

4.0 Reference: Application, Volume I, Chapter 4, Energy Supply Costs

1.4.8 Page 4-10, Table 4-4: For each hydro project in the table, what is the storage associated with each facility in ksf (thousand second foot days) and equivalent GWh? What "firmness" is attached to each energy contract, and how is each facility dispatched?

RESPONSE:

The table below summarizes the hydro projects listed in Chapter 4, Page 4-10, Table 4-4.

PROJECT	STORAGE ksf (Note 1)	Equivalent GWh (Note 2)	Firmness	Dispatch	Additional Comment
Mamquam	limited	Unknown	250 GWh assumed firm	Non-dispatchable	Energy is assumed firm for resource planning purposes
Brown Lake	limited	Unknown	57 GWh assumed firm	Non-dispatchable	Same as above
Remainder of pre-1994 hydro	none	N/A	Total = 329GWh assumed firm	Non-dispatchable	Same as above
Alcan LTEPA	1,676	N/A	140 aMW = 1,230 GWh/yr is firm	140 aMW delivered at 95% load factor on a mutually agreed upon schedule	Energy is firm based on the agreement; not tied to resource capability
Arrow Lakes Hydro	35,712	N/A	772 GWh is firm based on Keenleyside Entitlement Agreement	BC Hydro dispatches	Note 3.

Note 1: ksf is an abbreviation for the water volume equivalent of 1000 cubic feet per second flow for the period of 1 day. 1 ksf = 1000 cfs-days = 1000 cu.ft./s x 3600 sec/hr x 24 hr/da x 1day = 86,400,000 cubic feet.

Note 2: The calculation of Equivalent GWh requires information on max/min operating head and generator characteristics to convert ksf to GWh, which information BC Hydro does not have or require (if the EPA is contractually firm).

Note 3: The Arrow Lakes Hydro purchase agreement of 772 GWh/yr firm energy is the purchase by BC Hydro of the entitlement provided to the project owner (a joint venture of Columbia Power Corporation and the Columbia Basin Trust) under the Keenleyside Entitlement Agreement. Under the Keenleyside Entitlement Agreement, BC Hydro receives the actual generation from the Arrow Lakes Hydro project and returns a fixed annual energy entitlement to the project owner. The Keenleyside Entitlement Agreement is an obligation on the Heritage Resources and is included in determination of the 49,000 GWh/year Heritage Energy obligation.

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Please also see BC Hydro's response to BCUC IR #1.4.10 for further information on the capabilities of these projects.