USACE SAVANNAH DISTRICT COMP STUDY UPDATE

Southeastern Federal Power Alliance Meeting

April 17th 2018

Savannah DISTRICT

US Army Corps of Engineers
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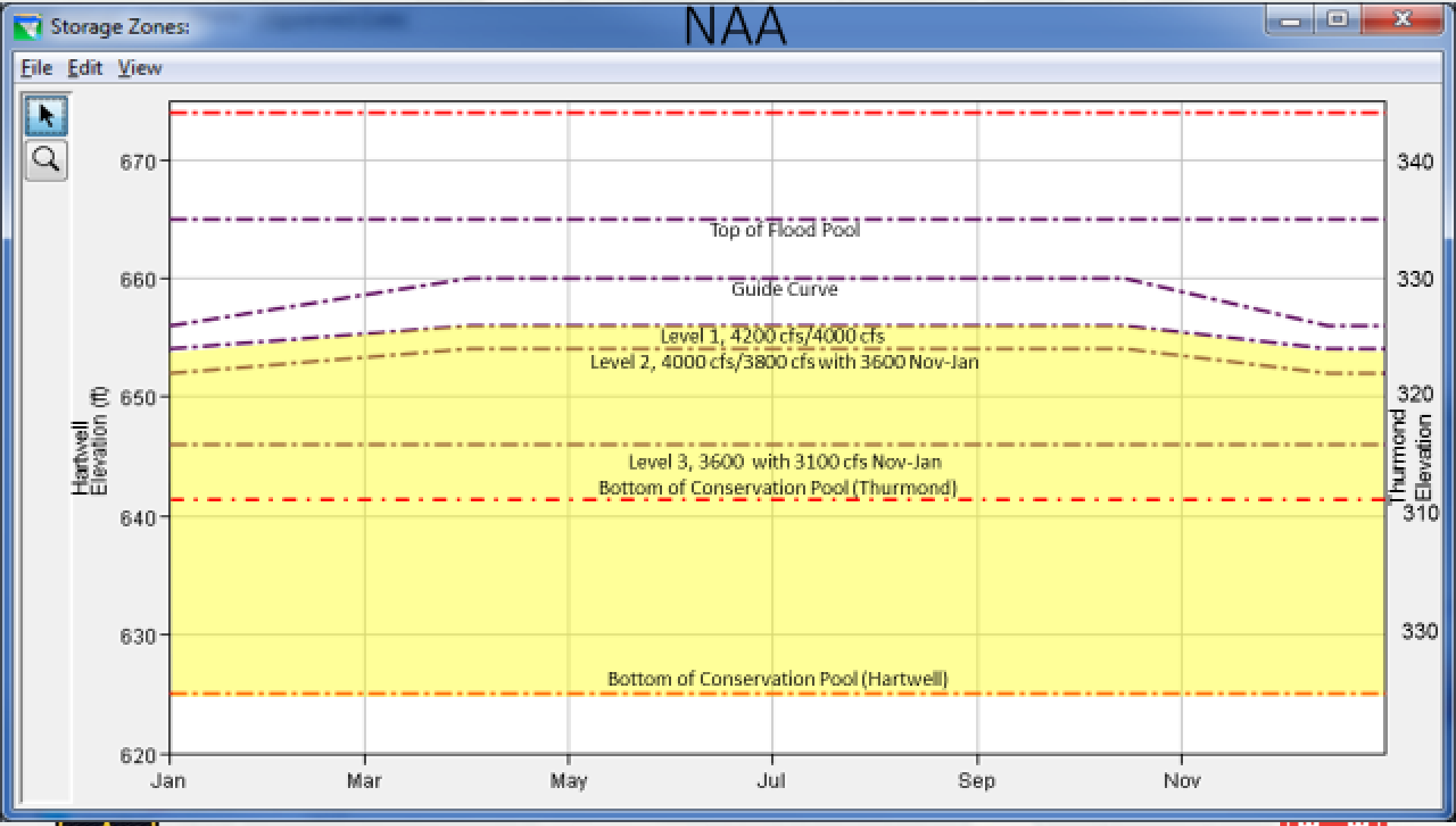
COMP STUDY ALTERNATIVES

Level	NAA	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
1	Thurmond target 4200 cfs if BR>10% Qin Thurmond target 4000 cfs if BR<=10% Qin	Thurmond target 3800 cfs (Feb - Apr) Thurmond target 3500 (May - Jan)	Thurmond target 4000 cfs at 326	Dry Ecosystem Flow Prescription Thurmond target 4200 cfs if BR >10% Qin Thurmond target 4000 cfs if BR<=10% Qin	Thurmond target 3600 cfs Thurmond target 3100 cfs (Nov - Jan)	Modified Dry Ecosystem Flow Prescription Thurmond target 4000 cfs Thurmond Max 2800 (Nov - Jan)	Modified Dry Ecosystem Flow Prescription Thurmond target 6875 cfs Thurmond Max 2800 (Nov - Jan)
2	Thurmond target 4000 cfs if BR >10% Qin Thurmond target 3800 cfs if BR<=10% Qin Thurmond target 3600 cfs (Nov - Jan)	Thurmond target 2800 (Feb - Apr) Thurmond target 2500 (May - Jan)	Thurmond target 3800 cfs at 324 Thurmond target 3600 cfs (Nov - Jan)	Drought Ecosystem Flow Prescription Thurmond target 4000 cfs if BR>10% Qin Thurmond target 3800 cfs if BR<=10% Qin Thurmond target 3600 cfs (Nov - Jan)	Thurmond target 3600 cfs Thurmond target 3100 cfs (Nov - Jan)	Modified Drought Ecosystem Flow Prescription Thurmond target 3800 cfs Thurmond Max 2800 (Nov - Jan)	Morified Drought Ecosystem Flow Prescription Thurmond target 5875 cfs Thurmond Max 2800 (Nov - Jan)
3	Thurmond target 3800 cfs Thurmond target 3100 cfs Nov - Jan	Thurmond target 1800 (Feb - Apr) Thurmond target 1500 May - Jan	Thurmond target 3600 cfs at 322 Thurmond target 3100 cfs Nov - Jan	Drought Ecosystem Flow Prescription Thurmond target 3800 cfs Thurmond target 3100 cfs Nov - Jan	Thurmond target 3600 cfs Thurmond target 3100 cfs Nov - Jan	Modified Drought Ecosystem Flow Prescription Thurmond target 3600 cfs Thurmond Max 2800 (Nov - Jan)	Morified Drought Ecosystem Flow Prescription Thurmond target 4875 cfs Thurmond Max 2800 (Nov - Jan)
4	Thurmond target 3600 cfs Thurmond target 3100 cfs	Thurmond target 3600 cfs Thurmond target 3100 cfs	Thurmond target 3600 cfs Thurmond target 3100 cfs	Thurmond target 3600 cfs Thurmond target 3100 cfs	Thurmond target 3600 cfs Thurmond target 3100 cfs	Thurmond target 3600 cfs Thurmond target 2800 (Nov - Jan)	Thurmond target 3600 cfs Thurmond target 2800 (Nov - Jan)

10% Qin is defined as the 10th percentile flow at the Broad River (BR) near Bell piedmont reference streamgage for reservoir inflow
Alt 1 Extreme Flow Reductions (Levels 1,2,3)
Alt 2, NAA with Level 3 raised to 322
Alt 3, NAA Level 3 at 646 Environmental Rules for Levels 0 thru 3
Alt 4, NAA with Level 3 at 646, 3600 cfs Spec flow in Levels 1 and below with 3100 Nov thru Jan in Levels 1and below
Alts 5, Similar to Alt 3 but removed Environmental rules when not in drought.
Alts 5, adaptive 2800 cfs Max Target at JST (Levels 1, 2, 3)
Alts 5, added SRS min 3600 cfs at Waynesboro
Alts 5, Rate of Rise/Rate of Fall 500 cfs/day at flows below 3600 cfs (applies to Thurmonds Outflow)
Alts 5, Millhaven Min 3400 cfs except 2000 cfs 15Oct - 31Jan. 5000 cfs pulse on 1st and 15th of each month, with (4 day 12000 cfs pulse 15 May in Level 1 only)
Alts 5, Shoals Min 1500 cfs, 2000 cfs in Feb and March
Alt 6, Alt 5 with increased Drought Trigger Flow Restrictions targeting a minumum of 10% Conservation Storage Remaining

NAA



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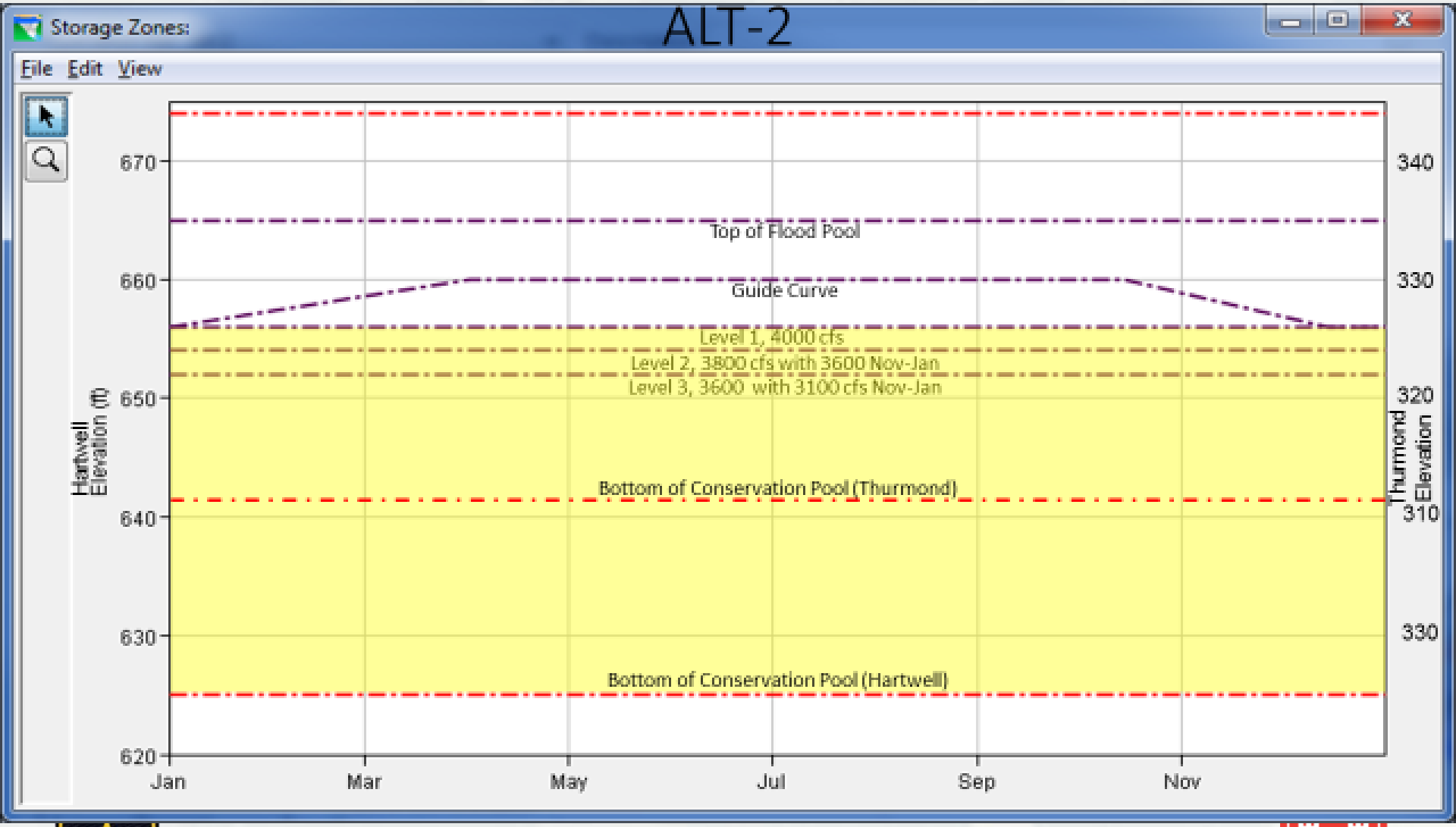
ALT-2



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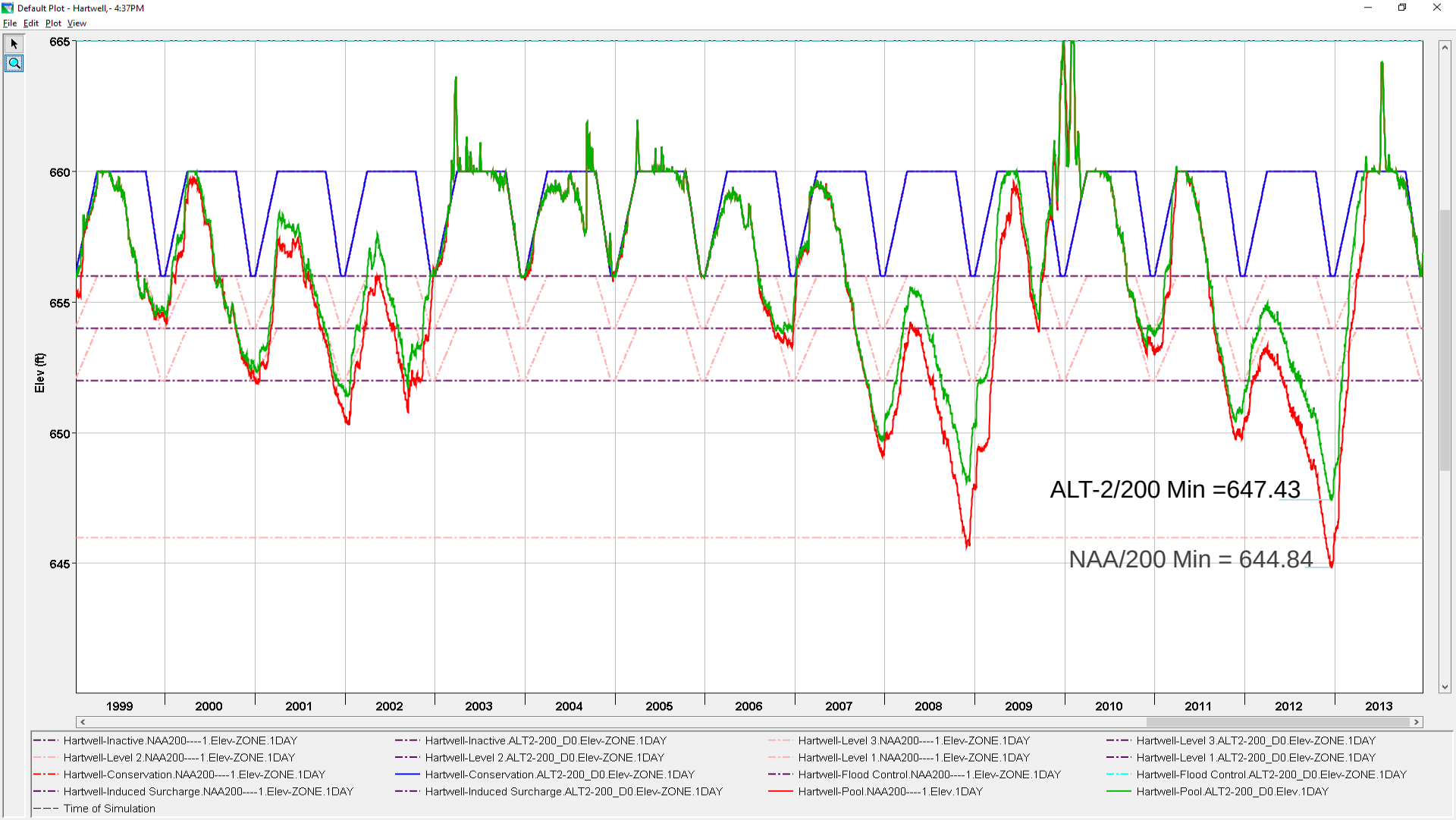
ALTERNATIVE COMPARISON



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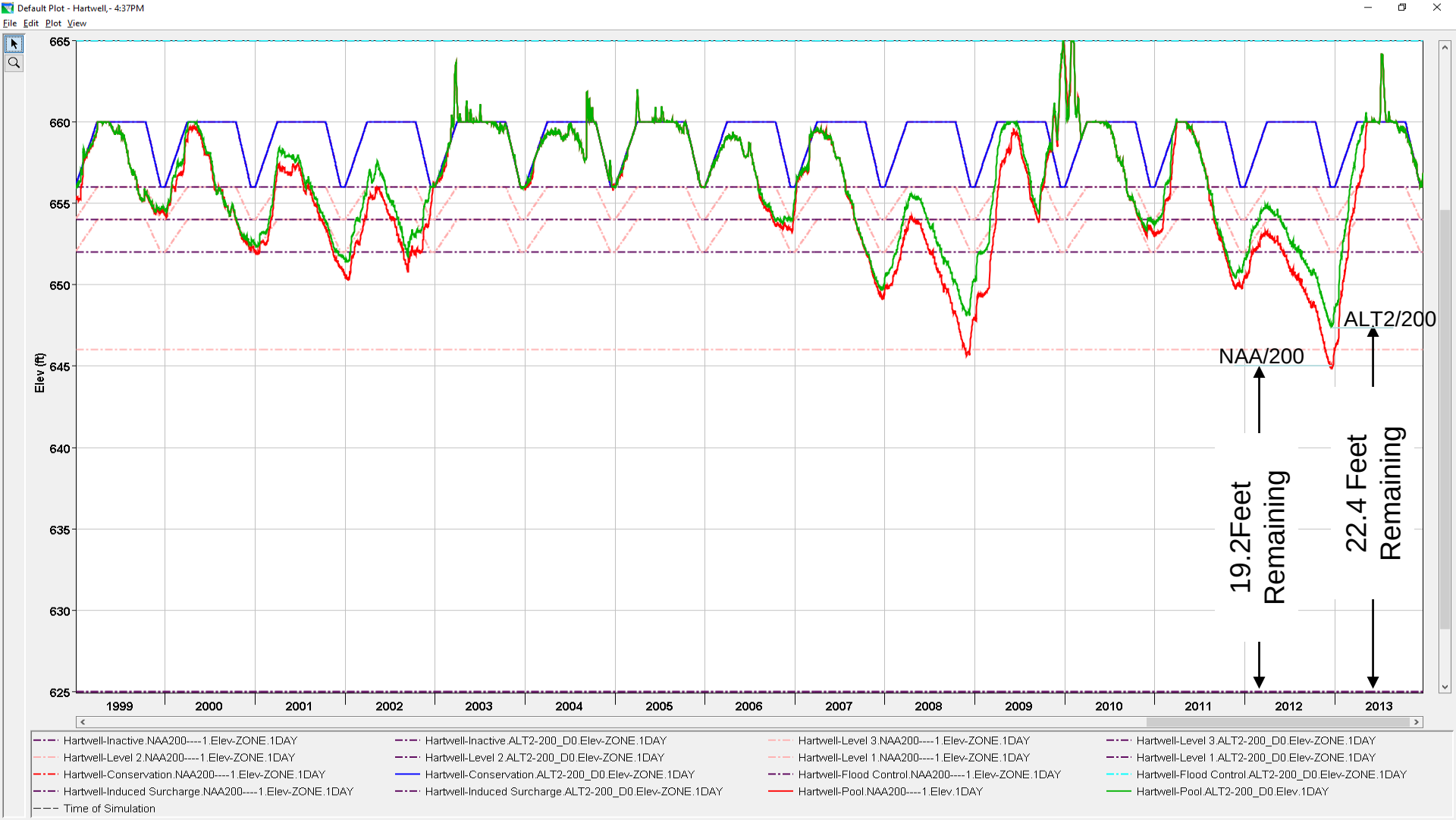
ALTERNATIVE COMPARISON



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Hydropower Evaluation/Comparison

Draft

USACE Hydropower Value (01/01/1999 - 12/26/2013)																					
	Hartwell Generation (MW-Hours)	Russell Generation (MW-Hours)	Thurmond Generation (MW-Hours)	USACE System Energy Contracted (MW-Hours)	USACE System Energy Generated (MW-Hours)	USACE SYS Contract Energy Generated (MW-Hours)	USACE System Surplus Energy Generated (MW-Hours)	USACE System SHORT Energy Purchased (MW-Hours)	USACE System Pumping Total (Unit-Hours) (MW-HR)	USACE System Contract Energy Generated (Dollars)	USACE System Surplus Energy Generated (Dollars)	USACE System SHORT Energy Purchased (Dollars)	USACE System Pumping Costs (Dollars)	USACE System ENERGY Value (Dollars)	USACE System ENERGY Value Delta NAA (Dollars)	USACE Marketed Capacity Value (Dollars)	USACE System Capacity Shortage (Dollars)	USACE System Capacity Value (Dollars)	USACE System Capacity Value Delta NAA (Dollars)	USACE System Hydropower Value (Dollars)	USACE System Hydropower Value Delta NAA (Dollars)
NAA_200	5,754,518	10,188,236	8,062,151	20,571,477	24,004,905	20,399,181	3,511,970	93,755	61,486	251,521,896	43,302,586	6,540,754	2,097,997	286,185,731	$0	33,184,334	26,647,160	6,537,173	$0	$292,722,904	$0
ALT2_200	5,777,123	10,412,263	8,114,120	20,571,477	24,303,506	20,418,744	3,800,778	83,984	64,401	251,763,111	46,863,596	5,855,209	2,210,391	290,561,107	$4,375,376	33,184,334	28,280,130	4,904,204	$(1,632,970)	$295,465,311	$2,742,407
NAA	5,759,888	10,267,160	8,026,197	20,571,477	24,053,245	20,378,807	3,572,102	102,337	62,608	251,270,685	44,044,013	7,144,559	2,139,752	286,030,387	$(155,343)	33,184,334	26,647,160	6,537,173	$0	$292,567,561	$(155,343)
ALT1	5,789,061	10,560,879	8,072,243	20,571,477	24,422,183	20,321,397	3,968,120	132,666	66,568	250,562,828	48,926,922	10,495,861	2,269,353	286,724,536	$538,805	33,184,334	29,947,772	3,236,562	$(3,300,612)	$289,961,098	$(2,761,806)
ALT2	5,776,980	10,442,100	8,064,523	20,571,477	24,283,603	20,370,563	3,806,655	106,385	64,780	251,169,041	46,936,052	7,570,469	2,223,886	288,310,738	$2,125,007	33,184,334	28,680,937	4,503,396	$(2,033,777)	$292,814,134	$91,230
ALT3	5,701,708	10,374,002	7,954,532	20,571,477	24,030,242	20,377,771	3,551,280	101,190	62,467	251,257,921	43,787,288	7,873,266	2,148,046	285,023,898	$(1,161,833)	33,184,334	27,463,275	5,721,059	$(816,114)	$290,744,957	$(1,977,947)
ALT4	5,778,431	10,451,272	8,038,329	20,571,477	24,268,033	20,403,238	3,773,049	91,746	64,791	251,571,924	46,521,689	7,371,142	2,214,751	288,507,720	$2,321,989	33,184,334	28,600,321	4,584,013	$(1,953,161)	$293,091,733	$368,829
ALT5	5,756,348	10,190,176	8,037,956	20,571,477	23,984,480	20,341,864	3,520,245	122,371	61,378	250,815,183	43,404,627	9,475,501	2,097,394	282,646,916	$(3,538,815)	33,184,334	26,308,792	6,875,542	$338,369	$289,522,458	$(3,200,446)
ALT6	5,626,242	9,783,182	7,857,172	20,571,477	23,266,595	20,438,501	2,753,810	74,284	54,934	252,006,722	33,954,483	5,600,400	1,893,766	278,467,039	$(7,718,692)	33,184,334	25,511,184	7,673,150	$1,135,977	$286,140,189	$(6,582,715)

ALT2_200 had the highest hydropower benefits, even greater than NAA_200

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How are alternatives evaluated?

- Grouped 50+ metrics into groups by project purpose
  - Flood Risk Management
  - Recreation
  - Fish & Wildlife
  - Hydropower
  - Water Quality
  - Water Supply
  - Navigation
- For each project purpose, ranked each alternative's benefits over the existing plan
- Each project purpose has <u>equal</u> weighting
- Selected alternative has highest cumulative benefits

Progress on Drought Plan

USACE reconfigured and re-ran the RES-SIM model due to issues/comments. (Complete)

GA DNR then ran the RES-SIM outflows thru their RIV1 model (Complete)

SC DNR then ran the RIV1 outflows thru the harbor model (Complete)

1. Re-evaluation of impacts for each “Project Purpose”
2. Selection of Alternative and re-writing of report
3. Division approves Final Report
4. Signing of “Finding of No Significant Impacts”

(Expect to wrap up study by Oct 1)