

SUBMISSION OF PETER A. BRADFORD

I. INTRODUCTION

1. I am President of Bradford Brook Associates, a consulting firm specializing in energy, water and telecommunications regulatory policy. I received BA and LLB degrees from Yale University, New Haven, Connecticut, USA. I have taught courses in energy policy at Yale University and courses in the law of electric utility regulation at the Vermont Law School.
2. I served for 25 years on utility regulatory commissions at the state and federal levels in the United States. I chaired the New York Public Service Commission (1987-1995) and the Public Utilities Commission of the State of Maine (1982-1987). In New York, I was also chair (ex officio) of the Energy Facilities Siting Board and a member of the Energy Planning Board. In Maine, utility energy facility siting, including transmission lines, was the responsibility of the Public Utilities Commission.
3. I was also a commissioner of the United States Nuclear Regulatory Commission¹ (1977-82) and the Maine Public Utilities Commission (1971-77). I was President of the U.S. National Association of Regulatory Commissioners (1987) and have written extensively on various aspects of utility regulation. Between 1997 and 2003 I was a member of the advisory board of the New England Independent System Operator, the entity responsible for the operation of the transmission system in the six most northeastern US states.

¹ The United States Atomic Energy Act requires the NRC to assure that governmentally owned utilities have transmission access to power from nuclear facilities. These reviews were among the first open access proceedings conducted at the federal level in the United States.

4. I have testified in numerous regulatory proceedings relating to electricity restructuring in the United States and in Canada. These proceedings have been before regulatory commissions, courts and legislative bodies. Jurisdictions in which I have testified include New York, California, Quebec, New Jersey, Pennsylvania, Massachusetts and the United States Congress. I have also consulted and taught on regulation in some 15 countries other than the United States and Canada. My CV is attached at the end of this submission.

5. The New Zealand Commerce Commission (the Commission) recently published its intention to make a declaration of control in respect of electricity transmission services supplied by Transpower New Zealand Ltd. (Transpower). The Commission has reached the preliminary conclusion “that, by ensuring Transpower is subject to the regulatory framework intended by the Government and Parliament, significant benefits would arise from a reduced prospect of inefficient transmission investment and inefficient transmission decisions”² and that “control would result in benefits to consumers by:
 - limiting Transpower’s ability to earn excess profits in future;
 - improving the efficiency of transmission investments and the timing of those investments;
 - ensuring that Transpower does not pre-fund unapproved investments and incur capital expenditure that would distort the comparison of Transpower’s investment proposals with the alternatives considered under the Grid Investment Test;
 - lowering the implementation costs of Transpower’s investments going forward; and
 - resulting in a more efficient time profile of prices.(¶251)

² Commerce Commission, ‘Regulation of Electricity Lines Businesses, Targeted Control Regime, Intention to Declare Control, Transpower New Zealand Ltd,’ 27 January 2006 (Intention to Declare Control), at 6.

.....Having weighed up the likely benefits of control against the likely costs, the Commission's preliminary view is that there would be significant long-term benefits to consumers from imposing control of the services supplied by Transpower." (¶253)

6. I have been asked been asked by Transpower to evaluate whether the Commerce Commission has adequately considered the risks and costs of the proposed intervention and whether the decision-making process followed by the Commission is likely to lead to a good regulatory intervention.
7. My conclusion is that the intervention – grounded though it is in worthwhile aspirations – reflects an approach likely to exacerbate the unclear objectives and mixed mandates inherent in the unusual New Zealand transmission regulatory framework. As a result, Transpower will be less able to plan, finance and carry out a transmission expansion program in a cost-effective manner. Such a result will not benefit customers, suppliers, investors or the New Zealand environment and will not lead to a wise regulatory intervention. Other, less costly options are available to investigate and, if necessary, address the Commission's concerns.
8. The rest of my submission is organized as follows: In Section II, I discuss the characteristics of an effective transmission regulatory framework and evaluate the Commerce Commission statement of intent in that context. In Section III, I discuss regulatory tariff setting principles and evaluate the Commerce Commission statement of intent in that context. In Section IV, I discuss alternative approaches to some of the concerns that the Commerce Commission has expressed in its January 31 statement of intention to declare control.

II. If the Commerce Commission takes control over Transpower's prices, it will inevitably exacerbate an already complex regulatory arrangement.

All "natural monopoly" systems can usefully be understood in terms of three fundamental responsibilities – 1) ownership, 2) provision of service and 3) governance. Governance includes regulation but also broader policy setting that is commonly exercised either by the Executive Branch or by Parliament. These responsibilities can be assigned in many different ways. What is essential is that the policymaking process speaks clearly and that allocation of regulatory responsibilities be clearly spelled out and carried out in an expeditious and a harmonious manner.

Transmission governance needs to unify several different policy threads and tools. The policies include customer protection from excessive prices, maintenance of service quality (especially in the form of reliability), competition policy, and environmental protection. The tools include the expansion planning process, the expansion approval process, and ratesetting.

Throughout the world this is a difficult time to be setting transmission policy. Expectations are in flux as to the role of transmission in the restructured electric systems of many countries. The duties imposed on transmission systems are much broader today than when these systems were primarily the guarantors of reliability in vertically integrated monopolies. The resulting uncertainties challenge not only regulators but those who must do the planning and raise the funds for transmission expansion.

Countries that have restructured their electric industries away from government owned and vertically integrated monopoly are under particular scrutiny because such restructurings have a mixed record worldwide. The ingredients of the more successful restructurings include the establishing of a clear regulatory framework with certain ingredients in common. These include:

- A clear process for reviewing new investment planning that assures full consideration of alternatives and selection of the most cost-effective combination, as well as for effective public involvement and for consideration of transmission's value in furthering the functioning of markets as well as enhancing reliability;
- A commonly understood and participatory ratemaking process that assures acceptable quality of service, recovery of prudently invested capital and that offers rewards and penalties in proportion to utility efficiency in furthering customer satisfaction and the societal goals within their scope of responsibilities;
- Closely harmonized and transparent regulatory proceedings and policies involving the interaction between the regulation of investment and the setting of tariffs.

Ownership and provision of New Zealand transmission service are entrusted to Transpower, a state-owned enterprise. The governance (or regulatory) function is divided between the Commerce Commission and the Electricity Commission. This split is awkward in the best of circumstances, because the tariff-setting, service quality, planning and investment review functions do not lend themselves to subdivision of this sort.

If the Commerce Commission declares control on the basis announced in its January 31 statement, it will exacerbate an awkward jurisdictional split that cannot be reconciled with sound regulatory practice. The proposed declaration will compound the difficulties by setting Commerce Commission judgments at odds with Electricity Commission judgments in areas of cost and scheduling. This is not a theoretical concern. Misalignment and overlap in regulatory jurisdiction and practice

have been shown to have contributed substantially to the 2000-2001 California electricity crisis and to the 2003 blackout of the northeastern United States and Canada. A full discussion of these events is beyond the scope of this submission. What is relevant here is that both events were in some ways caused and in other ways made worse by the conflicts between state and federal regulatory jurisdictions that characterize the US system. In the California case, matters were also exacerbated by failures of coordination among different California institutions. Like any structural flaw, these misalignments go unnoticed during normal times. But when they are asked to function during times of exceptional demand or stress, their failures can be expensive and sometimes alarming.

The Commerce Commission states that “It cannot be satisfied, in the absence of further evidence, that Transpower’s proposed investments will promote the efficient operation of markets directly related to electricity distribution and transmission services” (¶225) and that “investments are likely to be made that cause significant consumer detriments” (¶226) The Commission adds (in ¶236). “Although the Electricity Commission may tend toward ensuring that Transpower’s investments are in place somewhat in advance of the time they are needed, in the Commission’s view it would not be unreasonable to assume that the Part F approval process could result in significant benefits arising from more appropriately timed expenditures. It is not unrealistic to assume a deferral of 1-3 years for each of Transpower’s major investment items, through a process under which the Electricity Commission will decide on the appropriate timing after extensive consultation with interested parties”.

In short, the Commerce Commission seems concerned not just with recovery of the costs of the investments through an efficient pricing approach. It is concerned also with assuring the selection of the most efficient investment alternatives. No one can quarrel with this as a goal, but one can quarrel with entrusting its implementation simultaneously to two different regulatory bodies. And the Commerce Commission’s interpretation of the tactical transmission upgrade expenditures approval by the

Electricity Commission just three months ago can hardly be achieving the result that the Electricity Commission intended in approving the expenditures.

Since the investment approval process is lodged in the Electricity Commission, one would expect concerns about its being undermined first to be articulated by that body. If the Electricity Commission feels that some action by the Commerce Commission is needed to protect its own ability to assure efficient investment, a letter or other transparent communication to the Commerce Commission would be an appropriate way to seek such an action. If the Electricity Commission feels that its November approval of the tactical transmission upgrades is mispremised in light of new information (¶185), surely it would reopen its own proceeding or commence a new review, perhaps by affording Transpower an opportunity to explain its behaviour. The absence of any such activity strongly suggests that the regulator actually charged with assuring efficient investment decisions does not share the Commerce Commission's concern on this point.

Examples of the jurisdictional overlap abound. The Commission's estimates of likely savings resulting from a decision to declare control seem to prejudge the Electricity Commission's decisions as to both the size and the timing of the necessary investments. But it is the Electricity Commission, not the Commerce Commission, that applies the Grid Investment test. Indeed, the Commerce Commission itself acknowledges the Electricity Commission's view of itself as administering the Grid Investment test to "minimize regulatory risk and the risk of uneconomic investment" (¶67) and "promot(e) economic efficiency in transmission" (¶68). If cost reductions or timing delays result from Electricity Commission review, it will be the result of Electricity Commission scrutiny and cannot properly be counted as a benefit of a Commerce Commission decision to take price control. The Commerce Commission can have no way of knowing at this time just what projects will be reduced, delayed or eliminated and therefore has no way to ascribe a price impact to those speculative outcomes. This conflict is at odds with sound regulatory

practice that would seek harmony in these determinations. Such discord will also trouble potential lenders and rating agencies.

Yet the Commerce Commission, in assessing the “Indirect Costs of Control” has made no allowance for the likely impact of increased uncertainty and concern about conflict among regulatory jurisdictions could have on Transpower’s cost of financing. Nor has it allowed for the possibility that needed transmission could be delayed past the time that would begin to confer benefits. In assessing the benefits of deferred expenditure (¶237 and ¶238), one would expect some discussion of the potential cost of delay. As the discussion stands now, it invites the conclusion that infinite deferral would bring infinite benefit, a condition that can only be true if there is no net benefit to the projects. But that is exactly the conclusion that seems to be reserved to the Electricity rather than the Commerce Commission.

Those charged with responsibility for lending or investment decisions pay close attention to what is often called “the regulatory climate” of every country in which they do business. A questionable regulatory climate can result even when all of the entities involved in a sector are capable and well-intentioned. Indeed, this will be the result if the institutional arrangements are such that the discharging of their legal responsibilities forces them into situations characterized by conflict, uncertainty and delay. One symptom of a troublesome regulatory climate is undue fragmentation of governance responsibility. Unless the regulators involved in such a framework make extraordinary and creative efforts to avoid situations in which each agency conscientiously following its own imperatives embarks on a series of collision courses with its counterparts or with the service provider, such a regulatory environment can be extremely costly to customers when large amounts of capital need to be raised.

III. If the Commission declares control in the manner indicated, the prices that it must establish in order to realize the asserted benefits seem highly likely to violate basic tariff setting principles.

Transmission pricing is a continuing balancing act between keeping prices as low as is reasonable on the one hand, while on the other hand stimulating efficient performance, enabling generation and distribution markets to perform effectively and attracting all necessary capital on reasonable terms.

An optimal transmission regulatory cycle would begin with system expansion options being approved for economic and environmental purposes on the basis of an integrated resource planning process that considered the tariff and other cost implications of each option according to an agreed upon tariff-setting methodology. These approvals would carry with them something between a strong presumption and an outright guarantee of cost recovery as long as the approved projects were completed prudently and in accordance with representations made in obtaining the approvals.

Tariff-setting in such a cycle (whether through performance-based ratemaking or a cost-of-service approach) would permit recovery of expenses associated with prudent efforts to obtain approvals and to prepare for construction even if approvals were ultimately denied. If a performance-based approach is preferred, it will take account of necessary future changes in past expenditure patterns, using a combination of building blocks and benchmarks to assure that necessary revenues are obtained efficiently. Any tariff system that sets rates to prevent recovery after expenditures have been made will function efficiently only if it has subjected all available information to the fullest possible scrutiny in order to assure that it is truly punishing imprudence or mismanagement.

Expenditures that go unrecovered because a threshold has been breached or because one agency of government is not satisfied with the preliminary explanations of a regulated entity, especially under circumstances in which the decisions of another agency may yet produce a different set of priorities and tariffs cannot lead to efficient management, wise planning or lender confidence. Such tariff-setting will create a likelihood that the utility will not recover its cost of capital or will have to reduce service quality. It will also signal management that its future conduct must be shaped to please regulators rather than around its best judgment of system requirements.

Complete intergenerational equity in transmission expansion cannot be achieved in a manner consistent with efficient transmission expansion. This is because transmission needs to be installed in standardized blocks which are large enough to accommodate future growth, rather than being scaled up every year. Ratemaking that phases in the costs of needed facilities on a smooth path is more likely to produce satisfactory earnings without rate shock than would be the case if facilities could only go into rates upon completion³.

The Commission statement implies that transmission costs should be recovered from customers only after the investment has been put into service⁴. However, such a model does not work well for a service that must make its investment in large

³ “The economies of scale in transmission investment argue for overbuilding, rather than underbuilding, transmission. It is substantially cheaper per GW-mile to construct a higher-voltage line than a lower-voltage line. The higher-voltage line also requires less land per GW-mile, which should reduce opposition from local landowners and residents. Also, building a larger line now eliminates the need to build another line in several years. This situation can eliminate the need for another potentially bruising and expensive fight over the need for and location of another transmission line. Also, the availability of suitable land on which to build transmission lines can only go down in the future, as the population grows and the economy expands. On the other hand, overbuilding can increase financial risks for the transmission owners.” Eric Hirst and Brendan Kirby, “Transmission Planning for a Restructuring US Electric Industry”, Edison Electric Institute, June, 2001.

increments after years of low investment. Unregulated firms cover their planning, preparation and construction costs independently of whether or not a particular asset is in service. An oil refiner or paper manufacturer doesn't change prices to reflect the entry into service of a new refinery or paper mill. Overall, the price that they charge for their products must cover the costs of all of their projects - the ones that get built and the ones that get planned and canceled. Otherwise, they go out of business.

The idea that customers should not pay for assets that are not serving them is not an absolute rule in most US utility regulatory jurisdictions (though it is in a few). Investment in projects under construction is charged to the customers on several rationales:

- a. It smooths out potentially large rate increases, avoiding rate shock. On this rationale, costs of large projects might be phased into tariffs over, for example, a five year period during which the project entered into service in year three.
- b. Socially desirable projects (pollution control, for example) should not be held back because they lower the quality of a utility's earnings by matching real expenditures up with promises of future recovery.
- c. Alleviation of financial stress arising from financing difficulties for the utility during times of heavy construction.

In jurisdictions that practice cost-of-service regulation, assets can be charged approximately to customers who use them because costs incurred during construction are added to the rate base and recovered over the life of the project.

⁴ ¶214 notes potential adverse “distributional consequences where today’s customers pay for investments that result in benefits for future customers”. ¶218 states “businesses operating in a workably competitive market are not able to prefund investments other than by using return on existing capital.”

However, price or revenue cap tariff methodologies do not normally allow for such an approach. Instead, a building block analysis is normally used to ascertain the adjustment to the formula needed to account for new investment. Done properly, this approach can smooth the path of prices and of earnings while allowing necessary projects to be financed.

In stressing the need to achieve intergenerational equity among customers without having performed a building block analysis, the Commission seems to be borrowing a concept of limited applicability in cost-of service regimes and applying it under New Zealand's tariff methodology where it is of even less relevance. The concern that charging in this way will have inefficient "distributional consequences" is at least debatable. Giving customers price signals to the effect that growing demand will necessitate construction that will raise costs would, to most economists, be the essence of efficiency. If, for example, customers respond to such increases by choosing to enhance energy efficiency, plans can be adjusted before major construction expenditures have been undertaken. If, on the other hand, prices do not change until projects are completed, the same customer response to higher prices will result in greater waste and in construction of expensive excess capacity.

Similarly, the ¶218 concern that Transpower may gain an advantage over other potential providers who are at risk for their preparatory planning work if their plans are not selected tells only half the story. Developers whose unregulated projects are successful can recover the costs of unsuccessful projects in the returns of the successful projects. However, Transpower's regulated rates on successful projects would deny it a similar opportunity.

IIIA – The Commerce Commission's Proposed Declaration

Tariff regulation normally constrains inefficient expenditure in one of two ways, 1) by after-the-fact disallowance for expenditure found to have been imprudent or 2)

through a price or a revenue cap that limits tariffs in advance on the basis of a formula reflecting a careful assessment of future revenue needs and potential efficiency improvements. New Zealand has developed a unique hybrid approach, using a price threshold to trigger its review. This approach appears at first blush to be akin to a revenue cap, but as set forth in the statement of Intention to Declare Control, control contemplates the after-the-fact disallowance of recovery of expenditure normally associated with prudence reviews under cost-of-service regimes⁵.

Since this approach may involve disallowing recovery of expenditures that have already been undertaken, it will impose real losses on Transpower. Such after-the-fact approaches depend for their fairness and their furtherance of efficiency on some finding that an imprudent or an unreasonable expenditure has occurred. Such a finding is normally made at the close of an investigation, when all available information and evidence from all parties has been analyzed and challenged by those adversely affected. But the Commerce Commission has performed no such review to date.

Instead, the Commission has implied that breach of the Threshold is tantamount to excess profit (¶230). But it has made no showing of “excess profit” in any conventional regulatory sense, i.e. by demonstrating earnings in excess of Transpower’s cost of capital. And so it has no basis to conclude that Transpower’s breach is profit at all. And, if the amounts in question are expenditures rather than profit, the Commission still has established no basis (for example, through use of benchmarks) to conclude that they are excessive or unjustified.

⁵ The Commission statement says that it “should not predetermine the form and nature of control” (at ¶43). However, the Commission must make a “provisional authorisation” of prices as part of its declaration of control (¶44), so it must make a pricing decision at the moment it declares control. And the Statement of Intention indicates at the very least a strong predisposition to conclude that the announced

The Commission has available to it the information necessary to review a building block analysis, or even to conduct one of its own. It has the capability to determine conclusively whether it is dealing with unreasonable rates or not. It can also determine whether any adjustment that it makes should be retroactive in effect (an extraordinary remedy normally employed – if it may be used at all – to remedy fraud or other bad faith) or made prospectively, in light of the carefully determined and adjudicated needs of the New Zealand grid.

As a former regulator myself, I can understand and sympathize with the Commission's concern at the prospect of a series of increases of the magnitude announced by Transpower. But such a tariff pattern is not all that unusual in utility sectors in which large expenditures are necessary only at wide intervals. Furthermore, a utility that has not been involved in major construction projects for many years will incur higher start-up costs in preparing for such a program than would a company with a substantial ongoing construction program. These costs include not only project preparation but the need to meet new regulatory requirements, such as the Grid Investment Test, in a comprehensive manner that allows for efficient regulatory decision-making, rather than proceedings slowed and made more expensive by an ongoing need to perform new or modified studies.

The Commission approach embodied in the decision to exercise control threatens to micromanage the pricing of transmission in a manner inconsistent both with integrated resource planning and with providing adequate revenue and effective incentives. In particular, the Commission has indicated that it need not decide how it will impose control at this time but has strongly implied an intent to reduce Transpower's rates and therefore its revenues. Indeed, it has identified these reductions as benefits of control (¶¶249, ¶¶ 250, ¶¶252). This seems internally

April 1 increase should not be allowed. See for example ¶¶220, 221, as well as the calculation of the benefits of control.

inconsistent. If the Commission reduces Transpower's revenue or disallows an increased proposed to occur during the review period, it can only do so because it has made some decision as to the level of revenues it is likely to allow as part of the *how to control* decision.

As I have explained above, the imposition of control in the context of New Zealand's complex and untested transmission regulatory regime threatens to do more harm than good. As I will illustrate in the final section, a more conservative "first do no harm" approach would be better suited to the Commission's present situation.

IV. THE FOLLOWING STEPS WOULD BRING NEW ZEALAND TRANSMISSION SYSTEM OVERSIGHT CLOSER TO SOUND REGULATORY PRACTICE.

All regulatory decisions that involve predictions about future demand and prices will be wrong to some degree. The essence of wise regulation is to gather all possible analysis, to allow for uncertainty and then to shape decisions so that the errors will be as inexpensive as possible, allowing maximum flexibility for correction when events contradict the regulator's best judgments, as they inevitably will.

The Commerce Commission statement resonates with mistrust of what it terms Transpower's "behaviour". Even if all of these concerns are assumed to have some basis, there are better ways to adjudicate and to remedy them than to pursue the "Ready. Fire. Aim." course proposed in the Statement of Intention to Declare Control. That course presupposes, without benefit of complete scrutiny in the form of a building block analysis of Transpower's likely future costs, that the Commission can perform a needed attitude adjustment on Transpower by cutting off substantial revenues asserted to be for "prefunding" unapproved projects.

Before making a decision that will fundamentally alter existing relationships in an area vital to the New Zealand economy, the Commission would do well to proceed in

as deliberate a manner as possible, reviewing all information justifying expenditures to date as well as the final decisions of the Electricity Commission. If a decision to take control needs to be made following such a course of conduct, it will be less unsettling to potential lenders and rating agencies than a declaration based on partial and untested information made while other fundamental proceedings relating to Transpower's future capital needs are still unresolved.

In fact, however, the Commission need not choose a course that threatens to halt Transpower's preparations in their tracks until both the Electricity Commission's and its own proceedings have run their course. If the Commission proceeds in a manner that recognizes that surprise and conflict are undesirable attributes in any regulatory regime that seeks to inspire public confidence and to attract substantial amounts of capital, it has more creative and promising options available to it than declaring control. Here are some steps that seem more consistent with the regulatory harmonization that characterizes successful utility sector governance:

1. Before deciding whether to take control, solicit a formal statement from the Electricity Commission as to whether and to what extent it shares the Commerce Commission's concerns;
2. If the Electricity Commission shares some of these concerns and is for some reason unable to address them in the course of its own ongoing review, a proceeding to address them jointly can be developed. Even if the Commerce Commission were to proceed unilaterally, it would at least be doing so in a way that demonstrated close coordination with a sibling regulatory agency with whom it had an overlapping jurisdiction;
3. In addition to the foregoing steps and as an alternative to control, consider a tariff methodology that includes provisions providing for the sharing or return of excess profits to customers, presumably with a symmetrical provision to correct for significant underrecovery;

4. Defer any decision to take control until completion of a building block analysis. If, upon conclusion of such an analysis, a decision to declare control were made, the Commerce Commission would at least have substituted a real review of the costs of future grid enhancement for the dependence on the threshold and on conjecture that characterize the present statement of intention;
5. Commence, preferably in cooperation with the Electricity Commission, a benchmarking analysis to assure that the building block decisions comport with best practices in New Zealand and any comparable jurisdictions, thereby grounding conclusions as to potential efficiencies in actual transmission experience rather than in a threshold that was not chosen with the realities of the future New Zealand grid in mind.

DRAFT – February 22, 2006

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PROFESSIONAL EXPERIENCE:

March 1996- present ***Energy, Water and Regulatory Advisor, CEO Bradford Brook Associates***

International - Taught and/or advised abroad on energy, water and telecommunications and regulatory issues, and electric restructuring in China (energy), Armenia (energy water and telecommunications), Azerbaijan (energy, water) , Russia (energy), India (energy), Indonesia (energy and water), Mongolia (energy), Canada (energy), South Africa (energy), Georgia (energy), St. Lucia (water), and Trinidad and Tobago (water and energy). Served as one of two U.S. representatives on international panel advising European Bank for Reconstruction & Development on least cost alternatives in Ukraine to continued operation of the Chernobyl Nuclear Station (1996-97) and on an international expert panel assessing the safety of the Mochovce Nuclear Power Station in Slovakia (1998);

U.S. - Advised on utility restructuring, nuclear power and the creation of electricity and telecommunications markets in Washington, D.C., Kansas, Ohio, Texas, Wisconsin, and Utah; Testified in Vermont, New Hampshire, Pennsylvania, Louisiana, New Jersey, Maryland, Connecticut and California (for legislative committees, regulatory commissions or customer representatives), as well as Maine (for the Town of Wiscasset), Massachusetts (for Cablevision Systems Corporation and for the Attorney General) and Florida and Michigan (for AT&T).

Other - Visiting Lecturer, Yale School of Forestry and Environmental Studies (Energy Policy and Environmental Protection, 2001-2005); Adjunct Law Professor, Vermont Law School (Energy and Regulatory Law, 1999-2000, 2006); Associate, Regulatory Assistance Project (1995-present); member National Research Council Committee on Alternatives to Indian Point Nuclear Power Plants (2005-present); Member, Advisory Council, New England Independent System Operator (1998-2003).

February 1995 - March 1996 ***Fellow, Regulatory Assistance Project***

Project funded by the U.S. Dept. of Energy, the Environmental Protection Agency and foundations to provide assistance to state and federal regulatory commissions on energy and environmental matters.

June 1987- January 1995 ***Chairman, New York State Public Service Commission***, Albany, New York

CEO of state agency charged with overseeing \$29 billion annual revenues of New York electric, gas, telephone and water utilities. Responsible for developing and implementing consumer and environmental protection policies in all utility sectors, as well as transitions from monopoly to competition in energy and telecommunications industries. 700 employees, \$65 million budget.

July 1982- June 1987 **Chairman, Maine Public Utilities Commission**, Augusta, Maine

CEO of state agency charged with overseeing \$2 billion annual revenues of Maine utilities. Responsible for developing and implementing consumer and environmental protection policies in all utility sectors, including competitive bidding for independent power production and energy conservation services as well as adjusting to the break-up of AT&T. 60 employees, \$4 million budget.

March 1982-June 1982 **State of Maine Public Advocate**

First full-time Maine public advocate; intervened on consumers' behalf in telephone, water and electric cases; oversaw staff of 6; prepared briefs; cross-examined witnesses.

Aug. 1977-March 1982 **Commissioner, United States Nuclear Regulatory Commission, Washington, D.C.**

One of five commissioners in the federal agency whose responsibilities include safety of nuclear power plants and other nuclear facilities; preparing licensing criteria for a nuclear waste repository; licensing exports of nuclear fuel and reactors pursuant to Nuclear Nonproliferation Act; assisted in major upgrades of regulatory and enforcement processes in wake of Three Mile Island accident. 3000 employees, \$250 million budget.

Dec. 1971-Aug. 1977 **Commissioner, Maine Public Utilities Commission, Chairman** (9/74-7/75).

Sept.1968- Dec. 1971 **Federal-State Coordinator, State of Maine**

Responsible for many oil, power, environmental and housing matters. Assisted in preparation of landmark Maine laws relating to oil pollution and industrial site selection. Staff Director, Governor's Task Force on Energy, Heavy Industry and the Coast of Maine.

Aug. 1964-June 1965 **Athens College, Greece, Teaching Fellowship**

PROFESSIONAL AFFILIATIONS:

1999-present - Member, Policy Advisory Committee, China Sustainable Energy Project (funded by the David and Lucille Packard Foundation and the Energy Foundation).

Nov. 1986-Nov. 1987 President, National Association of Regulatory Utility Commissioners

1977-1995 NARUC positions, Member, Executive Committee; Member, Electricity Committee (1977-1989); Member, Gas Committee (1989-1993); Member, Communications Committee (1975-1977); Board of Directors, National Regulatory Research Institute (1985-1987).

1975-1977, 1982-1986. Advisory Council, Electric Power Research Institute

1987-1995, Member of New York State Energy Planning Board

1987-1995, Member, Board of Directors, New York State Energy Research and Development Administration

1987-1995, Member, New York State Environmental Board

1992-1994, State co-chair, New York State Task Force on Telecommunications Policy

Board of Directors (vice-chairman), Union of Concerned Scientists

EDUCATION:

1964 *B.A.* History, Yale University, New Haven, CT

1968 *L.L.B.*, Yale University School of Law, New Haven, CT

AWARDS:

Honorary Degree, Unity College, 1981.

Environmental Award, Natural Resources Council of Maine, 1979.

PERSONAL:

Married (Susan Symmers Bradford)

Three children (Arthur, Laura, Emily)

PUBLICATIONS of Peter A. Bradford

Books

Fragile Structures: A Story of Oil Refineries, National Security and the Coast of Maine, 1975, Harpers Magazine Press.

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Maine's Oil Spill Legislation, Texas International Law Journal, Vol.7, No.1, Summer 1971, pp.29-43.

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