

## **Appendix Tables**

**Table 1** Characteristics of hydropower plants located on Lancang River

**Table 2** Detailed information of 3 cases

**Table 3** Serial and parallel results in multi-core environment for the given configurations

**Table 4** Execution time for threshold value tests in 3 cases within different cores for Configuration 1

**Table 1** Characteristics of hydropower plants located on Lancang River

Reservoir	Regulating Capability	Normal Forebay Elevation [m]	Dead Forebay Elevation [m]	Generation Efficiency	Installed Capacity [MW]
Gushui	Yearly	2340.00	2261.00	8.4	2200
Xiaowan	Multiyearly	1240.00	1160.00	9.0	4200
Manwan	Seasonally	994.00	982.00	8.5	1670
Dachaoshan	Seasonally	899.00	882.00	8.5	1350
Nuozhadu	Multiyearly	812.00	765.00	9.0	5850
Jinghong	Seasonally	602.00	591.00	8.5	1750

**Table 2** Detailed information of 3 cases

Cases	Number of Hydropower Plants	Hydropower Plants	Total Installed Capacity [MW]
Case 1	4	Gushui, Xiaowan, Manwan and Dachaoshan	9940
Case 2	5	Gushui, Xiaowan, Manwan, Dachaoshan and Nuozhadu	15790
Case 3	6	Gushui, Xiaowan, Manwan, Dachaoshan, Nuozhadu and Jinghong	17540

**Table 3** Serial and parallel results in multi-core environment for the given configurations

Hydropower Systems	Generation Energy [10 <sup>4</sup> MWh]	Configuration 1					Configuration 2				
		Cores	Execution Time [s]		$S_p$	$E_p$	Cores	Execution Time [s]		$S_p$	$E_p$
			DDDP	PDDDP				DDDP	PDDDP		
Case 1 (4-plant)	4862.667	2	42.6	23.2	1.84	0.92	2	34.2	18.2	1.88	0.94
		4	42.6	14.3	2.98	0.74	4	34.2	10.6	3.24	0.81
		8	42.6	9.1	4.68	0.59	4	34.2	10.6	3.24	0.81
Case 2 (5-plant)	7302.844	2	523	279	1.87	0.94	2	478	249	1.92	0.96
		4	523	161	3.25	0.81	4	478	139	3.45	0.86
		8	523	99	5.28	0.66	4	478	139	3.45	0.86
Case 3 (6-plant)	8136.837	2	6346	3275	1.94	0.97	2	5788	2953	1.96	0.98
		4	6346	1783	3.56	0.89	4	5788	1573	3.68	0.92
		8	6346	1043	6.08	0.76	4	5788	1573	3.68	0.92

**Table 4** Execution time for threshold value tests in 3 cases within different cores for Configuration 1

Cases	Number of Decisions	Cores	Threshold	100	5000	$1 \times 10^4$	$2 \times 10^4$	$4 \times 10^4$	$10 \times 10^4$
Case 1	65,772	2		31.3	24.4	23.3	23.1	23.2	42.8
		4	Execution Time [s]	18.1	14.8	14.4	15.2	23.9	42.7
		8		12.3	9.1	9.1	15.3	23.7	42.6
			Threshold	500	$5 \times 10^4$	$10 \times 10^4$	$15 \times 10^4$	$30 \times 10^4$	$100 \times 10^4$
		2		290	281	278	280	279	523
		4	Execution Time [s]	169	163	162	161	283	527
Case 2	590,970	8		112	109	99	163	284	524
			Threshold	$1 \times 10^4$	$20 \times 10^4$	$80 \times 10^4$	$150 \times 10^4$	$300 \times 10^4$	$600 \times 10^4$
		2		3324	3297	3288	3283	3275	6351
		4	Execution Time [s]	1786	1708	1691	1783	3280	6350
		8		1192	1093	1043	1785	3277	6353
			Threshold	$1 \times 10^4$	$20 \times 10^4$	$80 \times 10^4$	$150 \times 10^4$	$300 \times 10^4$	$600 \times 10^4$
Case 3	5,315,868	2		3324	3297	3288	3283	3275	6351
		4	Execution Time [s]	1786	1708	1691	1783	3280	6350
		8		1192	1093	1043	1785	3277	6353
			Threshold	$1 \times 10^4$	$20 \times 10^4$	$80 \times 10^4$	$150 \times 10^4$	$300 \times 10^4$	$600 \times 10^4$
		2		3324	3297	3288	3283	3275	6351
		4	Execution Time [s]	1786	1708	1691	1783	3280	6350