by A. Lawrence Kolbe, Wiliam B. Tye, and Stewart C. Myers (Washington, D.C.: Interstate Natural Gas Association of America, 1991).

Principles and Applications to Natural Gas Pipelines and Other Industries.[35] This work emphasised the efficiency consequences of failing to honour the regulatory compact: "we find it highly unlikely that the level of new investment will be sufficient to maintain the national pipeline system at the level which regulatory and governmental policy makers may wish" largely because "[i]f pipelines are to make economically sensible investments, they must believe their investors will be treated fairly in the long run."[36]

In 1992, FERC set the ground rules for third-party access and the resolution of the stranded cost problem with Order No. 636. Order 636 effectively mandated the elimination of the pipelines from the merchant business, a process that essentially required the remaining upstream contracts to be reformed or "bought-out". In some cases, pipeline companies were able to assign or release these contracts to other buyers; in other cases, producers credited gas sales to third parties against pipeline company take obligations.[37] The costs of renegotiating such contracts were deemed "Gas Supply Realignment" (GSR) costs under Order No. 636. FERC allowed natural gas pipeline companies to recover 100 percent of these stranded costs, subject to market conditions. It also recognized that the take-or-pay contracts were not the only form of transition cost. Transition costs other than take-or-pay contracts included assets that were no longer necessary for transportation services, and new assets such as improved metering, accounting, information services (electronic bulletin boards) and the like, needed to support and monitor all customers' activities as transporters.[38]

FERC's treatment of transition costs under Order No. 636 honoured the principles of the regulatory compact, allowing utilities a reasonable opportunity to recover the full value of their investments and contractual commitments over time. This measure responded to concerns that a violation of the regulatory compact would deter efficient long-term investment.

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[35] Kluwer Academic Publishers (Boston/Dordrecht/London). One of the authors of this report helped edit the book.

[36] Ibid, pp. 171 and 173.

[37] EIA, Natural Gas Monthly, May 1997,p. xvii.

[38] William B. Tye and Frank C. Graves, "The Economics of Negative Barriers to Entry: How to Recover Stranded Costs and Achieve Competition on Equal Terms in the Electric Utility Industry," *Natural Resources Journal,* Vol 37, Winter 1997, pp. 175-250.

Experience in the United Kingdom

Privatisation of British network industries in the mid-1980s without a clear regulatory regime created severe tensions in the early-1990s over high prices and excess profitability.[39] Complaints about privatised British industries in the early-1990s led to a series of key decisions by the British government and the U.K. regulators about setting fair prices for monopoly services, and particularly about determining the regulatory asset values that should be used for pricing purposes. In a sense, the British government has been forced after the fact to interpret its regulatory compact with the privatised firms.

An interesting example of U.K. experience in this area is the case of British Gas (BG). Although BG was privatised in 1986, for many years the permissive regulatory regime did not address the appropriate valuation of its pipeline investment in deriving transportation charges. By 1992, calls for tighter regulation raised the issue explicitly. Alternative figures for valuing BG's investment included the replacement costs of assets as reported on its accounts, and the implicit value that investors paid for the assets at privatisation. The issue was significant because the replacement costs of BG's assets significantly exceeded their privatisation value.

The Monopolies and Mergers Commission made its choice by reference to the fundamental principles of a regulatory compact. The MMC explicitly announced the need to:[40]

> ensure that the [rates of return] offer sufficient reward to maintain levels of new investment by BG, and reward shareholders in a manner which takes account of the price they paid at privatisation for their assets but does not burden BG's customers with prices which reward BG excessively.

This approach was affirmed by the MMC in 1997 when a debate over the regulatory asset base emerged again.[41] In both cases, the MMC scrutinised the actual historical returns of shareholders and their prospective future returns to assess the reasonableness of prices.

Professor Geoffrey Whittington of Cambridge University was a member of the MMC in 1993 when the value of the rate base was set by reference to the price paid by shareholders at privatisation. He has since published on the issue of rate base valuation.[42]

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[39] See M. Armstrong, S. Cowan, and J. Vickers, *Regulatory Reform: Economic Analysis and British Experience* (1994).

[40] Monopolies and Mergers Commission, *Gas and British Gas plc,* (Volume 2 of reports under the Gas and Fair Trading Acts), p. 203 (1993).

[41] Monopolies & Mergers Commission, *British Gas PLC: A Report Under the Gas Act 1986 on the Restriction of Prices for Gas Transportation and Storage Services* (May 1997) (pp. 36, 40*).*

[42] *Regulatory Asset Value and the Cost of Capital,* in M. E. Beesley, ed., "Regulating Utilities: Understanding the Issues (Institute of Economic Affairs and The London Business School)(1998).

He explicitly cites "the requirement that the regulator strike an appropriate balance" between consumer and investor interests "by allowing a return sufficient to justify the shareholders' investment but not excessive from the perspective of the consumer."[43]

Professor Whittington elaborates on this concept when rejecting replacement costs as relevant for measuring the regulatory asset base for recently privatised assets:[44]

> By focusing on share price at flotation or some later time to establish the initial value of the regulatory asset base, the regulatory system recognises that it is concerned with establishing an appropriate return *of* (in the case of depreciation) and return *on* (in the case of profit) capital to the shareholder. It is therefore concerned with establishing an appropriate valuation of shareholders' funds, rather than a valuation of specific assets, or net assets, of the business
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> It might be thought that the failure to award a full return on the current value of assets would lead to inefficient investment decisions, but this does not apply to the initial RAB [Regulatory Asset Base], which relates to assets which were already invested when the regulatory process started. Given the nature of the investment, it is not readily liquidated or transferred to some more profitable unregulated use. In the case of marginal investment decisions (decision to make new investments) it is more important that, if the investment is desirable, the regulator should allow a reasonable return on current cost, which will give the regulated company appropriate incentives to make the investment.

We conclude that regulators in the United Kingdom have perceived a duty to balance the interests of rate-payers and shareholders along the lines of the regulatory compact that we discussed above. A perception of this duty has led them to focus on the prices paid by shareholders for privatised firms. Replacement costs have been used for valuing new assets, but not for the assets that existed at privatisation. Replacement costs for the privatised assets have been rejected as inconsistent with the necessary trade-off between shareholders and consumers, and unnecessary for efficiency purposes, since the privatised assets are not easily displaced for alternative uses.

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[43] *Ibid,* p. 93.

[44] *Ibid,* p. 94.

Our Proposed Regulatory Model

Experience in both the U.S. and U.K. is consistent with the concept of a regulatory compact. In both cases, the compact comprises an understanding that in return for accepting the constraints of regulation and other obligations, private investors receive an opportunity to earn a fair return on the sums invested, but no more or less than a fair return on expectation.

For privatised assets, the price paid to the government for the assets and the proposed tariff schedule represent natural reference points for structuring the regulatory regime. The purchase price provides a natural reference point for regulation because the use of a pricing model that meets the NPV test will provide a present value of capital charges over time that can be expected to match the price received by the government for the assets. This offers a natural balance between the interests of consumers and shareholders: consumers pay in the aggregate a present value equal to the proceeds that the government received for the assets. At the same time, shareholders receive a competitive rate of return on the amount that they paid to the government.[45]

The tariff schedule offered in the privatisation bid is also a natural reference point for regulation because it allocates risk more specifically between investors and consumers. Epic effectively announced through its bid a willingness to postpone capital recovery if the proposed tariff schedule relied on future volumes. [this information has been deleted. See NOTE at start of Epic Energy Submission 1].

Our proposal ties these two reference points explicitly together, giving the Government the benefit of the tariff schedule proposed in Epic's winning bid, allocating the risks of future volumes to Epic, while maintaining the possibility that Epic can earn a full return on its purchase price if those volumes materialise. The following elements of the compact are incorporated:

- First, the DBNGP has the right to charge tariffs as stipulated in Schedule 39 of its winning bid, with annual price increases at 2/3 of the CPI.
- Second, the right to earn a fair return on the acquisition price, that can normally be understood to arise as part of a regulatory compact at privatisation of a regulated asset, is *attenuated* for the DBNGP. The DBNGP has this right only insofar as it is consistent with the tariff path committed to as part of the compact.
- Third, the obligation *not* to earn more than a fair return on the acquisition price, that can normally be understood to arise as part of a regulatory compact at privatisation of a regulated asset, applies in full to the DBNGP

[45] In the New Zealand context, the prices allowed by the courts for airport services have been based on establishment (privatisation) value. In *Air New Zealand Limited v Wellington International Airport Limited*, the only decided legal case in which the issue has been addressed (albeit indirectly), the Court noted that the airport was setting its prices at a level that would enable it to recover its costs and to obtain a rate of return on its investment, namely the price it had paid for the airport assets at establishment.

Note how the specific terms of our regulatory proposal reflect these aspects of the compact. Our proposal would involve the Schedule 39 tariffs with annual price increases at 2/3 of the CPI. Second, the proposal does not allow for an increase in tariffs, even if these tariffs are inadequate to provide a fair return on the acquisition price. Third, the proposal requires a decrease in tariffs if high volume growth would otherwise lead to recovery of more than the acquisition price.

As a corollary of these propositions, our proposal does provide DBNGP with the *opportunity* to earn a fair rate of return on its investment, while respecting the tariff included in its bid. The proposal sets an asset base equal to Epic's purchase price of $2.407 billion, adjusted to account for capital recovery that Epic received prior to 1 January 2000 and excluding the net present value of long-term contracts. However, the proposal does not guarantee eventual recovery of this asset base.

Initially, the operating cash flow implied by the Schedule 39 tariffs will result in less than a fair return on the asset base as determined by reference to the allowed cost of capital. This shortfall will be rolled over into a "Deferred Recovery Account". Depreciation of this account is defined as the excess of operating income (revenue less operating costs) over the sum of a fair return on the regulatory asset base and depreciation of the physical asset account. Depreciation will be negative in the early years as the account increases in value. If high volumes materialise in later years, depreciation will become positive, causing the account to decrease until it reaches zero. However, without high volumes the recovery will be "deferred" forever, *i.e.*, that part of the investment will be lost. Epic will therefore be "at risk" for recovery of the Deferred Recovery Account over the lifetime of the pipeline.

Conclusions

Experience in the United States and the United Kingdom supports the notion of a regulatory compact. Investors receive the opportunity to earn a fair return on their investment, and accept in exchange restraints to meet various public policy objectives and to prevent monopoly pricing. In the United States the efficiency arguments in support of honouring this contract have been recognised by academics, government officials and the courts.[46] The regulatory compact has been compared to a fundamental property right, whose infringement by the government would raise the cost of capital and deter efficient investment. Government agencies and the courts have allowed investors to recover stranded costs, not because of any explicit legal obligation believed to arise from the regulatory compact, but for sound efficiency and equity reasons.

An analogue to the regulatory compact in the United Kingdom has arisen in the debate over the regulatory values of privatised assets. The Monopolies and Mergers Commission has perceived a duty to compensate investors fairly for the purchase price they paid at privatisation, while preventing investors from receiving any windfall above this amount. These principles have resulted in the use of the flotation value of several

[46] See footnote 30.

privatised companies as the regulatory value for tariff-setting purposes. The use of replacement costs has been rejected as inconsistent with the desired balance between shareholders and ratepayers, and as unnecessary for efficiency reasons with respect to the assets that already existed at privatisation.

Our proposal for the DBNGP meets the efficiency and equity objectives of the regulatory compact. Our proposal would allow Epic to expect no more than a fair return on its asset base or purchase price plus its allowed costs of subsequent investments. If the regulatory proposal did not allow Epic to earn a fair return, either by using an asset value or other parameters that produced lower rates than stipulated in Epic's bid, Epic's shareholders would be exposed to asymmetric risk. Such a result could significantly deter future bids for Government assets in Western Australia. Investors would realise that high bids for privatised assets could expose them to substantial financial loss while at the same time investors would have no guarantee that they could keep any possible windfalls should they succeed with a relatively low bid.