

HYDROLOGY AVERAGING COMPARISON:

30-Year Rolling Average versus Full Historic Record Average



November 6, 2001

The attached tables and graphs compare averages developed using a 30-year rolling average and the average of the full historic record as per the request by Commissioner Whalen on October 12, 2001. In reviewing the attached, please note the following:

Methodology

Inflow information was developed in a manner consistent with that done in response to requests for information IC-195 and NP-204. As with NP-204, no allowances were made for spill or fisheries compensation, as developing and applying these quantities to historical data is tedious and offers little benefit, since the changes are common to the two alternatives being compared. As well, contributions by Paradise River, Snook's Arm, Venam's Bight, and the Roddickton min-hydro were omitted due to their relatively small contribution to overall production capability.

Energy inflow data was calculated by multiplying each year's inflow (in millions of cubic metres, or MCM) by a fixed conversion factor (as quoted in NP-44, page 4 of 4). This yielded a series of annual energy inflow quantities for each major reservoir. The sum of the reservoir energies for a given year provided the year's equivalent energy inflows in GWh.

Whereas NP-204 information is limited to the common 50 years of data, the attached table and graphs reflect the full record for each individual reservoir. Accordingly, the 30-year averages start at different periods, depending upon the starting year for the data. The graphs compare the 30-year average to the full historic average. The actual energy inflows for each year are shown for each reservoir as well.

2001 Estimate

For comparative purposes, the graphs also show projected inflows for 2001. The projections are done using actual inflows to October 31, 2001 and estimates for the remaining two months of the year. The estimates are developed using the same assumptions as noted above. For the 30-year rolling average approach, the inflows for November and December for the most recent 30 years are averaged, while for the full historic average approach, the November and December information for all available years are averaged. The following table provides the detail for the estimates.

Reservoir	Year-to-Date Inflows (MCM)	Estimated Inflows for Nov-Dec (MCM)		Estimated Annual Equivalent Energy Inflows (GWh)	
		30-Year Avg	Full Average	30-Year Avg	Full Average
Victoria	689.22	228.63	229.53	516.38	516.89
Meelpaeg ¹	1617.3	472.97	478.67	1,175.99	1,179.19
Upper Salmon	438.3	163.90	180.15	338.80	347.94
Long Pond	1016.85	311.58	349.56	575.21	591.66
Cat Arm	592.43	105.27	108.75	625.98	629.10
Hinds Lake	464.23	109.18	111.27	307.92	309.04
Total				3,540.28	3,573.82

¹ Inflows represent combined Burnt Lake, Granite Lake, and Meelpaeg Lake inflows.

Results

The attached table shows the annual average inflows calculated according to the methodology noted above. Figures 1 through to 4 compare by plant the averages produced by using the two methodologies, along with actual inflows for each year of record available. Since the period of record for Bay d'Espoir and Upper Salmon is much shorter than that available for Hinds Lake and Cat Arm, figures 5 and 6 are provided to compare the results of the two methodologies assuming that the data set is restricted to the period available for Bay d'Espoir, discarding all previous data. Figures 1 and 2 for Cat Arm and Hinds Lake show the impact of a longer record while figures 5 and 6 provides the comparison with the shorter period of record available for Bay d'Espoir.

Comparison of Annual Reservoir Inflows (GWh)

Year Ending	Bay D'Espoir		Upper Salmon		Cat Arm		Hinds Lake	
	30-Year Avg	Full Average	30-Year Avg	Full Average	30-Year Avg	Full Average	30-Year Avg	Full Average
1956	-	-	-	-	-	-	348	348
1957	-	-	-	-	-	-	344	346
1958	-	-	-	-	-	-	344	346
1959	-	-	-	-	782	782	341	344
1960	-	-	-	-	771	776	338	342
1961	-	-	-	-	767	771	336	340
1962	-	-	-	-	765	770	337	341
1963	-	-	-	-	751	770	333	341
1964	-	-	-	-	747	769	333	341
1965	-	-	-	-	738	766	330	340
1966	-	-	-	-	735	764	328	338
1967	-	-	-	-	731	761	328	338
1968	-	-	-	-	732	758	330	338
1969	-	-	-	-	728	762	332	339
1970	-	-	-	-	721	757	333	339
1971	-	-	-	-	718	758	333	340
1972	-	-	-	-	714	758	334	342
1973	-	-	-	-	716	759	338	343
1974	-	-	-	-	706	755	334	343
1975	-	-	-	-	696	753	333	343
1976	-	-	-	-	696	754	336	343
1977	-	-	-	-	706	760	341	345
1978	-	-	-	-	705	758	341	344
1979	-	-	-	-	706	762	337	344
1980	2,590	2,590	560	560	714	765	341	345
1981	2,611	2,611	566	565	718	767	343	346
1982	2,605	2,608	566	565	719	768	345	347
1983	2,631	2,629	572	570	715	764	347	347
1984	2,634	2,639	573	572	716	763	347	348
1985	2,623	2,620	571	567	721	761	345	346
1986	2,611	2,612	569	566	720	758	343	345
1987	2,606	2,602	568	564	721	757	342	344
1988	2,604	2,603	568	564	728	757	343	345
1989	2,603	2,589	569	562	728	755	342	343
1990	2,632	2,593	575	562	732	755	345	344
1991	2,655	2,591	580	562	736	754	348	343
1992	2,643	2,592	579	563	732	752	346	343
1993	2,657	2,612	583	567	732	752	348	344
1994	2,660	2,616	585	568	735	753	351	345
1995	2,673	2,622	588	569	738	753	354	346
1996	2,696	2,626	593	569	740	753	358	347
1997	2,700	2,629	594	570	741	752	361	347
1998	2,705	2,634	596	571	745	753	364	349
1999	2,713	2,647	597	574	743	754	363	349
2000	2,748	2,660	606	576	753	755	365	350

Figure 1: Hydrology Calculation Comparison: Cat Arm

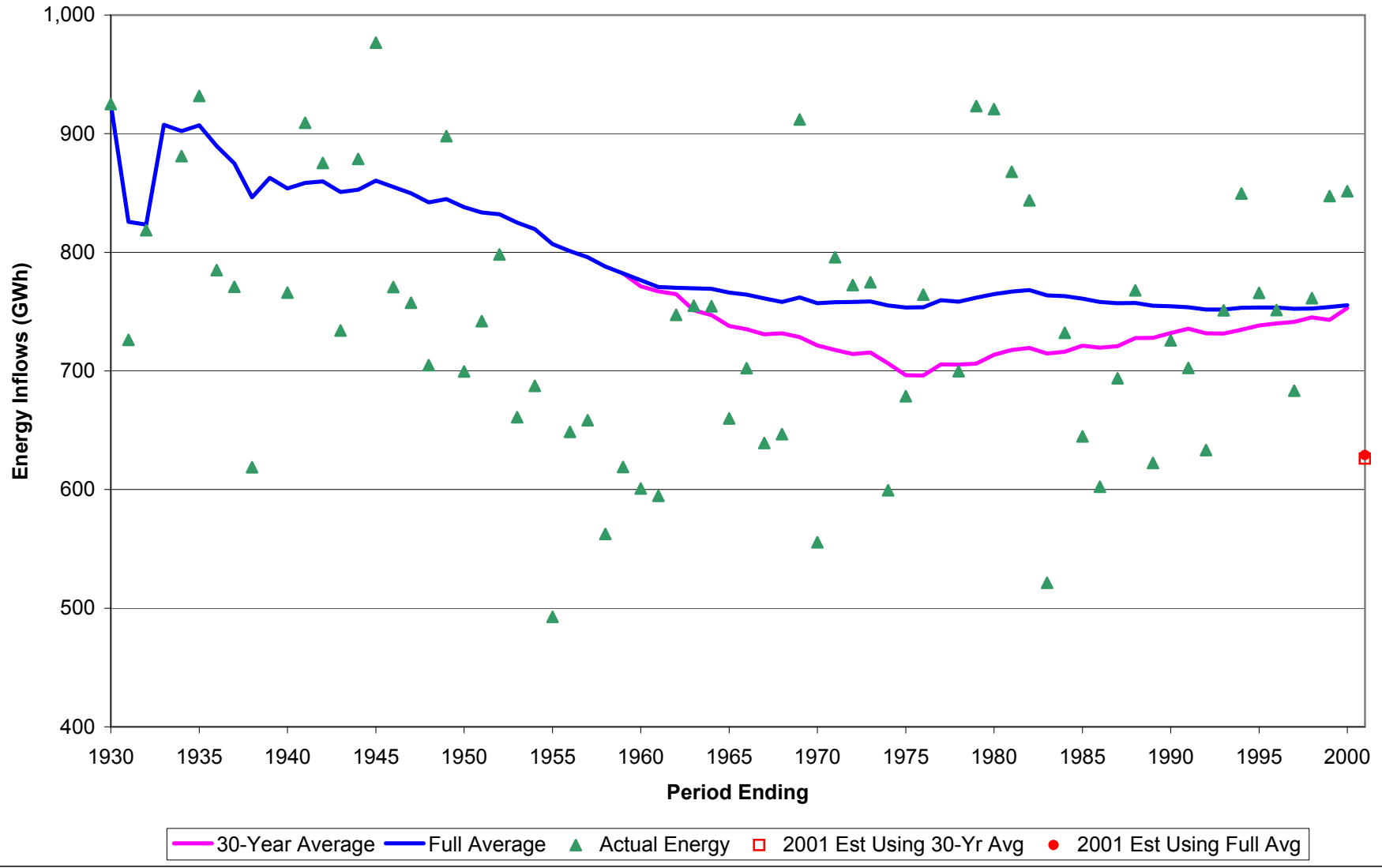


Figure 2: Hydrology Calculation Comparison: Hinds Lake

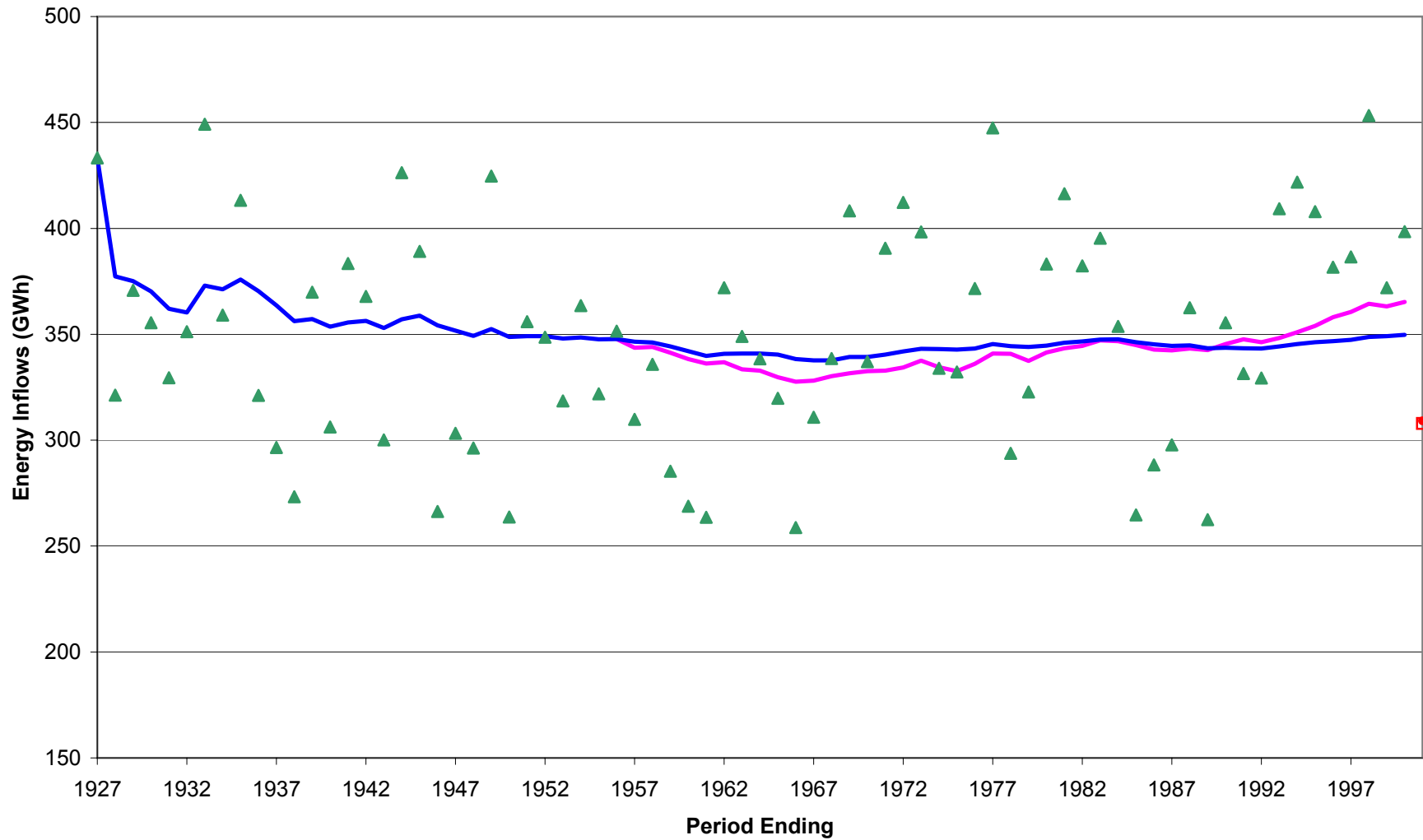


Figure 3: Hydrology Calculation Comparison: Upper Salmon

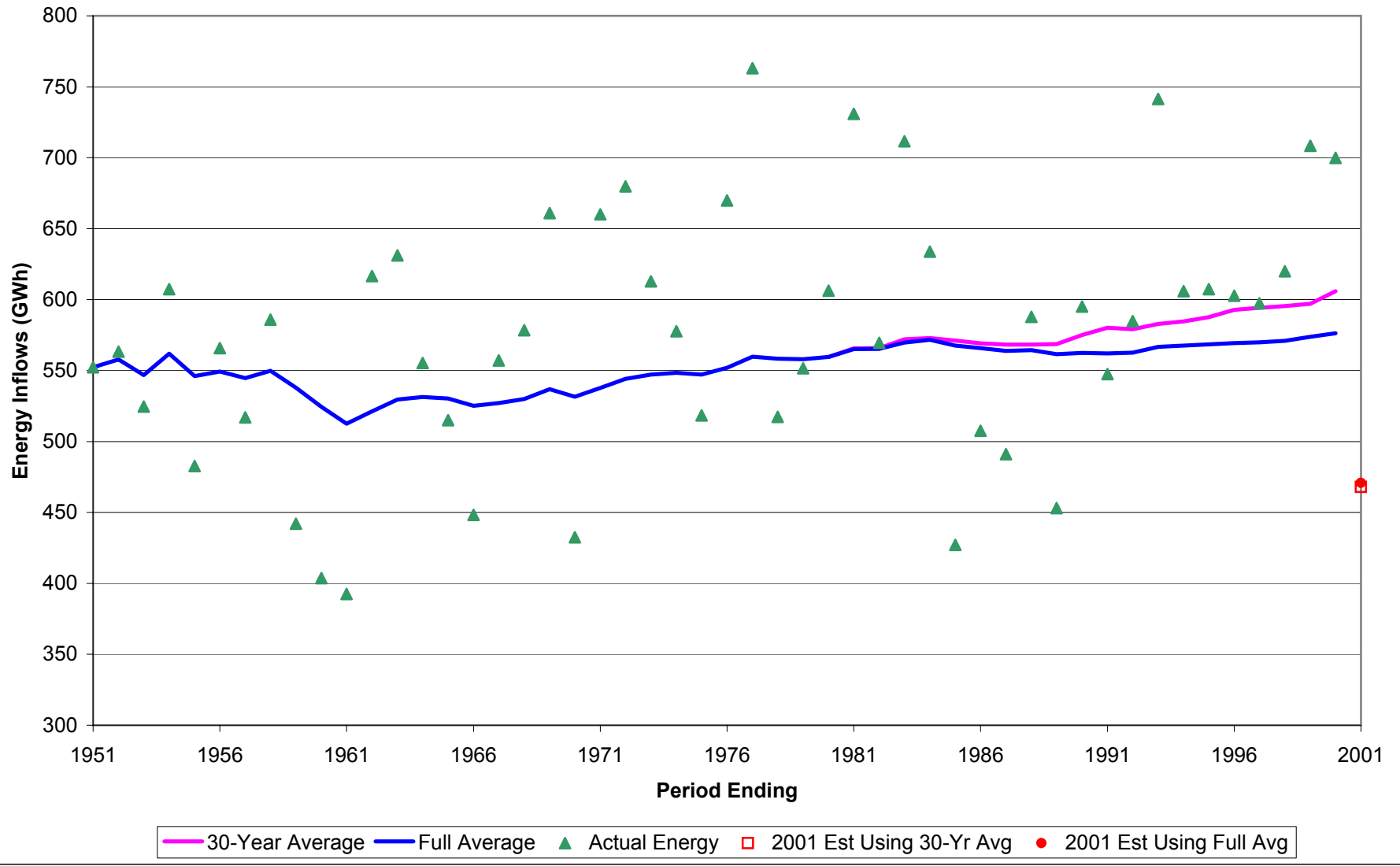


Figure 4: Hydrology Calculation Comparison: Bay D'Espoir

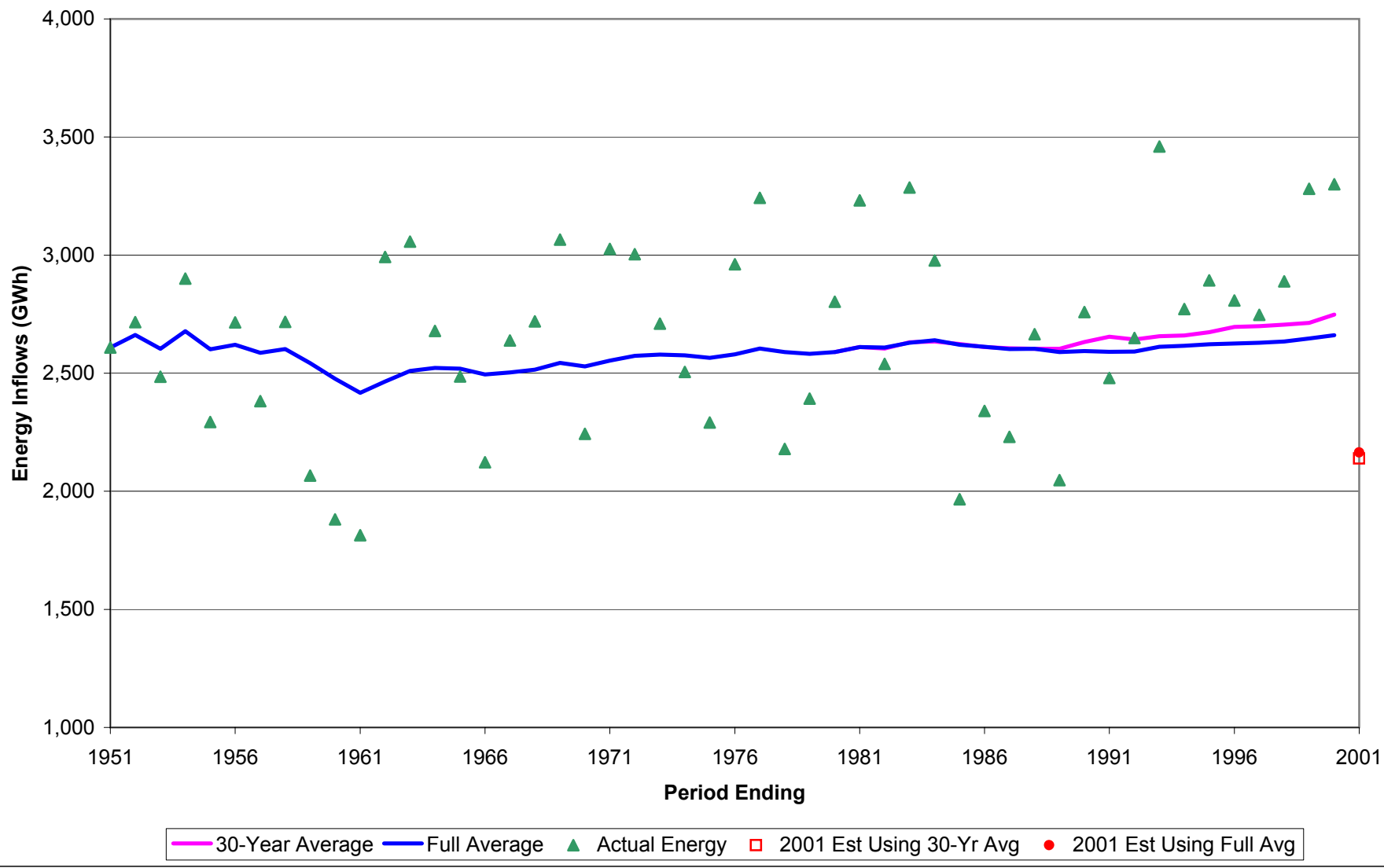


Figure 5: Hydrology Calculation Comparison: Cat Arm

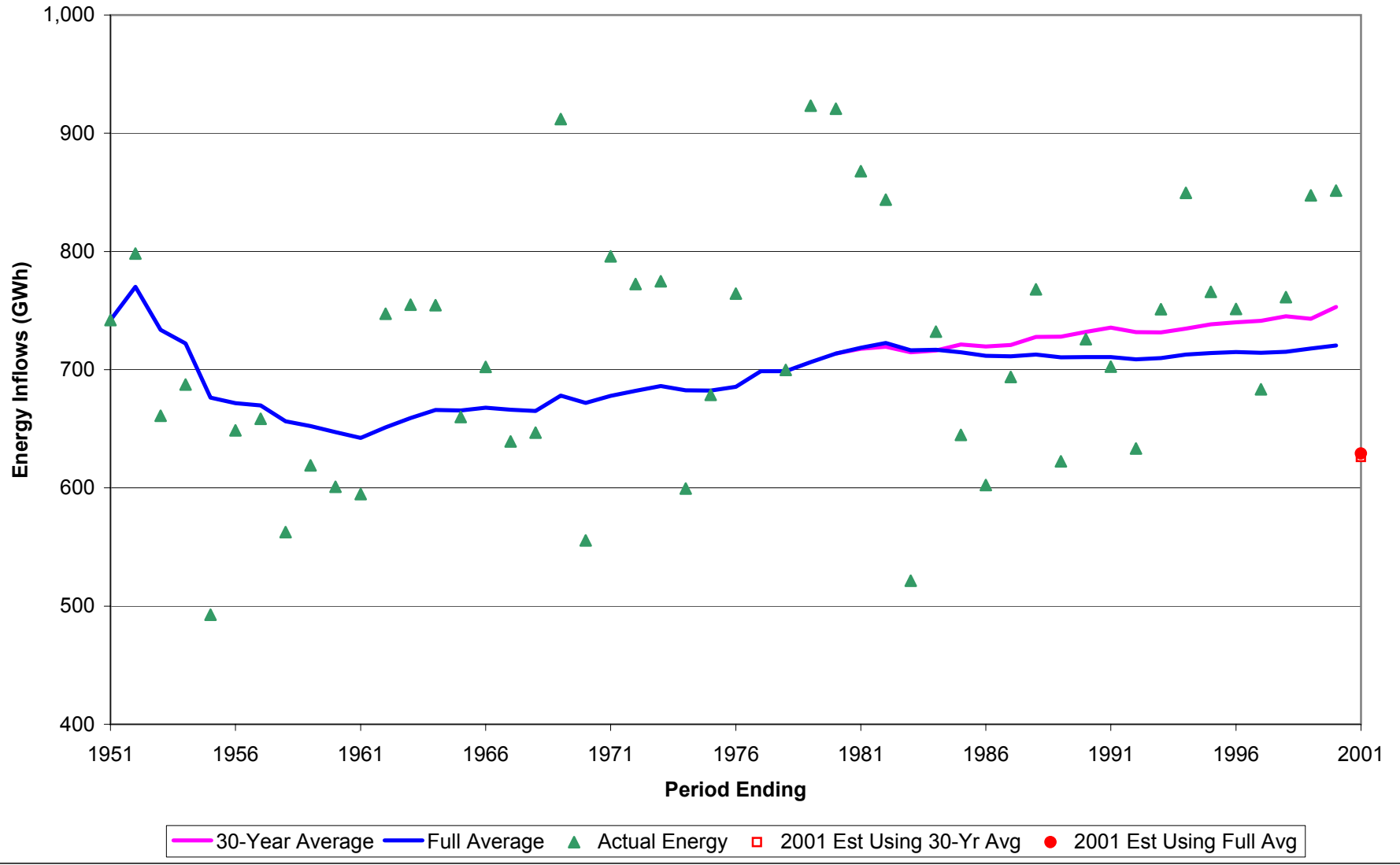


Figure 6: Hydrology Calculation Comparison: Hinds Lake

