

# Hydro Spill Data

FOR JANUARY – MARCH 2002

**When you are looking at these tables please take note of the following factors when making interpretations:**

- ❖ Contact Energy makes every effort to manage its hydro resource to maximise the use of available water for electricity generation.
- ❖ Each river system on which a hydro generation scheme operates has different catchment, storage, generating plant and resource consent characteristics. Comparing hydro spill data between one river system and another is therefore potentially misleading.
- ❖ Compared with other hydro generation systems in New Zealand, the Clutha River system is characterised by small total storage capacity relative to generating capacity, and by large uncontrolled inflows. Storage occurs only at Lake Hawea, but the system is also fed via Lakes Wanaka and Wakatipu, neither of which are controlled.
- ❖ The Clyde generating plant is subject to resource consent constraints that allow use of a maximum 850 cumecs, when the plant's rated capacity is 1,000 cumecs. Contact Energy is seeking to amend its resource consent to allow its plant to be fully used, where possible.
- ❖ Hydro spill is required from time to time to flush silt from behind the Roxburgh Dam for flood protection reasons. Such flushing is usually timed to coincide with periods of high inflows when hydro spill is unavoidable.

As a consequence of these factors, the Clutha hydro system is more susceptible to the impact of day-to-day inflows and river levels. Hydro spilling from the system is accordingly likely to be greater than from other New Zealand hydro systems.

## ❖ Clyde

Values are expressed in gigawatt hours (GWh)

WEEK ENDING	07/01/02	14/01/02	21/01/02	28/01/02	04/02/02	11/02/02	18/02/02	25/02/02	04/03/02	11/03/02	18/03/02	25/03/02
PLANT	0	0	0	0	0	0	0	0	0	0	0	0
OBSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0
HIGH INFLOW	2.20	0	0	0	0	0	0	0	0	0	0	0
REGULATORY	5.39	1.47	0	0	0	0	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0	0	0	0	0	0	0
RECREATIONAL	0	0	0	0	0	0	0	0	0	0	0	0
COST	51.47	23.35	1.87	0	0	0	0	0	0	0	0	0
ECONOMIC	0	0	0	0	0	0	0	0	0	0	0	0
TRANSMISSION CON.	0	0	0	0	0	0	0	0	0	0	0	0
HYDRAULIC CON.	0	0	0	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL SPILL</b>	<b>59.06</b>	<b>24.82</b>	<b>1.87</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>ENERGY PRODUCED</b>	<b>17.45</b>	<b>47.74</b>	<b>58.70</b>	<b>47.69</b>	<b>34.37</b>	<b>28.38</b>	<b>25.05</b>	<b>23.77</b>	<b>27.82</b>	<b>28.55</b>	<b>26.66</b>	<b>29.20</b>
<b>SPILL/INFLOWS %</b>	<b>77.19%</b>	<b>34.21%</b>	<b>3.08%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>

## ❖ Roxburgh

Values are expressed in gigawatt hours (GWh)

WEEK ENDING	07/01/02	14/01/02	21/01/02	28/01/02	04/02/02	11/02/02	18/02/02	25/02/02	04/03/02	11/03/02	18/03/02	25/03/02
PLANT	0	0	0	0	0	0	0	0	0	0	0	0
OBSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0
HIGH INFLOW	8.57	3.92	0	0	0	0	0	0	0	0	0	0
REGULATORY	0	0	0	0	0	0	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0	0	0	0	0	0	0
RECREATIONAL	0	0	0	0	0	0	0	0	0	0	0	0
COST	740	4.43	0	0	0	0	0	0	0	0	0	0
ECONOMIC	0	0	0	0	0	0	0	0	0	0	0	0
TRANSMISSION CON.	0	0	0	0	0	0	0	0	0	0	0	0
HYDRAULIC CON.	0	0	0	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0.10*	0	0	0	0
<b>TOTAL SPILL</b>	<b>15.98</b>	<b>8.35</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>ENERGY PRODUCED</b>	<b>40.09</b>	<b>47.46</b>	<b>45.64</b>	<b>37.80</b>	<b>26.26</b>	<b>22.31</b>	<b>19.20</b>	<b>18.28</b>	<b>21.03</b>	<b>22.08</b>	<b>20.45</b>	<b>22.26</b>
<b>SPILL/INFLOWS %</b>	<b>28.50%</b>	<b>14.96%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0.54%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>

## ❖ Total

Values are expressed in gigawatt hours (GWh)

WEEK ENDING	07/01/02	14/01/02	21/01/02	28/01/02	04/02/02	11/02/02	18/02/02	25/02/02	04/03/02	11/03/02	18/03/02	25/03/02
PLANT	0	0	0	0	0	0	0	0	0	0	0	0
OBSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0
HIGH INFLOW	10.77	3.92	0	0	0	0	0	0	0	0	0	0
REGULATORY	5.39	1.47	0	0	0	0	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0	0	0	0	0	0	0
RECREATIONAL	0	0	0	0	0	0	0	0	0	0	0	0
COST	58.88	27.77	1.87	0	0	0	0	0	0	0	0	0
ECONOMIC	0	0	0	0	0	0	0	0	0	0	0	0
TRANSMISSION CON.	0	0	0	0	0	0	0	0	0	0	0	0
HYDRAULIC CON.	0	0	0	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0.10*	0	0	0	0
<b>TOTAL SPILL</b>	<b>75.04</b>	<b>33.17</b>	<b>1.87</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>ENERGY PRODUCED</b>	<b>57.54</b>	<b>95.19</b>	<b>104.35</b>	<b>85.49</b>	<b>60.63</b>	<b>50.69</b>	<b>44.25</b>	<b>42.04</b>	<b>48.85</b>	<b>50.63</b>	<b>47.11</b>	<b>51.46%</b>
<b>SPILL/INFLOWS %</b>	<b>56.60%</b>	<b>25.84%</b>	<b>1.76%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>

\* On 24 February 2002 an earthquake was felt in the Roxburgh area. In accordance with Contact's standard operating procedure, the sluice gate was opened after the tremor as a precautionary measure. Operations returned to normal on the same day.

## Reason Codes

CODE	DESCRIPTION
PLANT	Hydro spill was due to a plant malfunction including plant owned by a third party, or from plant testing, or from planned or unplanned outages.
OBSTRUCTION	Hydro spill was due to physical obstructions preventing normal operation of generating plant. Such obstructions include weed, logs, silt etc.
HIGH INFLOW	Hydro spill was due to high inflow events. This code applies when the river flows exceed the ability of the generation scheme to generate at that level. This code only applies when the operator has no discretion over avoiding the release.
REGULATORY	Hydro spill was due to regulatory obligations. It includes statutes, resource consents, use permits, bylaws etc. This code only applies when the operator has no discretion over avoiding the release.
CONTRACTUAL	Hydro spill was due to legal obligations. It will predominantly be used when the release occurs due to contractual obligations. This code only applies when the operator has no discretion over avoiding the release.
RECREATIONAL	Hydro spill was for recreational use. That is where recreational, social or cultural interests have negotiated hydraulic profiles and hydro release has occurred as a result e.g. kayaking activity.
COST	Hydro spill was due to the spot price not meeting the hydro generator's threshold for that plant's short run cost for operating.
ECONOMIC	Hydro spill was due to economic reasons.
TRANSMISSION CONSTRAINT	Hydro spill was due to transmission or distribution constraints.
HYDRAULIC CONSTRAINT	Hydro spill was due to capacity differences within some hydraulically coupled schemes, requiring additional water bypass to maintain output.
OTHER	Hydro spill was due to any other reason. When this code is used, an appropriate description and explanation must also be included.