STATE OF NEW YORK

Board of Hudson River-Black River Regulating District
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March 16, 2012

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 2426

Re: Docket No. HB81-09-2-000
Headwater Benefits Determination
Hudson River Basin, New York

Dear Secretary Bose:

Enclosed is the Hudson River – Black River Regulating District's comments on the *Draft Report of Headwater Benefits Determination – Hudson River Basin.*

Sincerely,

Robert S. Foltan, P.E.
Chief Engineer

Enclosure

cc: Michael Clark, P.E., Executive Director
Board of Hudson River – Black River Regulating District
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Via: E-file, FERC

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Board of Hudson River – Black River Regulating District
Response to Federal Energy Regulatory Commission

Draft Report - Headwater Benefits Determination
Hudson River Basin
Docket No. HB81-09-2-000

The Board of Hudson River – Black River Regulating District offers the following comments in response to the Federal Energy Regulatory Commission (FERC) Draft Report – Headwater Benefits Determination, Hudson River Basin dated January 2012.

Hydraulic Capacity of Hydro Facilities

The Headwater Benefits Determination calculates the incremental benefit derived from the increased daily average, regulated, flow in the Sacandaga and Hudson River which is attributed to the operation of the Great Sacandaga Lake (GSL) through a calculation of the difference between the hypothetical energy which would be produced in a non-regulated, natural flow, scenario, and the energy actually produced as a result of the GSL regulated flows. The Board believes this does not account for all the energy gain realized by the Sacandaga and Hudson River hydroelectric facilities.

The Board believes FERC should revise the energy gains model to recognize that the hydraulic capacity of the Sacandaga and Hudson River hydroelectric facilities, in the unregulated flow scenario, would be less than their current hydraulic capacity. The Board asks that the FERC recognize the beneficial influence that regulation by GSL had on the post-1930 hydraulic capacity of each Sacandaga and Hudson River hydroelectric facility, and asks that the FERC recalculate the energy gains attributable to GSL. In particular, E.J. West and Stewart's Bridge, with a 4,800 cubic feet per second (cfs) and 5,460 cfs hydraulic capacity operate at 219% and 249%, respectively, of the 2,200 cfs mean flow of the Sacandaga River. Typically, from an initial plant sizing perspective, hydraulic capacity of a run-of-river project is selected based on the average annual flow[1]. It is reasonable to assume that if GSL did not exist the hydraulic capacity of E.J. West and Stewart's Bridge would be significantly less then their current hydraulic capacities, likely approaching the mean flow. To further illustrate the point, the hydraulic capacity of the Hudson River hydroelectric facilities in 1928, as compared to current capacity, is shown in *Table 1 – Hudson River Hydroelectric Plants*. Analysis of flow-duration data, in addition to mean flow, further supports the Board's position that the energy gains model should reflect reduced hydraulic capacity in the "without GSL" generation calculation.

The attached flow-duration graph of the Sacandaga River, at Conklingville Dam, demonstrates the influence of GSL regulation on the selection of hydraulic capacity at the E.J. West and Stewart's Bridge facilities. Engineering experience suggests that for a run-of-river project to be economically viable the

[1] Dept. of the Army, *EM 1110-2-1701 Engineering Design - Hydropower*, 1985, p. 6-16.

hydraulic capacity of the project should not exceed a flow rate at which it could operate at full capacity for at least 30% of the time[2].

It is generally accepted in the hydroelectric industry that a flow rate that is equaled or exceeded approximately 20% to 30% of the time tends to be the most economical hydraulic capacity for a run-of-river (no regulation) facility. If the GSL had not been constructed and no regulation of the Sacandaga River occurred, based on analysis of river flow-duration, it is likely that the hydraulic capacity of E.J. West and Stewart's Bridge would be approximately 2,000 to 3,000 cfs.

The Board of Hudson River – Black River Regulating District requests that the FERC recalculate energy gains, taking into account smaller hydraulic capacities at the Sacandaga and Hudson River hydroelectric facilities for the unregulated, without GSL, scenario.

FERC's recognition of the influence of GSL regulation on the selection of hydraulic capacity at E.J. West and Stewart's Bridge, and its influence on the current hydraulic capacity of the Hudson River hydroelectric plants, by revising the energy gain calculations accordingly, will produce a more accurate estimate of energy benefit provided by Great Sacandaga Lake and secure necessary funding for the Regulating District's continued maintenance of the GSL.

Assessment of Headwater Benefits

The Headwater Benefit Assessments, depicted in Table ES-1 (page iii) and Table 24 (page 90), were based on data and calculations contained on the CD provided to the District (Section 10f Analysis). Upon review of the data and calculations it was discovered that the "10(f) Cost" for the years 2002 – 2008, listed in the Section 10f Analysis Table ES-1 and Table 24, were transposed. More specifically, the 2002 costs were incorrectly represented as 2008 costs, the 2003 costs were incorrectly represented as 2007, and the 2004 costs were incorrectly represented as 2006 costs. This correction will allow the proper cost to be prorated for the year 2002. In the case of costs for 2007 and 2008, the value of "Depreciation of Bulkheads etc." was not transposed with 2003 and 2002 costs, respectively, and were properly reflected in the year in which the costs occurred (2007 and 2008).

A corrected table is provided herein as *Corrected Table ES-1 and Table 24*, depicting the proper annual "10(f) Cost" for 2002, 2003, 2004, 2006, 2007, and 2008. The "10(f) Cost" reflected in *Corrected Table ES-1 and Table 24*, for year 2002, 2003, 2007 and 2008, deviate from the "10(f) Cost" in FERC Table ES-1 and Table 24 for the reason cited above.

Headwater Benefit Charges

The Board of Hudson River – Black River Regulating District requests that the FERC defer consideration of whether, and how, prior payments under the New York State Environmental Conservation Law would be credited against Headwater Benefit charges until after the amount of those charges has been finally settled. The District expressly reserves its right to raise any legal or equitable grounds for limiting the extent of credits against Headwater Benefits charges for payments made by licensees under color of

[2] William P. Creager and Joel D. Justin, *Hydroelectric Handbook*, John Wiley & Sons, New York, 1950, p. 264.

State law prior to the U.S. Court of Appeals' November 28, 2008 decision in Albany Engineering Corp. v. FERC, 548 F.3d 1071 (D.C. Cir. 2008).

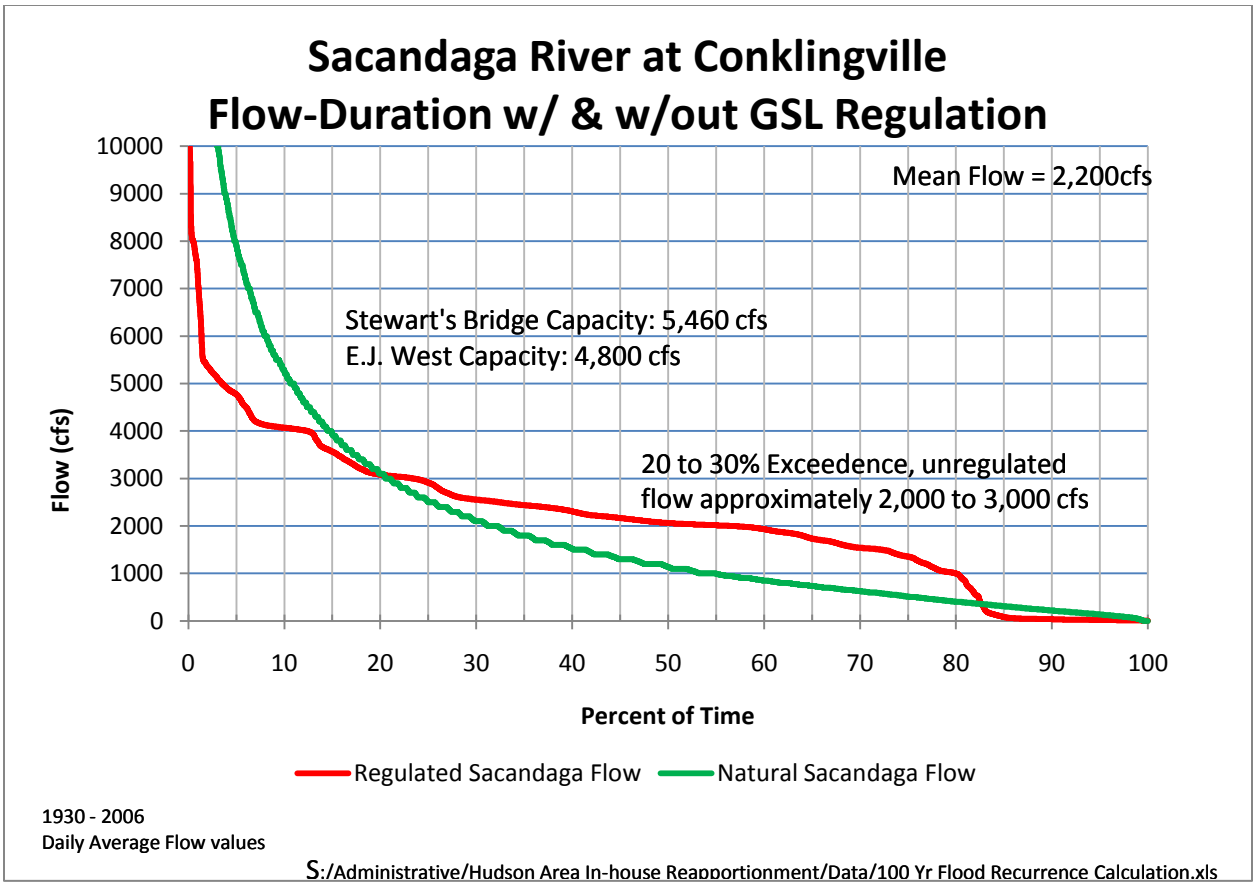
Table 1 - Hudson River Hydroelectric Plants

Facility	Dam	Units	Current Discharge Capacity	1928 Discharge Capacity (1)	% Change after Regulation
E.J. West	Conklingville Dam	2	4800	0	100.0%
Stewarts Bridge	Stewart's Bridge Dam	1	5460	0	100.0%
Curtis	Warren Curtis Dam	5	6420	3320	93.4%
Palmer Falls	Palmer Falls Dam	2	7500	3050	145.9%
Spier Falls	Spier Falls Dam	2	9020	6120	47.4%
Sherman Island	Sherman Island Dam	4	6400	6520	-1.8%
Feeder Dam	Feeder Dam	5	5000	5450	-8.3%
Glens Falls	South Glens Falls Dam	5	4400	3690	19.2%
South Glens Falls	South Glens Falls Dam	2	4400	2290	92.1%
Hudson Falls	Hudson Falls Dam	2	?	4220	
Fort Miller	Lock C-6 / Fort Miller Dam	2	6600	2040	223.5%
Stillwater	Stillwater Dam	2	7000	1330	426.3%
Upper Mechanicville	Lock C-3 Dam	2	12000	2500	380.0%
Mechanicville	Lock C-2 Dam	6	5820	5250	10.9%
Green Island	Troy Lock and Dam	4	9828	6920	42.0%
			94,648	52,700	
			179.60%	of pre-GSL capacity	

1. Table - Effect of Storage, Hudson River - Black River Regulating District, 1928

CORRECTED TABLE ES-1 AND TABLE 24

Year	10(f) Cost	10(f) Cost to Power	Erie Boulevard	Curtis Electric Co.	South Glens Falls Partnership	Northern Electric Power Co.	Fort Miller Associates	Stillwater Associates	NY State Electric & Gas Co.	Albany Engineering Co.	Island Power Co.
2002	$ 758,905	$ 354,029	$ 46,897	$ 16,618	$ 9,655	$ 9,570	$ 839	$ 386	$ 3,159	$ 596	$ 788
2003	$ 863,096	$ 402,634	$ 199,659	$ 86,229	$ 49,209	$ 36,387	$ 5,218	$ 2,354	$ 19,459	$ -	$ 4,120
2004	$ 937,131	$ 437,172	$ 241,364	$ 82,525	$ 44,571	$ 43,452	$ 1,319	$ 1,100	$ 18,662	$ 1,243	$ 2,936
2005	$ 1,103,280	$ 514,680	$ 276,858	$ 93,506	$ 51,289	$ 54,161	$ 5,958	$ 1,827	$ 22,203	$ 3,931	$ 4,947
2006	$ 1,382,588	$ 644,977	$ 353,400	$ 118,166	$ 77,986	$ 80,168	$ 5,846	$ 1,816	$ -	$ 3,873	$ 3,722
2007	$ 1,457,452	$ 679,901	$ 366,385	$ 113,917	$ 65,162	$ 78,485	$ 7,145	$ 4,685	$ 27,773	$ 7,820	$ 8,528
2008	$ 1,689,107	$ 787,968	$ 365,100	$ 171,694	$ 104,614	$ 83,118	$ 9,690	$ 4,190	$ 35,205	$ 7,857	$ 6,500
Totals	**$ 8,191,559**	**$ 3,821,362**	**$ 1,849,663**	**$ 682,655**	**$ 402,486**	**$ 385,340**	**$ 36,014**	**$ 16,358**	**$ 126,463**	**$ 25,321**	**$ 31,541**


Sacandaga River at Conklingville
Flow-Duration w/ & w/out GSL Regulation
Mean Flow = 2,200cfs
Stewart's Bridge Capacity: 5,460 cfs
E.J. West Capacity: 4,800 cfs
20 to 30% Exceedence, unregulated
flow approximately 2,000 to 3,000 cfs
Flow (cfs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent of Time
Regulated Sacandaga Flow
Natural Sacandaga Flow
1930 - 2006
Daily Average Flow values
S:/Administrative/Hudson Area In-house Reapportionment/Data/100 Yr Flood Recurrence Calculation.xls