Calculation Checklist

This checklist shall be used to record the site data and calculate the Hydro Abstraction Factor for the site (HAF_{site}) to allow conversion of electrical output to quantities abstracted.

Site Data	
Site name	Iwrch HEP
Address	Llanrhaeadr Ym Mochnant, Powys
Licence serial No.	18/54/01/0634
Contact name	Jacinta MacDermot
Contact telephone	07788 844021
Contact email	jacinta.macdermot@dhghydro.com

Performance Data		
Parameter	**Value**	**How was the parameter determined?**
Net operating head of the system at maximum power output ($H_{n\ (Pmax)}$)	62m	Site survey – Dulas Ltd
Turbine/water wheel efficiency at maximum power output ($e_{turbine/water\ wheel\ (Pmax)}$)	87%	1 no. Ganz Francis
Transmission system efficiency at maximum power output ($e_{transmission\ (Pmax)}$)	100%	Direct drive
Generator efficiency at maximum power output ($e_{generator\ (Pmax)}$)	95%	

Calculation of overall system efficiency of the rotating parts of the hydro system, at maximum power output ($e_{system\ (Pmax)}$)

$e_{system\ (Pmax)}$ = $e_{turbine/water\ wheel\ (Pmax)}$ x $e_{transmission\ (Pmax)}$ x $e_{generator\ (Pmax)}$

= [0.87] x [1.00] x [0.95]

= [0.83]

Calculation of HAF_{site}

HAF_{site} = Hydro Abstraction Factor for the site in question

= 366.972 / ($H_{n\ (Pmax)}$ x $e_{system\ (Pmax)}$)

= 366.972 / ([62] x [0.83])

= [7.13]

The abstracted volume for the period (Vperiod) can then be worked out using the formula:

V_{period} = kWh_{period} x HAF_{site}