

Kootenay where a total of 375 feet of head has already been developed. Thus, large scale diversions of water from the Kootenay to the Columbia would only be attractive, if at all, when hydroelectric developments on the Canadian Columbia have been advanced to the stage where they offered a very considerable advantage in developed head over that already available on the Kootenay.

The problem of the plan of best use in Canada for power finally resolved itself to the consideration of one plan without any diversion of the Kootenay River and others calling for various degrees of river diversion. Plate 4 shows the projects involved in a limited Canal Flats diversion and those involved in the maximum Dorr-Bull River-Luxor proposal. The power potential of these and other alternative proposals were studied month by month for a 20-year period of streamflow record, and it became obvious that while increasing amounts of Kootenay River diversion provided greater power benefits to Canada, the cost of providing the last increments of power through diversion approached the point where it indicated only marginal economic advantage. This was particularly so when the non-diversion or limited diversion plans studied assumed the construction of the Libby dam in the United States at the expense of that country. Having the flows of the Kootenay River regulated at little or no expense to Canada produced very low-cost power benefits downstream in Canada on the Kootenay (at the Cominco plants) which made it increasingly difficult to support a full diversion of the Kootenay River in Canada. On the other hand, the more limited diversion plans would produce a very low cost increment of power on the main stem of the Columbia River and at the same time would permit the construction of Libby and therefore significant power and flood control benefits on the Kootenay River in Canada.

The final conclusion indicated by the Federal Government power studies was that a plan of development providing for a limited diversion of the Kootenay River, preferably at Canal Flats where only a low and relatively inexpensive structure would be required, was the best use of the river basin in Canada for power purposes. This plan would ultimately call for the development of the sites shown on Plate 5.

While this plan of best use would, at its ultimate stage of development, produce somewhat less power for Canada than a maximum diversion plan, the last-added increment of energy provided by maximum diversion from the Kootenay to the Columbia did not appear competitive with alternative sources of energy. This conclusion, favouring only a limited diversion of the Kootenay River, has been supported by studies carried out independently by Canadian consulting engineering firms. In November 1957 the Montreal Engineering Company included the Canal Flats diversion in the plan it recommended for independent development by Canada, and in 1959 the firm of Crippen Wright Engineering Ltd. concluded that limited diversions of up to 5,000 cubic feet per second at Canal Flats could be handled with "moderate expenditures" and with "outstandingly economical results in terms of increased power