

# The Infrastructure Road to Recovery

## The Snowy Scheme



Top Left: Two of the six generators at Tumut 3 Power Station can provide enough electricity to power a city the size of Canberra. Photo: Snowy Mountains Hydro-Electric Authority Top Right: The six pipes of Tumut 3 are each 487 metres long, 5.6m in diameter, and collectively contain 10,260 tonnes of steel. Photo: Gabrielle Peut Right: Underground power station Tumut 1 in construction, 1958. Photo: Snowy Mountains Hydro-Electric Authority

out the investigations for the Kiewa hydro-electric project in Victoria, and had studied the potential of the Snowy River from the mountains in NSW to the sea in Victoria. It was Olsen who proposed the diversion of the Upper Snowy River to the Murray River for power production and irrigation along the Murray River. (The development of the significant hydro-electric potential of the Lower Snowy River still awaits its place in time.)

These two concepts came together in the detailed studies by Rowntree, leading to an overall concept that met the objectives of a plan for the nation as a whole. The final reports were presented to the Commonwealth and State Committee, and then to the Premiers' Conference. The next task was to build the project, in circumstances that would be alive with prospects for continued rivalry and procrastination by state governments.

Much of the credit for establishing the Snowy Authority should go to Nelson Lemmon. He was the Minister for Works and Housing in the Australian Government of Prime Minister Ben Chifley. A Western Australian, he was determined that the national interest would prevail, but understood that the Australian Constitution of 1900 did not assign any powers to the Commonwealth to build a project like the Snowy Scheme. The key objectives of the Snowy were to develop electricity and water resources, and these activities remained as residual powers of state governments.

Here is Lemmon's account of what, I believe, is one of the most decisive moments in Australian history:

I went to Chifley ... and I said, "There's only one way to handle this... Put the whole thing under the Defence Act ... and we'll be the boss." He said, "WHAT? Your name's Nelson Lemmon, not Ned Kelly—you can't do that?" So I said, "Why can't I?" "Well," he said, "you tell me how you can!" So I said, "Listen! You had subs in the Harbour. The way we're building everything now, all they want is a decent cruiser and they could

sneak through the guard and they could blow all your power stations out without an effort! You've got Bunnerong built on the water, you've got the big one at Wollongong built on the water ... they could blow all your damned electricity out in one night's shooting! Where'll you produce the arms, where'll your production be with all the power of New South Wales buggered?" Chif says, "You might get away with it ... If you can get Evatt to agree with it—and if there's a case he'll have to fight it in the High Court—if you can get Evatt to agree, I'll go all the way with you!"

Lemmon went to see Evatt. He knew that Evatt did not like Dedman, who was the Minister for Defence and Minister for Post-War Reconstruction. They were rivals. Lemmon told Evatt that Dedman had said they could not use the *Defence Act*. Evatt's support of Lemmon was immediate. Lemmon had his constitutional defender. At the Premier's conference, Prime Minister Chifley advised the Premiers that the Commonwealth would proceed with the Scheme under the Defence powers. The Premiers were taken by surprise by this decision and simply noted the matter. They then proceeded to the next business.

It was an immense gamble, but there was no other way. Lemmon was aware that the Commonwealth did not even have the power to compulsorily acquire land for the project, as that was a state function. The Commonwealth did not have powers over diversion and use of water resources.

Chifley and Lemmon decided to move quickly towards construction to offset any possible legal challenges from the state governments, especially NSW. For this reason the Snowy Act of 1949 concentrated on the hydro-electric aspect of the Scheme, but not the diversion of water inland for irrigation. The costs of the project were to be recovered from power charges, with the additional water for irrigation being provided at no cost to the benefiting states of NSW, Victoria and SA.

These considerations of residual state rights for public works, under the Constitution, have meant that the Snowy Scheme remains the only national public infrastructure project in the history of our nation.

The project only became possible through the leadership of two groups of outstanding people. It was the engineering experts under Dr L.F. Loder who developed the vision of a national project. It was the political leaders, Prime Minister Chifley and Minister Lemmon, who believed that the merits of the grand design outweighed all objections on legal and constitutional grounds, and courageously began the Scheme.

The Leader of the Opposition in

the Commonwealth Parliament was Robert Menzies. He formally opposed the proposals of the Government. But he privately congratulated Lemmon after the passage of the *Snowy Act*. Shortly thereafter there was a change of government, and Robert Menzies became Prime Minister. He accepted the decision of Parliament to proceed with the enterprise, supported the Snowy Authority, and ably dealt with the constitutional issues that continued to arise as the work proceeded. Menzies ensured the continued flow of funds to meet the needs of the project.

### An Organisation for the Task: A Corporation Sole

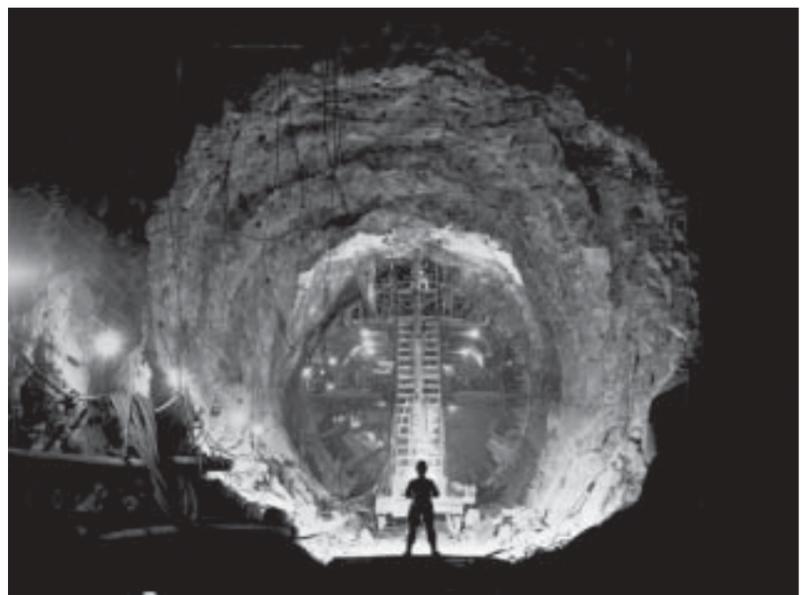
The administrative form of the Snowy Authority was deliberately chosen to ensure that the construction of the project would proceed unimpeded by changes in the political environment. The construction of the Scheme was seen as an engineering task, and Cabinet preferred the appointment of a single outstanding engineer to manage the Project, unimpeded by any Board or group of experts, or any representatives from state governments. They deliberately chose rule by one man.

The Authority was formally constituted as a single commissioner. Thus the Snowy Mountains Hydro-Electric Authority was, in law, one person. That was a fundamental departure from a normal ministerial department, although the concept of corporation sole had been quite effective in other public enterprises.

In the case of the Snowy Scheme, it was outstandingly successful. There was no indication that the ultimate control of the project by a single commissioner was anything other than beneficial.

It was Nelson Lemmon who selected William Hudson as the Commissioner, and made a single recommendation to Cabinet. The record of the project shows that Hudson was an extraordinarily fine choice, and that the combination of capable leadership and unimpeded authority enabled the huge project to be built on time and within the estimate.

Hudson selected his two Associate Commissioners. Mr T. A. Lang, a young and distinguished civil engineer, and Commissioner of Irrigation and Water Supply in Queensland, and Mr E. L. Merigan, Electrical Engineer, State Electricity Commission of Victoria. Australia had a population of only 8 million in 1949, and there were wide-ranging and critical post-war shortages of men and equipment. It was the beginning of a great adventure.



### Creating Competence

The critical challenge from the beginning of the Scheme was the enormous magnitude of the task ahead. There were very few engineers in Australia with experience in projects of that magnitude. The Authority had attracted an initial team of mostly young engineers, many with honors degrees and all with strong potential, but with no experience at all in hydro-electric engineering or major projects. In retrospect, it seems that only the Commissioner had any comprehension of what was involved.

The Authority decided to obtain overseas assistance in the preparation of designs and specifications for certain of the first major projects, and also to train the young engineers to a level whereby the Authority could complete the remainder of the Scheme from its own resources.

At that time many engineers around the world had been inspired by the achievements of the American civil engineers in the imaginative public works they built during the thirties. These projects were undertaken in a deliberate program of national economic recovery from the disastrous effects of the Great Depression. These great U.S. public works included the projects of the Tennessee Valley Authority, and many big projects by the U.S. Bureau of Reclamation such as Hoover Dam, and the Central Valley Project in California. This strong example in America undoubtedly aided the acceptance of the idea of the Snowy Scheme in Australia, and encouraged Lemmon and Chifley to provide similar direct and vigorous leadership.

The Snowy Authority decided to seek assistance in the United States for the initial group of major projects. This prospect was examined in America by Associate Commissioner T. A. Lang. He proposed an agreement between the Commonwealth of Australia and the United States of America whereby the Bureau of Reclamation would undertake the prepara-

tion of designs and specifications for certain tunnel projects and dams, and provide training and experience for a number of Snowy engineers.

At the beginning of 1952, twelve Snowy engineers began work with the Bureau, studying their practices in design and construction of dams and tunnels. Eventually, over 100 young engineers benefited from the program.

I was in the first group of 12 engineers. My own assignment from the Snowy was the study of the design of tunnels and underground structures. The Bureau of Reclamation promptly set me to work in the Denver offices on the actual designs for the Eucumbene-Tumut trans-mountain diversion tunnel, the associated regulating structures, and Junction Intake Shaft.

After 12 months I returned to Cooma with a big bundle of contract drawings and specifications for the Eucumbene-Tumut Tunnel and Associated Structures, Tumut Pond Dam and T1 Pressure Tunnel, hoping I would be able to answer any questions on the details of the projects.

The relationship between the experienced Bureau engineers and the young Australians was exceptionally cordial. We appreciated the way they openly shared their experience with us. They liked the way we were eager to learn, and asked questions.

The happy association with the Bureau of Reclamation was undoubtedly of tremendous benefit to the Authority, and to Australia. The concept of such detailed cooperation with an agency of another government, and the consequent inter-governmental agreement, was an act of much foresight and a credit to all concerned.

Within a few short years of the Authority being formed, the young engineers had matured into a capable, confident and united engineering team.

It is now of interest to reflect that it was all deliberately planned that way.

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