

An aerial photograph of a wide river valley with a dam in the distance, overlaid with a collage of various Canadian banknotes (5, 10, 20, 50). The banknotes are scattered across the image, with some numbers like '50', '20', and '10' clearly visible. The text 'Green Plunder Power Inc.' is centered over the image in a white, bold font.

Green Plunder Power Inc.

"The only crime is getting caught"

Green Plunder Power Inc.

5 ways to beat the system

*Creating shareholder value
in BC's run-of-river Klondike*

Innes McDonald

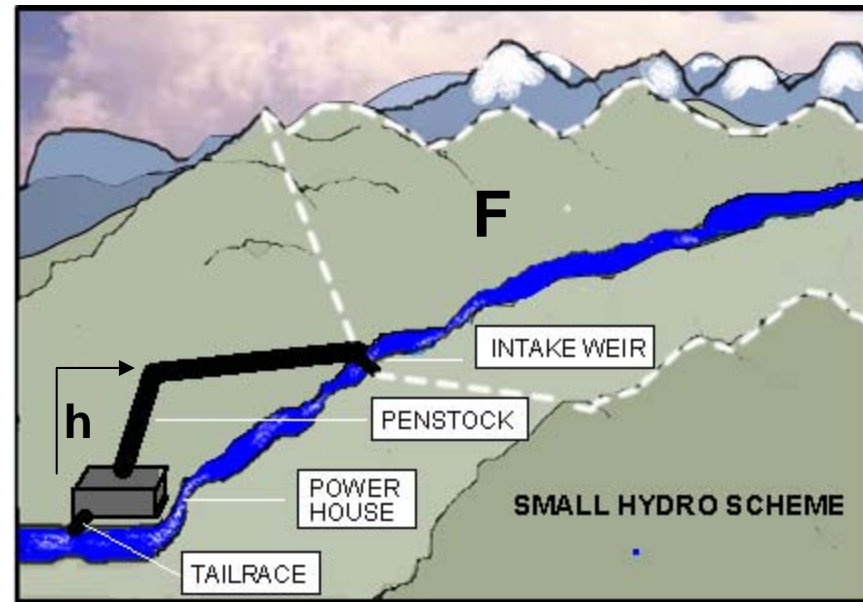
Quadra Island, November 2009

“Greenwashing for a Cleaner Future”

INTAKE LOW

in watershed

$$\text{Power} = \text{head} * \text{FLOW}$$

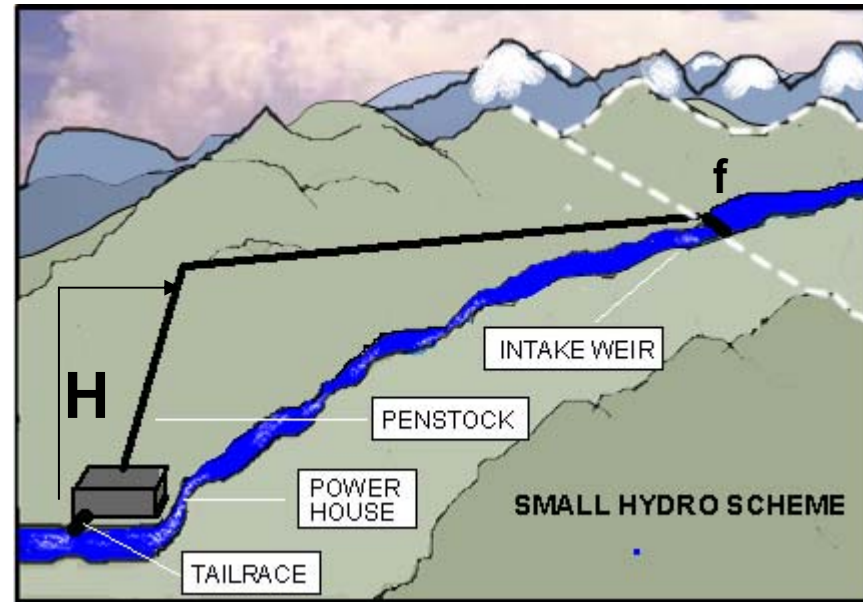


INTAKE HIGH

in watershed

$$\text{Power} = \text{HEAD} * \text{flow}$$

- freeze up more likely
- penstock costs more
- more friction energy loss



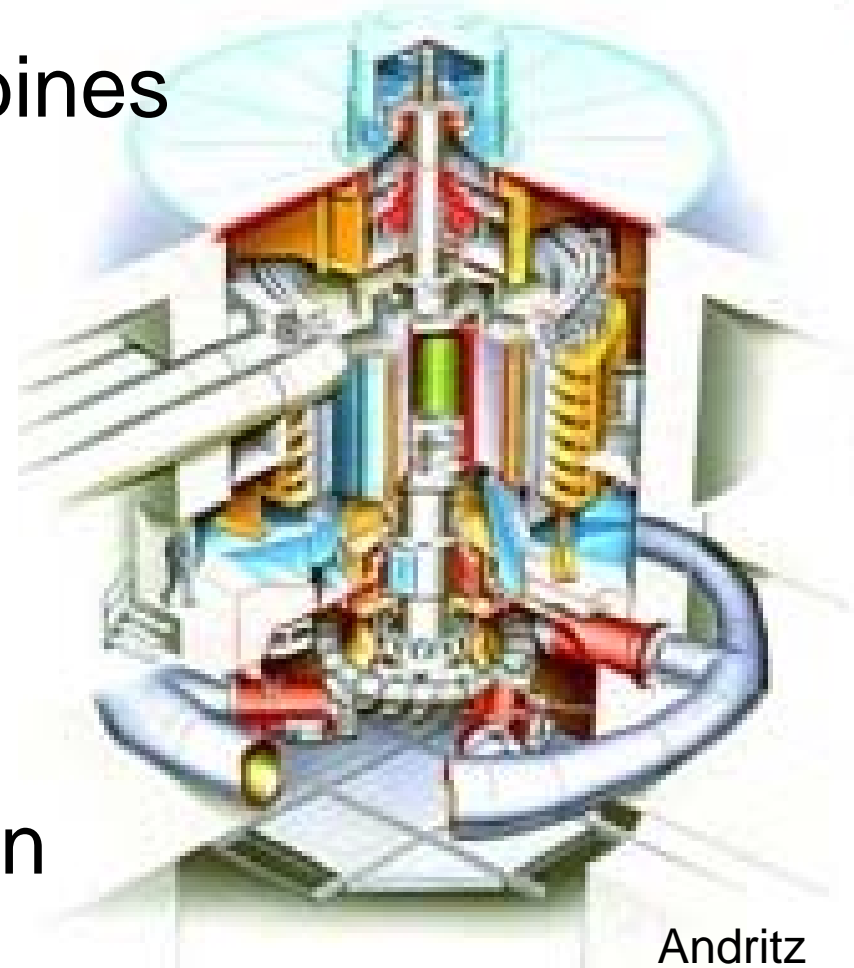
Turbine Configuration

Small, low mass, turbines
handle low flows

Larger turbines
are more efficient
with higher flows

Balancing challenge

- capital costs
- optimal generation



MAD – Mean Annual Discharge

- best taken from recorded values, over many years
- gauges not installed until recently ROR streams
- data from proxy streams are used
- Plutonic has used Elaho River for all of its Toba Inlet modelling
- “synthetic” flow profiles and MADs are calculated
- agencies rely on proponent to provide MAD
- smaller MAD = smaller instream flow requirement

Fish-bearing or Fishless?

- fishless streams allowed very low IFRs
- proponent hires the fisheries biologists and other experts who do the field work and write the reports
- nobody bites the hand that feeds them
- fish presence = death to profits

Instream Flow Requirement (IFR)

- THE vitally important number!
- specifies how much water must remain in a stream
- determines project viability, firm/non-firm energy proportion, even turbine selection
- **Hatfield et al, 2003 – BC's IFR guideline**
- lower IFR = greater profitability
- IPPs are **MOTIVATED** to reduce IFR

IFRs – guidelines vs Plutonic's

	Fishless Streams		Fish-bearing		Proposed IFRs	
	m ³ /s	%MAD	m ³ /s	%MAD	m ³ /s	%MAD
Jan	0.76	9.7	1.79	23	0.63	8
Feb	0.76	9.7	1.67	21	0.63	8
Mar	0.76	9.7	2.15	27	0.63	8
Apr	0.76	9.7	3.78	48	1.02	13
May	0.76	9.7	8.53	109	1.02	13
Jun	0.76	9.7	14.29	183	1.02	13
Jul	0.76	9.7	19.36	247	1.02	13
Aug	0.76	9.7	16.87	216	1.02	13
Sep	0.76	9.7	11.41	146	1.02	13
Oct	0.76	9.7	5.41	69	1.02	13
Nov	0.76	9.7	4.60	59	0.63	8
Dec	0.76	9.7	1.82	23	0.63	8

Electricity Purchase Agreements

Firm Energy: The total firm energy during system freshet (May 1 to July 31) may not exceed one-quarter of the total annual firm energy proposed.

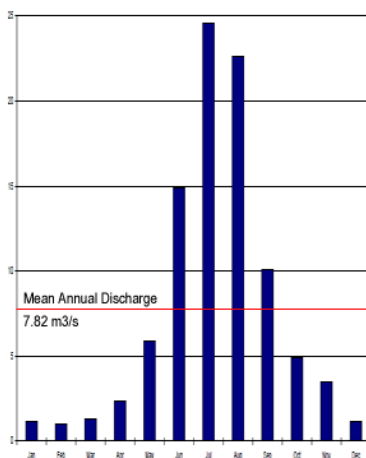
Liquidated Damages: market price less the EPA firm energy price.

Clean Power Call

EPAs – Firm Power

**Reference
Price**

\$120/MWh



Month	Time of Delivery Factor (TDF)		
	Super-Peak	Peak	Off-Peak
January	141%	122%	105%
February	124%	113%	101%
March	124%	112%	99%
April	104%	95%	85%
May	90%	82%	70%
June	87%	81%	69%
July	105%	96%	79%
August	110%	101%	86%
September	116%	107%	91%
October	127%	112%	93%
November	129%	112%	99%
December	142%	120%	104%

EPAs – Non-Firm Power

Non-firm Energy: the average mid-C non-firm price for the month.

Clean Power Call

Net revenues from non-firm energy can be negative in years with relatively low amounts of Heritage hydro due to the cost of non-firm purchases from IPPs

2008 LTAP Application

Monitoring

- no agencies conduct onsite monitoring for compliance with IFRs or other habitat/environmental protections
- remoteness ensures privacy of operation
- winter compounds the difficulty of inspection
- inducements to steal water are greatest in winter (highest rates & quarterly firm energy terms)
- the cat's away (actually, in BC there is no cat)...

5 Ways to Beat the System

1. agencies rely on proponent to provide MAD; smaller MAD = smaller IFR.
2. proponent hires the experts & field crew, and nobody bites the hand that feeds them; fish presence = death to profits.
3. lower IFR = greater profitability
4. additional water is worth most in winter
5. the cat's away (worse - in BC there is no cat)...



Green Plunder Power Inc.

Thank-you

“The only crime is getting caught”

Small Hydro Economics 101

Toba Montrose

- 196 MW: ~ 745 GWh (75,000 homes)
- online in summer 2010
- EPA Contract Term: 35 years
- year 1 annual revenue: ~ \$74 million*
 - escalated at 50% CPI for term of contract
- annual expenses (O&M and taxes): ~ \$14 million
- EBITDA: ~ \$60 million
- free cash flow: ~ \$26 million
- free cash flow to PCC : ~ \$11 million (40% of project)

Plutonic investor presentation, Sept 2009

East Toba River & Montrose Creek	
Capacity	196 MW
Annual energy	745,000 MWh
Unit price of energy	\$90/MWh
EcoAction (10 yrs)	\$10/MWh
Revenues	
Total revenue from power sales	\$74,500,000
Expenses	
Operations & maintenance	\$6,200,000
Land rental	\$622,202
Water rental	\$3,912,425
Property taxes	\$2,436,000
First Nations (say 2% revenue)	\$1,340,000
Amortization (depreciation & interest)	\$26,520,000
Income tax	\$7,375,424
Total expenses and deductions	\$48,406,052
Net earnings	\$26,093,948

Public benefit when owned by	
IPP	BC Hydro
\$14.3 million	\$40.4 million

Thank-you

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