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The Politics of Hydro-Megaprojects: Damming with Faint Praise in Australia, New Zealand, and British Columbia**

ABSTRACT

The 1970s gave birth to two important trends in resource development that inevitably led to major conflicts in the 1980s. In some countries these are likely to continue well into the next decade. The first was the growing tendency towards megaprojects. These were huge schemes, often costing more than a billion dollars. Dominantly they related to energy resource development. The second was the increasing sophistication of the environmental movement. The two trends clashed in several countries in the late 1970s and early 1980s. Bitter confrontations occurred in northern Canada, Australia and New Zealand, particularly over proposals for hydro-power development.

This paper examines the history of three hydropower projects that were proposed in the 1970s. One of these was the Franklin Dam, scheduled for construction in Southwest Tasmania, Australia, in the last remaining extensive wilderness area in that country. A bitter conflict arose between the Tasmania Hydroelectric Commission and a coalition of environmentalists, ending eventually with the intervention of the Australian Commonwealth government. A second case was the Clyde Dam on the South Island of New Zealand. It was one of a series of "Think Big" projects put forward by the New Zealand

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government. The proposal pitted the New Zealand Electricity Department against a variety of well-organized environmental groups from all over the country. The confrontation in this instance too was bitter and protracted. It also led to action in the courts. The third proposal concerned the Site C Project on the Peace River in British Columbia. Here, B.C. Hydro, a large electric power utility was confronted by a coalition of two highly articulate environmental interest groups who contested the need for the scheme, and who drew attention to the damages it would create.

Electric power utilities, especially when backed by enthusiastic governments, have also been able to wield higher levels of coercive power. The most significant development, however, is the increasing influence exercised by environmental groups. Formerly only able to exercise a few forms of identitive power, they clearly showed in Australia and New Zealand that they can wield coercive power as well, as in taking the government to court, or in influencing profoundly its reelection.

The implication of these conclusions is that in megaproject development confrontation is likely to be increasingly the norm, and that compromise will be almost impossible to reach. For the latter to occur would require major changes in existing institutions, particularly laws, policies, and evaluation procedures.

A CLASH OF PHILOSOPHIES AND STRATEGIES

The 1970s gave birth to two important trends in resources development that inevitably led to major conflicts in the early 1980s; in some countries these are likely to continue well into the next decade. The first was the growing tendency toward large scale schemes, the so-called megaprojects. These were developments that in some cases were considerably larger than anything built so far in the country or region in question. In certain instances they involved investments of several billion dollars and had impacts on areas several hundred thousand square kilometers in extent. Energy resource development schemes were a central focus, particularly in North America and the Soviet Union, but also in a number of Third World countries, such as India and Brazil.¹

The megaproject philosophy appealed to enterprising businessmen and engineers as a bold and imaginative means of getting to the future faster. It was attractive to politicians as an opportunity to reap economies of scale and to stimulate regional economic growth. Once introduced, it appeared to gather momentum and spread from one field of resources development to others.

1. LARGE SCALE WATER TRANSFERS: EMERGING ENVIRONMENTAL AND SOCIAL EXPERIENCES (G. Golubev and A. Biswas eds. 1985); Dagenias, *Dams and the Environment*, MANAGING A LEGACY (Proceedings of a Colloquium on the Environment, 63-68 (Dec. 1985)). Canada.

The second trend was the increasing sophistication of the environmental movement.² It had survived various set-backs in the 1960s and had begun to mature by refining its objectives and adopting more effective strategies in bringing its viewpoint to bear. It had come to understand much better the political system and to identify more accurately where pressure could be forcefully applied. It discovered the effectiveness of coalitions and of well-informed, articulate experts in building a case and carrying it forward. Most of all it became increasingly positive and creative, notably by suggesting politically and economically viable alternatives.³

The two movements developed at a different pace in various countries. In some places, such as the Soviet Union, the United States and Canada, the megaproject philosophy caught on rapidly and appeared to have become well entrenched by the late 1970s. Elsewhere it was introduced much later and even then only sporadically. This was especially so in the Third World. Likewise, the environmental movement altered its characteristics much sooner in countries like the United States, the United Kingdom, New Zealand, and Australia than it did in others such as the Soviet Union or the Third World countries.

The two movements inevitably clashed. Megaprojects are typically environmentally and socially disruptive in their impacts, and almost always in a very large way.⁴ In many cases they threaten entire ecosystems and cultural heritage, and in some instances severely impinge upon the rights of native peoples. The ingredients for massive confrontation between "the developers" and "the preservationists" are thus in place. Several major clashes between proponents of megaprojects and citizens concerned about their impacts have occurred in the 1980s in Canada, the United States, Australia, and New Zealand.

The movement towards megaprojects has slowed down considerably in the past two or three years. In some instances schemes have been cancelled altogether. In others they have been shelved indefinitely. In yet others they have been considerably "down-sized." This has certainly been the case with many of the projects that were to have been built under the Canadian government's *National Energy Program, 1980*⁵ and New Zealand's "Think Big" program⁶ which embraced a wide variety of large scale energy resource development schemes.

To an important extent the slow-down in megaproject development has

2. Buttel & Larson II, *Whither Environmentalism? The Future Political Path of the Environmental Movement*, 20 NAT. RES. J., 323-44 (Apr. 1980).

3. D. Morrison, *How and Why Environmental Consciousness Has Trickled Down*, DISTRIBUTIONAL CONFLICTS IN ENVIRONMENTAL-RESOURCE POLICY (Schnaiberg et al. eds. 1986).

4. Goldsmith & Hildyard, *The Myth of the Benign Superdam*, 14 ECOLOGIST, 217-23 (1984).

5. CANADA, DEPARTMENT OF ENERGY, MINES AND RESOURCES, *THE NATIONAL ENERGY PROGRAM* (1980).

6. *Special Energy Issue*, NAT. BUS. REV. (Aug. 1984).

occurred as a result of the economic downturn, and especially as a consequence of the fall in energy demands. It is also likely, however, that some of the arguments that were brought to bear in the confrontations between the promoters of such schemes and their opponents have had an impact on policy-makers. In some cases these have resulted in modifications of existing legislation, policies and administrative arrangements which may be followed by a general rejection of the megaproject philosophy. In others little or no change has occurred.

What then are the prospects for the megaproject philosophy? Where is it likely to be adopted most fervently and where will it be abandoned? And what role will a changed environmental movement play in this process? This paper endeavors to shed light on these matters by first positing conditions which tend to favor the development of megaprojects and those which tend to reject them. It then proceeds with an examination of experience in Australia, New Zealand and British Columbia where major conflicts arose in the late 1970s and early 1980s over proposals for such schemes. The paper concludes with some observations about the implications that this experience has for resources development and environmental management.

CONDITIONS FAVORING OR OPPOSING MEGAPROJECT DEVELOPMENT

Based on a review of experience in several parts of the world, the appeal of the megaproject philosophy is likely to be particularly strong where the following conditions are present:⁷

- (1) resources are abundant;
- (2) environmental protection is subservient to an overwhelming desire for economic development at almost any cost, sometimes referred to as "the frontier mentality";
- (3) governments are willing to offer major concessions to developers in the form of provision of infrastructure or the offer of electric power at rates well below costs;
- (4) substantial regional unemployment in the area where the project would be built, and especially if the government wishes to maintain or increase its political support in that region;
- (5) industries with substantial capital resources and large international markets are attracted by the prospects;
- (6) project review procedures allow considerable administrative and political discretion, and tradition tends to discourage appeal to legal recourse.

In the case of hydropower, megaproject development is more likely to have a high profile when responsibilities are in the hands of a large public

7. W. R. D. SEWELL AND H. D. FOSTER, *ENERGY POLICY FOR AN UNCERTAIN FUTURE* (1983).

utility which is firmly supported by the government, and where the prevailing economic philosophy is that of "hydro-industrialization."⁸ In such circumstances there tends to be a symbiotic relationship between the electric power utility and the government, in which the former obtains support from the latter for schemes it wants to build on grounds of "the promotion of economic growth" and the latter obtains support from the former as a result of the government making possible the continued expansion of the utility's staff, operations, and sphere of influence.

There are, however, circumstances where megaproject development is likely to have little appeal, or may run into substantial opposition. Among the factors which are likely to limit its implementation are:

- (1) an economic structure in which resource exploitation is not the major means of support;
- (2) general acceptance of a philosophy of harmonious development in which the central aim is to ensure environmental integrity;
- (3) existence of participatory democracy, in which individuals and groups have a substantial role in shaping policies;
- (4) ability of critics to make well-informed, articulate reviews of proposals, and to offer viable alternatives; that is, the provision of "counter-expertise";
- (5) ability to resort to the courts, where this seems appropriate;
- (6) opposition of the media to megaproject development;
- (7) ability of opponents to call upon international networks for support, such as Friends of the Earth;
- (8) the appearance of technical alternatives that are cheaper, more efficient, and environmentally more compatible;
- (9) economic downturns, which provide an opportunity to pause and reflect;
- (10) introduction of more broadly-based evaluation techniques which go beyond conventional economic accounting to embrace social and ethical considerations.

The most crucial of all the factors, however, in determining whether a given megaproject will proceed is the institutional structure, and the manner in which various actors exercise influence or power within it. In this instance five major types of actors appear to be especially important—politicians (or more accurately, the government), the bureaucracy, electric power utilities, interest groups, and the media. Each wields to a varying extent one or more of the following types of power: coercive, utilitarian, or identitive. Coercive power involves the ability to impose something exceedingly unpleasant, such as imprisonment, public rebuke, or denial of employment. Utilitarian power offers a reward, such as a grant, low cost loan, honor, or the promise of employment. Identitive power is

8. Crabb, *Hydro-electric Power in Newfoundland, Tasmania and the South Island of New Zealand*. THE SOCIAL AND ENVIRONMENTAL EFFECTS OF LARGE DAMS (E. Goldsmith & N. Hildyard eds. 1986).

exercised through a spectrum of techniques that range from objective, visible persuasion to what the individual has been brought up to believe is inherently correct. Advertising is an especially explicit form of such power. Less obvious are more implicit forms, such as the ownership of the media or the use of the education system to put forward ideas.

The history of hydro-industrialization has witnessed some important changes not only in the relationships among the various actors, but also in the types of power they have wielded.

THREE CASE STUDIES

Three case studies, drawn from Australia, New Zealand, and British Columbia illustrate well the megaproject controversy (Table 1). In each instance the proposal for development emerged in the late 1970s. Each was put forward by a major electric power utility that exerted important influence on government policy and which had a large workforce that anticipated continuous employment in planning, design and construction of hydro-power projects. All three proposals raised concerns about economic, social, and environmental impacts. Most importantly, they all aroused concern about the existing processes of planning and policy-making.

TABLE 1
THREE HYDRO-POWER PROPOSALS IN CONTEXT

GORDON-BELOW-FRANKLIN SCHEME, AUSTRALIA	
Tasmania installed capacity, 1984	2.1 million kW
Tasmania population, 1984	432,000
Gordon-below-Franklin generating capacity	640,000 kW
Franklin Dam generating capacity	296,000 kW
Estimated cost of Gordon-below-Franklin scheme (1979 prices)	\$A 1.4 billion
Estimated cost of Franklin Dam (1979 prices)	\$A 237 million
CLYDE DAM, NEW ZEALAND	
New Zealand installed capacity, 1984	6 million kW
New Zealand population, 1984	3.1 million
Clyde Dam generating capacity	610,000 kW
Estimated cost of Clyde Dam (1977 prices)	\$NZ 324 million
SITE C DAM, BRITISH COLUMBIA	
B.C. installed capacity, 1984	11 million kW
B.C. population, 1984	2.8 million
Site C generating capacity	940,000 kW
Estimated cost of Site C Dam (1982 prices)	\$1.3 billion

While the three cases had much in common, their outcomes differed. One of them went ahead, another was cancelled, and the third was set aside for possible reconsideration at a later date.

It is clear that the hydro-megaproject controversy is far from over. It is also evident that there are deficiencies in some of the institutions concerned with planning and policy making in the water resources field, notably with respect to legislation, policies, and administration arrangements. This is especially so with regard to the accommodation of changing social values. The examination of the three case studies provides an opportunity to identify such changes on the one hand, and to consider ways of accommodating them on the other.

THE FRANKLIN DAM, TASMANIA

Hydro-industrialization in Tasmania

Hydro-electric power development has long been regarded in Tasmania as the foundation of that state's economic prosperity.⁹ From the start, such development has been strongly influenced by the public sector, beginning with the construction of a hydro-electric power scheme for the Launceston City Council in 1895. By 1911 a statewide system was being put in place by the Hydro-Electric Department, which became the Hydro-Electric Commission. The latter is now the state's largest public corporation. It presently has a staff of 1,950 professionals and administrative officers, as well as a construction force of 2,760.¹⁰

Tasmania has an installed hydro-electric capacity of 1,800,000 kW. This is very substantial when viewed in the light of the state's population (432,000), or its proportion of Australia's hydro-power capacity (eighty-six percent). Tasmanians are in fact second only to Norwegians in terms of per capita consumption of electricity.

The Tasmania Hydro-Electric Commission has worked hard to attain this position, promoting the establishment of energy intensive industries as well as domestic consumption, and constantly building ahead of demand. It has done so particularly in the past thirty years, during which more than eighty percent of the present capacity has been installed. Believing that there might be a shortfall in capacity by the 1990s, the Commission began to look for new sources in the mid-1960s. Hitherto the main focus had been on rivers in the central region. It has now moved to the southwest, and to the coal regions of the north.

9. R. Taplin and P. Tighe, *The Implications of Uneven Australian Resource Development for Tasmania* (Environmental Studies Occasional Paper No. 14, Hobart, Tasmania: University of Tasmania, 1982); P. THOMPSON, *POWER IN TASMANIA* (1981).

10. THOMPSON, *supra* note 9, at 34.

Growing Concerns

The Hydro-Electric Commission [HEC] had been popularly supported across the state until it started to search for new resources. Its programs had been regarded as the basis on which economic prosperity could be obtained.¹¹ Things changed rapidly, however, when the Commission proposed the development of the Middle Gordon River Scheme in Southwest Tasmania, including the flooding of Lake Pedder (Figure 1). This proposal aroused strong opposition from environmentalists and recreationists who regarded the Lake Pedder area as ecologically and culturally unique.¹² It was, in addition, located within a national park. Various groups were formed to protest this scheme, including the Save Lake Pedder National Park Committee and the United Tasmanian Group. A petition containing more than 7,000 signatures was presented to the government in 1972.¹³ Several bodies were appointed to review the proposal. Most of them recommended against its implementation.¹⁴

Despite all of this, the government decided to authorize the Middle Gordon Scheme. Lake Pedder was flooded in 1972. The opponents were incensed. The stage was set for a furious battle over Stage 2 of the scheme, involving the lower part of the Gordon River, and especially one of its tributaries, the Franklin River. This conflict aroused interest all over Australia and in many other parts of the world as well.

The Gordon-below-Franklin Scheme

In 1979, the HEC announced plans to proceed with development of the Lower Gordon River. The overall scheme would consist of several projects, with a collective installed generating capacity of 640,000 kW.¹⁵ It would cost an estimated \$1.4 billion (1979 prices). The scheme would be the largest and most expensive hydro-electric power development in Tasmania.

The main element would be a dam on the Gordon River, below its confluence with the Franklin (Figure 2); its powerhouse would have an installed generating capacity of 296,000 kW. The estimated cost of the project was \$237 million. Its reservoir would inundate the Great Ravine,

11. Mercer, *Australia's Constitution, Federalism and the Tasmanian Dam Case*, POLITICAL GEOGRAPHY QUARTERLY, 91-110 (1985); R. A. Herr and B. W. Davis, *The Tasmanian Parliament, Accountability, and the Hydro-Electric Commission: the Franklin River Controversy*, PARLIAMENT AND BUREAUCRACY (J. R. Nethercote ed. 1982).

12. THOMPSON, *supra* note 9, at 20.

13. R. GREEN, *BATTLE FOR THE FRANKLIN: CONVERSATIONS WITH THE COMBATANTS IN THE STRUGGLE FOR SOUTHWEST TASMANIA* (1981).

14. THOMPSON, *supra* note 9, at 34.

15. TASMANIA HYDRO-ELECTRIC POWER COMMISSION, *REPORT ON THE GORDON RIVER POWER DEVELOPMENT STAGE TWO* (1979).

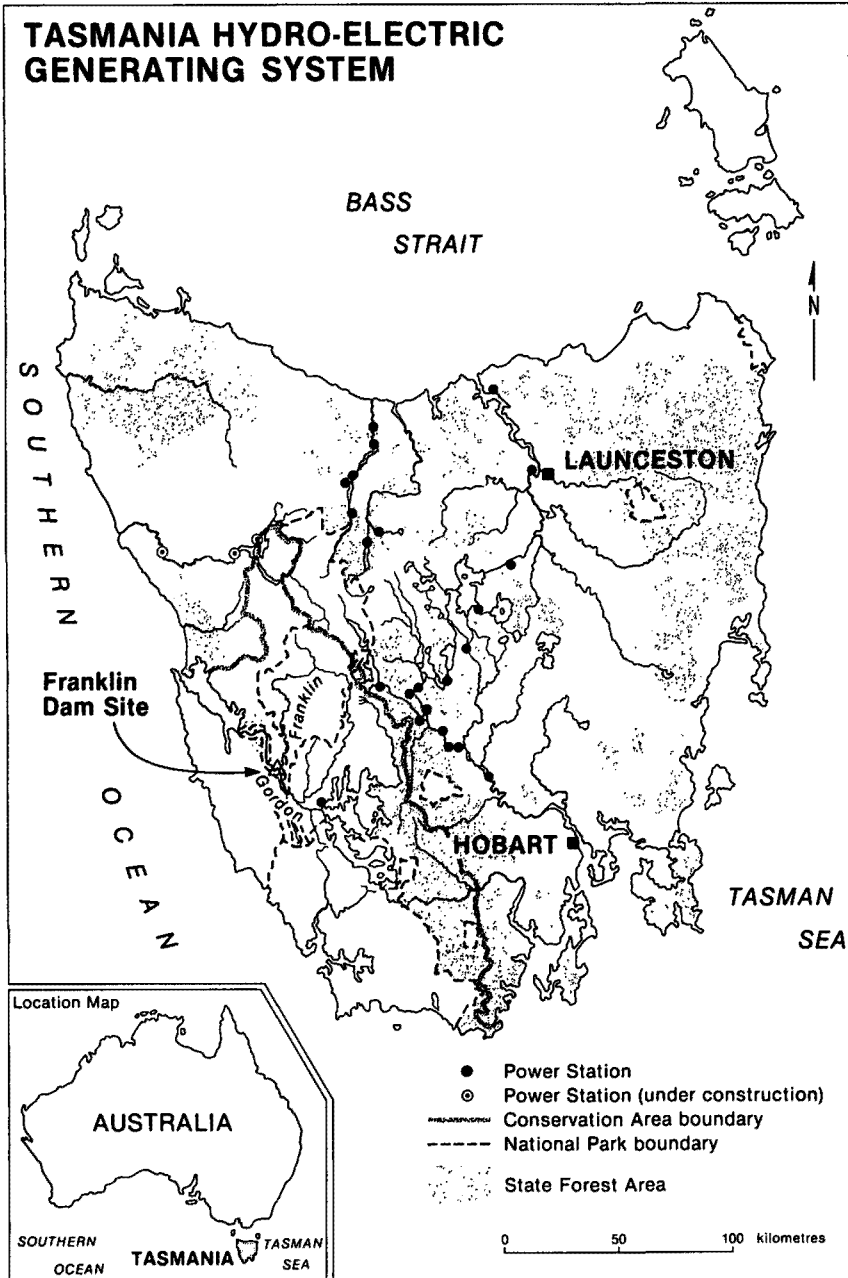


FIGURE I.

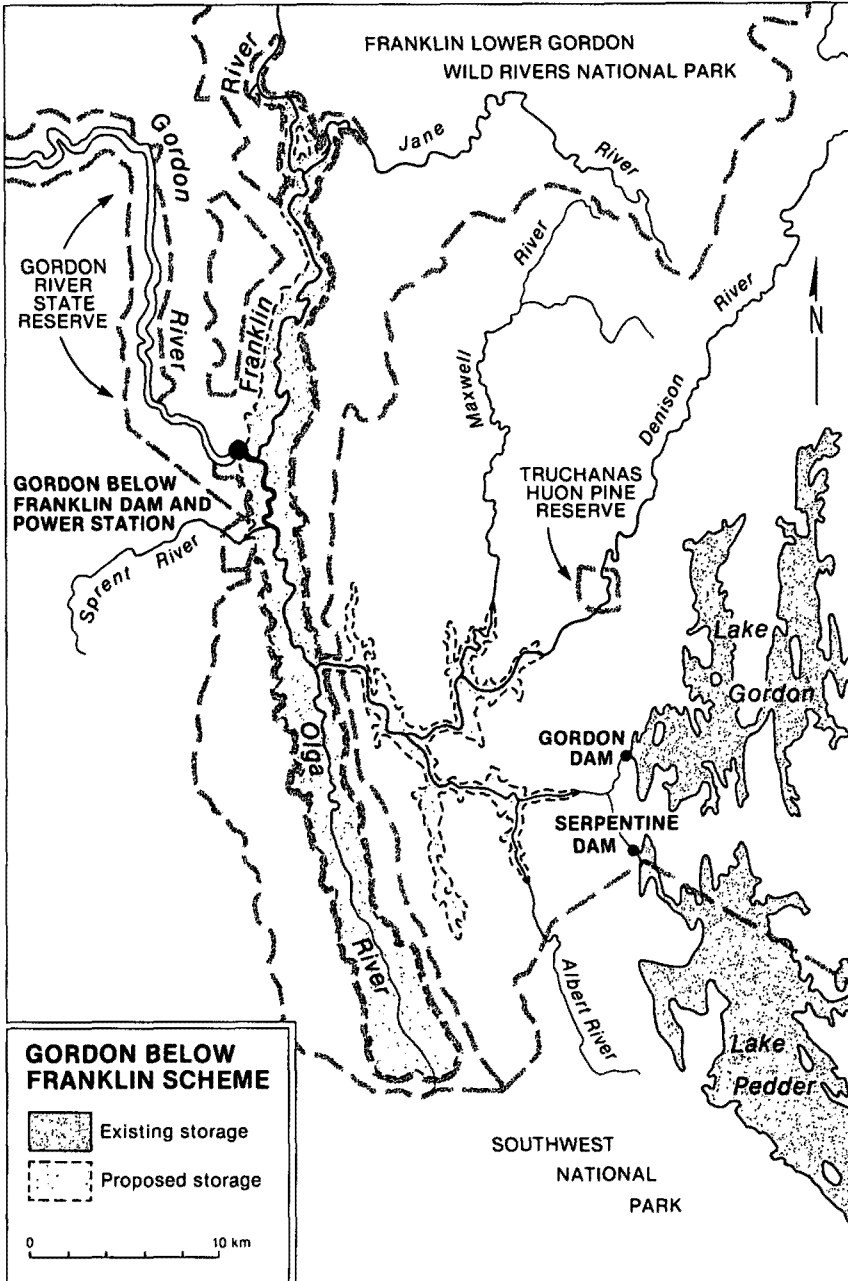


FIGURE 2.

seen by many as the most spectacular in the entire country, various aboriginal artifacts, and more than a third of the Huon pine habitat.¹⁶

The government sensed that the proposal would arouse a good deal of controversy and decided to move with caution. It initiated a major inquiry to gather information about likely impacts and to gauge public reaction. Undertaken by the Co-ordinating Committee of the Energy Advisory Council, the report of the investigation was presented to the government in June 1980.¹⁷ It was reproduced in newspaper form and circulated throughout the state without charge. The report recommended the construction of a 200,000 kW thermal power station as the most desirable policy option, rejecting the HEC's proposed Gordon-below-Franklin scheme. It was the first time that the HEC had ever been turned down.¹⁸

Interest Group Confrontation

Meanwhile, various groups were organized to promote or to oppose the proposed scheme. The major forces backing the proposal were the HEC, the Hydro-electric Employees Action Team [HEAT], and the Association of Consumers of Electricity [ACE]. Those in opposition included the Tasmanian Wilderness Society [TWS], the Tasmanian Conservation Trust, and the Australian Conservation Foundation.¹⁹

The TWS was established in 1976 with Kevin Kiernan, a geographer with a long and keen interest in environmental affairs, as its first Director. He was followed successively by Dr. Norm Sanders and then Dr. Bob Brown, a physician who was profoundly concerned about the disappearance of the Tasmanian Wilderness. He gave up his practice to work full-time in trying to reverse the trend.²⁰ With an initial membership of sixteen, the TWS grew rapidly to reach more than 2,000 by 1981 (exceeding the combined membership of the two major political parties in Tasmania at that time) and over 8,000 in 1983. Together with sympathetic ancillary groups, the TWS had at least 500,000 supporters across Australia at the time of the general election in that year.²¹ It used several strategies to get its message across. Throughout, however, it insisted on nonviolent confrontation.²²

16. THOMPSON, *supra* note 9, at 48.

17. TASMANIA, CO-ORDINATION COMMITTEE ON FUTURE POWER DEVELOPMENT, REPORT TO THE DIRECTORATE OF ENERGY (1980).

18. THOMPSON, *supra* note 9, at 82.

19. B. W. Davis, *The Struggle for SW Tasmania*, INTEREST GROUPS AND PUBLIC POLICY (R. Scott ed. 1980).

20. J. McQUEEN, THE FRANKLIN: NOT JUST A RIVER (1983).

21. Milliken, *The Greenies Sharpen Their Political Teeth*, THE NAT. TIMES, 3-7 (Jan. 16, 1983).

22. G. Holloway, *The Wilderness Society: The Transformation of a Social Movement Organization* (Occasional Paper No. 4, Department of Sociology, University of Tasmania, Hobart, Tasmania, 1986); McQUEEN, *supra* note 20, at 58.

The HEAT group had a different motivation, mostly job protection. Openly backed by the HEC, it tried to persuade the public that the Gordon-below-Franklin scheme was the best option. It too presented briefs and participated in demonstrations. Although employers of a Crown corporation, members of HEAT were openly critical of the government and vowed to work against it. The HEC itself became directly involved, purchasing advertising space, threatening various organizations and individuals that opposed it, and denying access to information, not only to the public but the government itself.²³

Government Responses

While the government's review was being undertaken by the Co-ordinating Committee, the Legislative Council (or Upper House) organized its own investigation. Its report supported the Gordon-below-Franklin scheme,²⁴ while the Co-ordinating Committee opted for a thermal power station. The government, however, rejected both sets of recommendations. It proposed instead a compromise, a Gordon-above-Olga scheme (Figure 3), which it believed would be more acceptable to the environmental lobby than the Gordon-below-Franklin proposal but at the same time provide the HEC with an opportunity to proceed with hydropower development on the Gordon River. The government's proposal, however, seemed to please no one: the HEC was firmly committed to the Gordon-below-Franklin scheme and the environmentalists believed that there should be no dams at all. The result was to precipitate a major political crisis.²⁵ The Premier, Doug Lowe, resigned in November 1981. He was replaced by a pro-dam politician, Harry Holgate.

The government yielded to pressure from all sides to hold a referendum in mid-December. The latter required the citizenry to choose between a Gordon-below-Franklin scheme and a Gordon-above-Olga scheme. The option of no dam at all was not considered.

The TWS ran a high profile campaign in which it advised voters to write "NO DAMS" on their ballots, indicating their disapproval of *any* hydro-electric power development on the Gordon River. The results showed the following:

	<i>Percent in favor</i>
Gordon-below-Franklin	47.2
Gordon-above-Olga	7.9
Informal	44.8 (33% wrote "no dams")

23. THOMPSON, *supra* note 9, at 28.

24. Townsley, *Political Chronicle: Tasmania*, 27 AUSTRALIAN JOURNAL OF POLITICS AND HISTORY, 82-85 (1981).

25. D. LOWE, *THE PRICE OF POWER: THE POLITICS BEHIND THE TASMANIAN DAM CASE* (1984).

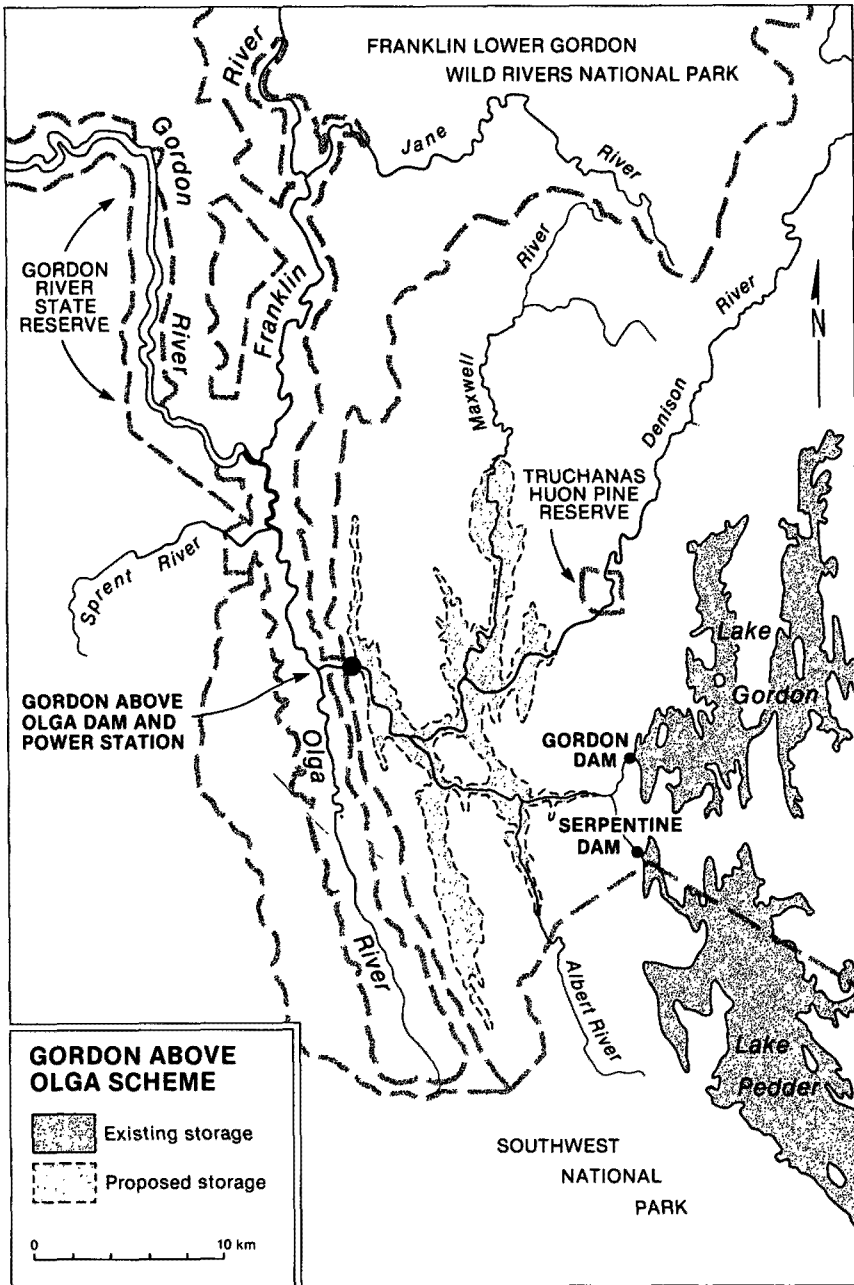


FIGURE 3.

The informal vote consisted of spoiled ballots. From these results it was clear that at least one-third of those who voted were against *any* dams being built. This was regarded by the TWS as a major victory.²⁶ It clearly posed a dilemma for the government. Less than eight percent favored its "compromise" proposal. Less than half wanted the HEC scheme.

In the end the government decided to ignore the informal vote and gave approval to the Gordon-below-Franklin scheme. A vote of "no confidence in the government" followed and the government was defeated on March 26, 1982.²⁷ In the ensuing election in May that year, the Liberal Party was elected with a clear majority, for the first time in Tasmanian history. It fully supported the HEC proposal.

Tasmanian Wilderness Society Strategies

A new phase in the controversy began following the election.²⁸ The TWS introduced three new strategies: namely, an in-depth review of the rationale given for the Franklin Dam; a blockade of the Franklin River; and a political campaign on the mainland. The TWS undertook reviews of the load forecasts of the HEC relating to the Pieman and Middle Gordon schemes. In each case the studies showed a major discrepancy between the forecasted load and the actual consumption (Table 2). The TWS drew particular attention to the costs of idle capacity and of subsidizing large industrial consumers.²⁹ In addition, it demonstrated the savings that could be derived from the introduction of energy conservation measures.

At the same time the TWS raised the level of its commitment by organizing a blockade of the Franklin River in December 1982. This was intended to draw the attention of the public to the beauties of the area, the rare species of biota, and the aboriginal artifacts.³⁰ Carefully organized, with considerable media coverage, the blockade involved more than 4,000 people. Of these 1,340 were arrested, including several prominent Australian citizens and others from overseas. Fines and jail sentences were imposed.³¹ Some, including Bob Brown, spent several weeks in confinement.

Commonwealth Government Responses

Until this time the Commonwealth government had held a "watching brief" on the situation. There was some concern at the national level

26. P. THOMPSON, *BOB BROWN OF THE FRANKLIN RIVER* (1984).

27. *Id.* at 158.

28. *Id.* at 145.

29. TASMANIAN WILDERNESS SOCIETY, *OVER POWERING TASMANIA: A BRIEFING PAPER ON POWER DEMAND AND SUPPLY* (Sept. 1984).

30. TASMANIAN WILDERNESS SOCIETY, *FRANKLIN BLOCKADE*, BY THE BLOCKADERS (1983).

31. Warner, *The Dam Blockade: Bail Conditions and Civil Liberties*, 8 *LEGAL SERVICE BULL.*, 124-27 (1983).

TABLE 2
TASMANIA HEC
PIEMAN SCHEME, PROJECTIONS AND REALITY:
1971-1981

	Forecast average annual growth rate (percent)	Actual average annual growth rate (percent)
DOMESTIC/RETAIL LOAD (including system-losses)	6.1	5.6
MAJOR INDUSTRIAL LOAD	6.0	3.2
TOTAL LOAD (electrical generated)	6.0	4.1

SOURCE: Hugh Saddler, A review of the HEC's most recent financial analysis of the Gordon-below-Franklin scheme, Business Association for Economical Power, May 1982, at 7.

TASMANIA HEC
GORDON RIVER POWER-DEVELOPMENT STAGE-2
PROJECTIONS AND REALITY: 1979-1983

Year	Major Industrial		Retail		Overall	
	Projection (percent)	Actual (percent)	Projection (percent)	Actual (percent)	Projection (percent)	Actual (percent)
1979-80	1.7	1.1	5.5	5.2	3.0	2.1
1980-81	1.7	-0.9	5.2	5.0	2.93	0.2
1981-82	1.6	0.6	5.3	3.2	2.95	1.1
1982-83	1.6	-2.7	5.3	1.3	2.97	-1.8
Average	1.65	-0.05	5.3	3.7	2.96	1.3

SOURCE: HEC Annual Reviews 1979-80 to 1982-83.

about the disappearing wilderness in the country and particularly about notable sites of exceptional beauty, or rare species. But action was very slow in coming. A major step was made in November 1982 when the Commonwealth government proposed Southwest Tasmania to UNESCO as a World Heritage Site. That body accepted the proposal a month later.³² In January 1983, the then Liberal government in Canberra went a step further and offered the Tasmanian government \$500 million to forgo dam construction in the vicinity of the World Heritage Site, a move aimed at protecting the Franklin River. The Tasmanian government refused.³³

The Commonwealth election in March 1983 provided another opportunity for a commitment from the national government. The Labor Party, led by Bob Hawke, then in Opposition, seemed willing to embrace the

32. Davis, *Wilderness at Risk*, 9 UNESCO REV., 19-24 (Mar. 1984).

33. McQUEEN, *supra* note 20, at 79.

wilderness cause and promised to stop construction of the Franklin Dam if elected in the next general election. When the latter was called, the TWS encouraged its members across the country to vote for Hawke's party. Hawke won a resounding victory. The new government took immediate steps to block the dam, first by preparing policy under the *National Parks and Wildlife Conservation Act, 1975*, and then by introducing new legislation, namely, the *World Heritage Properties Conservation Act, 1983*. The government of Tasmania protested, claiming that the Commonwealth government was interfering illegally in Tasmania's affairs, and it issued a writ to the High Court of Australia, questioning the validity of the World Heritage Properties Conservation Act. The Commonwealth government also issued a writ to the Court, claiming that it had acted within the law.

On July 1, 1983, the High Court handed down its decision that the Act was valid. This conclusion effectively prevented the construction of the Franklin Dam. It was seen as the most significant victory of the conservation movement in Australian history.³⁴

The triumph, however, did not sweep away the hydro-megaproject philosophy in Tasmania, nor did it alter very much the political influence of the HEC. For the latter to occur would require a major modification of the state's institutions.³⁵ The Commonwealth government offered Tasmania \$280 million as compensation and the state accepted it.³⁶ Since then the HEC has moved ahead with the construction of the King River and Henty-Anthony hydro-power projects elsewhere in the state, said to cost more than \$700 million. In both instances there was little or no public consultation, nor any review of the economic, social, or environmental aspects of the projects.

The TWS, however, did not die. Invigorated by its success with the Franklin Dam, it moved on to other environmental concerns, notably woodchipping of lumber from the rainforests, and the development of nuclear power. It endeavored to maintain a national profile and changed its name to The Wilderness Society.³⁷ Meanwhile, Dr. Bob Brown has been elected to the State Parliament, and Dr. Norm Sanders, former director of the TWS, is now a member of the Australian Senate. The stage is set for further confrontation between those in favor of additional hydro-power development and those who wish to preserve the wilderness in Tasmania. This seems likely to happen, especially as neither the Commonwealth government nor the Tasmanian government have policies or legislation that relate directly to wilderness.

34. THOMPSON, *supra* note 9, at 187.

35. Herr & Davis, *supra* note 11.

36. Mercer, *supra* note 11, at 106.

37. Holloway, *supra* note 22.

THE CLYDE DAM, NEW ZEALAND

Hydro-industrialization in New Zealand

While conflict over the Franklin Dam was brewing in the late 1970s, a major confrontation over another megaproject was evolving on the South Island of New Zealand. There, as in Tasmania, hydro-industrialization had long been a theme of government economic policy.³⁸ Development of hydro-power began in New Zealand in 1885. It was not until about thirty years ago, however, that a concerted drive took place towards the provision of electric power as a means of attracting industry. This has resulted largely from an aggressive program of development promoted by the New Zealand Electricity Department (NZED—now the Electricity Division of the New Zealand Ministry of Energy), and undertaken by the Ministry of Works and Development. The Electricity Division, like its predecessors, enjoys a very high profile and exerts considerable influence in the formation of government policy. It has a sizable staff engaged in planning, design and administration. The Ministry of Works has a hydro-power engineering and construction staff numbering over 2,000.

A process of approval of hydro-power schemes has been established involving reviews by the following bodies:

- (1) the local Catchment Board, which makes a recommendation to the National Water and Social Conservation Authority (NWSCA);
- (2) the NWSCA makes a recommendation to the government, which may or may not agree with the views of the Catchment Board;
- (3) the Commission for the Environment, which undertakes environmental audits and makes recommendations to the government.

Plans for the Clutha

In the mid-1960s the NZED became concerned about problems of meeting future electricity demands in the country. Loads had been growing very rapidly (at seven percent per annum) and almost all of the favorable hydro-power sites had been harnessed on the North Island.³⁹ Most of the best sites on the South Island had been developed too. At the same time, thermal power was seen as an expensive alternative. The government embarked upon a program of surveys on the Clutha River watershed on the South Island. There was, however, no public announcement about these until 1971, when a government report outlined six alternative schemes of development for the basin, denoted as Schemes A to F.⁴⁰

38. R. WILSON, FROM MANAPOURI TO ARAMOANA: THE BATTLE FOR NEW ZEALAND'S ENVIRONMENT (1982).

39. NAT'L BUS. REV., *supra* note 6, at 11.

40. NEW ZEALAND, INTER-DEPARTMENTAL COMMITTEE ON THE EFFECTS OF HYDRO-ELECTRIC POWER DEVELOPMENT ON THE RESOURCES OF THE CLUTHA VALLEY, REPORT TO THE COMMISSIONER OF WORKS (Wellington, 1971).

The immediate reaction in the region was outrage.⁴¹ The public there was concerned that a substantial part of an important farming area would be damaged and that its scenic beauty would be impaired. Most of all it was incensed by the lack of consultation of those likely to be affected. It feared another Manapouri situation—in which the government decided, its agencies provided, and little consideration was given to the views of the local people or to the environment in which they lived.⁴² There was particular apprehension about the prospect of the construction of a 62-meter-high dam in the Cromwell Gorge which would flood the Clutha Valley up to the level of Lake Wanaka (Figure 4). If this took place, part of the towns of Cromwell and Lowburn would be inundated, productive orchards would be destroyed, and other areas along the river would be flooded to varying degrees. The economic and social life of several communities would be severely affected.⁴³ The local people demanded an independent, broad-ranging inquiry.

Reviews of the Alternatives

Aware that there would be varying views about the development of a hydro-power scheme in the Clutha Valley, the government established a number of committees to review the proposals. First, the then National government set up a Clutha Liaison Committee to determine the reactions of various government departments. It focused only on the views of the latter and made no contact with the public. Second, when a Labor government came to power in the late 1970s, it established a Clutha Valley Development Commission and abolished the Liaison Committee. It too, however, conducted its affairs behind closed doors. Its final report was presented to the government in November 1974.⁴⁴ Briefly, it rejected each of the six options put forward by the Ministry of Works and Development and suggested an alternative of its own, Scheme H.

Of the various possibilities the Ministry of Works and Development appeared to favor Scheme F (Figure 4). This included a high dam at Clyde, together with two other dams on the Upper Clutha and two on the Kawarau River. The powerhouse at the Clyde Dam would have an ultimate installed capacity of 610,000 kW and an average annual output of 1,804 GWh. If implemented, Scheme F would be the largest hydro-power development ever undertaken in New Zealand. Its estimated costs in 1977 were \$732 million, of which \$259 million would be accounted for by the Clyde Dam.⁴⁵

41. P. POWELL, *WHO KILLED THE CLUTHA?* (1978).

42. Wilson, *supra* note 38, at 10–15.

43. POWELL, *supra* note 41, at 94.

44. CLUTHA VALLEY DEVELOPMENT COMMISSION, *FINAL REPORT* (Wellington, Nov., 1974).

45. Mark, *The Continuing Saga of Clutha Valley Development*, *SOIL & WATER*, 3–7 (Feb. 1978).

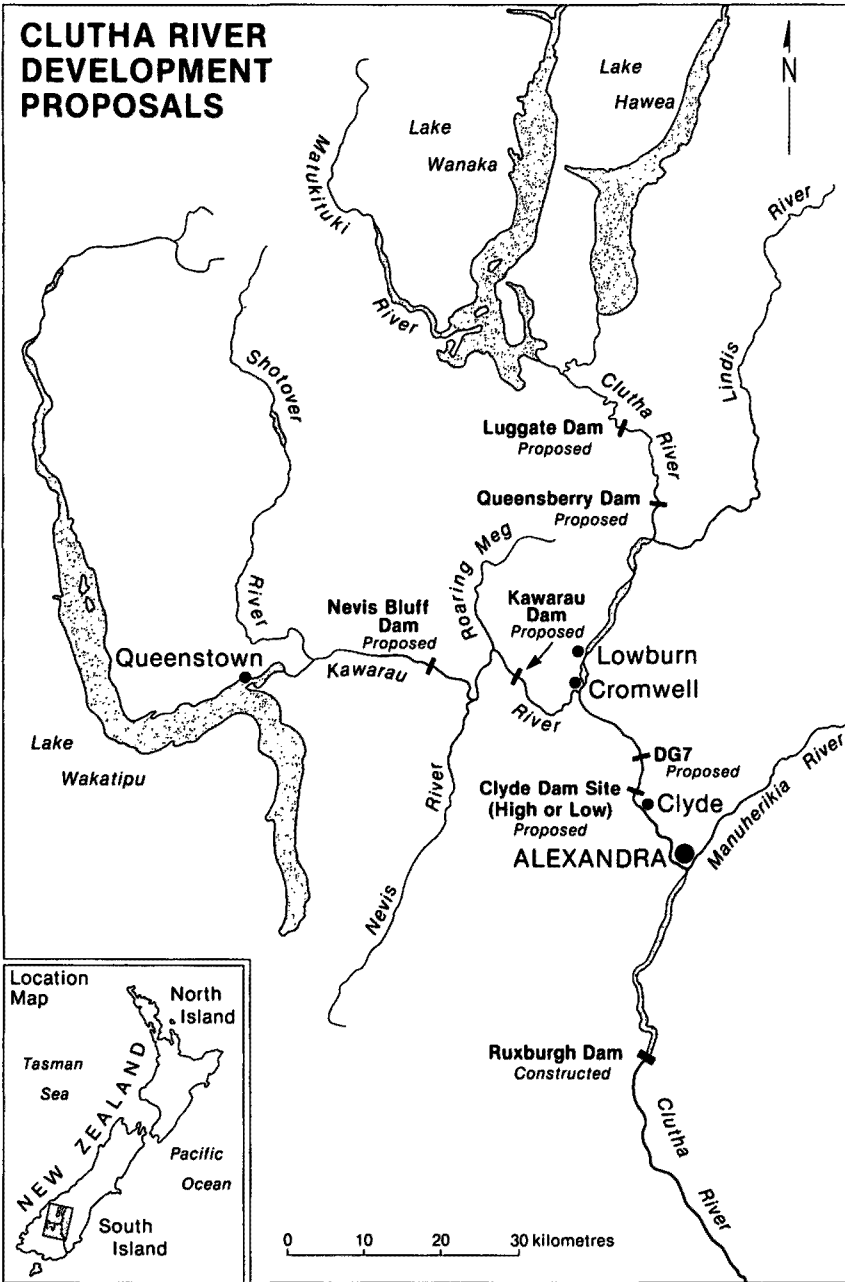


FIGURE 4.

The Commission, sensitive to the likely environmental and social effects of Scheme F, proposed a smaller but environmentally and socially less disruptive one, described as Scheme H. It would feature a low dam at the Clyde site and a second dam farther down the Cromwell Gorge, at a site named DG 7 (Figure 4). These two dams would cost \$324 million. The total capital cost of the scheme would be \$787 million (1977 prices).

The Commission believed that the two low dams would be more acceptable to the public than the high dam in Scheme F. True, Scheme H would cost \$50 million more and its output would be less (1,754 GWh per annum), but this would be offset by the fact that a much smaller reservoir would be created, resulting in much less damage to orchards and cropped lands in the region. The government accepted the Commission's report and officially endorsed Scheme H in September 1975.⁴⁶

Later in 1975 there was an election and the National Party replaced the Labor Party as the government. The Clutha was still a major political issue. In response, the government established a Clutha Advisory Committee, drawing heavily upon representation from the Central Otago region where the proposed development would take place. The Committee, which reported in late 1976, favored Scheme H.⁴⁷ The government, however, announced that it preferred Scheme F and requested the Ministry of Works to proceed with an environmental impact assessment of that proposal. This would then be submitted to the Commission for the Environment for review. The latter was highly critical of the proposal, noting that it would have several adverse effects.⁴⁸ The government was undeterred and requested the Otago Catchment Board to make a recommendation to the National Water and Soil Authority to grant a water right for Scheme F. The Board held hearings in September 1977. Some 209 presentations were made. Of these, 206 opposed the scheme. In October 1977, in the light of the overwhelming evidence presented, the Board recommended that the water right not be granted.⁴⁹ Two months later the Chairman of the National Water and Soil Authority announced that the latter body had overruled the Board, and that it was going to issue a 21-year water right.⁵⁰

Public Protests

The announcement led to angry reaction not only in Central Otago, but in several other parts of New Zealand as well. There was an outcry

46. R. Lister, *The Clutha Valley: Multiple Use and the Problems of Choice*, THE LAND, OUR FUTURE (A. G. Anderson ed. 1980).

47. NEW ZEALAND, CLUTHA ADVISORY COMMITTEE, FINAL REPORT (Wellington, 1976).

48. NEW ZEALAND, COMMISSION FOR THE ENVIRONMENT, CLUTHA VALLEY DEVELOPMENT, CLYDE POWER PROJECT: ENVIRONMENTAL IMPACT AUDIT (Wellington, Aug., 1978).

49. Mark, *supra* note 45, at 6.

50. NEW ZEALAND, NATIONAL WATER AND SOIL CONSERVATION ORGANIZATION, WATER RIGHTS FOR THE CLYDE DAM, CLUTHA HYDRO-POWER DEVELOPMENT (Water and Soil Miscellaneous Publication, No. 8, Wellington, 1979).

from local farming interests, such as those in the town of Lowburn, about the loss of agricultural land, and an increase in freight rates that would occur.⁵¹ A Clutha Action Committee was established in Dunedin with many of its members professionals who were well informed about resources development and environmental management matters. Elsewhere, in Auckland, the Environmental Defence Society challenged the procedures of the government on legal grounds. Specifically, they challenged the granting of a water right and requested that the Planning Tribunal review this appeal. In Auckland too, Clutha Rescue was formed. It questioned the need for *any* dam on the Clutha at that time. It drew national attention to the issue through a "sit-in" at the Clyde Dam site in December 1977.⁵² Finally, a Coalition for Open Government was established in 1979, aiming to persuade the government to provide information on its policies and furnish greater opportunities for the public to participate in their formulation. It was especially concerned about the government's actions with respect to the Clyde Dam project and its unwillingness to disclose information on certain matters relating thereto, notably the possibilities of damage to the structure from seismic disturbances.⁵³ It was also very disturbed about the fact that work on the project was proceeding even though appeals were still to be heard about the granting of a water right.⁵⁴

The Search for a Market

Although the government had decided to proceed with the project there remained important concerns as to whether there would in fact be a demand for the power it would make available. Critics pointed out that while the rate of increase in electricity load growth had declined from an average of 7.2% per annum in the period 1940–1970 to two percent per annum since then, the New Zealand Energy Division continued to plan as though the past rate prevailed.⁵⁵ This had produced a consistently wide gap between needs and capacity (Figure 5). More specifically, the justification for the Clyde Dam seemed to rest mainly on the provision of electric power for an aluminum smelter to be built by a consortium (Fletcher-CSR-Alusuisse) which had yet to sign a contract for this purpose.

Much hinged upon the price at which the government would be willing to sell the power. The estimated cost of the power from the Clyde project

51. K. Johnston, *An Analysis of Clutha Rescue's Protest Action* (Bachelor of Town Planning Thesis, Department of Town Planning, University of Auckland) (Oct., 1978).

52. *Id.* at 58.

53. Coalition for Open Government, *Normal Defects of Clyde Dam*, OPEN GOVERNMENT REPORT, 3 (Apr. 1982).

54. Coalition for Open Government, *Clyde Debate Contains Crucial Signals*, OPEN GOVERNMENT REPORT, 1–7 (Aug. 1982).

55. NAT'L BUS. REV., *supra* note 6, at 35.

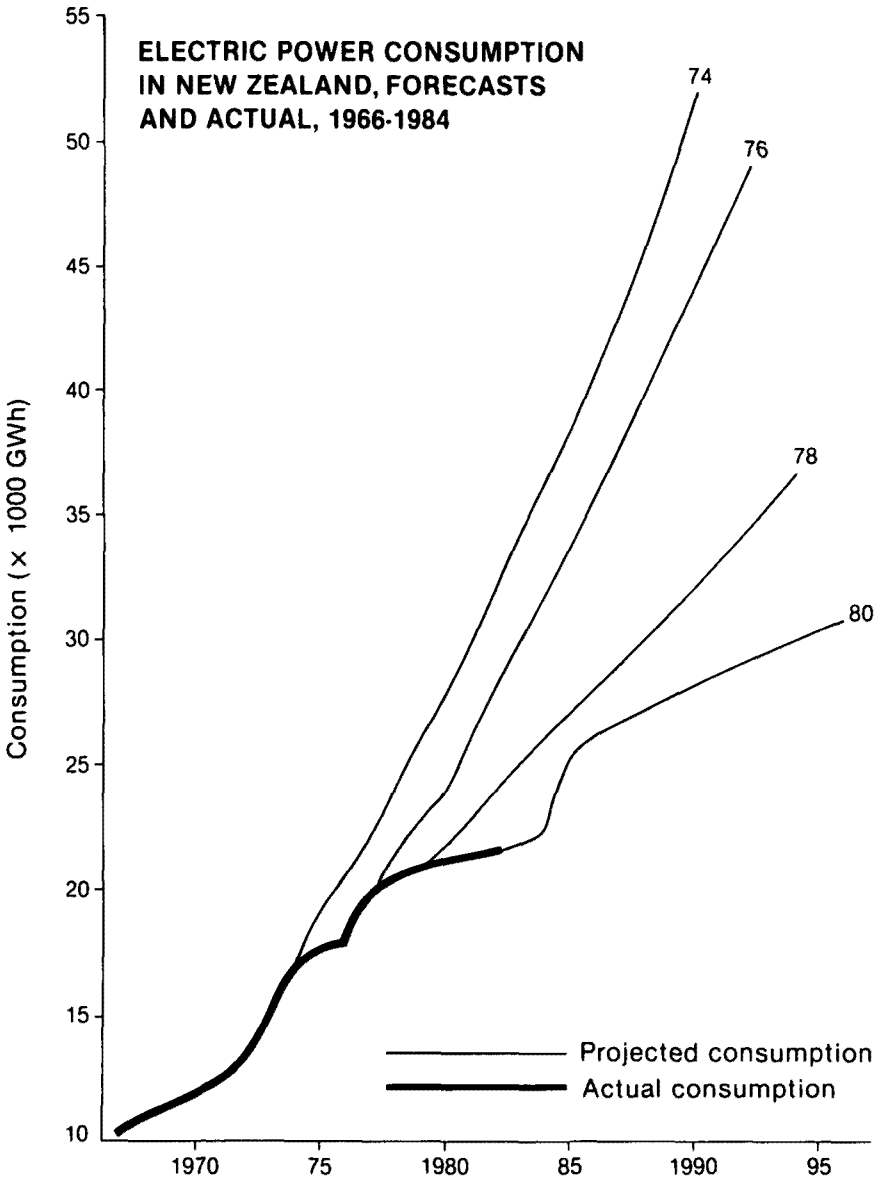


FIGURE 5.

was 4.0 cents/kWh. The consortium, however, said it could not operate profitably at a price exceeding 2.0 cents/kWh.⁵⁶ Clearly, if an agreement were to be concluded, the government would have to furnish a very sizable subsidy and it was aware that this might be politically very unpopular.⁵⁷

Two groups in particular voiced opposition to the subsidy, namely the Save Aramoana group and the Coalition for Rational Economic and Environmental Development of New Zealand.⁵⁸ In the end, the government failed to reach an agreement with Fletcher-CSR-Alusuisse, or with other consortia that followed in its wake.⁵⁹ Even with no market in prospect, the government pressed ahead with the dam.

The Planning Tribunal was convened in late September 1980. In a four-to-two decision the appeal was dismissed. The government announced that the project would proceed.⁶⁰ The opponents, however, charged that the Tribunal was in error in disallowing evidence on the end use of power and appealed to the High Court of New Zealand. A year and a half later (in May 1982) the High Court upheld the appeal and returned the case to the Tribunal for further review.

The National Development Act

The government sensed that there would be further delay in obtaining approval for the project if normal procedures of review were to be followed. It began drafting a National Development Bill under which projects which were believed by the government to be in the national interest and meriting urgent action would be "fast tracked" by setting aside normal processes of assessment.⁶¹ The proposed legislation, and the Clutha Development (Clyde Dam) Empowering Bill that followed its passage, touched off a constitutional crisis. Opponents of the project, as well as various other observers, argued that it was highly improper for the government to be proceeding with construction when the necessary approval for the project was still pending and the Tribunal had not considered the issue, as required by the High Court.⁶²

In any event, in August 1982, the Tribunal sustained the appeal on the grounds that there was insufficient evidence to show that the smelter would be built and that the need for the power (and hence the dam) was

56. Coalition for Open Government, *Electric Shocks: Public to Pick Up Expensive Tab for High Dam*, OPEN GOVERNMENT REPORT, 7 (Aug. 1982).

57. NAT'L BUS. REV., *supra* note 6, at 29.

58. Wilson, *supra* note 6, at 171-89.

59. NAT'L BUS. REV., *supra* note 6, at 31.

60. Brookfield, *High Courts, High Dam, High Policy*, RECENT LAW, 62-72 (Mar. 1983).

61. Coalition for Open Government, *Clyde Hearings a Token Charade*, OPEN GOVERNMENT REPORT (Dec. 1982).

62. Brookfield, *supra* note 61, at 67.

thus in question.⁶³ Undeterred, and with the support of two Social Credit members of the House of Representatives, the government was able to introduce successfully the National Development Act in October 1982. The Clutha Development (Clyde Dam) Empowering Act was also passed and the project continued. As of February 1987 it is well over half completed. Meanwhile, the anticipated capital cost of the project has escalated to almost \$1 billion.

The "Think Big" Strategy

The Clyde Dam project was part of a series of schemes put forward by the New Zealand National Party government in the late 1970s, entitled collectively the "Think Big" strategy.⁶⁴ Faced with rising unemployment as well as continued increases in the price of imported oil, large scale energy projects seemed very appealing. The schemes included the expansion of a major oil refinery, the construction of a synthetic petrol plant and a methanol plant, development of major coal mines, and the harnessing of hydro-electric power. In each instance they involved expenditures exceeding a billion dollars.⁶⁵ While in several cases the projects did satisfy their intended objectives, creating new employment and sources of energy to offset imported fuels, major difficulties have been encountered with many of them. In some instances costs have been much greater than the original estimates, with the government generally footing the bill for the difference. The expansion of the Marsden Point Refinery, for example, was estimated to cost \$300 million in 1979. By 1984, it had climbed to over \$3 billion for capital and for interest charges. Estimates of employment generation were typically over-optimistic. While major projects created jobs for as many as 3,000 workers in their construction phase, the number of permanent jobs could only be counted in hundreds. Most importantly, the country now has a large surplus of electricity generating capacity and a substantial accumulated debt associated with it.⁶⁶

These factors have led to a slowing down of the pace of megaproject development in New Zealand. But the idea has not disappeared. The Electricity Division is still making plans and the Ministry of Works and Development is preparing to put them into concrete form.⁶⁷ Meanwhile, the environmental movement has not died but has become a more sophisticated, articulate and potent political force.⁶⁸

63. *Id.* at 64.

64. NAT'L BUS. REV., *supra* note 6, at 1.

65. *Id.* at 40.

66. *Id.* at 3.

67. NEW ZEALAND MINISTRY OF ENERGY, 1985 ENERGY PLAN (Wellington, 1985).

68. Coalition for Open Government, *Major Projects: More Planning, Less Promotion*, OPEN GOVERNMENT REPORT (Wellington, Dec. 1983); Gilbert, *Environmental Assessment in New Zealand*, 2 N.W. ENVTL. J., 85-106 (Summer 1986).

THE SITE C DAM, BRITISH COLUMBIA

Hydro-Industrialization in B.C.

Hydro-industrialization has been the cornerstone of economic development in British Columbia too.⁶⁹ It has been a key input in several of the province's major industries, notably forest products and mineral smelting. Although its early development was mainly in the hands of private companies, its active promotion has taken place mostly in the past twenty-five years, that is, since the British Columbia government took over the largest private utility in the province and set up the B.C. Hydro and Power Authority. The latter is a publicly-owned utility, operated as a Crown corporation. As such it is highly sensitive to provincial government policy, but also, as a result of its size, extremely influential in the formulation of the latter.⁷⁰ Its operations now cover most of the province (Figure 6).

Once established, B.C. Hydro began an aggressive policy of development through the construction of dams on the Columbia River (as elements of the Columbia River Treaty) and on the Peace River. Large quantities of power were made available at rates attractive to industrial consumers. Consumption increased at phenomenal rates, reaching over fourteen percent per annum in the 1960s (Figure 7). Industrial output and employment boomed.

The Site C Proposal

B.C. Hydro handled the situation proficiently. A planning staff of experienced engineers and economists identified projects and weighed their technical merits, and produced a plan of development.⁷¹ Reviewing the perceived needs and the possibilities as of the late 1970s, the utility concluded that a major project would have to be added to the system by the mid-1980s if the demands of the early 1990s were to be satisfied. Site C on the Peace River was seen as the best means of filling the emerging gap between supply and demand.⁷² This project would furnish 940,000 kW of capacity and would cost an estimated \$1.3 billion for construction. It would be located downstream from the W. A. C. Bennett Dam, close to the B.C. and Alberta border.

To enable development to take place, B.C. Hydro would have to obtain the following three authorizations:

- (1) an Energy Project Certificate;
- (2) a Certificate of Convenience and Necessity;
- (3) a Water License.

69. Sewell, *Energy in British Columbia*, 24 BRITISH COLUMBIA: ITS RESOURCES AND ITS PEOPLE (1986) (in press).

70. N. A. SWAINSON, CONFLICT OVER THE COLUMBIA: THE BACKGROUND OF AN HISTORIC TREATY (1979).

71. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY, ENERGY BLUEPRINT (1980).

72. *Id.* at 9.

ELECTRIC POWER DEVELOPMENT IN B.C., MAJOR PROJECTS

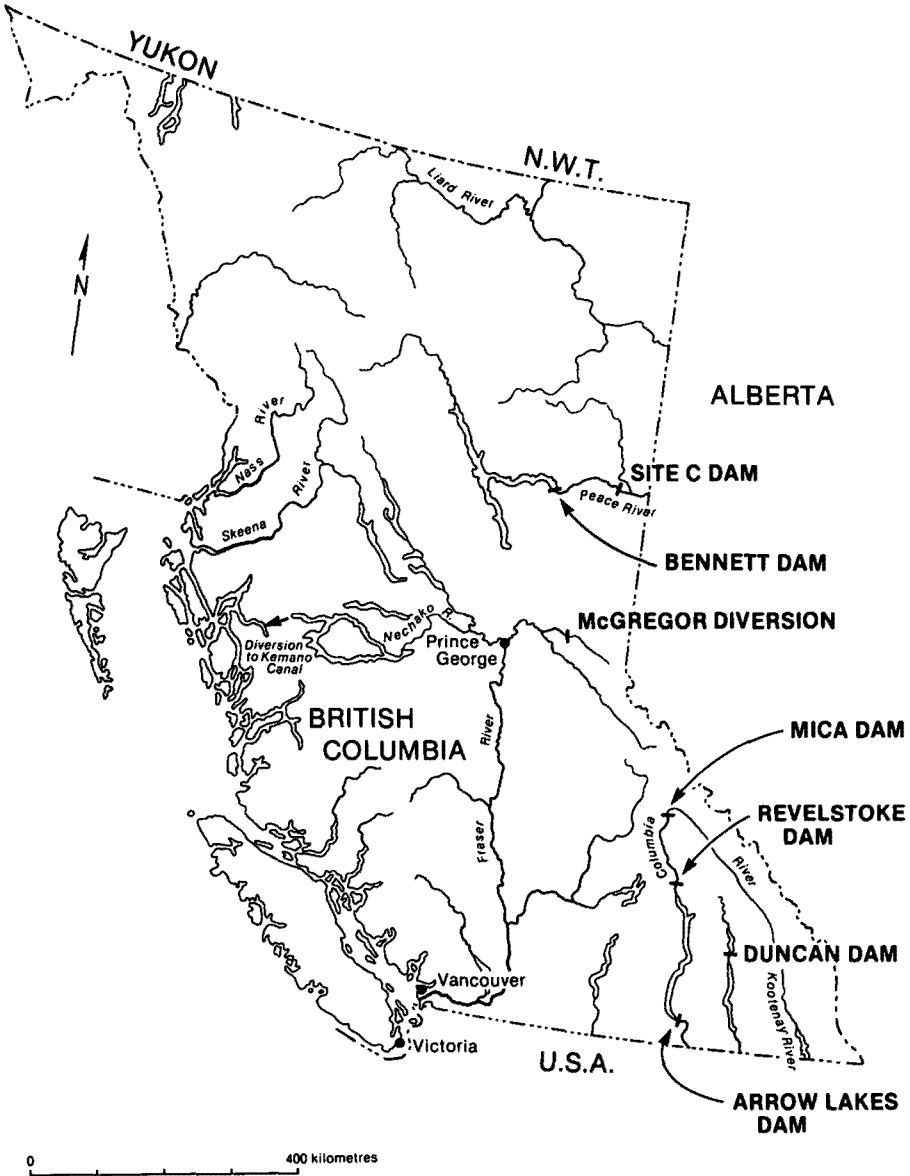


FIGURE 6.

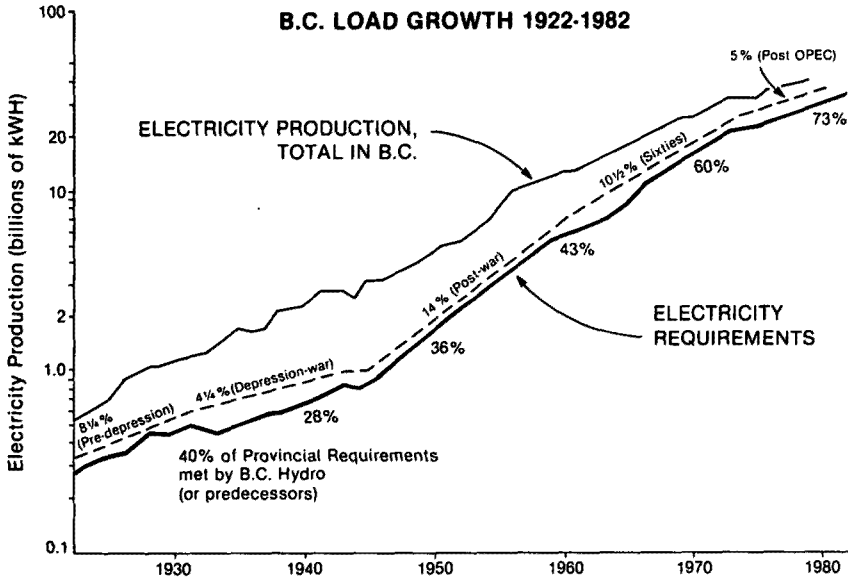


FIGURE 7.

The first two are obtained through the B.C. utilities commission while the latter is provided by the Comptroller of Water Rights of the B.C. Ministry of Environment.⁷³

B.C. Hydro applied for an Energy Project Certificate in September 1980. In April 1981 the Minister of Energy, Mines and Petroleum Resources decided that the application should be reviewed through public hearings, conducted through the British Columbia Utilities Commission. A panel was appointed in April 1981, and it completed its task in May 1983.⁷⁴ The review cost an estimated \$4-5 million.⁷⁵

The Utilities Commission Inquiry

The Site C Inquiry was a landmark in the assessment of electric power projects in British Columbia. Certainly it was the most comprehensive. It had very broad Terms of Reference, allowing the Commission to investigate a wide range of issues. It undertook informal as well as formal hearings. Some eighty individuals and groups appeared during the 116

73. BRITISH COLUMBIA. MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES, BRITISH COLUMBIA'S ENERGY PROJECT REVIEW PROCESS (Victoria, B.C., 1984).

74. BRITISH COLUMBIA UTILITIES COMMISSION, SITE C REPORT: REPORT AND RECOMMENDATIONS (Victoria, B.C., Sept. 29, 1983).

75. BRITISH COLUMBIA MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES, Personal Communication (Jan. 20, 1986).

days of formal presentations. The expenses of some of the witnesses were paid. Government officials were called and were cross-examined. While there was an emphasis upon technical considerations, there was also in-depth review of various economic, social, and environmental matters.

There were three major questions before the Commission:

- (1) Will the benefits of the Site C project exceed its costs?
- (2) When will the electricity be needed?
- (3) Is Site C the appropriate source of supply?

Briefly, the Commission found that it was difficult to determine whether the project's benefits would exceed its costs. Much rested upon the form of accounting used. Although provincial government agencies use a conventional type of benefit-cost analysis in evaluating their projects, B.C. Hydro employs techniques more akin to financial accounting. As a consequence, the focus of its assessments is more upon the costs and returns to the utility than upon the broad economic costs and benefits to the province.

There were several considerations, however, which suggested that the scheme would not be economically viable. The first related to the fact that the demand for electric power would likely be much lower than that estimated by B.C. Hydro. The Commission was highly critical of the utility's methods of forecasting future demands, and noted that during the past decade, its forecasts had been consistently well above the actual consumption (Figure 8). In this instance, the utility's forecasts in 1981 were well above those prepared by the provincial Ministry of Energy, Mines and Petroleum Resources in the same year. The Commission drew attention to the implications of overly optimistic forecasts, and especially the cost of having a large volume of surplus generating capacity.⁷⁶ The latter cost is particularly significant in times of scarce capital and when the utility involved is carrying a large debt.

The Commission reviewed other options for providing the power that could be furnished by the Site C project. It concluded that if the power were required later than originally forecasted, that is, later in the 1990s, then other possibilities might be more attractive than Site C. These included the conversion of the Burrard thermal plant from a peaking function to that of base load, construction of an inter-tie with Alberta, or purchase of surplus energy from the Alcan Kemano project.⁷⁷

The Commission concluded that as of May 1983 the Site C project would not be needed for some time. There was already considerable surplus generating capacity in the province and this would likely increase if the economic downturn continued and markets were not found for other

76. BRITISH COLUMBIA UTILITIES COMMISSION, *supra* note 74, at 94.

77. *Id.* at 100.

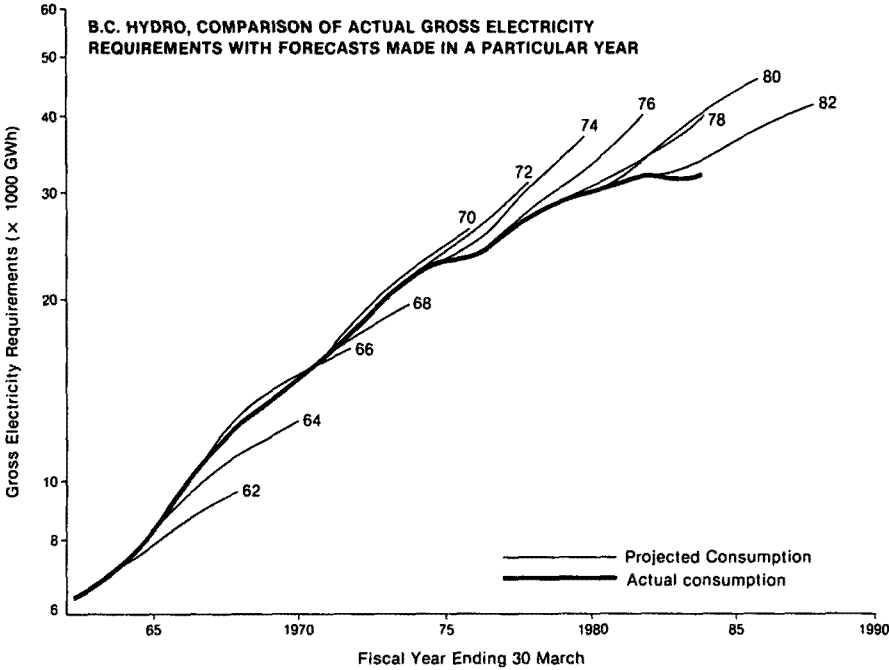


FIGURE 8.

projects that were nearing completion. It recommended therefore that an Energy Project Certificate not be granted at that time.⁷⁸

Despite this conclusion, B.C. Hydro was still anxious to move ahead with Site C. The government had given its tacit support. There was enthusiasm in most of the communities in and adjacent to the project area. Development of the scheme would help provide jobs, an especially important consideration at a time when unemployment was at a high level and was expected to remain so.

Lingering Doubts

There was, however, considerable skepticism about the project, expressed not only at the hearings of the Commission but also in the media and other forums. Most of it came from environmentalists and those who were concerned about the economics of the scheme.⁷⁹ The scheme would

78. *Id.* at 126.

79. SOCIETY PROMOTING ENVIRONMENTAL CONSERVATION, *THE CASE AGAINST SITE C* (Vancouver, B.C., July, 1983); W. B. Lord, *A Critical Review of the Site C Benefit-Cost Analysis* (Exhibit 400, B.C. Utilities Commission Hearings on Site C, Evidence, Transcripts, Vancouver, B.C.) (1982).

inundate some 2,000 hectares of agricultural land, causing production losses estimated at \$60 million. Some forest land would be flooded, as would several areas of wildlife habitat and heritage resources. The major criticisms, however, related to the economic merits of the scheme. Careful analyses by several academic economists and others⁸⁰ shed serious doubt on the need for the power. They thought its costs were higher than those of other alternatives, and they were unconvinced by claims that the scheme would generate new jobs on a large scale.

The government received the report of the Commission in May 1984 and decided not to take any further action in the immediate future. It reasoned that the economic downturn was far from over and there was still considerable spare capacity in the electric power system. Most importantly, B.C. Hydro was at that time paying over \$1 billion a year for interest on loans for the construction of projects that were not working to full capacity.⁸¹

The Site C project, however, did not die. It has remained on the back burner, ready to be launched when the time seems right. The provincial government apparently still sees it as a promising means of stimulating economic growth in the northern part of the province.⁸² B.C. Hydro has not altered its view that Site C should be the next project to be added to its system. Both the government and the utility have been trying to find markets for the power in California,⁸³ though there are important difficulties to be overcome in this regard.⁸⁴ These include reaching an agreement with the Bonneville Power Administration to transmit the power over its network from British Columbia to California, and obtaining sufficient revenue from the sale of the power to cover the costs of the scheme. There are serious doubts that the latter in particular can be accomplished. Fox, for example, suggests that the most that Californians would be willing to pay for British Columbian power would be about 5 cents/kW.⁸⁵ This compares with about 13 cents/kW that it would cost to generate such power and transmit it to California!

80. Fox, *B.C. Electric Power Development: Are We Going the Way of WHOOPS?* (Occasional Paper, Westwater Research Centre, University of British Columbia) (1983); Fox, *An Assessment of the Site C Proposal of the B.C. Hydro and Power Authority* (Presentation to the Review Panel for the Proposed Site C Hydro-Electric Power Development Project) (Dec. 31, 1981); Helliwell and Margorlick, *The Link between Electric Power and the Need for New Dams in British Columbia* (Paper presented to B.C. Utilities Commission Hearings on Site C, Evidence, Transcripts, Vancouver, B.C.) (1982).

81. *Interest Charges Up 60%*, VANCOUVER SUN, Oct. 31, 1984, at D18.

82. *Need for Low Cost Electricity Assures Site C Dam: Johnson*, VANCOUVER SUN, Mar. 29, 1986, at E2.

83. *New Hope for Dams: Bennett*, VANCOUVER SUN, Aug. 29, 1985, at 1; and *Site C Dam Makes Economic Sense: \$3 Billion Project would be First Solely to Export B.C. Power*, VICTORIA TIMES-COLONIST, Feb. 7, 1987, at 3.

84. *Some Hurdles Facing Site C*, VANCOUVER SUN, Feb. 10, 1986, at 6.

85. *Site C Power for Export: is it a Poor Investment?*, VICTORIA TIMES-COLONIST, Aug. 28, 1986, at 6; and *Site C Makes No Sense, Given MegaProject History*, VICTORIA TIMES-COLONIST, Mar. 11, 1987, at 4.

LESSONS AND IMPLICATIONS

The experience with respect to the Franklin, Clyde, and Site C dams suggests that the philosophy of hydro-industrialization and the trend toward megaprojects are now firmly entrenched. While in one case a project was abandoned, in another the scheme went ahead, and in the third, only the present difficulties of reaching agreement for selling the power elsewhere is holding up development. Even so, it seems likely that there will be an increasing questioning both of the hydro-industrialization philosophy and of the merits of megaprojects. It is probable too that there will be a probing of the appropriate role of electric power utilities in the formulation of economic and social policy as well as that concerned with energy.

The three cases considered here shed light on these matters. In particular, they identify some important changes in the roles that are played by various actors in the planning and policymaking processes with respect to energy in the three countries. They show, for instance, that each of the actors has attempted to influence the others through the use of a widening range of types of coercive, utilitarian, or identitive power (Table 3). Confrontation has become increasingly the norm.

Interest Groups

The three cases indicated that environmental interest groups have become increasingly sophisticated in their approach to political issues. Instead of fighting problems on all fronts with limited resources and little technical expertise, they now form coalitions, attack a limited range of issues, and draw upon individuals who can match the knowledge of those who are in command. In all three cases there were united fronts which were able to marshal expertise from respected engineers, economists, biologists, and others. They presented their cases articulately and persuasively. Far from representing emotional "bleedinghearts," they were able to argue effectively as well-informed citizens. The major focus was on the hard issues of costs, future demands, job creation, or the stability of the proposed structures in the event of seismic disturbances rather than solely upon the equally important but "softer" concerns about "environmental aesthetics." In New Zealand and Australia particularly they learned how to maintain the interest of the media over sustained periods.

The interest groups used a wide variety of strategies to bring their message across. Exercising identitive power, they provided information, offered advice to those who might be affected but did not know how to obtain redress, presented evidence at hearings, and, in some cases they dramatized their commitment by demonstrations and sit-ins, thus wielding coercive power. Everywhere the emphasis was on nonviolent confrontation. If necessary, some of those involved were willing to risk arrest,

TABLE 3
THE EXERCISE OF POWER IN THE FRANKLIN, CLYDE AND SITE C CASES

Type of Power	Government	Electric Power Utility	Interest Groups
Coercive	Franklin Dam <ul style="list-style-type: none"> • arrests of protestors • no dams option excluded in referendum • passage of heritage properties act by commonwealth legislature 	Franklin Dam <ul style="list-style-type: none"> • threat to lay off workers • purchase of advertising space to protest government proposals 	Franklin Dam <ul style="list-style-type: none"> • political campaigns with candidates for election • blockade of dam site • testimony (negative) • protest marches
	Clyde Dam <ul style="list-style-type: none"> • arrest of protestors • delay of tribunal • passage of NZ development act 	Clyde Dam <ul style="list-style-type: none"> • threat to lay off workers 	Clyde Dam <ul style="list-style-type: none"> • appeal to high court • coalition for open government unearths facts • testimony (negative)
Utilitarian	Franklin Dam <ul style="list-style-type: none"> • offer of low cost power to industries 	Franklin Dam <ul style="list-style-type: none"> • offer of new jobs • provision of housing and community facilities • transfers of personnel (positive) 	Franklin Dam <ul style="list-style-type: none"> • political campaign contributions (positive) • letters to editor and public officials • promotion of alternative employment opportunities
		Site C Dam <ul style="list-style-type: none"> • threat to lay off workers 	Site C Dam <ul style="list-style-type: none"> • testimony (negative)

Clyde Dam	<ul style="list-style-type: none"> offer of low cost power to industries 	Clyde Dam	<ul style="list-style-type: none"> offer of compensation offer of new jobs provision of housing and community facilities transfers of personnel (positive) 	Clyde Dam	<ul style="list-style-type: none"> letters to editor and public officials
Site C Dam	<ul style="list-style-type: none"> offer of low cost power to industries patronage 	Site C Dam	<ul style="list-style-type: none"> offer of compensation offer of new jobs provision of housing and community facilities 	Site C Dam	<ul style="list-style-type: none"> letters to editor and public officials
Identitive	Franklin Dam	Franklin Dam	Franklin Dam	Franklin Dam	
	<ul style="list-style-type: none"> staging of public hearings composition of advisory panels withholding of information 	<ul style="list-style-type: none"> lobbying advertising public relations 	<ul style="list-style-type: none"> lobbying advertising public relations 	<ul style="list-style-type: none"> lobbying public relations films radio programs 	
	Clyde Dam	Clyde Dam	Clyde Dam	Clyde Dam	
	<ul style="list-style-type: none"> staging of public hearings composition of advisory panels withholding of information 	<ul style="list-style-type: none"> lobbying advertising public relations 	<ul style="list-style-type: none"> lobbying advertising public relations 	<ul style="list-style-type: none"> lobbying public relations radio programs 	
	Site C Dam	Site C Dam	Site C Dam	Site C Dam	
	<ul style="list-style-type: none"> staging of public hearings withholding of information 	<ul style="list-style-type: none"> lobbying public relations 	<ul style="list-style-type: none"> lobbying public relations 	<ul style="list-style-type: none"> lobbying public relations 	

or even jail terms. This was especially so in Tasmania where there was intense feeling about the potential destruction of a valued wilderness area.

Electric Power Utilities

Electric power utilities have become increasingly influential in policy formulation and implementation in some countries, and particularly so where hydro-industrialization is the accepted philosophy. More and more, they have exercised coercive power. Such organizations are relied upon to produce forecasts of future demands and to recommend ways in which the latter can be best satisfied. As the size of the projects grows, the utilities develop very close working relationships with the government. This becomes even more the case when the development of electric power projects is used as a means of stimulating regional economic growth.

The three cases discussed here indicate some of the implications of these tendencies. One is that a process is created whereby the utility begins to develop a large engineering staff and construction force and then has to produce a continuous program of development in order to keep it permanently occupied. Another is that the utility becomes a major determinant of the locations at which a stimulus will be applied in order to foster regional economic growth.

In Tasmania, New Zealand and British Columbia the major electric power utilities are firmly wedded to the philosophy of hydro-industrialization and to the idea of megaproject development. They have found it difficult to accept that the demand for electric power is price sensitive and that the public at large may not always favor the construction of a hydro dam in a particular place over other options that could be pursued, including energy conservation. This is why perhaps in all three cases the electric power utility seemed to ignore the protests and criticisms within and beyond the review processes. It may also explain why electric power utilities tend to put forward overly optimistic forecasts of future power demands, and why they make exaggerated claims about the employment-generating effects of hydro-power development.⁸⁶

Governments

The governments involved in the three cases shared the same views as the electric power utilities and actively supported them in the pursuit of programs to put the philosophy in place. They reasoned that hydro-industrialization had worked in the past and had brought prosperity to the regions where it had been applied. In each instance dam building had become a major element of the government's economic policy. In Aus-

86. R. GROSSMAN & G. DAENKER, ENERGY, JOBS, AND THE ECONOMY (1979); NATL BUS. REV., *supra* note 6, at 21; FORD FOUNDATION, A TIME TO CHOOSE: AMERICA'S ENERGY FUTURE (1974).

tralia and New Zealand the government was willing to fight an election, if necessary, to demonstrate its support for the project. In the case of New Zealand the government was so convinced that the project should go ahead at almost any cost that it allowed construction to commence before final approval had been given, and when it seemed as though the latter might not be forthcoming, it drafted legislation designed to circumvent normal review procedures. In a similar exercise of coercive power, the Tasmanian government left out the option of "No Dams" on the referendum relating to the Franklin River.

The three cases clearly indicate that major challenges are likely to be made to the philosophy of hydro-industrialization and to the development of megaprojects in the future. This does not mean that either of these phenomena is inherently deficient. Each, in fact, may have an important role to play in particular circumstances.⁸⁷ What is wrong is the unquestioned adherence to each of them without examining some of the assumptions on which they are based, and considering alternative ways of producing the benefits that are claimed for them.⁸⁸ Policymakers need to ask themselves, is there a clearly demonstrated demand for the power? Are megaprojects the best way of creating permanent employment? How can electric power development be harmonized with environmental management? What is the appropriate role of the electric power utility in the broad policymaking process?

Institutional Change

It is evident from the experience with the three projects considered in this paper that existing institutions often inhibit the posing of such questions.⁸⁹ The law, for example, may permit rather than require a public review of a proposed project. Even when this examination is undertaken, it may be highly restrictive in its terms of reference, or may be conducted by individuals who are perceived to have a direct stake in the outcome. Furthermore, project reviews tend to deal only with technical details rather than generic policy issues—such as the need for more electric power, or the need to set aside some part of the natural heritage for cultural, ecological, or scientific purposes.⁹⁰

More than anything else the megaproject phenomenon has raised the issue of the adequacy of existing laws, policies, and administrative structures and procedures to deal with the economic, social, environmental

87. SEWELL & FOSTER, *supra* note 7.

88. Kellow, *Public Project Evaluation in an Australian State: Tasmania's Dam Controversy*, THE AUSTRALIAN Q., 263-77 (Spring 1983).

89. *Id.*; Davis, *supra* note 32; POWELL, *supra* note 41; BRITISH COLUMBIA UTILITIES COMMISSION, *supra* note 74; NEW ZEALAND COMMISSION FOR THE ENVIRONMENT, *supra* note 48.

90. PROJECT APPRAISAL AND POLICY REVIEW (T. O'Riordan & W. R. D. Sewell eds. 1981).

and political concerns that they arouse. Clearly, institutions that were established at a time when projects were small, locally focused, and generally benign may now be inappropriate. While there have been some attempts to accommodate the enormous change in scale and scope of today's projects—as in the review procedures introduced by the Canadian federal government for the Beaufort Sea project,⁹¹ the British Columbia Utilities Commission Act,⁹² or the Environmental Audit process in New Zealand,⁹³—it is clear that further institutional change is needed. Without it, proposals for large scale hydro-power development will inevitably bring protracted and often counterproductive political confrontation.

91. CANADA, FEDERAL ENVIRONMENTAL ASSESSMENT REVIEW OFFICE, BEAUFORT SEA HYDROCARBON PRODUCTION AND TRANSPORTATION: FINAL REPORT OF THE ENVIRONMENTAL ASSESSMENT PANEL (Ottawa, Ontario: Minister of Supply and Services Canada) (July 1984).

92. O'Riordan, *Environmental Assessment in British Columbia*, 2 N.W. ENVTL. J., 63-84 (Summer 1986).

93. Gilbert, *supra* note 68.